

A CULTURAL RESOURCES-ENVIRONMENTAL ASSESSMENT AND
MANAGEMENT PLAN FOR THE PROPOSED HYDRO RESOURCES, INC.,
CROWNPOINT LEASE IN THE EASTERN NAVAJO DISTRICT, NEW MEXICO



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A REPORT PREPARED BY CIBOLA RESEARCH CONSULTANTS
FOR HRI, INC., A SUBSIDIARY OF
URANIUM RESOURCES, INC.

BY MICHAEL P. MARSHALL
DIRECTOR OF ARCHAEOLOGICAL PROJECTS
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SEPTEMBER 15, 1992

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REPORT NO. 57

Submitted to Mark Pelizza
Environmental Planner, Hydro Resources, Inc.

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ABSTRACT

This report presents a preliminary cultural resource evaluation and management plan for the proposed Hydro Resources, Inc., Crownpoint mining lease on Navajo Trust lands in the Crownpoint Chapter of the Eastern Navajo Agency, McKinley County, New Mexico. The lease encompasses 800 acres located in the immediate area of Crownpoint, New Mexico. The lease area consists of the W 1/2 of Section 29 and the S 1/2 of Section 19 in Township 17 North, Range 12 West, and the NE 1/4 of Section 25 in Township 17 North, Range 13 West.

The proposed development of an in situ solution uranium mine would involve the construction of a series of injection-extraction wells and a pipeline gathering system. The cultural resources-environmental assessment presented in this report includes an evaluation of the cultural resources known to exist in the lease area and outlines a management plan designed to prevent adverse impact to the cultural resources during project development. This report is a preliminary planning document for cultural resource management in the lease area. It is not a request for clearance. It is probable that the mine would be developed at intervals over a period of years. Following the completion of a Class III archaeological survey and a traditional sites inventory, specific management plans for each development phase would be formulated and submitted for review to the required agencies.

INTRODUCTION

This report provides a cultural resources-environmental assessment for the proposed HRI Crownpoint mining lease. The lease is located in the immediate area of Crownpoint, New Mexico. The objective of this report is to evaluate the nature of the archaeological, historical, and traditional cultural properties within the lease area and to develop a preliminary management plan that ensures resource preservation.

The HRI Crownpoint lease is an 800-acre tract located in three parcels within and adjacent to Crownpoint, New Mexico (Figures 1 and 2). The proposed in situ solution uranium mine would involve the development of injection-extraction wells, access roads, and a pipeline gathering system. The pipeline system would transport the material to a processing facility at the existing HRI plant west of Crownpoint. The placement of the various wells, roads, and pipelines within the Crownpoint lease area is very flexible, and the system can be planned in such a manner to avoid adverse impact, both direct and indirect, to the cultural resources of the area.

The information presented in this report includes a description of the known cultural resources in the Crownpoint lease area and an outline of a cultural resource management plan for the project. Information regarding the culture history and potential research considerations is also presented. A management plan describing the proposed HRI mining project in terms of potential impact on the cultural resources is also discussed. The management section of the report includes discussion of the proposed Class III cultural resource inventory, information on the archaeological and traditional site protection plan, and considerations of indirect impact. Information concerning Kin Ya'a, the State and National Register protection site located adjacent to the lease, is also included. In addition, statements are made regarding the proposed treatment of sacred and traditional sites and human burials and graves.

It is the purpose of this report to serve as a preliminary planning document for cultural resource and traditional site management in the HRI Crownpoint lease area. It is probable that the proposed mine would be developed at intervals over a period of years. Specific management plans that define precise site boundaries and avoidance procedures will be developed for each proposed mining project. This inventory will be completed at a later date as part of an environmental clearance document which will be submitted to the Navajo Nation Historic Preservation Department, the Bureau of Indian Affairs, and other concerned agencies prior to any work in the lease area.

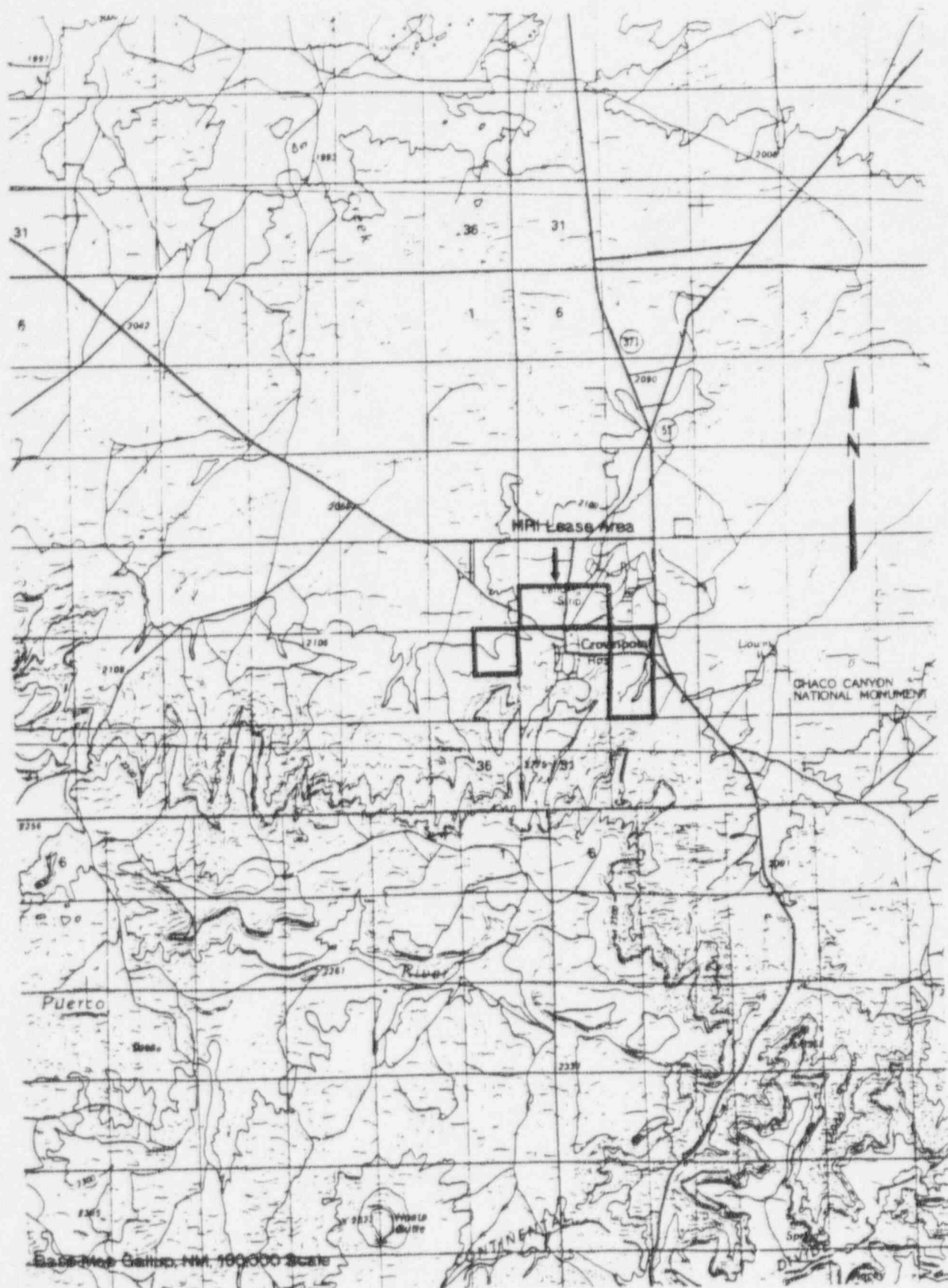
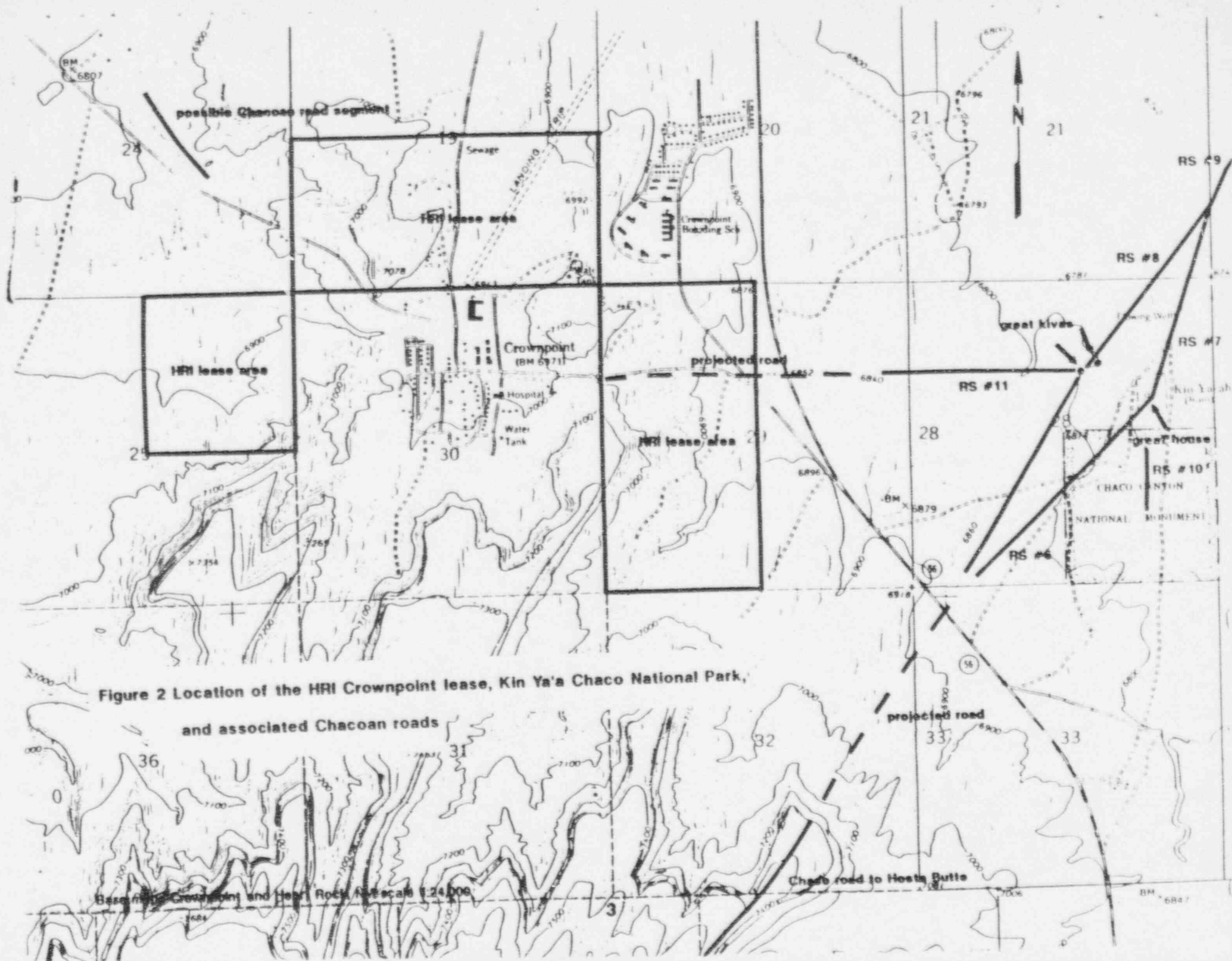


Figure 1 Location of the HRI Crownpoint Lease



THE CULTURAL RESOURCE MANAGEMENT PLAN

A cultural resource management plan for the HRI Crownpoint lease is outlined in the following text. This outline describes the procedures that will be taken to ensure the preservation of the important cultural antiquities, historical properties, and sacred-traditional sites within the lease area. A policy of total avoidance of all significant cultural manifestations is to be followed during the project development. It is the objective of the HRI cultural resource management plan to complete the development of the well field, access network, and gathering-processing system without adverse impact to the cultural resources. This objective is possible given the locational flexibility of the proposed mining development.

All cultural resources identified during the Class III archaeological and sacred-traditional site inventory will be recognized as protection areas. The boundaries of each resource area will be recognized as exclusion zones from the mining development. All well pads, access roads, pipelines and other construction facilities will be developed outside the exclusion areas. Any subsurface disturbance will be preceded by archaeological testing, and an archaeological monitor will be present during construction and reclamation activities.

Only the procedural outlines for the cultural resource management plan are defined in this assessment. Specific management plans will be developed following the Class III inventory, and these plans will be submitted for review to the Bureau of Indian Affairs and the Navajo Nation Historic Preservation Department. These plans will identify all cultural resources in the lease area, designate protection areas, and outline the specific avoidance procedures.

Information regarding the cultural resource management plan presented in this assessment includes a description of the mining project in terms of its potential impact on the cultural resources, an outline of the site protection plan, considerations of indirect impact, the relationship of the project to the adjacent Kin Ya'a - National Park Service property, and statements regarding the treatment of sacred sites, traditional cultural properties, and human burials and gravesites.

Description of the Proposed HRI In Situ Mining Project

The purpose of this assessment is to outline the procedures for cultural resource management and preservation within the Hydro Resources Incorporated Crownpoint lease area near Crownpoint, New Mexico. A cultural resource management plan that is carefully coordinated with the project development is proposed in order to prevent adverse impact. The principal objective of the management plan is to avoid all cultural resources. Given the nature of the project and its locational flexibility, this objective is feasible.

In situ mining involves the removal of uranium oxide in solution and is accomplished by the construction of a series of injection-extraction and monitoring wells. This type of mining involves the development of wells and a pipeline gathering system which has a limited impact to the land surface. The types of subsurface disturbance that are related to the project include well pad drilling activities and the excavation of well mud pits (located at about 30 to 50 m intervals), road access development, and the construction of a pipeline gathering system. The placement of all these facilities is very flexible, and each can be located in a manner that avoids all known cultural resources.

Access to the well pad sites in the open environment of the Crownpoint lease area can in many instances be made without substantial subsurface road construction. All access roads will be located in order to avoid the cultural resources. All areas along access roads that require road

work resulting in subsurface disturbance will receive archaeological testing and monitoring before and during construction. The leveling of well pads (approximately 30 by 30 m) and the excavation of well mud pits (5 by 10 m) will also involve archaeological monitoring and testing to ensure that there is no adverse impact to buried cultural resources.

The flexibility of the location of the pipeline gathering system means that all known cultural resources can be avoided. Most of the pipeline gathering system will probably be built above-ground, and subsurface lines will appear in only limited areas, such as road crossings. Since buried cultural resources may occur in the area, any subsurface lines will be archaeologically tested prior to development and monitored during construction.

The boundaries and location of all well pads, access roads, and pipelines will be inspected by the archaeological monitor prior to development and will be flagged during development and use. All construction and use activity will be confined within flagged boundaries. All access roads are to be flagged. White flagging will be used to promote nighttime visibility. No construction personnel will be allowed on site until they have received a briefing regarding the archaeological protection procedures.

The Class III Cultural Resource Inventory

A systematic Class III archaeological survey and study of sacred-traditional cultural properties in the HRI Crownpoint lease area will be completed prior to any use or development. A comprehensive cultural resources report, which describes the cultural properties present in the study area and which includes specific recommendations for the management and preservation of the resources, will be submitted to the Navajo Nation Historic Preservation Department, and other agencies as required, for evaluation and comment prior to the development phase.

Archaeological survey and report preparations will follow the standards outlined in the "Interim Fieldwork and Report Standards and Guidelines of the Navajo Nation Historic Preservation Department" (August 1, 1991). The entire Crownpoint lease area will be surveyed, including the various tracts that have been the subject of previous documentation (Figures 3 and 4; Clifton 1980; Copeland 1989, 1990; Davis 1976; Hogan et al. 1981; Judges 1982; Skinner 1989; Strnad 1981). A Class III survey of the previously studied tracts is required to determine the precise site boundaries and current status of the documented sites. A re-evaluation of each previously documented site will also be made, and any additional information obtained will be appended to the site records.

Descriptions of the cultural resources will follow the format detailed in the Navajo Nation site survey and management form for sites and isolated occurrences. This description will include detailed information on site locations, boundaries, land status, and a complete description with maps and photographs. Each site will also be evaluated with respect to its significance in terms of the National Register (36 CFR 60.4), the Archeological Resources Protection Act (43 CFR 7.3), and the American Indian Religious Freedom Act (AIRFA). All sites will be recorded in the computerized data base of the New Mexico State Archeological Records Center and will receive "LA" site numbers. Survey methods will entail a pedestrian search of the study area with transects spaced 10 to 15 m apart. All site dimensions will be measured in metric with tape or survey instruments. No artifact collections will be made. All artifact samples will be documented in the field.

All cultural manifestations within the lease area are to be documented systematically. These manifestations include all historical and modern sites with the exception of locations presently occupied. All sites currently in use will be briefly described but will not be photographed, mapped, or recorded out of respect for the privacy of the occupants. An attempt will be made to

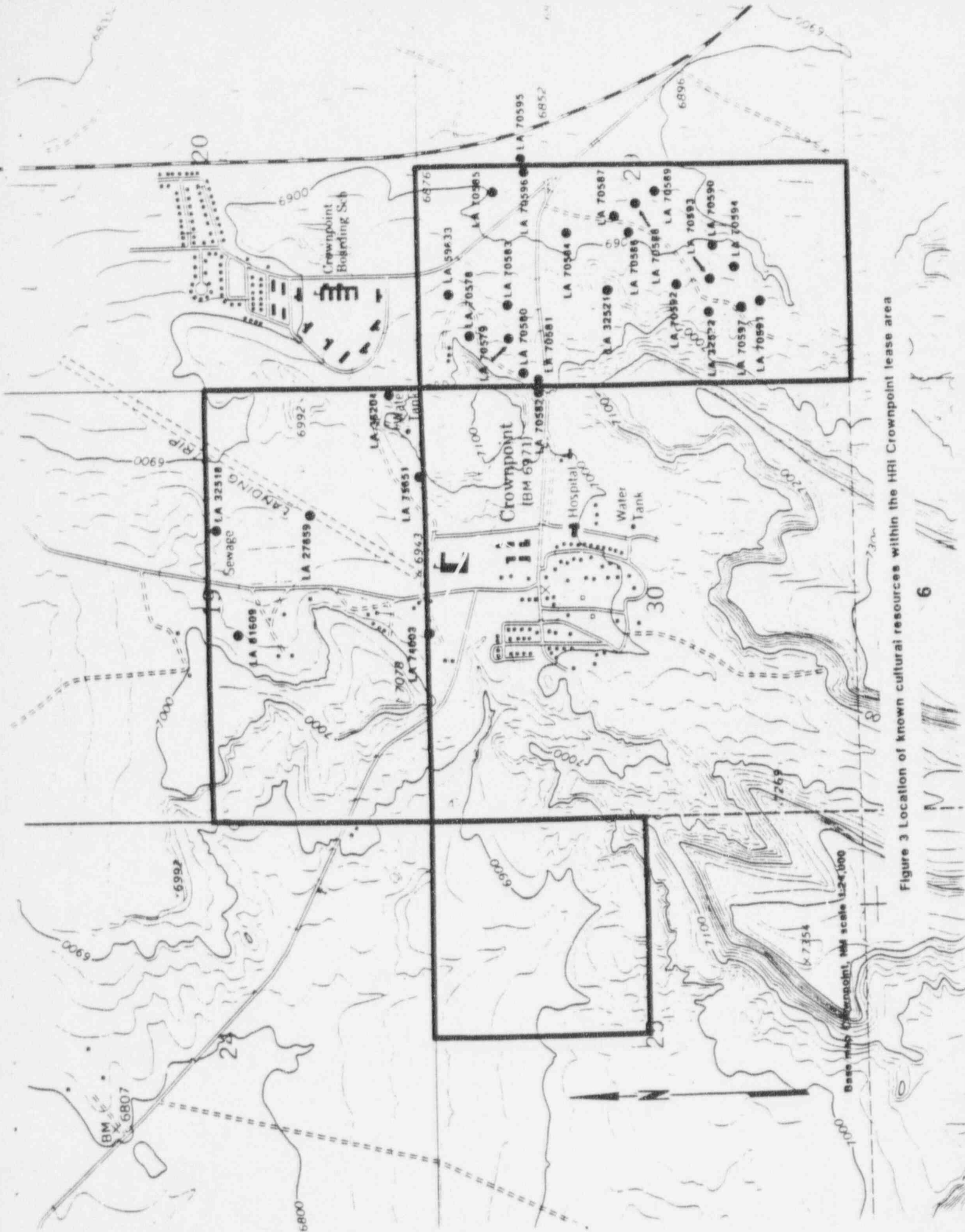
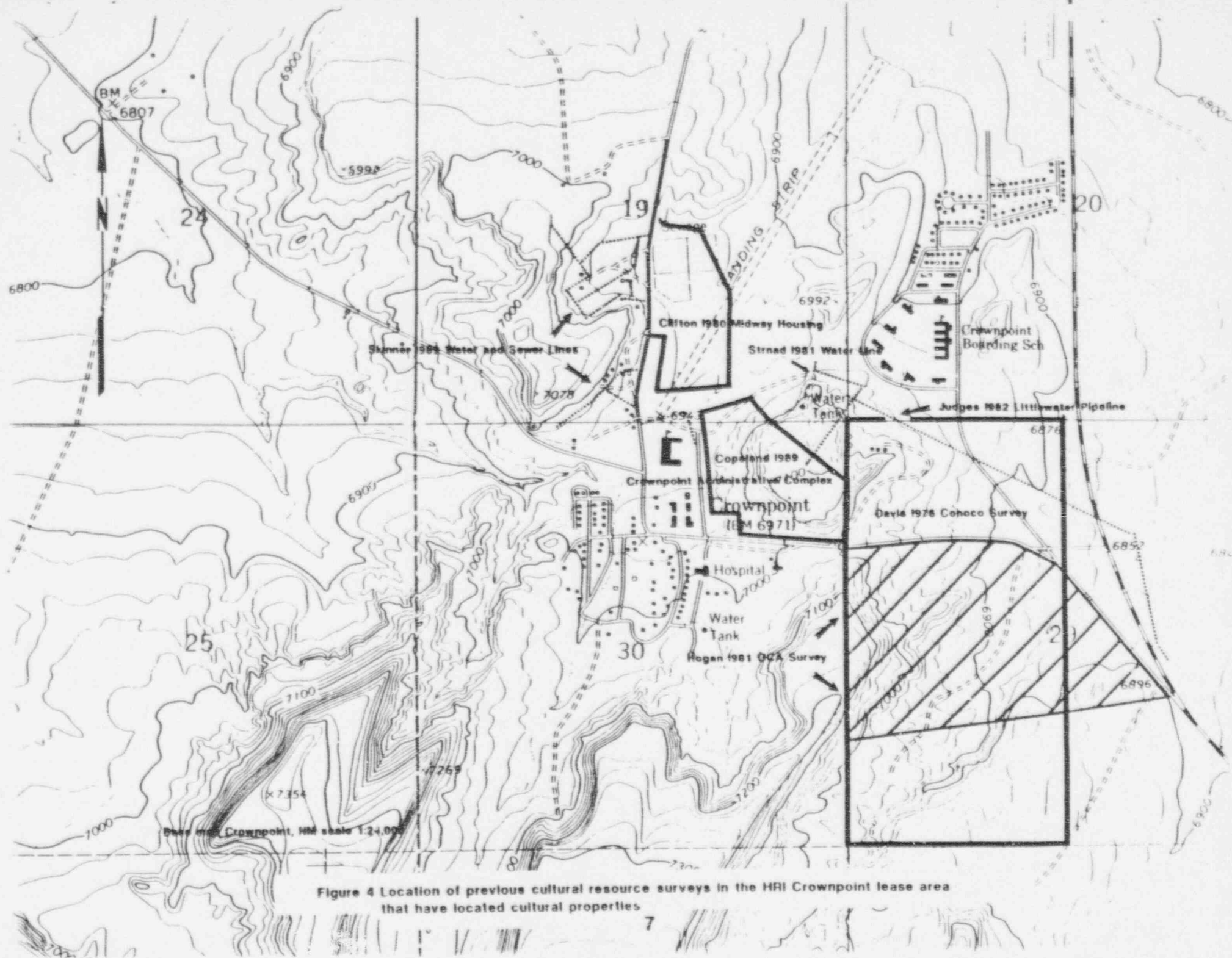


Figure 3 Location of known cultural resources within the HRI Crownpoint lease area



obtained information about historical sites in the area through interview with the local residents. These on-site interviews will also be made in order to evaluate register eligibility and significance under AIRFA.

All cultural properties encountered in the lease area will be specifically evaluated with respect to their integrity and qualification for nomination to the National Register (36 CFR 60.4) and with respect to the Archaeological Resources Protection Act (43 CFR 7.3). In addition, the cultural properties will be evaluated with respect to the Navajo Nation's Cultural Resource Protection Act (CMY-19-88). This evaluation will include both the Anasazi and Navajo sites and any sacred or traditional cultural properties.

Aerial photographic imagery will be used in the HRI cultural resources survey to evaluate various types of cultural features, such as Anasazi roads and Navajo cornfields, and will be used as a photographic base map for the location of all sites. A complete set of aerial photographs for the Crownpoint area, including the Crownpoint lease area, have been collected (Flight DAS, June 20, 1979, at a scale of 1 inch to 600 feet) and will be used in the survey. Each cultural feature will be plotted on the aerial photographs, and these photos will be placed on file at the State Archeological Records center after the project is completed.

Examination of the Soil Conservation Service 1930s aerial imagery will also be made in an effort to define features that have been reduced or obscured over the past 50 years. The use of SCS imagery has proven to be especially useful with respect to the study of Chacoan roads and to the definition of historical Navajo field areas.

An attempt will also be made during the cultural resources study to obtain oblique, low-sun-angle aerial photographs of the possible Muddy Water - Kin Ya'a road. Low-sun-angle photography has proven to be of considerable use in the recognition of very subtle roads and earthworks, which are often invisible in conventional vertical photography.

Archaeological and Traditional Site Protection Plan

A cultural resource management plan for archaeological and traditional sites will be developed following the Class III inventory of the lease area. All cultural resources identified in the lease area will be recognized as "protection zones" that will be avoided during the HRI project development. All drilling activities and movement of heavy equipment into the lease area will avoid these protection zones.

The precise boundaries of all cultural properties within the lease area will be defined during the archaeological survey and the traditional site inquiry. These boundaries will be marked in the field with iron fence posts. This system of site boundary definition, developed by Dan Hurley during the extensive drilling exploration of the Crownpoint area by Mobil Oil Corporation during the period from 1973 to 1980, has proven to be very effective. Many of these markers still remain in place today and there is little evidence of subsequent disturbance. There may, however, be certain sensitive archaeological sites or traditional-sacred sites that should not be permanently marked. These sites will be identified as "special or sensitive protection areas" near which no development activity is allowed.

The location and boundary definition of sites as cultural resource protection areas will result in the protection of most cultural resources in the lease area. Since buried or concealed cultural resources might exist in the proposed lease area, especially in areas of alluvial deposition, it is important that any project activity resulting in subsurface disturbance be preceded by archaeological testing. In most instances, protection can be accomplished by the presence of an archaeological monitor on the construction site or by the placement of backhoe test trenches in

the area of proposed disturbance. Areas of subsurface disturbance in the project area will be limited whenever possible. Activities in which subsurface disturbance is anticipated include the construction of well pads and mud pits and the development of occasional areas along access roads. Any subsurface disturbance caused by the development of the pipeline gathering system will also require archaeological testing and monitoring. It is also recognized that any cultural resources encountered during construction will require mitigative actions, under consultation with the Navajo Nation Historic Preservation Department, before construction can continue.

Considerations of Indirect Impact

The HRI cultural management plan is designed to maximize avoidance of all cultural resources and sacred-traditional properties within the lease area. Avoidance will be accomplished by a systematic Class III cultural resource inventory and by the demarcation of all site boundaries as protection areas. Archaeological testing of all areas of proposed subsurface disturbance and a monitoring program during the project development will also prevent any adverse impact to the cultural resources.

Since the lease is located adjacent to the Kin Ya'a National Park Service and National Register site, consideration of potential indirect impact to the cultural resources is also incorporated in the HRI management plan. In order to avoid possible indirect impact to the cultural resources, a series of actions are planned.

All transportation corridors within the lease area will be located in conjunction with the project archaeologist. Any transportation activities adjacent to the lease will be confined to established roads. The boundaries of the entire lease area will be determined by cadastral survey and will be specially marked, if existing fence lines are not present. Given these precautions, the proposed HRI development should have no adverse indirect impact on the cultural resources adjacent to the lease.

Looting of cultural antiquities in the Crownpoint area is very limited and seems to be confined to limited disturbance near the ruin of Kin Ya'a. The infrequency of looting in the Crownpoint area is clearly due to the protection afforded by Navajo residents of the area. The Navajo do not intentionally disturb archaeological sites, and their presence in the lease area has prevented looting by pothunters. All evidence of looting observed during the proposed Class III survey of the lease area will be noted, and any special problems will be identified in the HRI cultural resource management plan.

The Kin Ya'a Complex: Chaco Culture National Historical Park and State and National Register Site

The Chacoan outlier community of Kin Ya'a is located adjacent to and east of the HRI Crownpoint lease (Figure 2). A portion of the community complex is part of Chaco Culture National Historical Park and is administered and protected by the National Park Service. This same property is recognized as a component of New Mexico State Cultural Property No. 57 and is also included on the National Register of Historic Places. Most of the Kin Ya'a community is located outside the park boundaries, however, and is administered by the Navajo Tribe and the Bureau of Land Management.

The proposed HRI Crownpoint lease development will have no adverse impact on the cultural resources of the park or adjacent properties. Owing to the sensitive nature of the park and related sites, the HRI cultural resource assessment addresses various considerations of indirect impact.

The Great House pueblo of Kin Ya'a was first described by S. J. Holsinger 1901 as part of an investigation by the General Land Office to evaluate Chacoan ruins for possible government acquisition and preservation. Following the Antiquities Act of 1906, various Chacoan sites were recognized as part of the Chaco Canyon National Monument, established by President Theodore Roosevelt on March 11, 1907. Kin Ya'a, together with Kin Klizhin and Kin Bineola, were designated as outlying sections of the monument.

Because an early survey description of the Kin Ya'a parcel, designed to include the Kin Ya'a great house, was erroneous, the quarter-section of land directly south of the ruins (the SE 1/4 of Section 28) was set aside for inclusion in the monument. On May 31, 1919, both the NE and SE quarters of Section 28 were included under an Indian Tribal Patent (IA-1000 and IA-1002), but the SE 1/4 was returned to monument status on July 17, 1930. The Kin Ya'a great house, which is actually located in the NE 1/4, is on Indian Tribal Patent lands. Nonetheless, the National Park Service has continued to manage the Kin Ya'a great house site since its recognition as part of the original Chaco monument. The site was stabilized in 1956 (Richer 1956), and in 1972 the National Park Service completed an archaeological survey of the eastern half of Section 28.

In 1980 federal legislation associated with the reorganization of Chaco National Monument as Chaco Culture National Historical Park apparently recommended the recognition of the Kin Ya'a parcel. The NE 1/4 of Section 28 was included in a withdrawal order of December 19, 1980, associated with Public Law 96-550. This withdrawal order reclassified the NE 1/4 of Section 28 and closed it to mineral development, right-of-way access, and oil and gas leases. A portion of land in the eastern half of the SE 1/4 of Section 28 was also returned to Bureau of Land Management status. Notification of the closure was given in the Federal Register on April 15, 1981.

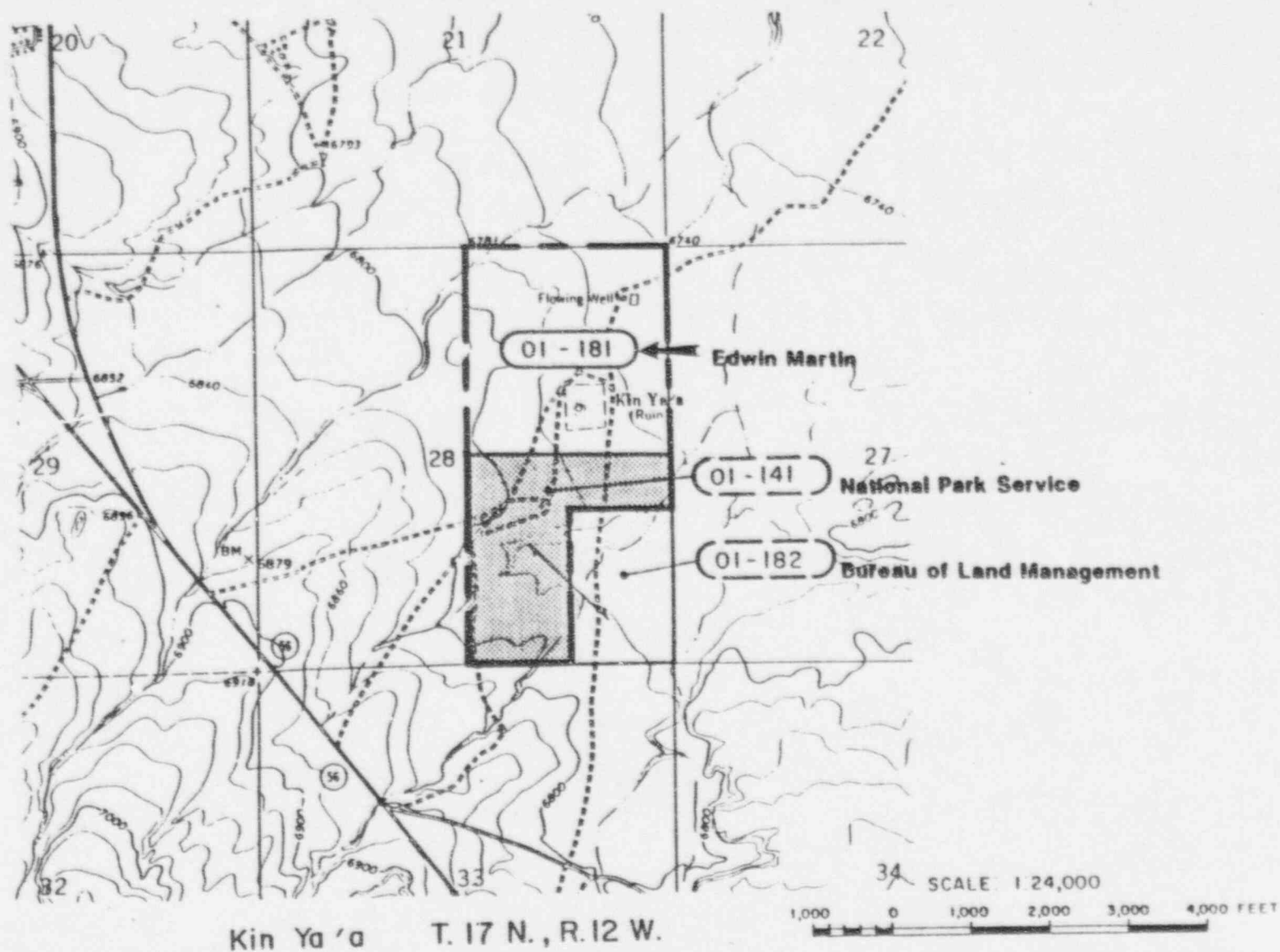
A land status map published in 1982 by the National Park Service (Figure 5) illustrates that the park lands in this area are still confined to the SE 1/4 of Section 28, south of the great house ruins. This map also illustrates a provisional boundary extension into the NE 1/4 on lands owned by Edwin Martin. Recent consultation with Robert Muller of the National Park Service Land Office, however, indicates that the Kin Ya'a great house structure (in fact the entire NE 1/4 of Section 28) is still on Indian allotment lands held by the Edwin Martin family.

Statement Regarding the Treatment of Sacred Sites and Other Traditional Cultural Properties

Considerable attention will be given in the HRI cultural resource preservation project to the recognition and protection of Native American sacred sites and traditional cultural properties that might exist within the Crownpoint lease area. Traditional or sacred sites have not been recognized in previous studies of the lease area, but most of these earlier investigations did not address this issue directly, and there is a potential for these sites within the area.

All legislative mandates and Navajo Tribal policies regarding the protection and preservation of sacred sites and other traditional cultural properties will be explicitly followed throughout the proposed HRI development project. This action is in accord with the American Indian Religious Freedom Act of 1978 (Public Law 95-341) and will follow procedural directives described in the "Navajo Nation Policy to Protect Traditional Cultural Properties" (1990) and National Register Bulletin 38 (1990) entitled "Guidelines for Evaluating and Documenting Traditional Cultural Properties."

All of the sacred and traditional cultural sites that might be documented in the lease area are of probable Navajo affinity. Pueblo Anasazi sacred sites may once have existed in the area, but it is very unlikely that any of these sites are maintained by a living community. In the unlikely event that such places are still maintained by Pueblo populations, it is probable that Navajo residents of



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Figure 5 Location of Kin Ya'a Sector of Chaco Culture National Historic Park (after NPS 1982 boundary map)

the area will have knowledge of this use. Emphasis in the investigation of sacred and traditional sites will, therefore, be directed toward the Navajo people of the Crownpoint area. This investigation will involve the procedures for interview described in the Navajo Nation policy and completion of Navajo Nation HPD Sacred and Traditional Places Documentation Forms.

Preliminary review of existing literature regarding Navajo sacred places does not reveal any outstanding, tribally recognized locations within the lease area. The two most important sacred sites commonly known in the Crownpoint area are *Ak'iilnastiani* (The Mountain That Sits on Top of Another Mountain) and the ruin and nearby shrine of Kin Ya'a, known as the home of the *Kii yaanii* clan and associated with the Blessingway (*hozhooji*). These locations, however, are well outside the proposed HRI lease area. (See the discussion of traditional sites in the section on The Cultural Resources.)

Various local or regionally recognized sacred and traditional sites may exist in the lease area: for example, traditional gathering areas, sites associated with life-cycle rituals, prayer offering places, and structures associated with ceremonies, such as hogans and sweatlodges. It is also recognized that many sacred and traditional sites are elements of the natural landscape, such as trees, springs, rocks, and mountains, etc., for which there is no structural evidence.

The HRI cultural resources management project will involve a comprehensive consultation effort with local residents and other persons who have knowledge of sacred and traditional sites. Interviews with local residents on and adjacent to the lease will be conducted by a qualified ethnohistorian or ethnographer.

Statement Regarding the Treatment of Human Burials Graves, and Gravesites

Special attention will be given in the proposed HRI Crownpoint project to the recognition and protection of human graves and cemeteries. The Crownpoint cemetery, which is located in the NE 1/4 of the NE 1/4 of Section 25, T17N, R13W (Figure 6), will be avoided. No other gravesites have been previously recognized in the lease area, but other gravesites may be present. Anacazi gravesites usually occur in middens adjacent to unit pueblos and are normally protected as part of the archaeological site avoidance procedure. Navajo graves, on the other hand, are often isolated and may lack any obvious marker or structure. An effort will be made during the traditional site inventory and interview project to locate all gravesites in the area known to local Navajo residents. If any isolated historical graves are present, they will be designated as protection areas.

All legislative mandates regarding the protection of graves and gravesites will be followed throughout the proposed HRI development project. This protection includes procedures described in the Native American Graves Protection and Repatriation Act (Public Law 101-601 [H.R. 5237], 1990); the Navajo Nation Policies and Procedures Concerning the Protection of Cemeteries, Gravesites, and Human Remains (ACMA-39-86); and relevant gravesite protection measures as described in the American Indian Religious Freedom Act of 1978 (Public Law 95-341).

It is the intent of the proposed HRI development project to avoid any disturbance to human gravesites. Any grave identified in the study area will be recognized as a protection site and will be avoided. If any burial is inadvertently uncovered during the development project it will be re-interred following consultation with and recommendations of the Navajo Nation Historic Preservation Department.

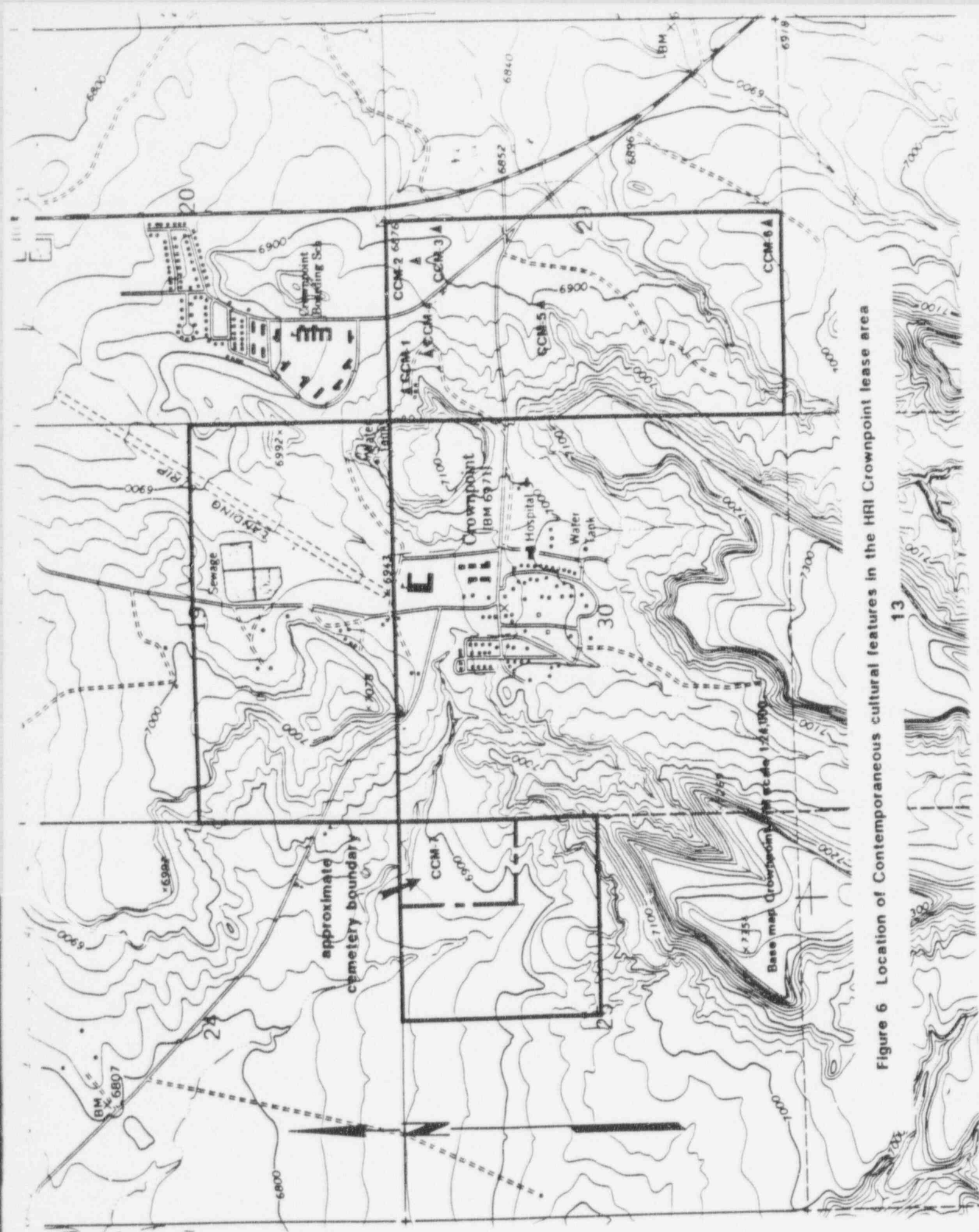


Figure 6 Location of Contemporaneous cultural features in the HRI Crownpoint lease area

The locations of gravesites will be determined through archaeological survey and according to interview procedures outlined by the Navajo Tribal Council Advisory Council in Resolution ACMA-39-86. Efforts to locate unmarked historical gravesites in the lease area will involve discrete consultation with local residents and with members of the Crownpoint Chapter House. Investigation of gravesite locations within the study area will be conducted in conjunction with the traditional cultural properties study. All gravesites identified in the lease area will be subject to documentation, and a Navajo Nation grave identification form will be completed for each location of Navajo affinity.

THE CULTURAL RESOURCES

An overview of the known cultural resources in the proposed HRI Crownpoint lease area and the context of these cultural manifestations are presented in the following discussion. The cultural landscape of the HRI Crownpoint lease is a complex pattern of prehistoric Chacoan Anasazi and historical to modern Navajo occupation and land use. Eight previous cultural resource studies have been conducted in the lease area, and numerous others have surveyed lands adjacent to the lease. Approximately 45% of the lease area has been the subject of intensive archaeological survey, which has resulted in the identification of 31 archaeological site components (Table 1; Figures 3 and 4, above).

Approximately 20 to 30 additional sites are estimated to be present in the lease. Important sacred and traditional sites exist in the Crownpoint vicinity, but none have been previously identified in the lease. With the exception of Hogan et al. 1981, however, previous research in the lease area has not addressed this issue, and it is possible that traditional cultural properties are present.

The HRI Crownpoint lease is located adjacent to the Chacoan Anasazi community of Kin Ya'a. A section of this community is a National Park Service property and is part of the Chaco Culture National Historical Park. It is listed on the New Mexico State Register of Cultural Properties and on the National Register of Historic Places. This ancestral Chacoan community was occupied for approximately 650 years, from about AD 500 to 1150. A total of 23 Anasazi components associated with the community have been documented in the lease area. The Crownpoint lease is located directly west of the center or nuclear area of the Kin Ya'a community. The community's public-ceremonial buildings include a tower-kiva great house complex and two great kivas. These buildings are located about one mile east of the lease (Marshall et al. 1979). Most of the Anasazi sites that have been found in the lease area appear to be habitation and special-function sites that are part of the central community complex. A possible Chacoan road crosses the lease area, linking Kin Ya'a to the Muddy Water complex.

Table 1. List of Previously Documented Sites within the HRI Crownpoint Lease

Section 19, South 1/2 (T17N, R12W)		Section 29, West 1/2 (T17N, R12W)	
LA 27659 (DCA-80-135)	Clifton 1980	LA 32521 - 32522	Hogan et al. 1981
LA 32518 (OCA-SV-7)	Hogan et al. 1981	(OCA-SV-10, 11)	
LA 36204 (NM-G-8-78)	Strnad 1981	LA 59633	Judges 1982
LA 74003 (NM-Q-23-25)	Skinner 1988	(NM-G-8-11)	
LA 75651 (NM-Q-23-28)	Copeland 1989	LA 70578 - 70597	Davis 1976
LA 81609 (NM-Q-23-41)	Yeatts 1990	(COD-29-1 - 29-20)	
Section 25, NE 1/4 (T17N, R13W)			
No previously recorded sites			

Crownpoint
Sect 19
South 1/2
has been
surveyed
So has
Sect 25
NE 1/4

The Navajo people have occupied the Lobo Plateau region since at least AD 1700. Continued research will probably result in the discovery of still older occupations. Navajo settlement in the immediate lease area and on the grassland plain of the Chaco basin floor appears to be largely from the post-Bosque Redondo Reservation period, ca. 1868 to the present. Eight Navajo site components have been described in the lease area, and 10 to 20 others are probably present. Previous research indicates that the earliest Navajo occupation in the Crownpoint area predates the coming of the railroad in 1881 and consists of "big block" hogans with few or no Euro-American artifacts. The Navajo occupation of the lease area clearly intensified with the establishment of the Pueblo Bonito Eastern Navajo Agency and the Ohlin Trading Post at Crownpoint in 1910. Since that time, the lease area has been used rather intensively by Navajo residents for hunting and gathering, grazing, and agricultural purposes. The remnants of numerous hogans and house settlements, corrals, ramadas, ovens, trails and roads, and other features are present.

Records Search

All previous documents concerning the cultural resources in the HRI Crownpoint lease area are summarized in this report. A total of 31 archaeological and historical sites have been previously documented within the lease area (Figure 3). Most of the existing records are the result of cultural resource clearance activities conducted during the 1976 Conoco uranium exploration (Davis 1976) and as a result of a variety of community development projects in Crownpoint from 1980 to 1990. The lease area comprises 1.25 square miles, and approximately 45% of this area has been the subject of comprehensive archaeological survey. Most of the cultural resources known in the area were documented in clearance surveys conducted by the Navajo Nation Cultural Resource Management Program (Copeland 1989, 1990; Davis 1976, Skinner 1989; Yeatts 1990). Other surveys have been completed in the lease area by the University of New Mexico (Hogan et al. 1981), the University of Northern Arizona (Judges 1982; Strnad 1981) and by the San Juan County Museum's Division of Conservation Archaeology (Clifton 1980). A number of additional surveys for waterline, housing, and related development projects in the SE 1/4 of Section 29 failed to reveal any evidence of cultural features.

Various archaeological investigations and cultural resource surveys have been completed in the Chacoan Anasazi Kin Ya'a community located east of the lease area (Figure 4). In 1972, the National Park Service conducted an archaeological survey in the east half of Section 28, T17N, R12W, which resulted in the documentation of 37 Anasazi sites (29Mc101 to 138). In 1978, San Juan College conducted an archaeological reconnaissance survey of 3.75 sections in the Kin Ya'a complex and documented 67 additional sites (Hooton, Andrae, and Naylor 1978).

The Chacoan outlier great house of Kin Ya'a, located one mile east of the lease, has been the subject of archaeological inquiry since the early investigations by Holsinger (1901) and Fewkes (1917). Tree-ring dates from the site indicate primary construction between AD 1101 and 1106 (Hawley 1933:204-205). Bannister (1964) presented a brief review of the site and the tree-ring dates. The first comprehensive description of the site was made in 1979 by Marshall, Stein, Loose, and Novotny.

Fewkes (1917) was the first to recognize the Chacoan roads that enter the Kin Ya'a complex. A series of remote sensing investigations conducted by the National Park Service in the 1970s resulted in the definition of the Kin Ya'a roads as part of the Great South Road complex (Lyons and Hitchcock 1977). Obenauf's (1980) remote sensing studies revealed not only the presence of alternate south road corridors entering Kin Ya'a but also a road extending southwest from Kin Ya'a and another possible road leading due west toward the Muddy Water Complex (Obenauf 1980:116-117). In 1978, Windes discovered that the Kin Ya'a southwest road led across Lobo

Mesa toward Hosta Butte. In 1987, the Bureau of Land Management published an overview investigation of Chacoan roads in the Kin Ya'a area (Nials, Stein and Roney 1987:32-39).

All existing site records for the HRI Crownpoint lease area will be re-evaluated during the HRI cultural resource survey. The cultural and temporal affinity of the known sites in the lease area are listed in Table 2. All of the cultural resources previously documented in the HRI Crownpoint lease have been entered in the ARMS (New Mexico State Archaeological Records Management System) files and have been located on the Crownpoint topographic base map and can be retrieved from the computerized data base. A brief reconnaissance of the lease area indicates that an additional 20 to 30 sites are present that have not been recorded. These sites will be documented during the HRI Crownpoint lease archaeological survey and will be entered into the ARMS system.

Table 2. Cultural-Temporal Stratification of Previously Documented Cultural Resources within the HRI Crownpoint Lease

Site No.	Section	Period	Description
Navajo Sites			
LA 32518 (LC)	29 W 1/2	Late nineteenth to early twentieth century	3 hogan rings
LA 32521	29 W 1/2	Late nineteenth to early twentieth century	4 hogans, historical trash
LA 32522	29 W 1/2	Twentieth century	Oven, historical trash
LA 70586	29 W 1/2	Historical unknown	Hogan ring or temporary windbreak
LA 70591	29 W 1/2	Late nineteenth to early twentieth century	Hogan ring
LA 70593	29 W 1/2	Twentieth century	Hogan ring, oven, windbreak
LA 70594 (LC)	29 W 1/2	Unknown	Oven
LA 70597	29 W 1/2	Twentieth century	5 hogan rings
Chacoan Anasazi: Basketmaker III - Pueblo I Components (AD 500-700)			
LA 70584	29 W 1/2	Basketmaker III or Pueblo I	Possible pithouse, ceramic scatter, burned sandstone
LA 70587	29 W 1/2	Pueblo I	Possible pithouse, stone circles, artifact scatter
LA 70588	29 W 1/2	Basketmaker III - Pueblo I	Possible pithouses, thin artifact scatter
LA 70595	29 W 1/2	Pueblo I	12-16 rooms, some artifacts

(continued)

Table 2. Cultural-Temporal Stratification of Previously Documented Cultural Resources
(continued)

Site No.	Section	Period	Description
Chacoan Anasazi: Pueblo I - II Components (AD 700-1100)			
LA 32518 (EC)	19 S 1/2	Pueblo I - II	Sherd scatter
Chacoan Anasazi: Pueblo II Components (AD 900-1100)			
LA 36204	19 S 1/2	Pueblo II	Possible circular structure, ceramic scatter
LA 70578	29 W 1/2	Pueblo II	8- to 12-room house
LA 70579	29 W 1/2	Late Pueblo II	Possible structure, ceramic scatter
LA 74003	19 S 1/2	Pueblo II	Rubble mound, artifact scatter
Chacoan Anasazi: Pueblo II - III Components (AD 900-1300)			
LA 59633	29 W 1/2	Pueblo II-III	Ceramic scatter
LA 70581	29 W 1/2	Pueblo III (?)	Artifact scatter, sandstone blocks
LA 75651	19 S 1/2	Pueblo II-III	Ceramic scatter
Anasazi Unknown			
LA 27659	19 S 1/2	Unknown	2 ceramic scatters
LA 70580	29 W 1/2	Unknown	Artifact scatter, dressed sandstone blocks
LA 70582	29 W 1/2	Unknown	Unit house, sherd scatter
LA 70583	29 W 1/2	Unknown	Burial, associated ceramics
LA 70585	29 W 1/2	Unknown	Probable unit house, cist, hearth, artifact scatter
LA 70589	29 W 1/2	Unknown	Possible pithouse or firepit, few sherds and bone fragments
LA 70590	29 W 1/2	Unknown	Possible jacal structure, minimal blocks and artifact debris
LA 70592	29 W 1/2	Unknown	2 roomblocks (structures), bone fragments
LA 70594 (EC)	29 W 1/2	Unknown	Fieldhouse, worked bone fragments, unidentified grayware sherds
LA 70596	29 W 1/2	Unknown	Pithouse
LA 81609	19 S 1/2	Unknown	Slab-lined roasting pit

EC = Early Component; LC = Late Component

The Kin Ya'a Complex: An Ancestral Chacoan Anasazi Community

The numerous archaeological surveys conducted in the Crownpoint East district and in the HRI Crownpoint lease area have revealed an extensive complex of Chacoan Anasazi sites. This impressive constellation of Anasazi sites is part of the Chacoan Kin Ya'a community. The Kin Ya'a complex is a Chacoan community of the "Ancestral Type" (defined by Marshall et al. 1982:1231) that probably originated in the Early Developmental era, ca. AD 400 to 500, and evolved into a major "Chacoan Outlier" in the Pueblo II period, ca. AD 1000-1125.

The center or nucleus of the Kin Ya'a complex, which contains examples of great house and great kiva architecture, is located in the NE 1/4 of Section 28, approximately one mile east of the HRI Crownpoint lease (Figure 2). The great house and nearby shrine are known to the local Navajo peoples as the origin place of the Kii ya annii clan (Wyman 1970). The central complex of the community includes the Kin Ya'a great house and two great kivas (Marshall et al. 1979). The Chaco South Road enters the great house area and is bordered by various earthworks and a possible road-areola. A southwest road toward Hosta Butte and a possible west road toward the Muddy Water community are also present.

Archaeological surveys completed near the community center indicate a very extensive halo of habitation sites extending about two miles around the nuclear area. Anasazi site density in the nuclear community area ranges from 50 to 100 sites per square mile and it is probable that the entire community complex comprises hundreds of sites. A total of 23 Anasazi site components have been identified in the HRI Crownpoint lease area, and it is estimated that an additional 20 Anasazi sites are present in the lease. Most of these sites were probably affiliated with the Kin Ya'a community; however, some of the sites in the western lease area may have been affiliated with the Muddy Water community (Marshall 1991).

The location of the HRI Crownpoint lease adjacent to the Kin Ya'a community means that considerable effort must be devoted to management and site protection during the project development. This management effort must recognize the structure and components of the Kin Ya'a site complex. It must also include evaluations of known and potential Chacoan roads and it must recognize that a great deal of the complex is buried in alluviated areas and hence concealed. The boundaries of all cultural resources within the lease area, as determined from Class III survey, will be redefined regardless of previous documentation. Aerial photographic imagery will be examined for evidence of prehistoric roads, and the possible Kin Ya'a - Muddy Water road will be the subject of a road corridor survey. Subsurface disturbance in the project area will be preceded by archaeological testing and accompanied by monitoring.

Chacoan Roads

Two Anasazi road systems have been identified in the Kin Ya'a community on the basis of alignments visible on aerial imagery (Obenauf 1980). One system, verified by considerable field investigation, is the southern extension of the Chaco Great South Road, which links Kin Ya'a to Chaco Canyon (Nials, Stein, and Roney 1987). The South Road bifurcates in the center of the community, linking the alternate from the early great kiva on the west with the alternate from the Kin Ya'a great house on the east (Figure 2). The alternate roads join about one mile southwest of the great house and extend across Lobo Mesa toward Hosta Butte (Windes 1978).

The other road system is a possible corridor linking Kin Ya'a to the Muddy Water community. This possible road extends due west from the Kin Ya'a great kivas across the HRI Crownpoint lease area in the NW 1/4 of Section 29. This road was first identified on aerial imagery by Obenauf (1980:116-117) on the basis of a series of alignments extending between the Muddy

Water and Kin Ya'a communities. This road was reportedly verified (Hogan et al. 1981:14), although subsequent work on a segment near Kin Ya'a and on another near Muddy Water has failed to support Chacoan affinity and instead suggests historical use.

Survey investigations along one segment (No. 11) near Kin Ya'a, by the BLM roads project (Nials, Stein, and Roney 1987:34-35), and a pipeline cross-section made across another segment near Muddy Water (John Roney, personal communication) suggest that the alignments are a possible historical wagon road (Marshall 1991:19-20). Nevertheless, the BLM study suggests the possibility of historical reuse of prehistoric features and recommends that further study of this system be made. Investigation of this possible road, and its projected alignment through the Crownpoint lease area, is required. The HRI Crownpoint lease cultural resources study will include a detailed examination of the road alignment. This research will entail stereoscopic examination of all available aerial photography and systematic survey of all alignments within the lease.

Navajo Occupation of the Crownpoint Region

The earliest evidence of Navajo occupation in the Crownpoint district appears in the canyons and forested mesa tops of the adjacent Lobo Plateau. Little is known about the early Navajo occupation of the region, but there is evidence of early eighteenth century settlement throughout the plateau, and earlier occupations may also exist. The earliest known Navajo camps in the area consist of forked-stick hogans and occasional masonry pueblitos. Associated ceramic materials include Dinétah Plain and intrusive Acoma and Zuni pottery of Ako and Ashiwi Polychrome. Early Navajo forked-stick hogans have been found in the northern canyons of Lobo Mesa, and masonry pueblitos and early cribbed-log hogans have been found in canyons near Ram Mesa (Marshall 1992, in preparation). Fortified pueblitos are also documented at Toyee Rock (Marshall and Sofaer 1988) and in the Pinetree Canyon area (Joseph C. Winter, Office of Contract Archeology, personal communication 1992). An undocumented Navajo pueblo site is situated on the summit of an isolated mesa near Crownpoint. This site is located in the SW 1/4 of Section 28 in T17N, R13W, about three miles west of the HRI Crownpoint lease.

The early Navajo occupation of the Crownpoint region was primarily a Woodland adaptation. Few Navajo sites of this early occupation have been found in the grassland plains of the Chaco region and none have been documented in the HRI Crownpoint lease. Nevertheless, early Navajo sites probably do occur in the adjacent canyons and on the mesas near the study area.

The majority of the Navajo sites known in the Crownpoint area, and most of the eight components previously documented in the Crownpoint HRI lease (Table 2), are of late-nineteenth and twentieth century affinity. The earliest historical records of Navajos in the Crownpoint area date to the late 1860s. Three Navajo chiefs and their associated bands were said to be residing at a place called "Slender Cottonwood Gap" (*niistsooz nieeshgizh*), which was later called Crownpoint (York 1981:22). Navajos were also said to be living near Hosta Butte in the 1870s. Hastinn titsoi'tsosi (Mr. Slim Yellowman), also known as Mariano, moved his band to the west of Hosta Butte and dammed a sink now known as Mariano Lake (Van Valkenburgh 1974:93).

Traditional and Sacred Sites in the Crownpoint Area: Hosta Butte and Kin Ya'a

No sacred sites or other traditional cultural properties are presently known within the HRI Crownpoint lease area. Because previous cultural resource investigations in the area have not adequately addressed this issue, there is a potential that traditional cultural properties exist in the

area. In order to determine if sacred or traditional sites are present in the lease area, the HRI cultural resources project will include a comprehensive consultation effort with local residents and other knowledgeable Navajo people.

A review of the existing literature regarding Native American sacred sites reveals the presence of two important locations in the Crownpoint area, near but outside of the HRI lease. These are the sacred mountain peak of Hosta Butte and the ruin and nearby shrine of Kin Ya'a, which are discussed in the following notes.

Hosta Butte

Hosta Butte, located 8 miles west of the Crownpoint lease area, is the most prominent and elevated landform in the Lobo Plateau. This butte, which rises to an elevation of 8600 ft, is one of the most conspicuous features on the southern horizon of the Chacoan Province. There is considerable evidence to indicate that Hosta Butte was a very important shrine during the Chacoan Anasazi occupation of the region. Indeed, the pinnacle is the destination of the Chaco South Road, which extends 34 miles to link the great pueblos of Chaco Canyon with Kin Ya'a and Hosta Butte. Reference to Hosta Butte has not been found in the ethnographic literature of contemporary Puebloan mythology, and like other sacred Anasazi sites, its significance may have been lost over the passing of the centuries.

Hosta Butte is, however, a very important sacred site to the Navajo people, and it is often visited as an offering place. The Navajo people refer to Hosta Butte as *Ak'i dah nast'ani* (The Mountain That Sits on Top of Another Mountain). This name is an apt description for the towering truncated pinnacle, which extends 700 ft above the forested summit of the Lobo Plateau. The name Hosta Butte dates back to 1877 when it was given to the mountain by W. J. Jackson in honor of a Jemez Indian who guided Col. John Washington's expedition in 1849.

Hosta Butte is one of the seven principal sacred mountains in the Navajo origin myth and was recognized as one of the southern markers for the area traditionally occupied by the Navajo and called the Tinetxa or the "Old Navajo Country." It is also mentioned in various versions of the Blessingway (Wyman 1970:561, 575) and Nightway (Van Valkenburgh 1941:75) ceremonies. It is said to have been created by First Man and First Woman and the supernatural Black Body and Blue Body when they decided to decorate this world (Matthews 1897:79).

And finally they fastened *Ak'i dah nast'ani* to the firmament with a sacred mirage stone (quartz crystal). It they decorated with many plants, and with the black clouds that bring male rain. On its summit they placed Nahachagii, the Grasshopper, whose descendants are abundant to this day. And there they also placed Tse hadahoniye'ashkii the Mirage Stone Boy and Yoo'lichi'i at'eed the Carnelian Girl to dwell there forever as gods (Zolbrod 1984:89).

Numerous shrine sites are located on the summit of Hosta Butte, and many contain offerings of modern materials (Marshall and Sofaer 1988; Windes 1978). It is clear that Hosta Butte is an important sacred site and offering area, especially to the Navajo people. It is unknown, however, if the butte is visited by Pueblo people.

Kin Ya'a and the Kii ya anii Shrine

The Chacoan ruin of Kin Ya'a (Tall House; Marshall et al. 1979:201-206) and a nearby shrine are important Navajo sacred places. "The mythology of the Blessingway connects the Navajo place name for Kin Ya'a ruin (Kii Yaa'a) with one of the four original clans" (Fransted 1979:40-

41; Wyman 1970:331-458). According to the Franciscan Fathers (1910:356, 424), "the Kii ya anii and three other clans were created from parts of Changing Woman's body and are said to have been the first earth people" (York 1981:21-22). Kin Ya'a is also given as the home of Rainboy's parents in the origin legend of the Hail Way (Reichard 1944:153), and it appears in the legend of the Excess Way (Kluckhohn 1967:159).

Contemporary Occupation of the HRI Crownpoint Lease

Crownpoint Village

Crownpoint village was first established as the center of the Pueblo Bonito Agency by Superintendent Samuel Stacher on May 10, 1910. The village today is the center of the Eastern Agency of Navajo Tribal Government. Located within the village are various administrative offices for the Navajo tribe and Bureau of Indian Affairs. Also present in the village are various schools, a day care center, recreational center, senior citizen center, hospital, fire and police stations, post office, shopping center and various housing subdivisions and lots. The population of Crownpoint village was 3200 in 1980 (York 1981:33).

A portion of the HRI Crownpoint lease, in the SE 1/4 of Section 19 and in the NE 1/4 of the SW 1/4 of Section 19, is located within the urbanized area of Crownpoint village. Most of the modern construction in this area consists of housing in the Sunnyside and Midway and Mutual developments. Also present in the south one-half of Section 19 is the Crownpoint Institute of Technology, the pre-school, the Children's Development Center, the Crownpoint Chapter House, and the Tribal Water Development facility. It is estimated that 80 acres of the lease is urbanized and developed. Approximately 40 acres of the urbanized section has been the subject of previous cultural resource clearances (Clifton 1980; Copeland 1989; Hogan et al. 1981; Strnad 1981; Yeatts 1990) and it is unlikely that significant cultural resources will be encountered in these areas.

None of the buildings associated with the early Indian Agency administration in Crownpoint are located in the lease area. The center of old Crownpoint, including the early government buildings and trading posts, are all to the south of the lease in the north one-half of Section 30. Therefore, the HRI cultural resource study need not involve Historic American Buildings Survey work.

Outlying Homesites

Six outlying homesites are located within the HRI Crownpoint lease. All of these contemporary settlements are located in the western one-half of Section 29 (Figure 4). No homesites are presently located in the NE 1/4 of Section 25 or within the western half of SW 1/4 of Section 19. Four of the six homestead settlements in the western one-half of Section 29 were identified as contemporary cultural manifestations and given "CCM" site numbers in the Hogan et al. 1981 survey (CCM 9, 10, 11, and 14). Two additional settlements (one a housing start and another a single residence) have been established in the area since 1981. Families known to be resident in the western one-half of Section 29 are the Martin family, the Sadie Kee Begay family, and the Hardy Nogale family.

The Crownpoint Cemetery

The Crownpoint village cemetery is located in the NE 1/4 of the NE 1/4 of Section 25. This cemetery was first established by Superintendent Samuel Stacher soon after the 1910 establishment of the Pueblo Bonito Agency at Crownpoint. The cemetery is still in use today.

The boundaries of the cemetery, as illustrated in Figure 6, are marked by a post and wire fence. Most of the graves are located in the eastern part of the fenced area. However, there are various outlying graves, many of which are unmarked. The Crownpoint cemetery is recognized as an exclusion area within the HRI lease. No mining activities will be conducted in the area of the cemetery. All wells placed in the adjacent NW 1/4 of Section 25 are to be monitoring stations.

Land Use

Much of the open land in the lease area is used for grazing, and most of the families resident in the western one half of Section 29 maintain livestock. The Section 29 portion of the lease lies within the Little Water Grazing Community, and the Section 19 and Section 25 parcels are within the Becenti Lake grazing area.

Small gardens and cornfields were probably once maintained in various areas of the lease; however, no known agricultural fields or garden areas are maintained in the lease area today. Land use in the immediate area of Crownpoint is becoming more and more oriented toward recreational use by the local residents. There is considerable evidence of off-road vehicle traffic (dirt bikes) in the SW 1/4 of Section 19.

RESEARCH CONSIDERATIONS

The proposed HRI Crownpoint cultural resources study promises to provide a major contribution to the data base regarding archaeological, historical, and traditional sites in the Crownpoint District. Previous archaeological investigations in the Crownpoint lease and in adjacent areas have revealed an extensive Navajo occupation of late nineteenth and twentieth century affinity and a major ancestral Chacoan Anasazi community known as the Kin Ya'a site complex. Most of the previous research conducted in the Crownpoint area was completed during the period from 1973 to 1981 and was limited to archaeological clearance activities. No attempt has been made to provide an overview of the existing data base for the area. Historical, archival, and oral history studies are likewise limited to the work of Hogan et al. (1981). The eight cultural resource studies that have been completed in the HRI Crownpoint lease area have resulted in the documentation of 31 archaeological-historical sites. No investigation of traditional cultural properties has been completed, to date, in the lease area.

The proposed HRI cultural resources study will address many of the issues that were neglected in the previous work. The HRI research will concentrate on a definition of Chacoan community structure, as it is reflected in the Kin Ya'a complex, and recent Navajo history and oral history in the Crownpoint area. This study will involve a comprehensive definition of the cultural resources in the lease area, a review of historical documents regarding the Crownpoint Navajo, and an oral history study designed to outline Navajo secular and sacred land use in the area.

A brief discussion of the Anasazi and Navajo research considerations to be addressed by the HRI project is provided in the following text.

Chacoan Community Structure

The HRI Crownpoint lease is located within the Chacoan Anasazi community known to the local Navajo people as Kii ya'a or Kin ya'a (Standing Up House or Tall House). The name refers to a tall masonry remnant of the tower kiva, which is a prominent feature on the local landscape.

The investigation of cultural resources in the HRI Crownpoint lease promises to yield considerable information on the nature of Anasazi culture and the evolutionary development of Chacoan community structure. The Kin Ya'a site complex is an example of an "ancestral community" in that it was established in the early Formative period of Chacoan Anasazi development, about AD 500, and was occupied for an incredible period of 650 years until its demise about AD 1150. Ancestral communities have considerable time depth and thus exhibit a series of evolutionary developments from the Formative Basketmaker II-III period into the Classic Bonito/Pueblo II era (Marshall et al. 1982:1231). Ancestral communities, like Kin Ya'a, are located in areas with favorable agricultural conditions. They appear to have developed from the late Archaic period substratum as small constellations of habitation sites scattered about a single kiva or great enclosure. These communities eventually developed into large constellations of habitation sites grouped around Bonito-style great houses and great kivas. Other public works, such as ceremonial roadways and platforms, and irrigation works, were also built during the Pueblo I and Pueblo II periods.

The central or nuclear area of the Kin Ya'a site complex (Hooton et al. 1978; Marshall et al. 1979) is located in Section 28, directly east of the HRI Crownpoint lease. The community center contains two great kivas, one large multistoried great house, various roads and earthworks, and an elaborate complex of unit house habitation structures. The concentration of masonry buildings, many with associated kivas and middens, is phenomenal, and during its occupation the village must have resembled a massive masonry complex extending out in a great arc of houses and streets from the great house.

Archaeological surveys conducted in the HRI Crownpoint lease area have revealed a considerable number of Anasazi unit houses and special-function areas, spanning the Basketmaker III to late Pueblo II occupation. A total of 23 Anasazi components have been identified in the lease area and an additional 15 to 20 may be present. These sites appear to be outlying components of the Kin Ya'a and perhaps Muddy Water communities. The sites are not as large, nor as frequent, as those found in the nuclear core of the adjacent communities. It is probable that the sites are part of a halo of extensive Anasazi use and habitation that surrounds the adjacent village centers. One possible Anasazi road, connecting the Kin Ya'a and Muddy Water communities, crosses the lease area. Agricultural fields and various resource-gathering locations associated with the communities also undoubtedly appear in the lease area.

One of the major objectives of the planned HRI research is the study of Chacoan community structure and its evolutionary development as it is represented in the outlying halo of the central site complex. This analysis will involve a detailed examination of the cultural resources in the lease area and will include comparative study with the cultural properties documented in the adjacent areas. The stratification of site types according to seven major ceramic-temporal horizons will enable us to view the development of community structure over a period of approximately 650 years.

A study of Anasazi agricultural land use in the Kin Ya'a community is also an important research topic. Information concerning Anasazi agricultural areas may be obtained by environmental study, by the identification of irrigation and water diversion works, and by the study of field-related sites (ovens, artifact scatters, fieldhouses, etc.). Information regarding trade and regional interaction may be obtained by the analysis of intrusive and indigenous ceramic wares and lithic material types, and by the presence of other exotic trade goods.

Another important research problem involves the function and destination of Chacoan roads in the Crownpoint area. Information obtained from the HRI study on the possible Kin Ya'a-Muddy Water road may contribute data significant to the interpretation of Anasazi road systems.

Navajo Studies: Recent History of the Crownpoint Navajo

All of the historical sites that have been documented in the HRI Crownpoint lease are Navajo cultural properties of late nineteenth and twentieth century affinity (Table 2). All of the sites date to the period after the Navajo incarceration at Bosque Redondo from 1863 to 1868. Earlier Navajo occupations of the Lobo Plateau region, during the eighteenth and early nineteenth centuries, are known, but none have been found in the lowlands of the lease. Navajo occupation of the Crownpoint lease was rather sparse during the late nineteenth century, but the area became a center of Navajo settlement after the establishment of the Eastern Navajo Pueblo Bonito Agency and the Ohlin Trading Post at Crownpoint in 1910 and the Crownpoint Indian School in 1912 (York 1981:26-27).

An attempt to reconstruct the recent history of the Navajo people in the Crownpoint area, with specific reference to the HRI Crownpoint lease, will be made in the cultural resources project. All historical sites found in the lease area will be systematically documented following the "Guidelines for the Treatment of Historic, Modern, and Contemporary Abandoned Sites" outlined by the Navajo Nation Historic Preservation Department. This process will include archaeological survey documentation, archival research, and interviews with local residents. This documentation will yield considerable information on recent Navajo history in the Crownpoint area.

A chronological sequence for the Navajo cultural properties found in the lease area will be developed using a combination of artifact analyses, historical records, and oral histories. The

development of this sequence will assist in the demographic analysis of Navajo occupation in the region. The "big block" hogan sites that have been documented in the Crownpoint area probably date to the period immediately after Bosque Redondo but before the railroad, ca. 1868-1881. Later sites occupied after the railroad and during the early Pueblo Bonito Agency and trading post days should exhibit considerable numbers of Euroamerican artifacts.

The demographic analysis of the Navajo occupation in the lease area should reveal a rather dramatic population increase following the establishment of the Pueblo Bonito Agency and the Crownpoint trading posts. A report in 1911 from the Pueblo Bonito (Crownpoint) Agency, however, indicates that the Navajo in the area had been forced to move to Mariano Lake and the Chaco Wash to get water for their stock (Stacher 1940). This problem was rectified by the development of a series of wells in the area after 1915.

Research regarding the recent and contemporary Navajo occupation in the lease area will also be a part of the proposed cultural resources study. This activity will include the identification and a brief description of all occupied settlements in the lease area and the collection of information regarding contemporary land use and recent history as related by the residents interviewed. This research will also be instrumental in the definition and protection of sacred and traditional sites in the area.

CONCLUSION

The cultural resources-environmental assessment conducted for the HRI Crownpoint lease indicates that it is located within a cultural district of considerable significance. Indeed, the proposed lease is within the Kin Ya'a community complex and is placed in direct proximity to the Kin Ya'a - Chaco Culture National Historical Park and State Cultural Properties Register Site No. 57. The lease area is also the location of a rather extensive historical period Navajo occupation, and it has the potential to contain properties of sacred or traditional value. Numerous cultural properties that qualify for nomination to the National Register are probably present in the lease area. Other sites that qualify for preservation under the American Indian Religious Freedom Act and the Navajo Nation Policy to Protect Traditional Cultural Properties are also likely to be present.

Any plans for mining activity within the lease area must be extremely sensitive to the cultural properties within the area. A management plan for the proposed lease area can, however, effect total avoidance of the cultural resources. This avoidance plan is possible given the flexible nature of the proposed in situ mining project. Following a systematic Class III cultural inventory and traditional site inquiry, all significant cultural properties within the lease area would be recognized as protection zones and the boundaries marked. A specific cultural resource management plan would then be developed and submitted to the Bureau of Indian Affairs and Navajo Nation Historic Preservation Department for approval. The limited subsurface disturbance in the area would be preceded by archaeological test excavations in case buried or concealed cultural remains are present, and all construction projects would be archaeologically monitored.

Given the implementation of the culture resource management plan outlined in this report, adverse impact to the cultural resources of the lease area would be negligible. Furthermore, the proposed study of cultural resources in the lease area would significantly contribute to our knowledge of the Chacoan community structure and recent Navajo history.

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APPENDIX A

PROCEDURAL SEQUENCE FOR THE HYDRO RESOURCES, INC.,

CROWNPOINT CULTURAL RESOURCE MANAGEMENT PLAN

- I. Complete a cultural resources environmental assessment and proposed culture resource management plan (this document).
- II. Submit assessment and cultural resource management plan to the Bureau of Indian Affairs and Navajo Nation Historic Preservation Department.
- III. Respond to comments by BIA and Navajo Nation Historic Preservation Department and revise Management Plan, if required.
- IV. Request permit to conduct cultural resources inventory and sacred-traditional site inquiry.
- V. Complete Class III cultural resources inventory and sacred-traditional site inquiry for the Crownpoint lease area. Document all cultural resources in the area and establish specific resource boundaries.
- VI. Prepare a cultural resources survey report following "Interim Fieldwork and Report Standards and Guidelines" of the Navajo Nation Historic Preservation Department.

Evaluate all cultural resources with respect to National Register Significance (36 CFR 60.4), the Archeological Resources Protection Act (43 CFR 7.3), and the American Indian Religious Freedom Act (P.L. 95-341). Also follow Navajo Nation Policy for the Protection of Traditional Cultural Properties (1990) and the National Register Bulletin No. 38 (1990) entitled "Guidelines for Evaluating and Documenting Traditional Cultural Properties."

Develop specific treatment for the management-avoidance plan.

- VII. Submit cultural resources report and management recommendations to the BIA-Navajo Nation for review and request permit for project clearance-approval to begin construction. Respond to comments or requests for revision.
- VIII. Following Navajo Nation and Bureau of Indian Affairs approval, survey boundaries of lease, well pads, access roads, and pipelines and verify via archaeological survey that these areas are outside all protection zones. Complete archaeological testing in all areas of proposed subsurface disturbance to determine if buried or concealed cultural resources are present. If buried resources are found, avoid or develop mitigation plan, under consultation with the Navajo Nation Historic Preservation Department.
- IX. Brief all construction personnel and workers in the HRI lease area regarding the cultural resource protection plan and avoidance areas. Monitor, at intervals, all construction and development within the lease area. Compile a report on the monitoring program after the major development phase and submit to Navajo Nation Historic Preservation Department.
- X. Develop cultural resource management plans for continued maintenance and occasional development and submit to Navajo Nation Historic Preservation Department for clearance. Monitor, at intervals, all reclamation activities.

APPENDIX B
DESCRIPTION OF THE KIN YA'A GREAT HOUSE
AND ASSOCIATED FEATURES

(from Marshall et al. 1979)

KIN YA'A

LA NO. 8778

NPS NO. 29Mc-108

NAVAJO NAME

"kii ya'a or kin ya'a (standing up house, also translated tall house, or towering house) and an alternate term: Anasazi bleezh (ancient enemy's land). Van Valkenberg lists a variant I have not actually heard: kin yaa'ahi, 'towered house' (1975:13). Kii yaa'a is given as the house of Rainboy's parents in the origin legend of the Hail Way (Reichard 1944:153). 'Tall House' is in the legend of Excess Way (Kluckhohn 1967:159). Logically, this place is considered the home of the kiiya'anii, one of the original four clans in most versions of the Navajo origin legend" (Fronsted 1979:40-41).

CULTURAL AFFINITY Chacoan

TEMPORAL AFFINITY

The dates obtained from Kin Ya'a range from A.D. 1101 to 1106 and cluster at A.D. 1106. "The dates from the room east of the tower kiva are: 1038-1111vv, 1068p-1106r, 1061p-1106r, and 1079p-1106c. Dates from the tower kiva are 1061p-1104vv, and 1039p-1106rl" (Bannister et al. 1970:25).

LOCATION On file, Historic Preservation Bureau, Santa Fe, NM.

LAND STATUS Navajo

ELEVATION 6,780 feet

DRAINAGE

Southwest tributary of Kim-me-ni-oli Wash, to the Chaco Wash, to the San Juan River

PHYSIOGRAPHIC SITUATION

Kin Ya'a is situated in open terrain approximately 1.5 km northeast of Lobo Mesa. The pueblo is on the western margin of a broad alluvial floodplain below the mouth of a narrow sandstone canyon.

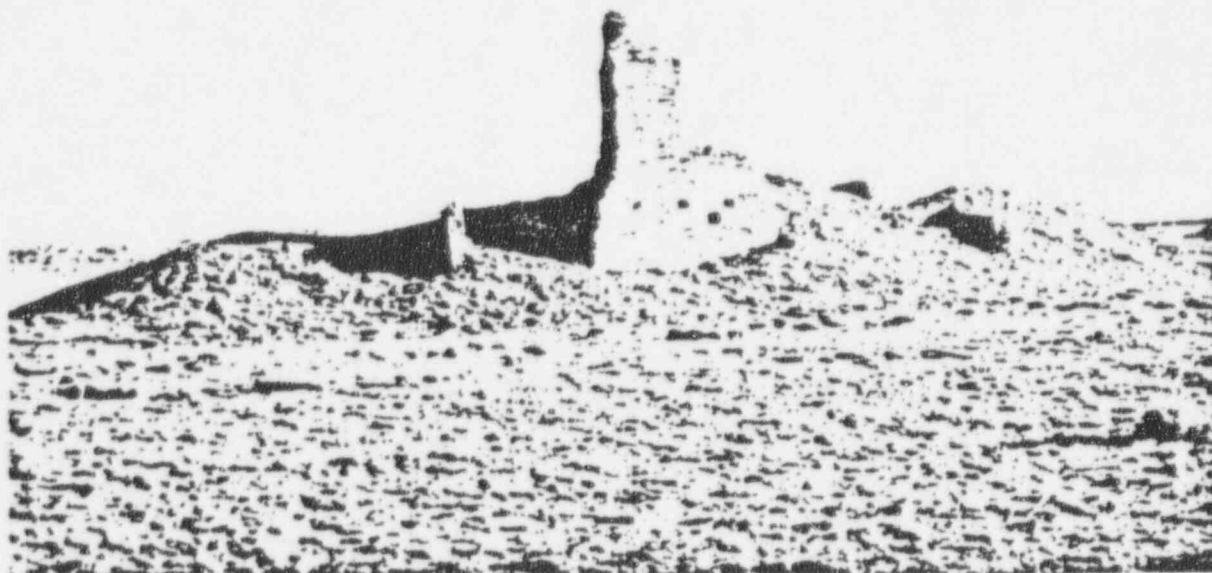
VEGETATION

Kin Ya'a is surrounded by a sparse shrub grassland consisting of snakeweed and scattered stands of sand dropseed and Indian ricegrass. On the site itself, the vegetation is mainly annual plants, including mustard, heliotrope, and small forbs, with a few perennial plants such as saltbush and wolfberry. Scattered juniper can be found 1 km to the southwest.

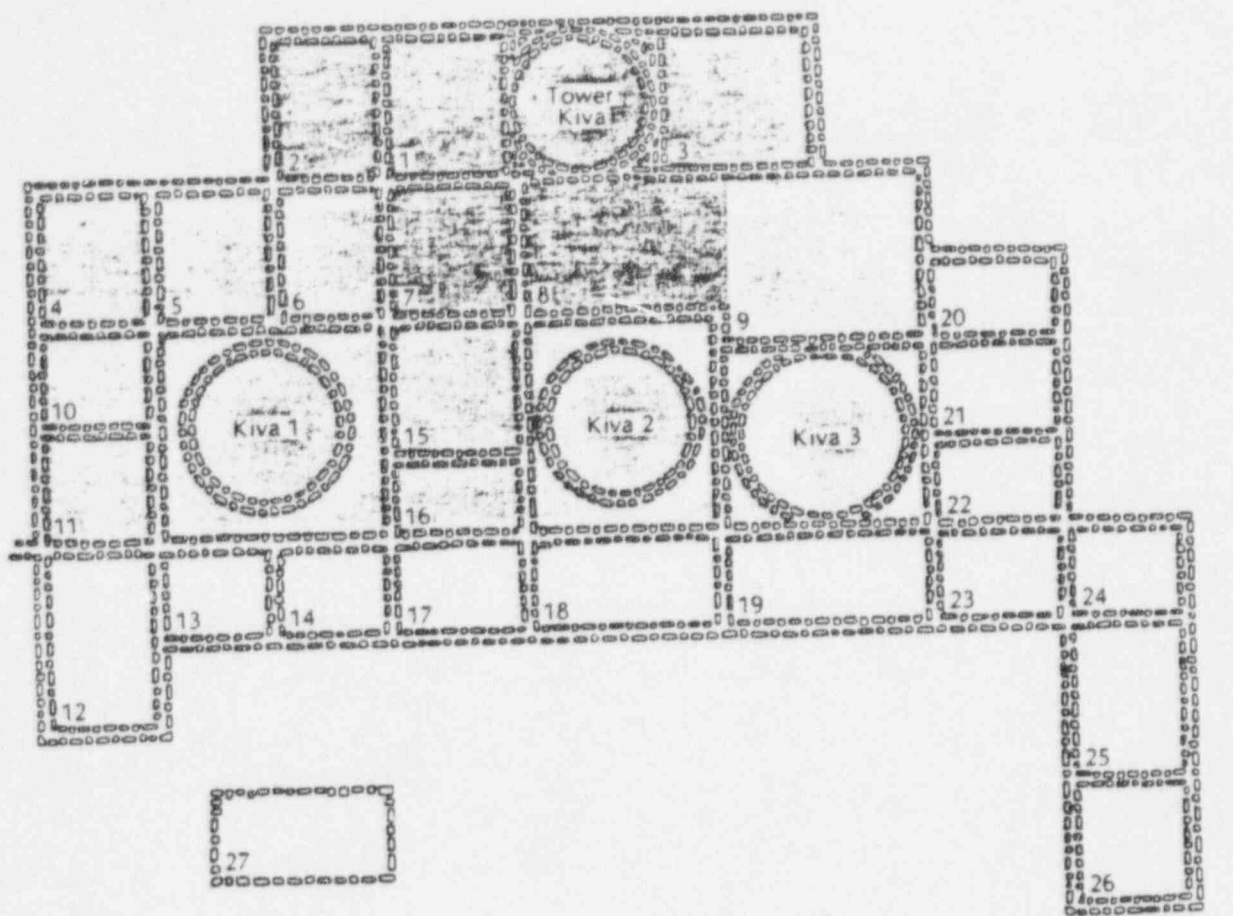
SITE CONDITION

The Kin Ya'a ruin is mostly reduced. Extensive stabilization efforts have slowed the attrition of the spire-like tower remnant which marks the home of the Kiiya'anii clan, and from which the site derives its name.

S. J. Holsinger, who visited the ruin around the turn of the century, noted that treasure hunters had tunneled into the ruin only to find a "... solid mass of detritus" (Holsinger 1901:54). A photograph accompanying Holsinger's report shows a large hole in the base of the tower kiva (Holsinger



Kin Ya'a LA No. 8778 view to the southeast.



KIN YA'A
LA NO. 8778
APRIL 1978

1901:53). This wall is now restored. He also reported evidence for extensive looting within the Kin Ya'a community. "Skulls, femurs, and other bones are strewn promiscuously over the ground, with many large fragments of pottery" (Holsinger 1901:55). Scars left by looters are still evident within the Kin Ya'a community.

The area immediately around Kin Ya'a has recently been the focus of extensive drilling operations associated with uranium.

PHYSIOGRAPHIC SITUATION

The site is on a broad bench on the north side of the Red Mesa Valley. Cliff-forming sandstone units flank the site on the north and south sides.

VEGETATION

The vegetative community is an open juniper grassland with some scattered shrubs.

SITE CONDITION

Reduction is normal and the site is stable.

SITE DESCRIPTION

The placement of the house and the terraced structure orient the building toward the winter sun. The building contains an estimated twenty-six ground floor rooms, three enclosed surface kivas, nine second-story rooms, an undetermined number of possible third-story rooms, and a tower kiva extending to a four story elevation.

The lower single-story terrace consists of a row of three enclosed kivas flanked by narrow rectangular rooms. This lower terrace, which houses the surface kivas, served as a broad elevated platform (approximately 12 m x 40 m) to provide access to the second terrace and four-story tower.

The second terrace encloses the tower kiva. The tower kiva is centered in the rear of the pueblo, flanked on two sides by second and possibly third-story rooms.

PLAZA

"On the south side, remnants of a court or enclosure surrounded by a low wall can still be detected" (Fewkes

1917-13). There is no evidence of such a structure today.

KIN YA'A STRUCTURAL DIMENSIONS

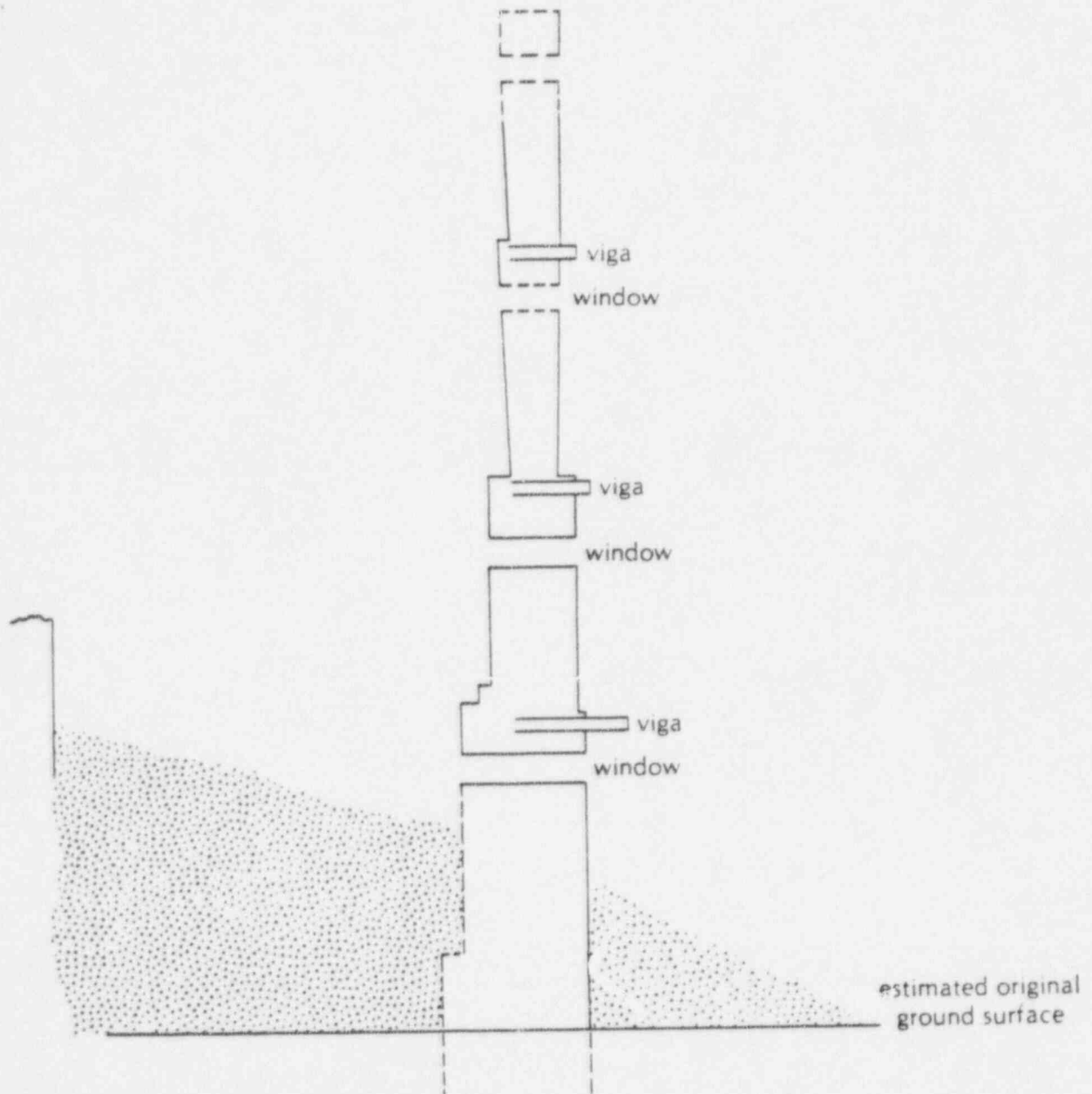
HOUSE DIMENSIONS

Maximum N-S	35.5 m
Minimum N-S	18.7 m
Maximum E-W	45.5 m
Minimum E-W	18.7 m

The Kin Ya'a structure covers approximately 999 square meters.

TOWER KIVA

The Kin Ya'a tower originally stood a full four stories to an estimated elevation of 12 m. The lower chamber and much of the second floor remain intact, while only a rectangular column of the northeast corner extends through the third and into the fourth story. This ragged remnant has a present elevation of 10.25 m.



KIN YA'A TOWER KIVA CROSS-SECTION

LA NO. 8778

APRIL 1978

The walls of the tower kiva have a massive foundation base 1.5 m in width, which is composed of the largest masonry elements (1.20 m x 20 cm) in the structure. The walls taper by means of bench insets to a width of 60 cm in the fourth chamber. The northern outside wall of the tower is essentially vertical with bench insets 10 to 20 cm in width just above each viga level. These outside benches apparently served not only to facilitate the wall taper, but as working platforms for the masons. The inside walls of each kiva chamber slope inward from the floor bench to the roof (i.e., the next floor bench). Thus, there is a slight conical form to each chamber, with the floor diameter exceeding the roof diameter by approximately 20 cm in each case. This may have helped to distribute the structural weight load equitably to the lower levels.

The circular chambers of the Kin Ya'a tower range from 4.4 m to 5.0 m in interior diameter, depending on the location of measurements with reference to the bench structures. The cylinders are housed within a massive rectangular structure 6.4 m E-W x 6.2 m N-S. The cylinders are set such that the southern interior wall includes 1.5 m of the east-west exterior wall of the enclosure.

A narrow bench, or ledge, 15 to 25 cm in width, exists on the interior, directly above the exterior viga levels. These ledges are situated near the floor level of each chamber and appear to represent the platform upon which the floor beams were set. The ledges of the second and third-floor levels are separated by a 2.8 m vertical distance. On the second story there is a partial bench structure which exists only in the north quadrant for a distance of 1.60 m, and which is 15 cm in width and 25 cm in elevation above the floor ledge. There are no viga molds visible in the interior chamber walls.

On the exterior face of the north wall, there are vigas housed within rectangular masonry molds which define the story elevations. These vigas are located at 2.8 m, 5.7 m, 8.6 m, and a projected 11.5 m above the ground surface. Directly above each viga level, there is a narrow ledge 15 to 20 cm in width. Each exterior viga level is located directly opposite and just below the floor bench in the cylinder interior (see cross-section). These vigas do not, however, appear to extend into the room interior, unless perhaps the molds have been filled during stabilization. It is rather peculiar that the vigas do not extend into the room interior. It is possible that these exterior vigas served as support for scaffolding to aid in the construction of the multistory tower. It does appear that the interior ledges served as the roof support structures.

Within the north wall of the tower, there are window vents on the lower and second floors. It is quite probable that similar vents also existed on the third and fourth floors, although this section of wall is absent. The window of the first floor is located directly below the center of the upper window. The window of the lower floor is of rectangular form, 40 cm x 35 cm in size. This window is located 2.2 m above the ground floor. The window of the second floor is a "T" shaped structure 39 cm wide and 10 cm high on the top and 27 cm wide and 15 cm high on the bottom.

The tower chambers of Kin Ya'a are burned. There is no evidence of fire in the remainder of the house. The interior wall surfaces of the tower are brick-red, and the adobe mortar is fire-hardened. This may have contributed to the durability of the structure.

The tower kiva is a rare feature in Chacoan structures. The functions of this type of kiva are not known, but Fewkes (1917:15) ventured a guess, "It must be remembered that the ceremonial room or kiva, in modern mythology, represents the underworld out of which . . . the early races of men emerged." The tower kiva at Kin Ya'a "... may have been

four kivas, one above another, to represent the underworlds in which the ancestors of the human race lived in succession before emerging into that in which we now dwell."

MASONRY

The walls of Kin Ya'a are massive, core-veneer masonry constructions 50 to 60 cm in thickness. The masonry materials consist of dense buff to dark brown sandstone slabs ranging from chinking spalls to large blocks 1.20 m in length x 20 cm in thickness. The average element size is 10 cm x 30 cm. Elements in the interior of the tower kiva are somewhat smaller, averaging 3 cm x 10 cm. Most of the masonry facing is evenly coursed but unbanded; however, areas of irregular wide banding also occur. The larger elements occur at the base of the tower in bands, apparently acting as foundation stones.

"In the west wall, there is a course of uniform size, measuring 6" x 48" on the face of the wall. These were the largest stones employed in the construction of any of the Chaco buildings. The style of masonry was, as a rule, plain, with one exception being noted in the third story, where there were alternating bands of small and large stones" (Holsinger 1901).

ENTRYWAYS

No entryways are visible. The tower kiva was apparently entered from the roof or perhaps from the lower chamber which is concealed by the rubble mound.

MIDDENS

There are four extensive midden areas which occur in proximity to the house. Midden 2, however, appears to be associated with House Mound A-III, which is located 50 m northeast of Kin Ya'a. The three midden areas (1, 3, and 4) which have direct association with Kin Ya'a contain an estimated 1,200 cubic meters of trash fill. Midden 1 (i.e., A-109) is located 30 m southeast of the house. This midden measures 45 m x 22 m, with a mean elevation of 1 m. Midden 2 (i.e., A-110) is located 60 m northeast of the house in the northeast part of the fenced area. This midden measures 40 m x 20 m, with a mean elevation of 1 m. Midden 3 (i.e., A-112) is located 35 m north of the pueblo. It is 16 m x 13 m in size and has a mean elevation of 50 cm. Midden 4 is located adjacent to and southwest of Midden 1 near the south boundary fence. This formation measures 17 m x 12 m with a mean elevation of 50 cm.

ADJACENT OUTLYING FEATURES

House A-111

Located approximately 50 m northeast of Kin Ya'a, there is a "complex-linear" house block 34 m in length with an orientation similar to that of Kin Ya'a. This house is estimated to contain approximately fifteen rooms. There is a kiva depression 8 m in diameter adjacent to, and southeast of, the house. The rubble mound elevation is 1 m. The masonry is compound, with walls 30 to 40 cm thick. Midden 2 appears to be associated with this house. This house is similar to the 100 or so unit pueblos which occur in the Kin Ya'a nuclear community area.

Depressions

There are three depressions in close proximity to Kin Ya'a which may represent outlying kivas. One is located in the prehistoric roadway between the pueblo and Midden 1. This is 8 m in diameter. Another, which is 10 m in diameter, is situated directly northwest of Midden 4, southeast of the roadway. There is another swale-depression between Middens 1 and 2, which may be structural in nature.

Great Kiva

An isolated great kiva (29Mc-117) is present in the Kin Ya'a

settlement on a low hill approximately 200 m northwest of the Kin Ya's ruin. The ceramic sample obtained adjacent to this kiva, although somewhat contaminated from later components in the area, appears to predate Kin Ya's. It is possible that this kiva served as the community religious center prior to the construction of Kin Ya's itself.

The kiva has an interior diameter of approximately 13.5 m. The maximum depth of the depression is now 1.25 m. Four masonry alcove rooms are attached to the outside perimeter of the kiva. The kiva appears to have been primarily subterranean.

The wall of the kiva structure is entirely covered except for a "pothole" inside of the south wall. This excavation has revealed a section of masonry wall approximately 2 m long and 70 cm in height. The interior surface of this exposed section of wall is burned and fire-reddened. Additional scattered oxidized masonry elements indicate that the entire room had burned. All masonry elements used in the structure are of soft, light brown tabular sandstone. The interior face of the kiva wall is uniform and nonbanded. Elements range from 25 to 35 cm in length and 5 cm in width. Small chinking spalls are also present and occur with random placement. The total wall thickness and construction mode is undetermined.

Four well defined coursed masonry alcove rooms exist around the kiva margin. These alcoves have a regular placement opposite one another. The north, west, and south

alcoves are single rooms with an approximate interior size of 3.5 m parallel to the kiva x 2.5 m perpendicular to the kiva wall. The east alcove, however, is a double room of somewhat larger size. The interior room is 5 m x 2.5 m and the outside room is of similar size, but appears to be open on the east. Partial wall alignments visible in the various alcoves reveal compound masonry 40 cm in thickness. The alcoves represent surface structures with mound elevations of 50 cm.

Estimated Dimension of Kiva Structures

Kiva	interior diameter	inside N-S	size of enclosure E-W
1	5.5 m	8.5 m	8.0 m
2	5.0 m	7.0 m	8.0 m
3	6.0 m	7.5 m	7.0 m
tower kiva	4.45-5.0 m	6.4 m	6.2 m

Five meters southwest of the southwest kiva alcove, there is a well defined pit room or kiva depression 50 cm in depth and about 5 m in diameter. No masonry elements are visible. The association of this structure with the great kiva is unknown.

A rubble mound 4 m x 4 m in size and 50 cm in elevation exists 5 m north of the northwest alcove. This appears to

Ceramics

	Kin Ya's		great kiva grab sample Midden 4
	Midden 1 grab sample	Midden 2 grab sample	
Cibola Gray Ware			32
Plain	28	11	5
Banded-Smoothed	1	2	1
Banded-Incised			21
Corrugated-Indented	88	43	
Corrugated-Incised	1		
Cibola White Ware			1
White Mound B/W			5
Red Mesa B/W		1	4
Solid Style B/W	7	5	7
Gallup B/W	6	5	
Unidentified Style B/W	28	38	
Chuska Gray Ware			
Corrugated-Incised	1		
Mesa Verde White Ware			
McElmo B/W		1	
White Mt. Red Ware			
Puerco B/R	1	1	1
Wingate B/R			1
Unidentified Style	1	2	
Socorro White Ware			
Socorro B/W		1	
San Juan Red Ware			
Unidentified Style			2
TOTAL	162	110	

represent a single masonry room. Many other room blocks occur in the vicinity, particularly toward the west, but documentation of these sites is beyond the scope of this study.

Extensive midden formations exist in the proximity of the kiva. Midden 1 is located approximately 12 m northeast of the kiva and is 15 m x 30 m in size and 50 cm in elevation. Midden 2 occurs immediately north of the kiva and is 18 m x 12 m in size and 25 cm in elevation. Midden 3 is located 8 m west of the kiva and is 8 m x 6 m in size and 25 cm in elevation. Midden 4 is an extensive but shallow formation which is adjacent to the kiva on the eastern side. This midden measures approximately 70 m E-W x 12 m N-S and is 25 cm in elevation. The total quantity of midden which exists in proximity to the kiva is estimated to be 451 cubic meters.

A location, 29Mc-122, has been recorded as an additional great kiva, some 600 m NE of Kin Ya'a. This feature was inspected, but it appears to be a swale between a house mound and a midden area.

COMMUNITY DISCUSSION

In 1972, the National Park Service conducted an archeological survey of the east half of Section 28 T17N, R12W which resulted in the definition of thirty-seven Anasazi sites (Sites 29Mc-101-138).

In 1978, the New Mexico State University, San Juan Branch, Cultural Resource Management Program (Hooten, Andrae, and Naylor 1978) conducted an archeological survey of 3.75 sections (Section 20 NE¼, Section 21 W¼, Section 22 S¼, Section 26 W¼, Section 27, Section 35 NW¼, and Section 28 NW, NE, and SW¼). This survey resulted in the definition of approximately sixty-seven additional Anasazi sites.

The archeological survey in four square miles around Kin Ya'a has defined approximately 104 sites. These range from sherd scatters and hearths to large fifty-room pueblos with multiple kivas. The site density is clearly highest in Section 28 around the western slopes above Kin Ya'a. Most of the sites span the late PI into the early PIII period ca. A.D. 950-1100. Only traces of BMIII or early PI materials are noted.

The survey work which has been conducted adjacent to Kin Ya'a has resulted in an inventory oriented toward the spatial definition of the sites for clearance purposes. The records, although substantial, do not allow for consistent definition of specific temporal affinity, estimated number of rooms, or midden sizes. The sites have therefore not been summarized in this study.

REMARKS

Evidence of Water Control

Structural evidence of water control devices in the floodplain adjacent to Kin Ya'a has been defined in two locations by the National Park Service's 1972 Survey. These locations have not been tested or otherwise reexamined.

Site 29Mc-105, located in the SW¼ of the NW¼ of the SE¼ of Section 28 (Beardsley 1972), is an apparent irrigation ditch 90 m long NE-SE and 2.5 m in width. The ditch is evidenced by a low linear swale 50 cm in present depth. There is a "masonry dam" 1.25 m in length and 25 cm in exposed elevation across the swale.

An additional location, Site 29Mc-135 in the NW¼ of the SW¼ of NE¼ of Section 28 (Beardsley 1972) consists of a "partially exposed check dam 30 m long and 75 cm in width and a possible irrigation ditch."

These apparent irrigation features warrant further examination and testing. Indeed, a specific study of water control in the Kin Ya'a floodplain is in order.

Roadway

There is a roadway evidenced by a pronounced swale which approaches Kin Ya'a from the northeast. The roadway makes an angle change and leaves the pueblo on a southwest orientation. The roadway is defined by a linear swale 6 to 9 m in width and 1 m deep.

In 1901, Holsinger mistook this roadway entering Kin Ya'a for an irrigation feature: "The vestige of two large reservoirs and a huge canal, now 20 feet wide, on the bottom passes within a few yards of the ruins."

In 1917, Fewkes recognized the swale as a well used trail. "The trail was at first mistaken for an irrigation ditch, but an examination of its course shows that it runs up a steep hill, which precludes such a theory."

Today the prehistoric roadway which passes through Kin Ya'a is known as the "Great South Road." There are, in fact, two roadways which enter Kin Ya'a from the northeast. One avenue leads NNE toward Bee Burrow, and north to the South Gap of Chaco Canyon; the other leads NE, toward Pueblo Pintado. A roadway through the South Gap of Chaco Canyon is "... traceable some thirty miles to the south. At Kin Ya'a, the roadway from the north passes through the site and continues toward the southwest. Another branch ran northeast, apparently toward Pueblo Pintado" (Lyons and Hitchcock 1977:128).

The southwestern spur leads to the edge of the mountains approximately 2 km distant. This may represent an avenue to the rock quarries and wood sources. Such quarry roads are also known at Aztec (Morris 1915:666) and Pueblo Pintado. It should also be noted that in 1954, Neil Judd reported that Hosteen Beyer recognized a roadway from Kin Bineola to Kin Ya'a. This roadway has not yet been defined and documented by archeologists.

Estimated Interior Room Sizes (See Illustration)

room no.	E-W size	N-S size
1	3.5 m	5.0 m
2	4.5 m	5.0 m
3	5.0 m	5.0 m
4	3.5 m	5.0 m
5	4.5 m	5.0 m
6	3.5 m	5.0 m
7	4.5 m	5.0 m
8	3.5 m	3.5 m
9	4.75 m	5.0 m
10	4.75 m	2.5 m
11	3.5 m	4.0 m
12	3.5 m	6.5 m
13	4.0 m	3.0 m
14	4.0 m	3.0 m
15	5.0 m	3.0 m
16	7.0 m	3.0 m
17	7.5 m	3.0 m
18	4.5 m	3.0 m
19	4.5 m	3.0 m
20	4.5 m	3.0 m
21	4.5 m	2.5 m
22	4.5 m	3.0 m
23	4.0 m	6.0 m
24	4.0 m	4.5 m
25	area concealed 1 or 2 rooms?	
26 (isolated unit)	6.5 m	3.0 m