Redacted Version per NRC Request July 2011

A CLASS III CULTURAL RESOURCE INVENTORY OF STRATA ENERGY'S PROPOSED ROSS ISR URANIUM PROJECT, CROOK COUNTY, WYOMING

Prepared for
Strata Energy
Gillette, Wyoming

and

WWC Engineering
Sheridan, Wyoming

by

David Ferguson
GCM Services, Inc.
P. O. Box 3047
Butte, MT 59701

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CHAPTER 1. INTRODUCTION

Strata Energy, Inc., of Gillette, Wyoming, is applying to the Nuclear Regulatory Commission (NRC) for necessary permits to mine uranium in Crook County Wyoming, about 18 miles north of Moorcroft on the southwest side of the community of Oshoto. The project is called "Ross ISR" and will be an "*In Situ* Recovery" (ISR) mine that extracts ore from fluid pumped into and recovered from the ore-bearing stratum. Permits required include an NRC permit for the source and byproduct material, and an LQD (Wyoming DEQ permit to mine).

The Bureau of Land Management (Newcastle Field Office) will be a cooperating agency with NRC for purposes of the cultural resources consultation under Section 106 of the Historic Preservation Act. Strata Energy, through WWC Engineering of Sheridan, Wyoming, contracted with GCM Services, Inc., of Butte, Montana to conduct a Class III cultural resources inventory of the permit area. The west half of Section 18, [redacted] is State of Wyoming Land (320 acres), the NWSE of that section is BLM (40) acres, and the remainder of the study area is private surface. The Class III survey covers approximately 1,710 acres.* The description of the project area is given in Table 1-1. The project area is shown on Figures 1-1 and 1-2.

Table 1-1. Summary of lands in the study area.

[redacted]	(private)	80 acres
	(private)	320 acres
	(private)	80 acres
	(private)	160 acres
	(W1/2 State, NWSE BLM, all other is private)	640 acres
	(private)	430 acres
	Total	**1,710 acres***

*WWC more accurately defines the study area as 1,721.3 acres. The discrepancy results from irregularly-sized sections. The table assumed standard 640-acre sections.

The goal of the fieldwork was to identify all cultural manifestations over 50 years old within the project area and to make recommendations as to their eligibility for the National Register of Historic Places (NRHP). As secondary purpose was to report the location of any vertebrate paleontological remains encountered. The sites and isolated finds that were identified during the inventory were located to the nearest 1/4 1/4 1/4 1/4 section, and plotted on the United States Geological Survey (USGS) 7.5-minute topographic map *Oshoto, Wyoming (1984).*

David Ferguson, Garren Meyer, Walker Vaught, Viktor Kujawa and Douglas Murray conducted the 2010 Class III survey between April 15 and April 20, 2010. Meyer made an additional field visit on July 27-28, 2010. Ferguson wrote this report, with contributions by Garren Meyer. Jennifer Petersen handled report production. The following report provides a brief physical description of the study area, summarizes the local cultural context, describes the methods and techniques used in the investigation, and presents the results of the Class I literature review and Class III pedestrian inventory.

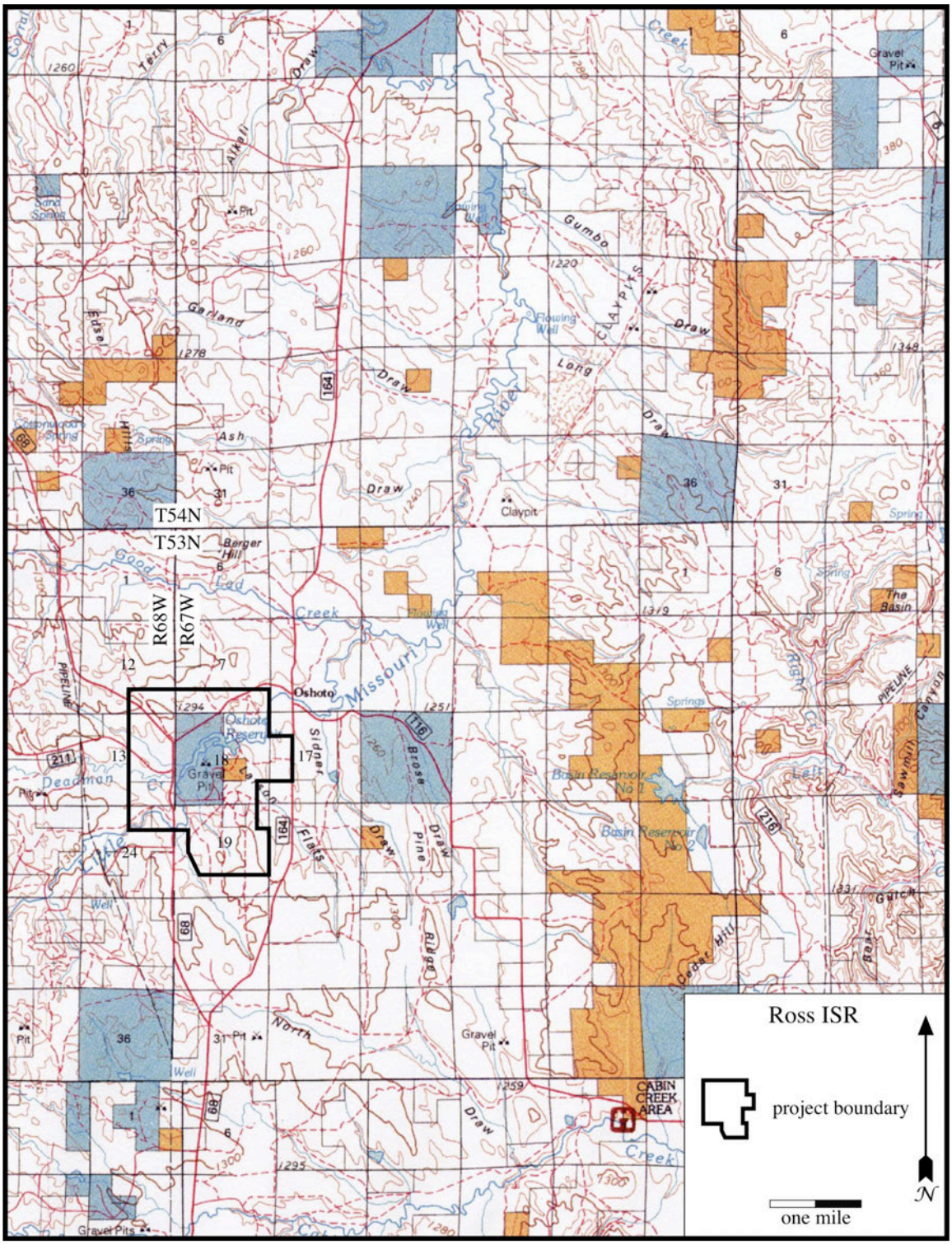


Figure 1-1. The project area on the Bureau of Land Management 1:100,000-scale surface management status map, *Moorcroft,* Wyoming.

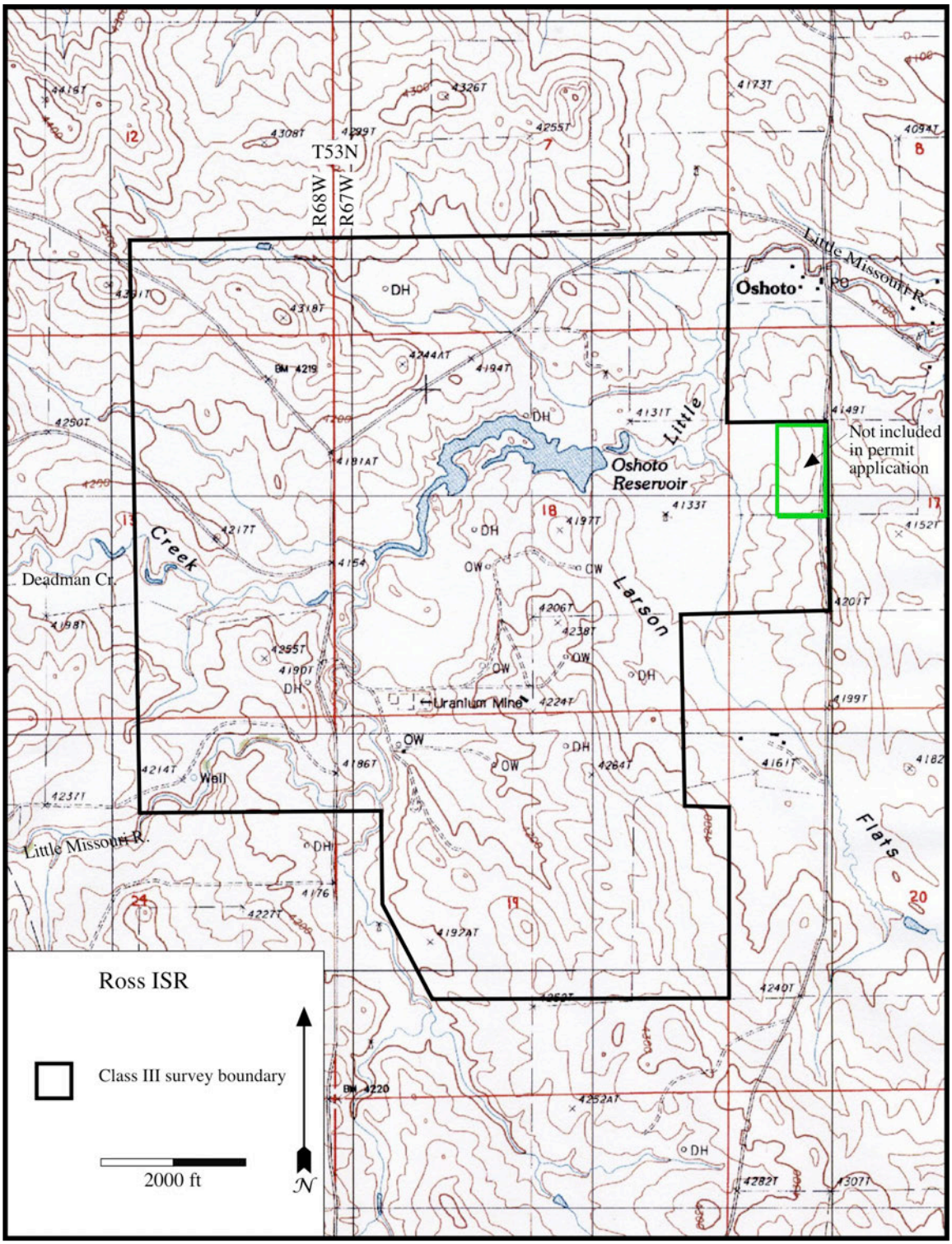


Figure 2. The Class III study area on the United States Geological Survey (USGS) 7.5-minute topographic map *Oshoto, Wyoming (Provisional, 1984)*.

Project Purpose and Scope

Cultural resources, which are protected under the National Historic Preservation Act of 1966, are nonrenewable remains of past human activity. The Powder River Basin, including the general analysis area, appears to have been inhabited by aboriginal hunting and gathering people for more than 13,000 years. Throughout the prehistoric past, the area was occupied by highly mobile hunter/gatherers who exploited a wide variety of resources. Several thousand cultural sites have been recorded within the PRB.

A Class I cultural resources inventory is the summary of existing records and data for a specific study area that discusses all relevant prior studies and their findings. A few cultural resource surveys associated with oil and gas field development and other small scale projects had been conducted in the general area. No large-scale studies have been done in the area.

A Class III cultural resources survey is an intensive and comprehensive inventory of a proposed project area conducted by professional archaeologists and consultants. The survey is designed to locate and identify all prehistoric and historic cultural properties 50 years and older that have exposed surface manifestations. The goal of the survey is to locate all cultural resources within the project area and to record and describe the resources at a sufficient level to allow for a recommendation of each site's ability to meet criteria of eligibility for the NRHP. Determinations of eligibility are made by the managing federal agency in consultation with the SHPO. Consultation with the SHPO must be completed prior to the approval of the mining plan.

After completion of a Class III cultural resources survey, additional investigations may be undertaken to complete an individual site record. If necessary, site-specific testing or limited excavation may be utilized to collect additional data, which will determine the final evaluation status of a site and/or, form the basis of additional work to be conducted during implementation of a treatment (mitigation) plan if the site is determined eligible for the NRHP. A treatment plan is then developed for those sites that are eligible for the NRHP and are within the area of potential effect. Treatment plans are implemented prior to mining and can include such mitigation measures as avoidance, data recovery through excavation and analysis, comprehensive recordation, and other acceptable scientific practices.

Data recovery plans are required for sites that are determined eligible for the NRHP and cannot be avoided by project development, following consultation with the SHPO. Until consultation has occurred and agreement regarding NRHP eligibility has been reached, all sites recommended as eligible or having undetermined eligibility must be protected from disturbance. Full consultation with the SHPO will be completed prior to approval of the mining plans. Those sites determined to be not eligible for the NRHP through consultation would receive no further protection or treatment.

CHAPTER 2. ENVIRONMENTAL SETTING

The project area lies at the confluence of Deadman Creek, the Little Missouri River and three unnamed tributary drainages. All have been characterized as ephemeral drainages, having small ponds or pools, sometimes connected by seeping surface water. The season of the survey (April) followed closely after a significant spring snowstorm had melted, so the surface water situation was probably at its best when the work was conducted. At that time there was surface water to be found in all of the drainages, which essentially establish the headwaters of the Little Missouri River as an intermittent drainage. The Little Missouri River is impounded by a small earth dam, which forms Oshoto Reservoir, a significant body of water within the study area.

The study area lies within the Lance Formation of the Upper Cretaceous (Love, et al. 1990). This is a non-marine shale and sandstone, which has eroded away at the surface into residual pale gray shaley clay and brown, coarse sand. Fossil bone observed in the project area was scattered and was typically found in sandy blowouts. It appears to have weathered out of residual deposits and probably lacks any contextual integrity.

Where soil has developed, it is pale brown sandy loam on the uplands and pale grayish brown silt loam on the alluvial terraces. Soil development of up to 50 cm was noted in cut banks along Oshoto Reservoir. The terrace margins, particularly along the south side of the reservoir, are severely eroded, with areas of alkaline hardpan and almost no vegetation. On ridge tops, the soil is very thin. A veneer of pebbles and lag gravel and wind-scoured sandy blowouts are commonplace. The gravel, consisting of orthoquartzite, silicified wood and poor quality chert, may have had some lithic material value but does not appear to have been heavily utilized.

Vegetation was sparse owing to the cold weather in spring of 2010, which delayed new growth. Species observed (in no particular order) include: prairie junegrass, bluebunch wheatgrass, needle-and-thread, plains cottonwood, silver sage, buttercups, prickly pear, hoods phlox, gum weed, Echinacea, thistle, rubber rabbitbrush, locoweed, yarrow, yucca, sand lily, pussy toes, clover, cattails, box elder (*acer negundo*), greasewood, nuttal saltbush, hairy golden aster, tumble mustard, larkspur, vetch, cushion daisy, biscuit root, snowberry, dandelion, and wild rose. Other species introduced are crested wheatgrass and cheatgrass brome.

The Little Missouri River, traditionally called Wakpa Chan Shoka and Hehaka Ta Wakpa (River of the Elk) by Native Americans, originates in northeast Wyoming, essentially within the project area. It flows northeasterly and north across the southeast corner of Montana and the northwest corner of South Dakota, then through southwest North Dakota, ultimately joining the Missouri River. It is designated as a wild and scenic river in North Dakota where it flows through Theodore Roosevelt National Park and the Little Missouri National Grasslands. Its total length is about 550 miles. Flow is highly variable in the Wyoming reach of the Little Missouri drainage (USGS 1985). It supports freshwater mussels, a documented prehistoric food source. Obviously, as a fairly dependable source of surface water, the drainage had high value to prehistoric peoples.

The human impact to the environment of the project area has also been significant. The Oshoto Reservoir is a sinuous impoundment about ¾ miles long and covering about 20 to 30 acres. Wave action and shoreline erosion have significantly impacted the lower terraces of the Little Missouri River drainage along its length, particularly on the south side of the reservoir. County roads, drilling access roads, oil well development, power lines and exploratory drilling for uranium have also impacted the area. Uranium exploration in the area dates as far back as the 1950s. Strata Energy has been conducting exploration and delineation of the project area since 2008 under Wyoming Department of Environmental Quality (WDEQ) Drilling Notifications (DNs) provided through the WDEQ LQD. Figure 1-2 in chapter 1 indicates non-agricultural areas of prior surface disturbance. A cultivated and irrigated hay field lies on the east side of the project area in the NESW Section 18 and all of Section 17 within the study area. Old cultivation dating to a 1920s homestead is found in [redacted]. Figures 2-1 through 2-7 are photographs of the project area.

Figure 2-1. Photo of crew surveying along Oshoto Reservoir [redacted].

Figure 2-2. Oshoto Reservoir [redacted], looking [redacted] at cut bank erosion.

Figure 2-3. Deadman Creek drainage [redacted] looking south.

Figure 2-4. Shoreline erosion on the [redacted] side of Oshoto Reservoir, looking [redacted]

Figure 2-5. Looking east across project area with Devils Tower in background at right.

Figure 2-6. Overview of project area looking NNE from the highest point in [redacted] Section 18.

Figure 2-7. Overview of project area looking north at the upper Little Missouri River drainage [redacted].

CHAPTER 3. RESULTS OF THE CLASS I INVENTORY

Sources for the Class I inventory (literature review) include Wyoming Cultural Records Office (WYCRO) file searches, the WYCRO on-line database, and the BLM Newcastle Field Office cultural records.

A WYCRO file search, no. 25285, was conducted prior to the fieldwork on February 9, 2010. The WYCRO database indicates that no substantial block inventory had been conducted in the study area prior to the current project. A few small-scale linear projects associated with power lines, buried telephone cable, and a well-pad and access survey had been conducted in the area. These projects area summarized below.

Within Section 7, [redacted] there have been two cultural inventories, Accession No. 8 1973 0, a linear power line survey, and 95 1047 0, a linear buried telephone cable survey. No cultural sites or isolates were documented in Section 7.

Within Section 18, [redacted], there have been three cultural inventories: Accession No. 8 1073 0, a linear power line survey; 8 1129 0, a linear power line survey; and, 95 1047 0, a linear buried telephone cable survey. No cultural sites or isolates were documented in Section 18.

Within Section 19, [redacted], there have been three cultural inventories: Accession No. 8 1073 0, the linear power line survey; 8 1129 0, also a linear power line survey; and, 99 491 0, a survey of unknown type and extent (there is no specific information in the data base). No cultural sites or isolates were documented in Section 19.

Within Section 12, [redacted], there have been two cultural inventories: Accession No. 87 280 0, a combination block and linear well pad and access road survey covering 10 acres; and, 95 1047 0, the linear buried telephone cable survey. No cultural sites or isolates were documented in Section 12.

Within Section 13, [redacted], there has been one cultural inventories: 95 1047 0, the linear buried telephone cable survey. One prehistoric campsite, 48CK1603, was recorded in Section 13.

Within Section 24, [redacted], there have been two cultural inventories: Accession No. 89 93 0, a 15-acre well pad survey; and, 95 1047 0, the linear buried telephone cable survey. No cultural sites or isolates were documented in Section 24.

Cultural site 48CK1603 is described as a prehistoric campsite and lithic scatter by the recorder (Aaberg 1995), who recommended avoidance of the site by the project (a buried telephone fiber optic cable), which was moved to an eroded portion of the site area. Currently, the site's status in the WYCRIS database is listed as "Eligibility Unknown." A check of the Wyoming SHPO's actions on this property shows that the SHPO has concurrence of NRHP eligibility for this site (7/28/1995), but there is no encoding of any agency recommendations. The site lies on both State of Wyoming land and private land. [redacted]. At the time of the April 2010 Ross ISR block inventory, D Road had just been reconstructed

(presumably by the county or state, in any case it was not by Strata Energy) and in fact, D Road was not yet open to through traffic. The substantial widening of the road had significantly impacted the area of site 48CK1063. Shoulder recontouring, heavy equipment parking and other earthwork have basically reshaped the topography at the site location. Suffice it to say the site has been destroyed by road construction. No evidence of the prehistoric site was found, although the BLM cadastral and wooden debris (what appears to be discarded timber from an old county road bridge) as depicted on the site sketch map by Aaberg (1995) just to the south of the site was found. No record of additional investigation at the site was found at WYCRIS, but the site should now be considered destroyed. An isolate, IF9, consisting of two artifacts, was recorded [redacted] during the current project.

CHAPTER 4. FIELD METHODS

An intensive pedestrian inventory was conducted of all the land within the Class III study area. Transect intervals did not exceed 30 meters. An excellent source of subsurface exposure are cut banks, anthills, rodent burrows and the ruts made in two track roads and cow trails, and these were closely examined. Ground visibility varied from 30—50 percent on terraces and uplands, where grass cover was moderate, to over 90 percent in eroded areas along the drainages and Oshoto reservoir shoreline.

The pedestrian inventory considered the types of landforms where artifacts were discovered. A Class III inventory is, in reality, only a sampling of archaeological sites that are discoverable because cultural material has been exposed at the surface, generally by the destructive forces of erosion. The sites that are most readily discoverable are often not the ones with the greatest research potential. Fully intact sites may be completely buried and therefore not discoverable by surface inventory. It is those sites only just beginning to be exposed that offer the combination of discoverability and have good potential to contain intact deposits. This inventory was focused on location (setting) as much as surface artifacts. Intact, stable terraces are the best locations for preserving an intact cultural deposit in this environment. Special attention was given these landforms, carefully checking the margins and any areas of subsurface exposure.

The newly identified sites and isolated finds were recorded and plotted on the USGS 7.5 minute topographic map *Oshoto, Wyoming* (Provisional 1984). Digital photographs, artifact illustrations (sketches, photographs, or scans) and site sketch maps are included with the Wyoming site forms, which are attached as Appendix A. A sketch map is also included with the site narratives below. The Wyoming Isolated Find forms are attached as Appendix B.

Site and Isolated Find Definitions

A prehistoric site is defined by the Wyoming SHPO as "…15 or more spatially associated artifacts within a 30 meter diameter area…" or a location with features or buried cultural material. A historic site is defined as "…50 or more associated artifacts within a 30 meter diameter" (Nissley 2005).

Exceptions can be made where there is considered to be potential for substantial buried cultural material. In certain favorably situated settings, it is advisable to search for subsurface cultural manifestations that might go undetected during a surface examination. Such locations typically include depositional landforms with poor surface visibility, particularly those near water sources, but which may have less than the site minimum of 15 artifacts exposed. The efficacy of modern remote sensing methods in detecting subsurface thermal features has been repeatedly demonstrated in the region (Munson 2006).

Traditional Cultural Properties

A Traditional Cultural Property (TCP) is defined by King (1998:267) as " a district, site, building, structure or object that is valued by a human community for the role it plays in

sustaining the community's cultural heritage. Generally a place that figures in important community traditions or in culturally important activities". TCPs can be associated with any ethnic group. TCPs cannot be reliably identified during a standard cultural resource inventory, since they may leave few traces, and can even be modern in character (King 1998). Identification and treatment of TCPs requires consultation between government agencies and affected cultural groups. No TCPs are known to exist within the study area.

Site Recording Procedures

Site recording procedures included taking site photographs, drawing a sketch map, conducting shovel tests, drawing or photographing artifacts with a high quality digital camera, and taking general notes on the artifact assemblage. Manifestations such as stone tools or features were plotted with a recreational grade GPS unit. The GPS was also used to gather coordinates for mapping each site. A site datum generally was not built. However, natural features or objects such as a telephone pole or abandoned farm implement are sometimes noted as landmarks for relocating the site. In reality, the datum stake is passé at the inventory level, as rendered obsolete by the advent of GPS technology. Universal Transverse Mercator (UTM) points using North American Datum 83 (NAD 83) are provided for key areas of each site, including features, formal tools, outlying artifacts, and important landforms. These coordinates can be readily located in the future using any kind of modern GPS device. In the event of mitigation work, a datum is of course needed, but its location is best left to the needs of that investigator.

Testing

Shovel tests were conducted at the discretion of the investigators. The purpose of shovel tests is to document the condition of the soil at the sites and probe for the presence of subsurface cultural remains. Tests are typically placed near artifact or feature locations or at locations that appeared to have some soil accumulation.

Rock Art Recording

There are no rock outcrops within the project area, and no rock art sites were found.

Paleontological Localities

Paleontological material (vertebrate remains) was found in several locations. These are noted in the report, site forms and IF forms. None of the fossil bone appeared to be exposed *in situ*, and it is the (layman's) opinion of this researcher that the fossil bone has weathered out of the Lance Formation long ago and lacks contextual integrity. A qualified paleontologist would have to make a final determination in this regard.

National Register of Historic Places Evaluations

Each cultural property (site) is evaluated within the framework of the National Register of Historic Places (NRHP). A site's integrity of location, design, setting, materials, workmanship, feeling and association is considered, and its ability to meet any of the following criteria:

Criterion A: The site is associated with events that have made a significant contribution to the broad patterns of our history.

Criterion B: The site is associated with the lives of persons significant in our past.

Criterion C: The site embodies the distinctive characteristics of a type, period, or method of construction, or that represented the work of a master, or that possesses high artistic values, or that represented a significant and distinguishable entity whose components may lack individual distinction.

Criterion D: The site has yielded or may be likely to yield information important in prehistory or history.

Fieldwork Conditions and Problems

Fieldwork conditions were ideal during the season of fieldwork (April 2010). A late, heavy snowfall had recently melted. The terrain was gently rolling, and did not cause any problems for traversing on foot. Ground surface visibility was at it's best, and was generally in excess of 50 percent, as spring vegetation has not yet developed. David Ferguson, Garren Meyer, Walker Vaught, Viktor Kujawa and Douglas Murray conducted the 2010 Class III survey between April 15 and April 20, 2010. Meyer made an additional field visit on July 27-28, 2010.

CHAPTER 5. CULTURAL CONTEXTS

Prehistoric Chronology

Frison's (1978, 1991) chronology for the Northwestern Plains divides occupations from early to late into the Paleoindian, Early Plains Archaic, Middle Plains Archaic, Late Plains Archaic, Late Prehistoric, and Protohistoric periods. Frison's chronology is listed below.

- Paleoindian period (13,000 to 7,000 years B.P.)
- Early Archaic period (7,000 to 5,000-4,500 years B.P.)
- Middle Archaic period (5,000-4,500 to 3,000 years B.P.)
- Late Archaic period (3,000 to 1,850 years B.P.)
- Late Prehistoric period (1,850 to 400 years B.P.)
- Protohistoric period (400 to 250 years B.P.)
- Historic period (250 to 120 years B.P.)

The Paleoindian period dates from about 13,000 to 7,000 years ago and includes various complexes (Frison 1978). Each of these complexes is correlated with a distinctive projectile point style derived from large lanceolate and/or stemmed point morphology. The Paleoindian period is traditionally thought to be synonymous with "big game hunters" who exploited megafauna such as bison and mammoth (plains Paleoindian groups), although evidence of the use of vegetal resources is noted at a few Paleoindian sites (foothill-mountain groups).

The Early Archaic period dates from about 7,000 to 5,000-4,500 years ago. Projectile point styles reflect the change from large lanceolate types that characterize the earlier Paleoindian complexes to large side- or corner-notched types. Subsistence patterns reflect exploitation of a broad spectrum of resources, with a much-diminished utilization of large mammals.

The onset of the Middle Archaic period (4,500 to 3,000 years B.P.) has been defined on the basis of the appearance of the McKean Complex as the predominant complex on the Northwestern Plains around 4,900 years B.P. (Frison 1978, 1991, 2001). McKean Complex projectile points are stemmed variants of the lanceolate point. These projectile point types continued until 3,100 years B.P. when they were replaced by a variety of large corner-notched points (i.e., Pelican Lake points) (Martin 1999). Sites dating to this period exhibit a new emphasis on plant procurement and processing.

The Late Archaic period (3,000 to 1,850 years B.P.) is generally defined by the appearance of corner-notched dart points. These projectile points dominate most assemblages until the introduction of the bow and arrow around 1,500 years B.P. (Frison 1991). The period witnessed a continual expansion of occupations into the interior grasslands and basins, as well as the foothills and mountains.

The Late Prehistoric period (1,850 to 400 years B.P.) is marked by a transition in projectile point technology around 1,500 years B.P. The large corner-notched dart points characteristic of the Late Archaic period are replaced by smaller corner- and side-notched points for use with the bow and arrow. Around approximately 1,000 years B.P., the entire Northwestern Plains appears to have suffered an abrupt collapse or shift in population (Frison 1991). This population shift appears to reflect a narrower subsistence base focused mainly on communal procurement of bison and pronghorn.

The Protohistoric period (400 to 250 years B.P.) witnesses the beginning of European influence on prehistoric cultures of the Northwestern Plains. Additions to the material culture include most notably the horse and European trade goods, including glass beads, metal, and firearms. Projectile points of this period include side-notched, tri-notched, and unnotched points, with the addition of metal points. The occupants appear to have practiced a highly mobile and unstable residential mobility strategy.

Historical Contexts

The historic context of the project area includes several themes common to all of Northeastern Wyoming. The earliest cumulative historic impact was associated with intermittent exploration, fur trapping, gold seeking and military expedition, ca. 1810s-1870s. This era was followed by large-scale stock raising, ca. 1870s-1900s. Crook County was formed in 1875. It is named for Brigadier General George Crook, a commander during the Indian Wars. The dry land farming / homesteading movement was the most substantial historic expansion, occurring from the 1910s to the 1930s. The Great Depression resulted in Government assistance programs of the mid-to-late 1930s, which affected the settlement patterns of this region. Post-war ranching (1945-present) is the latest historic theme.

Although Euro-Americans began to pass through Wyoming in the early 1800s, these visits were limited to government expeditions of discovery, and various British and American fur trapping brigades. Beginning in the 1840s, emigrants of the “great western migration” passed along the Oregon-California Trail along the Platte and through South Pass, but few if any detoured into the Powder River Basin. The discovery of gold in Montana brought traffic through northeast Wyoming, but probably had no physical impact on the study area.

At that time, the study area was within the territory occupied by Dakota and Cheyenne tribes. It is believed that smallpox epidemics in 1837 and 1847 were responsible for weakening and reducing the populations of these tribes. Military campaigns followed conflict associated with these tribes, who tried to discourage the trespassing gold seekers heading to gold rushes in Montana and in the Black Hills. The Sioux Wars of 1876-77 culminated with military defeat and economic ruin for the native people. By 1880, the bison herds had been decimated and by 1882-83 the remaining natives had to choose between moving onto the reservations or starvation.

The Wyoming cattle frontier spread widely over Wyoming after the Civil War. In 1866 Nelson Story drove the first herd of longhorns through Wyoming, along the Bozeman Trail to supply miners in Montana. Later, John W. Iliff brought a herd of Texas cattle to Cheyenne (Rosenberg 1991). It was the railroad that made cattle ranching an economic possibility in Wyoming. The Union Pacific reached southern Wyoming in 1867. As the territory filled with cattle ranches, trails were developed connecting the herds with the railroad. The Texas Trail originally referred to the route used to drive longhorns from Texas to Montana in the 1860s. It was later used to connect cattle range in the Powder River country of southeastern Montana with the railroad at Sidney, Nebraska. This trail becomes a collection of alternate routes at its northern end where water was scarce by mid summer, passed through the vicinity of the current study area near the town of Moorcroft.

These early Wyoming ranches stocked the open range with longhorns. The cattle were allowed to graze over unfenced areas year round. Almost all of the grazing land was public domain, but priority right and accustomed range defined the ranches. The Wyoming Stock Growers Association formed roundup districts and recorded brands. This Spanish system of ownership recordation allowed the owners of the wide ranging cattle to be identified and their offspring correctly branded. Once a year, cattle fattened on Wyoming grass would be driven to the nearest railroad and shipped to market. With little overhead or care given to the herds, the profits attracted foreign investors and easily offset the 3-4 percent winter mortality. Cattle Barons ruled wide expanses of rangeland and exerted their might in the territorial and state assemblies. Several large ranches, such as the TA, T7 and 4J, were established in the region during this early period, and continued to operate under different titles into the next century (Rosenberg 1991).

After years of good markets and lush grass, foreign investors began to see western ranches as a sure thing. Eighty percent of England's imported beef came from the United States. Their cattle filled the range in the 1870s but late in the decade the range became overcrowded and over-grazed. In 1884, as more and more western states and territories began shipping beef, market prices began falling. In 1886 drought conditions prevailed over the northern plains and cattle went into the winter in poor condition. That winter a devastating series of blizzards hit the plains. Although Montana and the Dakotas suffered the worst losses, some places as high as 90 percent, Wyoming suffered to a lesser degree with 15 percent losses. The spring of 1887 brought ruin and effectively ended the era of the cattle barons. As heavy foreign investors limped out of the market, smaller scale ranches took their place on the range. New bloodlines were imported from England and Scotland. Angus and Hereford cattle were bred for heartiness in cold weather and commanded higher prices at the railhead. Although open range persisted after 1887, its extent was rapidly eroded by the introduction of barbed wire fences (Rosenberg 1991). The collapse of the big cattle ranches provided an opening for Wyoming's sheep industry. With the cost of starting a sheep ranch only a third of the cost of a similar cattle ranch, sheep outfits were quick to expand onto the range. In 1883, D. A. Kingsbury set up operations on Kelly Creek west of Kaycee. Others followed and by 1890, Buffalo became the center of the northern Wyoming sheep ranching. To the south near Douglas, the Morton (later Morton-Jenne) Sheep Company ran 35,000 head of sheep in the late 1880s. When the Burlington and Missouri Railroad was built into Wyoming in 1891, the

town of Gillette was founded, opening up northeast Wyoming to settlement and providing access to outside markets. In the Gillette area, the 4J and the G-M ranches each ran up to 40,000 head of sheep. The rapid expansion of sheep onto a range that cattlemen thought their own led to conflict and what T.A. Larson (1978) called a developing mentality of Social Darwinism wherein property rights, or perceived rights, sometimes outweighed the value of human life (Massey 1992; Rosenberg 1991).

Despite the conflict, sheep flocks continued to expand in eastern Wyoming. A regional sheep association was organized in 1899. In 1904 there were 140,000 sheep shorn in Lusk. The sheep required more intensive husbandry than cattle, and sheepherders spread across the range. The sheep industry experienced steady declines in the 1910s but continues on smaller scale to the present. Although no major livestock ranch headquarters occur within the study area, the scant remains of sheepherder camps are commonly encountered.

The Dry Land Farming movement of the late 19th and early 20th centuries had a profound effect on the settlement of the Powder River Basin. Although dry land farming had been attempted during the late 1870s in Wyoming, it would not be practiced on a large scale in the state until the World War I years. Newly developed dry land farming techniques were ambitiously applied to the Powder River Basin during the years around WWI. New practices sought to conserve soil moisture through cultivation and leaving fields fallow (Union Pacific Railroad, 1909). Requiring no irrigation and practiced in areas of semi-aridity encouraged the development of sustainable agricultural practices for the Great Plains, which resulted in the Campbell method of dry farming. The Campbell method, developed in South Dakota by Hardy Webster Campbell, gained respectability in the Great Plains, and was presented as a reliable farming method to prospective Great Plains settlers. New technologies such as the windmill and the Oliver plow made settlement of the sub-marginal regions seem feasible. The introduction of red winter wheat gave the farmers a crop that could survive and even thrive where other crops would fail.

Although the principles of dry land farming were sound, success still required a certain amount of precipitation each year. Wyoming encouraged dry land settlement of its semi-arid lands through a Board of Immigration created in 1911. Newspapers extolled the virtues of dry land farming, and railroads conducted well-organized advertising campaigns on an international basis to settle the regions through which they passed. (Rosenberg 1991; Munson and Ferguson 1995).

> The dust bowl they had at that time in Oklahoma? Well, there was a dust bowl here, too. The homesteaders had all plowed up thousands of acres of ground. And I remember one summer, anyway, there was dust all, the dust storms come all summer long. It blowed fences under, and you can still see where the fences were blowed under...this was a dust bowl too, 'cause I remember my mom hangin' wet blankets over the windows...there was nothing you could do [when] the drought was on. You couldn't raise anything. It broke my dad too, he had all power machinery, that he bought

> in 1928, and he had it all paid for, except $500. And they repossessed that combine, tractor and disk and plow. The whole mess. He owed $500 on it and they offered to let him keep it for $300, but there wasn't any money. No, wasn't any. So we lost all that. -Bob Mackey, Teckla homesteader, interviewed by Bill Fischer (1998).

The legal practice of taking up public land by private individuals, more commonly called Homesteading, stems from the 1842 Pre-emption Act. This Act allowed citizens to take up residence on unsurveyed public land. These "squatters" would then be given first chance to buy up to 160 acres (64 ha) at $1.25 (0.4 ha) per acre after the land was officially surveyed. By legalizing the squatting on lands, the government realized some profit for the resource. However, by 1862, it was seen to be advantageous for the public domain to be transferred into private hands to spur settlement and development of what was perceived as the great empty west. The 1862 Homestead Act allowed Americans over 21 to obtain 160 acres (64 ha) of land after a five-year residency and paying a $15 filing fee. Alternately, they could purchase the land for $1.25 per acre (0.4 ha) after only six months. Foreigners could also take advantage of the system if they intended to file for citizenship. After 1872, Civil War Veterans were allowed to apply their months of military service toward the residency requirements. However, the law was based on the productivity of lands east of the Mississippi or the fertile valleys of the Pacific Coast; most Westerners found it difficult to wrest a living on a mere 160 acres (64 ha), especially when it often took at least 40 acres (16 ha) to support one cow. As a remedy, the Timber Culture Act was passed in 1873 which allowed an individual to claim an additional 160 acres (64 ha) if he planted 40 acres (16 ha) of trees and kept them growing for eight years. This requirement was lowered to 10 acres (4 ha) of trees in 1878, but most western settlers would be hard pressed to keep even one acre of trees alive.

The Timber Culture Act was followed by the Desert Land Act of 1877. Under the terms of this act a homesteader could buy 640 acres (64 ha) of desert land. The land cost 25 cents per acre (0.4 ha) the first three years with a final one dollar per acre payment the last year. The homesteader had to irrigate a portion to gain title. Again, this Act was ill-suited to western environmental realities where little year round water flowed. Of 15,898 filings only 4,148 titles were granted and many were fraudulent claims (Rosenberg 1991).

Legislation was further refined as the needs of the West became better known. Frank Mondell, a practicing dry land farmer and a Wyoming congressman authored the 1909 Enlarged Homestead Act, which allowed homesteaders to file on 320 acres. But even with the expanded acreage, many areas simply did not have sufficient rainfall to support even dry land farming. The last act to substantially address the homesteading needs on arid lands was the Stock Raising Homestead Act of 1916. This act allowed an individual to file on 640 acres (256 ha) of land that had been classified as suitable only for stock raising. The land could not have timber and could not be irrigated. The residency requirement was a brief two years.

The various homestead laws were designed to put land into the hands of the common man, giving him a livelihood and the government a steady source of tax revenue.

However, the sturdy corporate homesteader was able to read the fine print of the acts and was able to gain title to vast tracts by various quasi-legal practices that obeyed the letter while violating the principle of homesteading. Less nefarious, local ranchers used the acts to enlarge or legalize their holdings. But even using all the available acts, a rancher could file on no more than 1120 acres (448 ha). Wives, sons, daughters and even hired hands were often pressed into service as homesteaders. Less scrupulous land speculators used dummy claims based on the filing rights of non-residents living back east to gain control of land that they subsequently sold on the open market.

The outbreak of World War I triggered a substantial boom for American agriculture. The most intensive period of homesteading activity in the Eastern Powder River Basin occurred in the late 1910s and early 1920s. Promotional efforts by the state and the railroads, the prosperous war years for agriculture in 1917 and 1918, and the Stock Raising Act of 1916 with its increased acreage (but lack of mineral rights) all contributed to this boom period. A large amount of land filings consisted of existing farms and ranches expanding their holdings in an optimistic economic climate. Unable to satisfy their domestic needs, warring European nations resorted to American producers to supply them with necessary levels of food and fiber. Soaring commodity prices resulted from the high demand for American farm products and American farmers enjoyed a period of relative prosperity. American entrance in the war in April 1917 further escalated the demand for agricultural products. Farmers responded by placing thirty million previously uncultivated acres into production on the Great Plains alone. The boom continued unabated for American farmers until demands and prices dropped precipitously in mid-1920 (Fischer 1998).

A drought in 1919 was followed by a severe winter. The spring of 1920 saw market prices fall. Those homesteaders who were not ruined by the turn in events often became small livestock ranchers and limited their farming to the growing of forage crops and family garden plots. Some were able to obtain cheap land as it was foreclosed or sold for taxes. During the 1920s the size of homesteads in Wyoming nearly doubled and the number of homesteads decreased, indicating the shift to livestock raising.

For most of these small ranchers, irrigation was impossible due to the lack of year-round water sources. Availability of water was the major limiting factor for these early twentieth century homesteaders. The creeks and drainages were intermittent, and reliable springs were scarce. It was often necessary to dig a well fifty or more feet deep to strike water. Most homesteaders relied on a combination of water sources, employing dams and cisterns to hold rainwater and snow melt. It was also often necessary to haul water from distant year-round water sources (Wright Centennial Museum 1991).

By 1934, it was apparent that all viable agricultural lands had been claimed. In many cases, instead of providing an opportunity for western farmers, the acts condemned families to years of privation and hard work with little gain to show for it. The Taylor Grazing Act of 1934 withdrew practically all unappropriated and unreserved public domain lands from homestead entry. These withdrawn lands were to be used in a new leased grazing program (Massey 1992; Rosenberg 1991).

The Northeast Wyoming Land Utilization Project:

> ... planned to help ranchers develop adequate operating units for feed production and stock raising in areas where soil and climatic conditions made the land unsuitable for the cultivation of cash crops. The large number of people on relief in these areas and the serious depletion of the soil and grass were among the factors that made improvement in land use imperative. In addition, local governments were suffering from excessive tax delinquency and other financial difficulties, which could be traced back to an economically unwise use of the land (USDA, n.d.).

Bitter reality had shown that for much of Wyoming, a family simply couldn't earn a living from a 160 or even 640-acre farm, nor could a family successfully ranch on only one or two sections of land. For the most part their land was ill-suited for raising crops. At 4700-5000 ft elevation, northeast Wyoming received only 25 to 37.5 cm of precipitation a year, had a short growing season of 3.5 to 4 months, and had a temperature range from -48 to 40 c. Further, even if a crop could be harvested, the farmer still had to transport it 40 to 60 miles to town.

Because the law did not provide the homesteader with enough land to successfully operate in the harsh environment, he often found himself laboring under excessive operating debt. Even with the new dry land farming techniques, the farmer was ill-trained and poorly equipped for wresting a living from the semi-arid land. Poor farming practices aggravated by extreme drought caused substantial wind and water erosion of the topsoil. Overgrazing the small properties caused the intrusion of noxious weeds. By the 1930s, 65 percent of the land was in the hands of absentee landowners who either leased the land to the highest bidder or left the land to be used by all. In either situation there was little to motivate the land user to conserve the land that was not his (or her) own.

This situation was hard on the land and the families who homesteaded farms and small ranches. When the Agricultural Adjustment Administration surveyed 351 families remaining on the land in northeast Wyoming in the 1930s, they found the per-family yearly income to be only $73. The improvements to the land, such as homes, fences and barns were worth an average of only $207; they did not find a single home with running water. In general they found the homesteaders to have a poor diet, often supplemented with white-tailed jackrabbits. Indeed deaths from tularemia, a disease associated with wild rabbits and hares, were not uncommon. By 1935, 80 percent of the families left on the land had to take some form of government relief. Taxes were left unpaid or paid with relief money. Ironically, the one bright spot for the settlers, though not for the local government, was education. Students enjoyed an unheard of student to teacher ratio of less than eight to one. In the study area, 20 schools served 155 pupils. While the counties were coping with huge delinquent tax roles, they had to continue to provide for the many rural schools at a cost of $800 per school per year (Rosenberg 1991).

While the policies of the U.S. Government for the most part created the problem, by the 1930s it was apparent that only the government would be able to ameliorate the situation. With serious drought beginning in 1932, several Federal actions were taken. In April of 1932, Weston, Campbell and Converse counties were eligible for a drought relief program, which made surplus government grain available for livestock feed. The wheat was distributed according to need and the Burlington Railroad shipped these distributions free of charge. In 1934, the government established the Drought Cattle and Sheep Purchase Program. Animals deemed unfit for consumption, due to starvation, were purchased by the federal government and were destroyed. Marketable animals were purchased and shipped to market. The program paid the following prices for cattle: two-year-olds or older, $12 - $20; yearlings, $10 $15; and, calves, $4-$8. Sheep were $2 per head for ewes over one year old. Condemned sheep were skinned and the hides distributed through the Surplus Relief Corporation for use by other government agencies. In Weston County, the first cattle were purchased in June, 1934. Eventually a daily shipping quota of 374 head was established, and when the program ended in December of 1934, 24,235 head had been purchased for $362,800. Disgruntled ranchers soon discovered that the repurchase program prices exceeded what they could get on the open market (Weston County Heritage Group, 1988).

Also in 1934, the Agricultural Adjustment Administration began studying portions of Converse, Campbell, Weston, Niobrara and Crook counties. In all, 2 million acres were included in the Thunder Basin Project (LA-WY-1) to alter land use and to relocate settlers onto viable farmland. Nationally, the program hoped to shift land use from farms to forest, parks, wildlife refuges or grazing districts. In marginal areas cash crops were to be replaced by forage crops, the kind and intensity of grazing would be changed and the size of operating units would be expanded (USDA, n.d.).

These goals were met by repurchasing the sub-marginal homestead lands and making the additional acres of government land available for lease. This helped the small operator to expand his usable grazing land. Careful management and zoning then kept the large operators from crowding out the small ranchers. Cropland taken out of production could be reclaimed and then added to the grazing lease program. Grazing associations were formed to regulate the grazing permits.

The public response to the program was surprisingly favorable:

> "The Land Utilization project in this area has met with surprisingly favorable comment. The favor has not been received from any one class of people, but from all represented in affected territory. Endorsements have been received from such influential parties as the Board of County Commissioners of Converse County, the Board of County Commissioners of Campbell County, the Board of County Commissioners of Weston County, LeGrand Patrick - State Deputy Commissioner and the Kiwanis Club of Douglas, Wyoming. In recent months the citizens of Campbell County have indicated their interest in obtaining an irrigation relocation project in this county to retain the removed citizens of the sub-marginal area. Requests have been received from hundreds

> of landowners from adjacent areas in the form of petitions, letters, and by personal contact asking for an opportunity to list their land for sale, stating that they were unable to continue with their farming operations in their present location due to unfavorable conditions, such as, poor soil, lack of sufficient moisture to insure crop production and inaccessibility to markets.
>
> All attempts by these farmers to dispose of their land to the remaining ranchers of the problem area have proved futile. It would seem that the only possible opportunity for these farmers to dispose of their land and move to more productive areas is by some Governmental action (RA, 1936, Weston County Heritage Group, 1988).

Land purchase work on the Thunder Mountain Project began late 1934 and the purchasing of units started in 1935. When a second adjoining area (LA-WY-21) was added to the program over 600 units were considered. Homestead units in the initial project area were purchased at $2.05 /acre (0.4 ha) plus varying amounts for improvements, while homesteads in the subsequent project area were purchased for $2.21 / acre (0.4 ha) plus improvements (RA, 1936:7).

During the development program to rehabilitate the range, impounding dams were erected, wells were repaired, springs developed, homestead fences were obliterated while division fences were constructed for the new community pastures. Farmsteads were obliterated and the range reseeded. Remaining homesteaders and ranchers often purchased or scavenged materials from the repurchased farmsteads. Pits were dug on some homesteads and machinery and demolished buildings buried (many of these were later dug up during the World War II scrap drives). Ironically, the rehabilitation project utilized a labor pool of former farmers who had spent years building what the government paid them to destroy. As of June 1938, approximately seventy-five men had been employed per month for two and one half years on Thunder Basin public works projects. They had demolished 112 buildings and 300 miles of fencing, seeded 463 acres, and built 125 impounding dams among several other things up to that point. Rather than destroying all buildings, many were salvaged by those remaining in the area. Their efforts were so successful that almost no trace remains of many area homesteads (Fischer 1998).

While counties lost much of their population base as a result of the Resettlement Administration relocation program, they were strengthened financially: schools were closed; maintenance of rural roads was restricted to main arterials; and delinquent taxes were paid. The remaining subsidized ranches were significantly larger and provided a stabilizing effect on the local economies. Three grazing associations were formed: the Thunder Mountain Grazing Association, the Spring Creek Association, and the Inyan Kara Grazing Association. These associations provided responsible management of the common rangeland. Grazing fees between $1.80 and $2.00 per head for an eight month period provided a stable return on the government's substantial investment in the land and its people (USDA, n.d.).

Local families chose to stay or sell after the initiation of the Thunder Basin project. Many chose the latter, and as of June, 1938, 177 local Campbell County families, for example, had departed the Thunder Basin. Sixteen families relocated outside of Wyoming with government assistance, eleven families relocated within Wyoming with government assistance, five families awaited a funded relocation, and 145 relocated without requesting assistance. Project officials loosely monitored the situations of families that relocated without aid only to discover disheartening results. Perhaps revelatory of their departure from the Thunder Basin was the finding "that the majority so relocated are more or less on a "shoe string basis" in their new location." Furthermore, it was reported that: "many of the families who have left the state are reported as being without funds." Most of the people relocated out of state to Idaho, Oregon or Washington. Only "a small majority" was able to "relocate themselves on more productive farms," while "a number" returned to previous occupations. The findings hardly demonstrated any outstanding benefits for the relocated homesteaders, however, the repurchase program did help alleviate local tax delinquency as outstanding taxes were deducted from sale proceeds (Fischer 1998).

Energy and Natural Resource Development

Energy / natural resource development, primarily oil, bentonite and coal mining has achieved historic age within the general area. No historic energy developments sites were found within the study area, but there is potential for historic energy development sites in the vicinity.

The earliest settlers and travelers passing through Weston County were aware of the open pools of oil where it seeped out of the ground along plum creek. The first oil wells were drilled between 1890 and 1909. Many were dug by the Mike Henry Oil Company, the Illuminator Oil Company and M. J. Coyle. The oil came from the "Newcastle Sand" according to N.H. Darton of the U.S. Geological Survey (Weston County Heritage Group 1988).

The First World War caused an increased demand for oil and an increase in the exploration, production and development of new fields followed. The Adams Oil Company struck a gusher along Poison Creek in March of 1920 in the Osage Field, Section 19, T46N R63W. The well was 1440 feet deep and produced between 1500 and 2500 barrels of oil per day. The gusher made national news and sparked a rush of oil developers, laborers and speculators to Weston County. In 1920, oil fields were developed around Thornton, Upton and Newcastle. On May 20, 1920, a second gusher well was struck one-half mile from the Section 19 well. When struck at 1415 feet, oil was blown 50 feet into the air. On July 16, 1920 a third gusher was struck at the Osage field. Rigs were brought in from all over the country, and refineries sprang up at Osage, Newcastle, Four Corners, Red Butte and Thornton.

The oil boom in Weston County, spurred another industry: bentonite mining. Bentonite was used in oil drilling to flush cuttings out of the hole. The first bentonite mine and refinery in the county, and perhaps in the world, was built at Clay Spur, near Osage by

the Wyoming Bentonite Company around 1925. By 1927 two other bentonite plants had been established in Upton: the American Colloid Plant and the Federal Bentonite Plant. The American Colloid Plant continued to produce into present times. The resulting boom created $1000 per acre land prices, housing shortages, and a scramble for mineral leases. The March 12, 1920 edition of the *Weston County Gazette* reported that, "the nickel, the mighty Buffalo nickel, has passed into oblivion at Osage, the dollar has dropped to the level of a dime, unless a man can talk in terms of millions, he is not patted on the back". It was said that anyone wearing peg top trousers and a pair of puttees could get all the credit they wanted in Newcastle.

Weston County basked in the prosperity created by the war economy and oil boom, but by 1921, demand and prices had fallen. The Thornton refinery closed in 1921, and by 1923 exploration ceased and equipment was sold off and moved elsewhere. Fleeing workers, speculators and developers left Osage a virtual ghost town. Banks and local businesses were left holding bad debts from the oil industry just when the post war agricultural world market dried up. The two-fold collapse ruined the local economy. Between 1920 and 1924, steer prices fell from around $150 to $60, and cows from $75 to $25. Farmers fell into debt almost overnight. The Citizens State Bank of Upton failed on October 29, 1921; the Newcastle National Bank failed December 1, 1922; the Osage Bank and the Weston County Bank of Newcastle failed in February of 1924; the First National Bank of Newcastle failed June 9, and the Upton Bank failed on July 12, 1924. The final blow came on March 15, 1928, when the Cambria coal mines ran dry and closed down. The Great Depression actually began in northeastern Wyoming about six years before it hit the rest of the country.

A few oilmen clung to the dream of a rebounding oil market, and actually made plans to build "Oil City" in the middle of the Osage field. Incorporation documents were filed, plans were drawn up and the area was subdivided, but the dream never amounted to more than a temporary camp of tarpaper shacks.

The next economic improvements in the industry began in 1936 when refineries came back on line and were upgraded with newer technology. By 1937, a new demand for export petroleum developed, and in November, drilling operations resumed in the Osage field. In May 1938, the Midwest Oil Refining Company took over 12,000 acres of the Conway Oil Company's holding. When the take over was completed, Midwest announced plans to spend $80,000 drilling the Dewey Dome Structure twenty miles south of Newcastle. By July of 1939, two wells had been completed, one using the new rotary drilling rig. The bentonite industry also improved and helped pull the Weston County economy out of the depression. Many new uses for the clay had been developed by this time including: as a cement and plaster hardening agent, and in cosmetics, plastics, wine making, the textile industry, insecticide sprays, and in numerous new manufacturing processes. In 1935, the bentonite plants started 24 hour shifts. By 1939, Weston County was one of the leading producers of bentonite in the world.

Ranchers and homesteaders in northeast Wyoming were also aware of the presence of coal beds under their property and informally mined it for private use. Teckla resident

Bob Mackey related that homesteaders would get together in the fall to scrape, blast and load their winter's supply of coal each fall at the local "Canfield Mine" (on the Canfield Homestead). Commercial mining efforts were concentrated near the railroad near the towns of Sheridan and Gillette. Sheridan's mines were exploited as early as the 1880s, but the Gillette coalfields, which extend throughout Campbell County have only been developed since World War II. Early geological surveys also recognized the presence and incredible size of the reserves. A total of twelve coal fields were identified in the Powder River Basin (Darton 1905). In 1907 and 1908 the region was examined in greater detail by the U.S. Geological Survey. R. W. Stone and C. T. Lupton investigated the fields adjacent to the Chicago, Burlington, and Quincy Railroad near Gillette and published the results as USGS Bulletin 381b, "The Powder River Coal Field, Wyoming, Adjacent to the Burlington Railroad". At that time, Gillette had a population of 500. Two of the earliest, small scale mining efforts were the W. F. Vine Mine, one mile west of Gillette, and the B. H. Barker mines, 4 km northwest of Gillette, whose products were sold in Gillette for $2.75 to $3.00 per ton. Andrew Ditto had a small prospect near Minturn where the coal beds were especially thick, and the Hurlburt mine nine miles north of Gillette was a source of coal for local ranchers. Small amounts were transported to Gillette by wagon and sold (Stone and Lupton 1908).

Stone and Lupton concluded that "the production of coal in this field at present is limited practically to the small amount taken by ranchers for their own use. The near future, however, is likely to see active mining of coal at various places along the railroad" (Stone and Lupton 1908). A U.S. Geological survey report on the Gillette Coal Field in 1927 showed that very little commercial development had taken place, except along the Chicago, Burlington, and Quincy Railroad near Minturn. The Gillette Field comprised a large portion of the known reserves in the Powder River Basin. It was noted that strip mining would be the preferred method of extraction, with an overlay of 10.7 m of clay and sandstone and 0.6 - 1 m of hard sandstone to be stripped off to expose the beds (Dobbin and Barnett 1928).

In 1900 the Chicago, Burlington and Quincy Railroad began experimenting and converting their locomotives to burn Sheridan coal. By 1908, all of its locomotives on the Wyoming division used Sheridan Coal. "As the Powder River coal field is the eastern continuation of the Sheridan field, and as the physical and chemical properties of the coal are practically the same, it is expected the Powder River coal will prove equally efficient" (Stone and Lupton 1908:136; Rosenberg 1991). As steam engines were adapted for use, the railroad came to represent the major market for northeastern Wyoming coal. Wyoming's annual production of coal increased, especially during World War II, but began to fall when the railroads made the transition from steam to diesel after the war. Wyoming coal production reached an all-time low in 1958, but the use of "inexpensive low grade coals" for power plants rose in the late 1960s. Utilization of Powder River Basin coal has steadily increased since that time.

Historic Site Evaluation

Historic sites are evaluated on a number of different levels, including the specific condition of their physical remains (integrity); their association to the historical context from which they originated, their ability to stand as examples of architecture or technology; and, their potential to provide important historical information. Once the site's type is determined and its contextual association is established, a final evaluation of its significance can be assessed on the basis of its surviving physical integrity. Its associative values with important persons or events within the historical contexts, its qualities of design, craftsmanship and/or materials, and its potential to reveal important historical information are then determined.

The primary historical context of this project is associated with the early twentieth century homesteading movement. In the northeastern Wyoming region, the significant period for this homesteading movement was from around 1910 to the early 1930s.

Collectively, homestead sites have historical significance in defining a specific thematic period of history, for example, "the settlement of sub-marginal lands in Northeastern Wyoming," or "Impacts of the Great Depression on Northeastern Wyoming." By examining homesteads of a community collectively, the patterns of history emerge, whereas an individual homestead history might offer little significant information (Fisher 1998). An example of this would be the theme of "Women Homesteaders in the Thunder Basin." Many Thunder Basin filings, including the one homestead site (48CK2088, the Maros Homestead) are on record under the name of single women (not counting widows). Although individualistic pioneering women homesteaders undoubtedly existed in this region, a look at one such site might obscure the greater pattern. Actually, many women homesteaders filed on tracts in anticipation of adding their legal allotment of property to that of their fiancé's, their brother's, or their father's adjacent homestead, with the objective of gaining as much land as the law would allow for their family. Similarly, children (at least of age 18) and other relatives and even employees were commonly employed for the same purpose.

CHAPTER 6. RESULTS OF THE CLASS III INVENTORY

Twenty-four (24) sites and 21 isolated finds have been located and recorded within the Class III inventory area. One previously recorded site, 48CK1603, was not found and appears to have been destroyed by recent reconstruction of "D" Road, a county road that bisects the study area.

Figure 6-2 shows the project area. Site locations have been redacted at agency request. Tables 6-1 and 6-2 summarize the sites and isolated finds located in the study area. Site narratives are presented in Chapter 7.

During the current fieldwork, two artifacts, both projectile points, were collected. The collected specimens came from sites 48CK2083 and 48CK2091. The projectile points represent the Middle Archaic and Late Archaic Periods. Uncollected projectile point fragments also indicate the presence of Late Prehistoric Period occupations in the study area. Figure 6-1 is photographs of these artifacts to scale.

Of the twenty-four cultural properties recorded in the study area, twenty-three are prehistoric sites and one is a historic (homestead) site. Two sites had paleontological materials as well. The paleontological material is believed to be out of context, but a professional paleontologist should review this interpretation.

Fifteen prehistoric archaeological sites are recommended as eligible for the NRHP. In every case, these 15 sites were considered to meet Criterion D of the NRHP because they are likely to yield information important in prehistory. Specifically, these sites have the combination of stable to depositional physical settings with an indication of a variety of activity, including camping and cooking as well as lithic tool production. Many of the sites contain faunal material. All are situated in depositional environments near good seasonal water sources. Collectively and individually, these sites have the potential to yield important information about the occupations of the headwaters of the Little Missouri River, and possibly add to the understanding of the prehistoric cultural relationships between the Powder River Basin and the lower Little Missouri River regions.

All of the sites recommended as eligible for the NRHP are also recommended for Magnetometer mapping in the event that avoidance is not possible. Magnetometer mapping is a proven, minimally destructive means of determining if a site has intact buried thermal features (hearths, ovens, FCR dumps, etc). These features and their typical surrounding activity areas are critical to a site's capability to fulfill the fundamental data requirements for archaeological research. A magnetometer map, verified with anomaly testing, will better define the horizontal and vertical extent of a site, and provides a detailed framework for site excavation. It may also yield a negative finding in which case a reversal of the NRHP status of the site to not-eligible would be recommended based upon a lack of intact features and activity areas.

The one homesteads recorded during this project was patented in the 1910s and abandoned by the mid-1920s. No standing structures remain and no other elements of this site were considered significant,

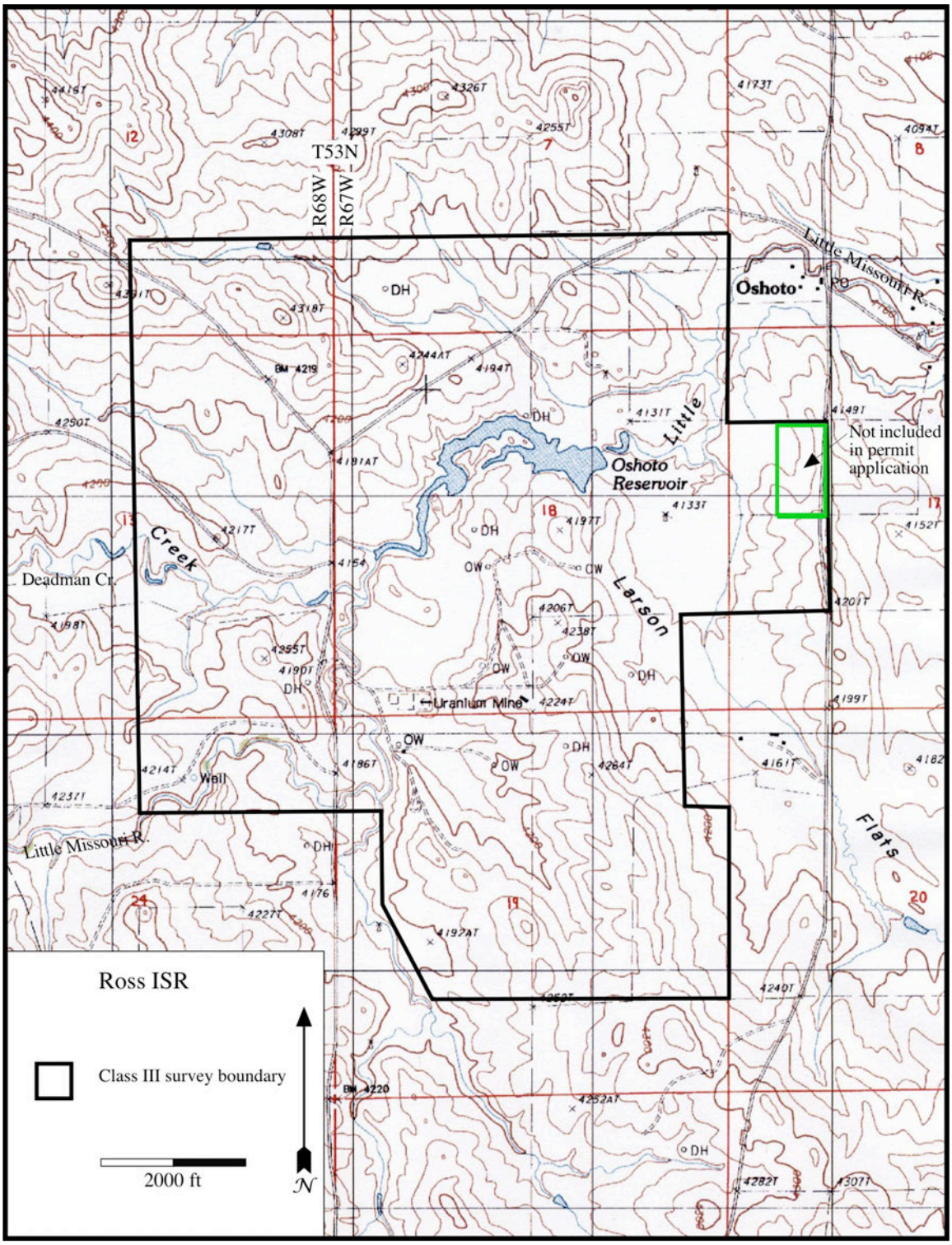


Figure 6-1. The Class III study area on the United States Geological Survey (USGS) 7.5-minute topographic map *Oshoto, Wyoming (Provisional, 1984)*.

Table 6-1. Summary of sites in the Class III inventory area.

Smith. #	Field #	USGS 7.5 Min. Map	T	R	Section	Description	Collections	Cultural Period	NRHP	Comments
48CK2070	[redacted]					stone ring camp?	none	unknown prehist.	not eligible	deflated
48CK2071						camp, *paleontological*	none	unknown prehist.	eligible	paleon. remains within site boundary
48CK2072						camp	none	unknown prehist.	eligible	v. large site between L. Missouri and trib.
48CK2073						camp	none	unknown prehist.	eligible	
48CK2074						camp	none	unknown prehist.	not eligible	deflated
48CK2075						camp	none	unknown prehist.	eligible	
48CK2076						stone ring camp, historic debris	none	unknown prehist., historic	not eligible.	deflated
48CK2077						camp	none	unknown prehist.	eligible	
48CK2078						camp, historic debris	none	unknown prehist., historic	eligible	marginal
48CK2079						camp	none	unknown prehist.	eligible	
48CK2080						camp	none	unknown prehist.	eligible	marginal
48CK2081						camp	none	unknown prehist.	eligible	
48CK2082						camp	none	unknown prehist.	eligible	
48CK2083						camp	proj. point	Late Archaic	eligible	partially eroded with some stable terrace

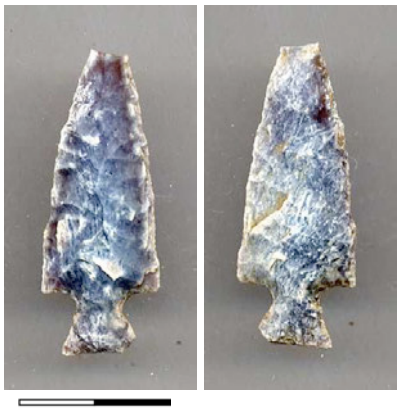
Table 6-1 (continued).

Smith. #	Field #	USGS 7.5 Min. Map	T	R	Section	Description	Collections	Cultural Period	NRHP	Comments
48CK2084	[redacted]					lithic scatter	none	unknown prehist.	not eligible	paleon. remains
						camp				within site boundary
						paleontological				erosive setting
										ridge top
48CK2085						camp	none	unknown prehist.	eligible	high potential
										terrace remnants
48CK2086						camp	none	unknown prehist.	not eligible	historic farm
										implement on site
										erosive setting
48CK2087						cairn	none	unknown	not eligible	no context
48CK2088						homestead	none	historic (1910s-20s)	not eligible	Maros Homestead
48CK2089						camp	none	unknown prehist.	not eligible	erosive setting
										ridge top
48CK2090						camp	none	unknown prehist.	eligible	stable setting
										terrace remnants
48CK2091						camp	proj point	Middle Archaic	eligible	stable setting
										terrace remnants
48CK2092						camp	none	unknown prehist.	eligible	stable setting
										terrace remnants
48CK2093						camp	none	unknown prehist.	not eligible	erosive setting
										ridge top

Table 6-2. Summary of isolated finds.

Table 6-2. List and description of Isolated Finds.

IF No.	Field No.	USGS 7.5 Min. Map	T	R	Section	Description	Collect?	Cultural Period	plotted?
[redacted]						2 chert flakes	no	unknown prehist.	yes
						1 sil. wood flake	no	unknown prehist.	yes
						manuport river cobble	no	unknown prehist.	yes
						2 chert flakes	no	unknown prehist.	yes
						5 flakes	no	unknown prehist.	yes
						1 sil. wood flake	no	unknown prehist.	yes
						3 silicified sed. flakes	no	unknown prehist.	yes
						2 silicified sed. flakes	no	unknown prehist.	yes
						1 qtz., 1 chert flake			
						unifacially mod. flake	no	unknown prehist.	yes
						Late Prehistoric proj.	no	Late Prehistoric	yes
						point preform base			
						1 chalcedony flake	no	unknown prehist.	yes
						gray qtz. cobble spall	no	unknown prehist.	yes
						3 tested cobbles	no	unknown prehist.	yes
						1 flake, 1 tested cobble	no	unknown prehist.	yes
						4 pieces FCR in hardpan	no	unknown prehist.	yes
						proj. pt fragment, 1 flake	no	Late Prehistoric	yes
						and 1 FCR in hardpan			
						historic trash scatter	no	historic, 1920s	yes
						fossilized bone fragment	no	paleontological	yes
						historic trash scatter	no	historic, 1890-1900	yes
						proj. point fragment	no	unknown prehist.	yes
						1 porcellanite flake	no	unknown prehist.	yes



Artfact A1, 48CK2083

Artfact A1, 48CK2091.

Figure 6-2. Projectile points from sites 48CK2083 and 48CK2091.

CHAPTER 7. SITE NARRATIVES

The narratives below describe the cultural properties documented in the study area. Site sketch maps follow each narrative. The site forms and isolated find forms, which include site photographs, artifact sketches and other additional information, are located in Appendices A and B.

48CK2070 (Wy5)

Elevation: [redacted] ft
Cultural Period: prehistoric
Site Type: stone ring, camp
Sketch Map: Figure 7-1

Description: This possible prehistoric stone ring and campsite is situated on a low bench lobe [redacted] of an unnamed ephemeral tributary of the Little Missouri River. [redacted] The site location is generally exposed to prevailing winds, but provides partial but extensive views of the surrounding country. Local vegetation includes mixed grasses, forbs, prickly pear cactus, and sagebrush. Surface visibility exceeded 50 percent. [redacted]

Observed cultural material consists of a possible disturbed stone ring, a few widely scattered stones that might be associated, a biface (tool A1), and a quartzite stream cobble that appears thermally altered. Tool A1 (13 m @ 184° from the stone ring) is a Stage I biface made of brown fine-grained quartzite and measuring about 60 mm long by 33 mm wide by 16 mm in cross-section. The quartzite stream cobble (4 m @ 310° from A1) appears partially oxidized and is fractured.

The possible stone ring appears highly disturbed and is only vaguely ring-like. The stones might have been manuported from a higher bench north of the site. The feature consists of at least eight quartzite stones with three or more widely scattered stones that might be associated. The stones are mostly concentrated on the east side (all but two and the scattered stones). The largest stone is about 25 by 50 cm across. Most of the stones appear totally exposed but some are maybe only about half exposed. A scaled sketch of the feature is attached to the site form.

One shovel test was conducted at the approximate center of the possible stone ring. The test measured 40 cm square by 35 cm deep and did not yield cultural material. Soil consists of pale brown silty and sandy loam to a depth of 25 cm, followed by weathering bedshales.

National Register Recommendation: This site is not recommended as eligible for the NRHP under any criteria. The site is situated in a deflated setting, and shovel testing

indicates only about 25 cm of soil overlying weathering bedshales. In addition, cultural material is scant, consisting only of a questionable stone ring, additional scattered stones that might be associated, a biface, and an unmodified but possible oxidized quartzite stream cobble. Other than the current recording, the site has no further potential to yield important information regarding local history or prehistory.

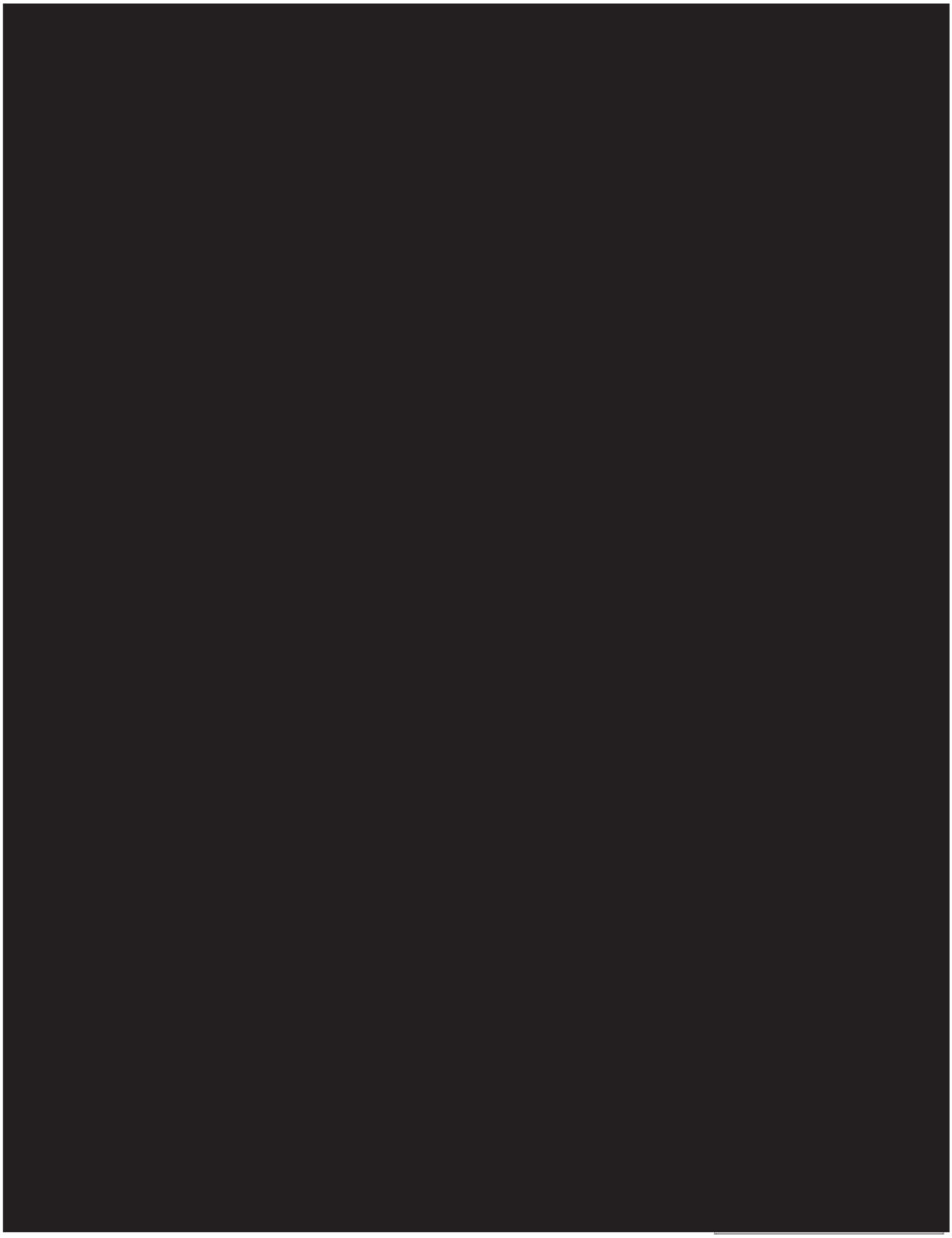


Figure 7-1. Sketch map of site 48CK2070.

48CK2071 (V2)

Elevation: 4,140-4,160 ft
Cultural Period: prehistoric
Site Type: camp
Sketch Map: Figure 7-2

Description: This prehistoric camp site is situated on a high terrace [redacted] of Oshoto Reservoir [redacted]. [redacted] The terrace cut bank reveals deep deposits of fine sediments. The site location is somewhat sheltered by uplands to the north, and affords a good view of a portion of the Little Missouri valley and adjacent uplands. Vegetation consists of mixed grasses, forbs, prickly pear cactus, and sagebrush. Although the terrace surface appears eroded in many places, with areas of hardpan, much of it appears intact, with quite thick vegetation and consequently poor surface visibility (averaging around 10 percent).

Large vertebrate paleontological remains were observed within the site boundary next to a piece of quartzite FCR, and may have been manuported to the location. These remains are described elsewhere, but photographs are attached to the site form.

Observed cultural material was sparse, but was observed mostly exposed areas, primarily the eroded edge and cut bank of the terrace. This indicates that substantial additional material may lie concealed within the subsurface. Observed cultural material includes a cluster of at least six pieces of FCR found eroding from a cut bank (Feature 1), at least four additional scattered pieces of FCR, one flake tool (A1), and a tertiary flake of red, fine-grained quartzite.

Feature 1 is a cluster of FCR observed eroding from the terrace cut bank at a depth of about 60 cm. The cluster measures about 50 cm across and includes at least six pieces of quartzite FCR. One piece is large and tabular, measuring about 15 cm across, and one is barely exposed, suggesting that a portion of the feature lies buried.

Tool A1 is a modified and possibly utilized primary flake of gray silicified sediment. An area of cortex is extant on one facet.

National Register Recommendation: This site is tentatively recommended as eligible for the NRHP under Criterion D, pending a remote sensing study. The site is situated in a favorable environment for the preservation of subsurface cultural components- a high terrace along the Little Missouri River. In addition, a thermal feature is eroding from a terrace cut bank, and there is widely scattered thermally-altered rock, indicating a likelihood of buried, intact hearths in the subsurface. In short, the site has at least moderate potential to yield additional important information regarding local prehistory. Further work involving a remote sensing (magnetometer) survey, follow-up truth testing of any detected anomalies, and excavation of any intact subsurface components is

recommended prior to any action that might disturb the site.

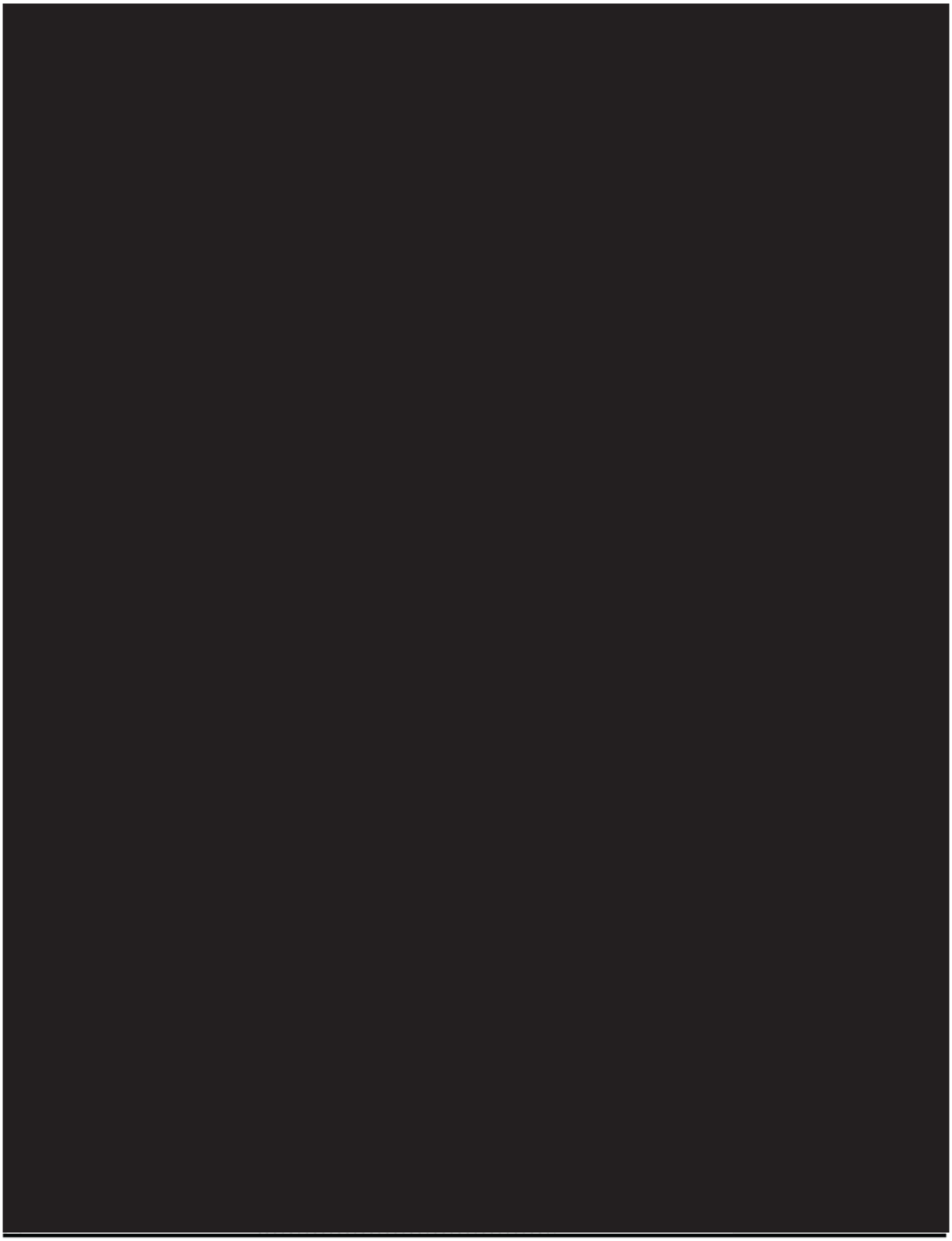


Figure 7-2. Sketch map of site 48CK2071.

48CK2072 (V3)

Elevation: [redacted]
Cultural Period: prehistoric
Site Type: camp
Sketch Map: Figure 7-3

Description: This very large prehistoric camp site is situated on a high terrace that lies between the Little Missouri River, [redacted], and an unnamed ephemeral tributary, [redacted]. [redacted] Oshoto Reservoir borders the [redacted] portion of the site [redacted]. The terrace cut banks reveal deep deposits of fine sediments. The site location is somewhat sheltered by uplands to the north and southwest, and affords a good view of a portion of the Little Missouri valley and adjacent uplands. The top of Devil's Tower, which lies [redacted] to the east, can be seen from the site. Vegetation consists of mixed grasses, forbs, prickly pear cactus, and sagebrush. A few small cottonwood trees grow in the adjacent stream bottoms. Although the terrace surface appears eroded in many places, with areas of hardpan, much of it appears intact, with quite thick vegetation and consequently poor surface visibility (averaging around 10 percent). The site has been impacted by dam construction, road grading and vehicle traffic, and the terrace edges are probably being eroded by wave action from Oshoto Reservoir, in addition to natural erosion processes. [redacted]

Observed cultural material was relatively sparse, but was observed mostly in eroded or disturbed areas, including hardpans, blowouts, cut banks, and road cuts. This indicates that substantial additional material probably lies concealed within the subsurface. Observed cultural material includes one probable hearth feature (Feature 1) found eroding from a cut bank, numerous other diffuse scatters of quartzite FCR, a midsection of a probably Late Prehistoric projectile point (tool A1), two biface fragments (tools A2 and A3), widely scattered quartzite FCR, 19 tallied flakes, a petrified wood core, a tested cobble of petrified wood, and a quartzite river cobble that is broken in two. Tallied flakes include: silicified sediment- one primary, five secondary, and two shatter flakes; agate- three secondary flakes; petrified wood- two primary flakes; chert- four secondary flakes, fine grained quartzite- two secondary flakes. Besides Feature 1, described below, diffuse clusters of FCR were observed throughout the site, mainly in hardpan areas and in a blowout.

Feature 1 is a 30 cm diameter cluster of 6+ pieces of oxidized quartzite observed on the slope of the cut bank of a terrace remnant above Oshoto Reservoir in the [redacted] portion of the site. The feature is situated roughly 50 cm below the terrace surface, and appears to be eroding from the subsurface.

Tool A1 is a projectile point midsection made of white chert and measuring 21 mm long by 11.5 mm wide by 3.5 mm in cross-section. The specimen is broken transversely across the neck and across the blade towards the distal end. Small portions of each tang are also missing. Based on its overall size, the specimen is probably an arrowhead and thus of Late Prehistoric age. Tool A1 was found on the terrace surface in the [redacted] portion of the site.

Tool A2 was found near the eastern edge of the high terrace about 44 m east of tool A1. The specimen is a Stage I biface fragment of brown fine-grained quartzite measuring 24 mm long by 68 mm wide by 21 mm in cross-section.

Tool A3 is a Stage I or II biface made of brown and gray chert and measuring 38 mm long by 49 mm wide by 20 mm in cross-section. The artifact was found on the terrace surface [redacted].

National Register Recommendation: This site is tentatively recommended as eligible for the NRHP under Criterion D, pending a remote sensing study. The site is situated in a favorable environment for the preservation of subsurface cultural components- a high terrace along the Little Missouri River. A tentative temporal context has already been established by the recovery of a possible Late Prehistoric projectile point midsection found on the surface. In addition, at least one thermal feature is eroding from a terrace cut bank, and there is widely scattered thermally-altered rock, indicating a likelihood of buried, intact hearths in the subsurface. In short, the site has excellent potential to yield additional important information regarding local prehistory. Further work involving a remote sensing (magnetometer) survey, follow-up truth testing of any detected anomalies, and excavation of any intact subsurface components is recommended prior to any action that might disturb the site.

Figure 7-3. Sketch map of site 48CK2072.

48CK2073 (V4)

Elevation: [redacted]
Cultural Period: prehistoric
Site Type: camp
Sketch Map: Figure 7-4

Description: This prehistoric camp site and historic isolated find is situated on a high and low terraces [redacted] of the confluence of the Little Missouri River and an unnamed ephemeral tributary. [redacted]
The terrace cut banks reveal deep deposits of fine sediments. The site location is somewhat sheltered by uplands to the northwest, and affords a good view of a portion of the Little Missouri valley. Devil's Tower, [redacted] can be seen from the site. Vegetation consists of mixed grasses, forbs, prickly pear cactus, and sagebrush. A few cottonwood trees grow in the adjacent stream bottoms. Although the terrace surfaces appear eroded in many places, with areas of hardpan, much of it appears intact, with quite thick vegetation with tall grass and consequently poor surface visibility (averaging around 10 percent). This is especially true of the upper terrace. [redacted]

Observed prehistoric cultural material was relatively sparse, but was observed mostly along the eroded edge of the terrace, which may indicate that substantial additional material lies concealed within the subsurface. Observed cultural material includes an Archaic-sized projectile point or perform (tool A1), quartzite FCR, including one distinct concentration, a tested cobble of petrified wood, a silicified sediment primary flake, and a piece of weathered bone. It is not known for certain whether the bone is cultural, but it was observed lying adjacent to a piece of quartzite FCR and also near the tested cobble. Also lying near the tested cobble is an unmodified pebble of petrified wood that may have been manuported to the location. The cluster of FCR is located near the northern end of the site. It consists of 10 or more pieces of quartzite FCR within an area measuring about 2.5 m across.

Tool A1 is a possible McKean Complex (Middle Archaic) projectile point or perform made of gray porcellanite and measuring 17 mm wide by 28 mm long by 6 mm in cross-section. The specimen appears blunted and re-sharpened on the distal end, has very shallow side notches, a slightly concave base, and an overall stemmed appearance and relatively thick cross-section. The artifact, which was observed on the eroded edge of the upper terrace, was not collected.

Observed historic material consists of a single lid from a hole-in-top can. The lid is deteriorated and somewhat deformed, but measures about 3 inches in diameter with a 1 inch soldered filler-hole cap.

National Register Recommendation: This site is tentatively recommended as eligible for the NRHP under Criterion D, pending a remote sensing study. The site is situated in a favorable environment for the preservation of subsurface cultural components- a low terrace adjacent to the Little Missouri River and a high terrace north of an ephemeral tributary. A tentative cultural context has already been established by the documentation of a possible Middle Archaic projectile point found along the eroded edge of the high terrace. Cultural material, including a cluster of quartzite FCR, is eroding from the terrace edge, indicating a strong possibility of buried, intact hearths and associated activity areas in the subsurface. In addition, a large camp site that probably contains buried hearths is located a short distance to the south on the opposite side of the ephemeral stream. In short, the site has at least moderate potential to yield additional important information regarding local prehistory. Further work involving a remote sensing (magnetometer) survey, follow-up truth testing of any detected anomalies, and excavation of any intact subsurface components is recommended prior to any action that might disturb the site.

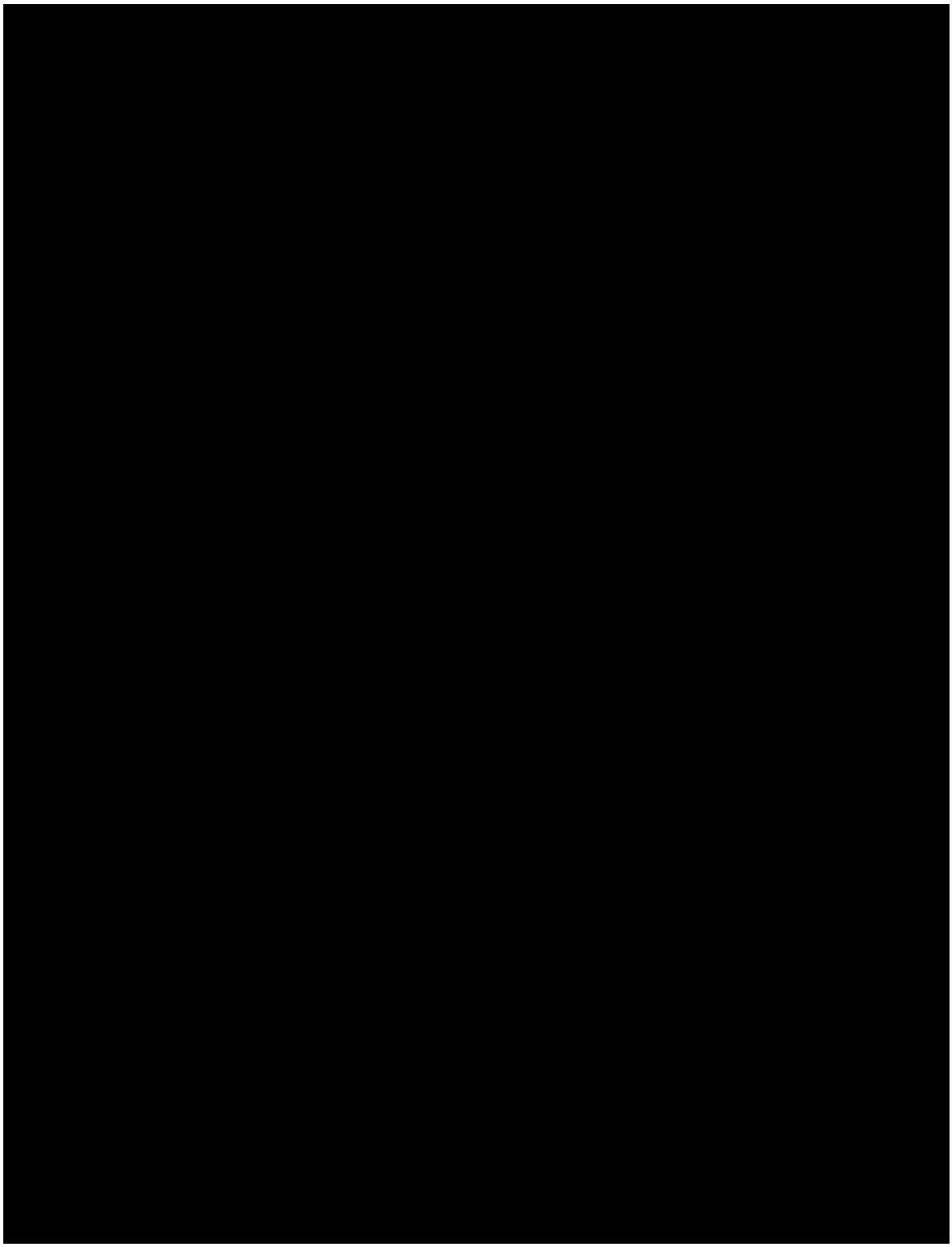


Figure 7-4. Sketch map of site 48CK2073.

48CK2074 (Vx5)

Elevation: [redacted]
Cultural Period: prehistoric
Site Type: camp
Sketch Map: Figure 7-5

Description: This prehistoric camp site is situated on a deflated lower terrace adjacent to a high terrace remnant [redacted] of the Little Missouri River. [redacted] The lower terrace appears severely deflated, with numerous areas of hardpan. In many places, it is difficult to insert a pin flag into the ground. [redacted] A high terrace remnant lies immediately to the [redacted], forming a hill. This hill provides a modicum of protection from prevailing winds. The site affords a good but limited view of the Little Missouri valley. Vegetation includes sparse grasses, sagebrush, and prickly pear cactus. Surface visibility was about 90 percent. The site is bisected by cattle trails.

Observed cultural material includes two stone tools (A1 and A2), a gray silicified sediment secondary flake, a brown fine-grained quartzite shatter flake, and 12-15 pieces of possible quartzite FCR. The material was observed along the [redacted] edge of a large area of hardpan.

Tool A1 is a Stage II or III biface fragment made of brown, fine-grained quartzite and measuring about 45 mm long by 33 mm wide by 8 mm in cross-section.

Tool A2 (12 m @ 166° from A1) is a modified primary flake of white, fine-grained quartzite measuring 24 by 31 mm by 15 mm in cross-section. The artifact has a vague pyramid shape and is fine retouched along one edge. No use-wear is evident.

National Register Recommendation: This site is not recommended as eligible for the NRHP under any criteria. The site is situated on a severely deflated terrace below a higher terrace remnant. In addition, cultural material is relatively scant and limited in extent, consisting only of two stone tools, two flakes, and about 12-15 pieces of possible quartzite FCR. (It barely qualifies as a site under Wyoming criteria). Other than the current recording, the site has no further potential to yield important information regarding local history or prehistory.

Figure 7-5. Sketch map of site 48CK2074.

48CK2075 (Vx6)

Elevation: [redacted]
Cultural Period: prehistoric
Site Type: camp
Sketch Map: Figure 7-6

Description: This prehistoric camp site is situated on a high terrace on the [redacted] side of the Little Missouri River. [redacted] The Little Missouri, which is occupied by pools of standing water in this vicinity, makes a sharp bend [redacted] a short distance north of the site. Oshoto Reservoir lies [redacted] to the north-northeast. The terrace cut banks reveal deep deposits of fine sediments. The terrace is slowly deflating and includes areas of hardpan. Most of the cultural material was observed along the eroded margin. Behind this to the east is a more stable, grassy area with poor surface visibility. The site location is generally exposed to prevailing winds, but provides good views of a portion of the stream valley. Local vegetation includes mixed grasses, forbs, prickly pear cactus, and sagebrush. Surface visibility was poor, averaging around 10 percent or less. The site is partially bounded on the east by a gravel road that borders a large area of disturbance around an old uranium mine. No evidence of culture was observed in this disturbed area. A buried telephone line also bisects the site.

Observed cultural material includes an estimated 30-40 pieces of quartzite FCR, a tested cobble of petrified wood, a core of tan chert with black inclusions, and a brown chert secondary flake. The FCR was clustered mostly in the [redacted] of the site, with diffuse clusters of from approximately 4-15 pieces. Though the observed material is relatively sparse, nearly all of it was observed along the terrace edge, suggesting that much additional material lies in the subsurface.

National Register Recommendation: This site is tentatively recommended as eligible for the NRHP under Criterion D, pending a remote sensing study. The site is situated in a favorable environment for the preservation of subsurface cultural components- a high terrace along the Little Missouri River. There is FCR and artifacts on the eroded edge of the terrace, with thick vegetation and poor surface visibility in the stable portion of the terrace beyond the edge. The cultural material appears to be eroding from the subsurface, and indicates a good possibility of buried, intact hearths with associated activity areas. The site therefore has at least moderate potential to yield additional important information regarding local prehistory. Further work involving a remote sensing (magnetometer) survey, follow-up truth testing of any detected anomalies, and excavation of any intact subsurface components is recommended prior to any action that might disturb the site.

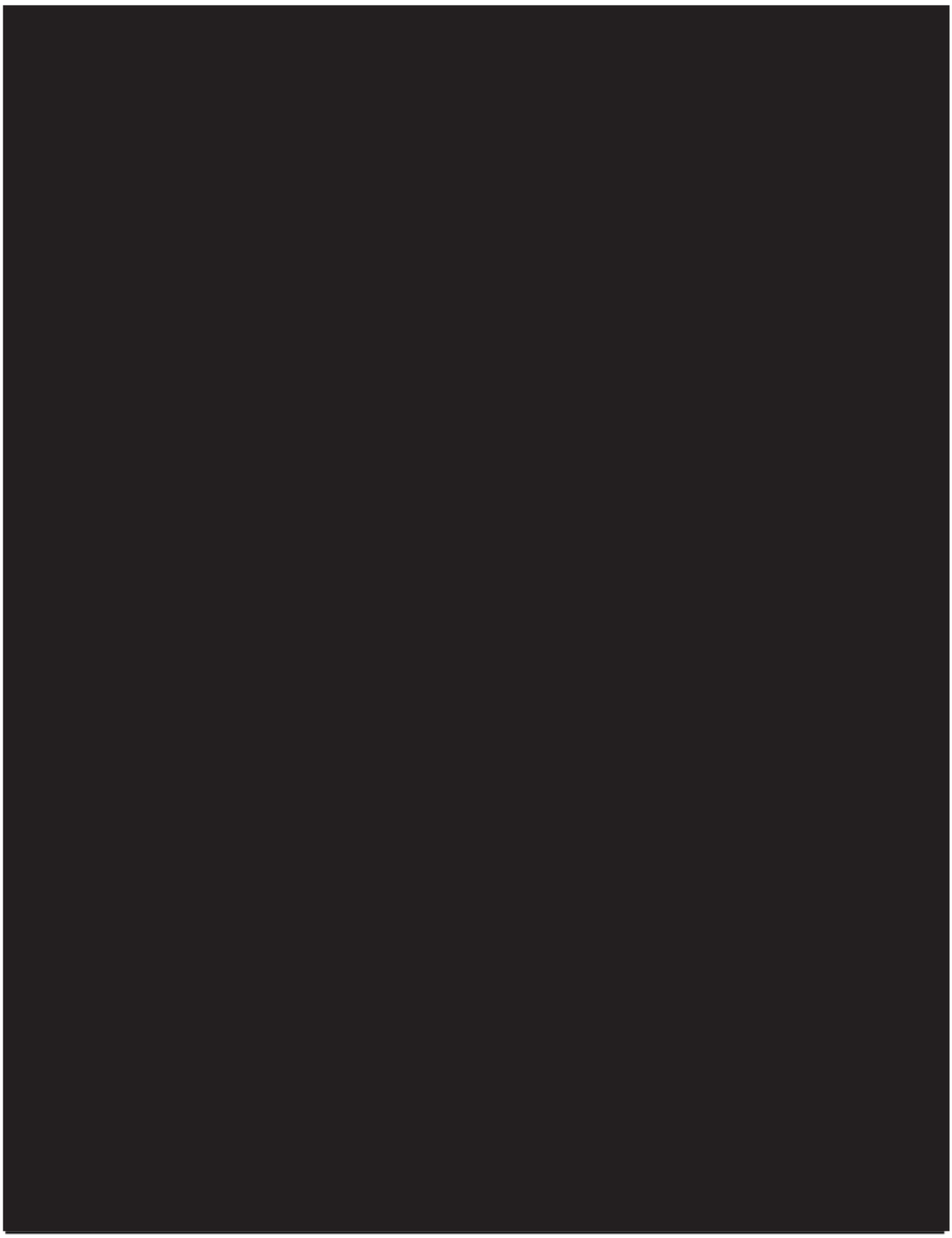


Figure 7-6. Sketch map of site 48CK2075.

48CK2076 (Wy1)

Elevation: [redacted]
Cultural Period: prehistoric/historic
Site Type: stone ring camp/debris
Sketch Map: Figure 7-7

Description: This site consists of a stone arc, one flake and historic debris. [redacted] Oshoto Reservoir lies [redacted] to the southeast. The site location is exposed to prevailing winds, but affords a good view of a portion of the Little Missouri valley and adjacent uplands. Vegetation consists of mixed grasses, forbs, prickly pear cactus, and sagebrush. Surface visibility was around 50 percent. The site is situated in an eroded setting, and shovel testing indicates only about 25 cm of soil overlying weathering bedrock.

Observed cultural material includes one stone arc (Ring 1), a secondary flake of brown, fine-grained quartzite, and scant historic debris, much of it in close proximity to the arc. Historic debris includes a sardine can, 2+ shards of amethyst (pre-1917) glass, 5+ sanitary cans, and a large spike. The cans are deformed and deteriorated.

Ring 1 is a stone arc open to the [redacted]. The feature consists of six quartzite stones arranged in a vague arc-shaped arrangement measuring about three meters northwest-southeast by 1.5 m southwest-northeast. The stones appear to be 100 percent exposed, or nearly so. The quartzite flake lies about two meters to the southwest, and a sardine can and three sanitary cans lie in close proximity.

One shovel test was conducted on the "interior" edge of the stone arc. The test measured 40 cm square by 30 cm deep, and did not yield cultural material. Soil consisted of pale brown sand loam to a depth of 25 cm, followed by a yellowish, very clayey material with red concretions that appears to be weathering bedrock.

National Register Recommendation: This site is not recommended as eligible for the NRHP under any criteria. The site is situated in a deflated setting, and shovel testing indicates only about 25 cm of soil overlying weathering bedrock. In addition, cultural material is scant, consisting only of a questionable stone arc, one flake, and a light scatter of historic debris. Other than the current recording, the site has no further potential to yield important information regarding local history or prehistory.

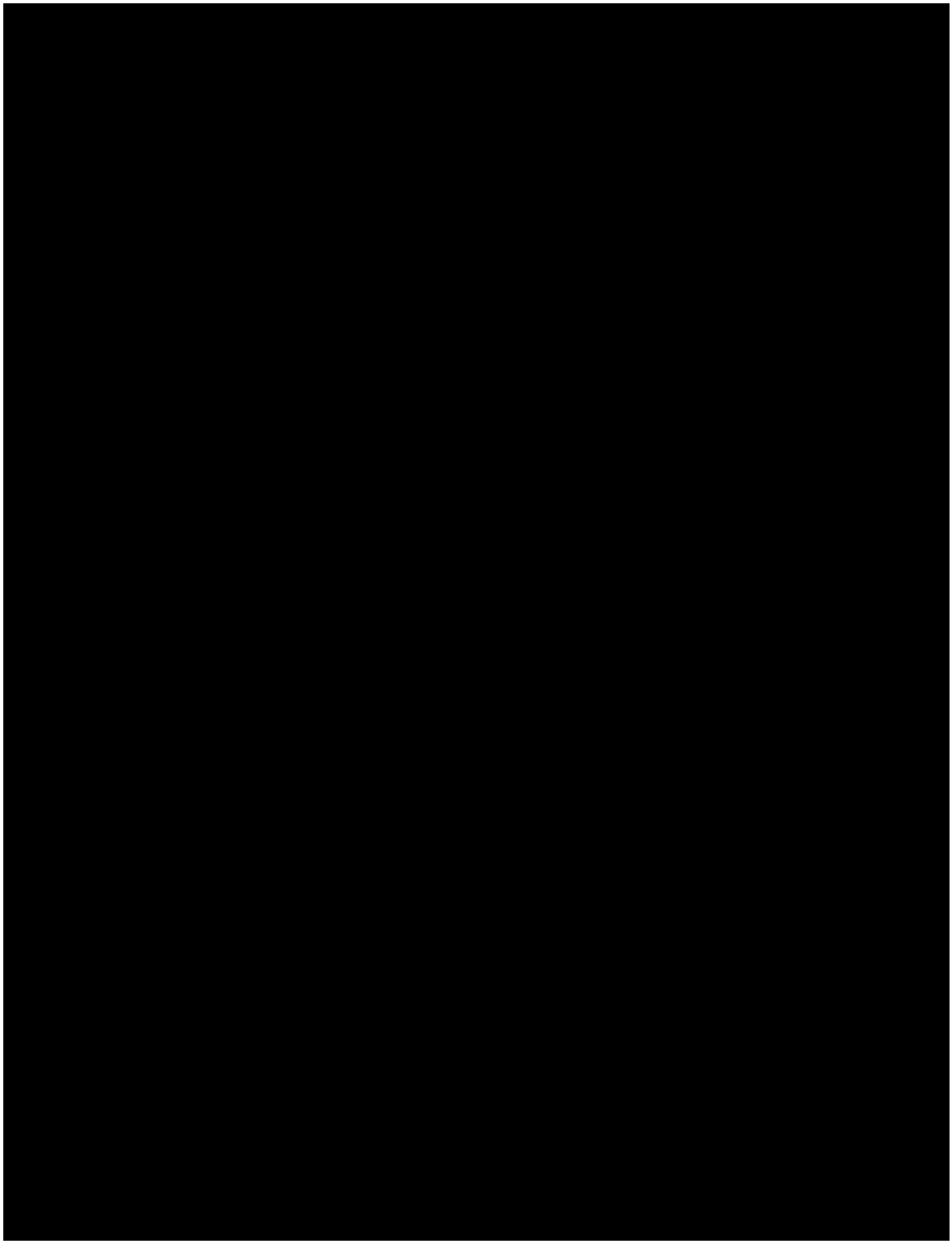


Figure 7-7. Sketch map of site 48CK2076.

48CK2077 (Wy3)

Elevation: [redacted]
Cultural Period: prehistoric
Site Type: camp
Sketch Map: Figure 7-8

Description: This prehistoric camp site is situated on a terrace that lies [redacted] of a bend in an unnamed ephemeral tributary of the Little Missouri River. [redacted] The terrace cut bank reveals relatively deep deposits of fine sediments with some calcium carbonate evident. The site location is somewhat sheltered by uplands [redacted] and affords a good view of a portion of the Little Missouri valley and adjacent uplands. Vegetation consists of mixed grasses, forbs, prickly pear cactus, and sagebrush. A few small cottonwood trees grow in the adjacent ephemeral stream bottom.

Although the terrace surface appears eroded in many places, with areas of hardpan, much of it appears intact, with quite thick vegetation and consequently poor surface visibility (averaging around 10 percent). The site has been recently impacted by very shallow scraped areas that appear to be associated with exploratory core drilling. These scraped areas are between 12 and 15 m across and are probably no more than 2-3 cm deep (excepting the presumed drill holes). A large camp site lies just south of the current site, on the opposite side of the unnamed ephemeral stream (site **V3**).

Observed cultural material was relatively sparse, but was observed mostly along the eroded edge of the terrace, which may indicate that substantial additional material lies concealed within the subsurface. Observed cultural material includes a chert endscraper (tool A1), at least five pieces of quartzite FCR, a quartzite stream cobble that appears exotic for the location and was probably manuported, and at least six flakes. Debitage includes one secondary flake and one shatter flake of quartzite, one secondary flake and one tertiary flake of agate, one chert secondary flake, and a porcellanite secondary flake. Also observed were a piece of bone that appears fossilized or partially so, and a piece of tooth enamel. The faunal remains were situated next to each other at the northern end of the site, but it is not known for certain if they are associated with the cultural remains.

National Register Recommendation: This site is tentatively recommended as eligible for the NRHP under Criterion D, pending a remote sensing study. The site is situated in a favorable environment for the preservation of subsurface cultural components- a terrace north of an ephemeral tributary of the nearby Little Missouri River. Cultural material, including quartzite FCR, is eroding from the terrace edge, indicating a strong possibility of buried, intact hearths and associated activity areas in the subsurface. In addition, a large camp site that probably contains buried hearths is located a short distance to the

south on the opposite side of an ephemeral stream. In short, the site has at least moderate potential to yield additional important information regarding local prehistory. Further work involving a remote sensing (magnetometer) survey, follow-up truth testing of any detected anomalies, and excavation of any intact subsurface components is recommended prior to any action that might disturb the site.

Figure 7-8. Sketch map of site 48CK2077.

48CK2078 (J19)

Elevation: [redacted]
Cultural Period: prehistoric/historic
Site Type: camp/debris
Sketch Map: Figure 7-9

Description: This prehistoric camp site and historic isolated find is situated on a bench lobe or high terrace remnant overlooking an unnamed intermittent tributary of the Little Missouri River. [redacted] The bench lobe or high terrace appears relatively stable, and a shovel test indicates a minimum of 35 cm of soil. The site location is generally exposed to prevailing winds, but provides excellent views of the tributary and Little Missouri stream valleys, extending past the confluence of the two forks. Local vegetation includes mixed grasses, forbs, prickly pear cactus, and sagebrush. Surface visibility was about 40 percent. A power line passes near the eastern site boundary.

Observed prehistoric cultural material includes an estimated 20-30 pieces of sandstone and quartzite FCR, five flakes, and two fine-grained tan quartzite cores. Observed flakes include four secondary flakes of tan, fine-grained quartzite, and one secondary flake of white chert. The FCR was observed in diffuse clusters, and some of it was observed embedded in the sod. Most FCR was quartzite, but a small cluster of three pieces of suspected sandstone FCR was also observed. Much of the quartzite does not appear obviously thermally altered, but was probably manuported to the location. A large quartzite core was exposed in the wall of a large rodent disturbance at a depth of about 13-18 cm. The core is large and tabular-shaped, and is stream-tumbled. There are large flake scars along at least one edge. The core is of the same material as most of the FCR at the site, and in this area generally.

One shovel test was conducted on an intact surface near some flakes and adjacent to the rodent disturbance where the quartzite core was exposed. The test measured 40 cm square by 35 cm deep. Soil consisted of pale brown sandy loam with a dark, mottled band of charcoal and ash stained soil at a depth of between 12 and 30 cm. This dark band seems to be limited in extent- there does not appear to be any sign of it in an arroyo about 50 m to the south- and may be evidence of a buried cultural component.

Observed historic material consists of parts of a cast iron drill seeder. [redacted]

National Register Recommendation: This site is tentatively recommended as eligible for the NRHP under Criterion D, pending a remote sensing study. There is multiple evidence

of a subsurface component, including a dark band of ash and charcoal stained soil in a test unit, and cultural material, including FCR and a large core, embedded in the sod and exposed in a rodent burrow. The FCR and dark soil staining indicates a strong possibility of subsurface hearths and associated activity areas. The site therefore has good potential to yield additional important information regarding local prehistory. Further work involving a remote sensing (magnetometer) survey, follow-up truth testing of any detected anomalies, and excavation of any intact subsurface components is recommended prior to any action that might disturb the site.

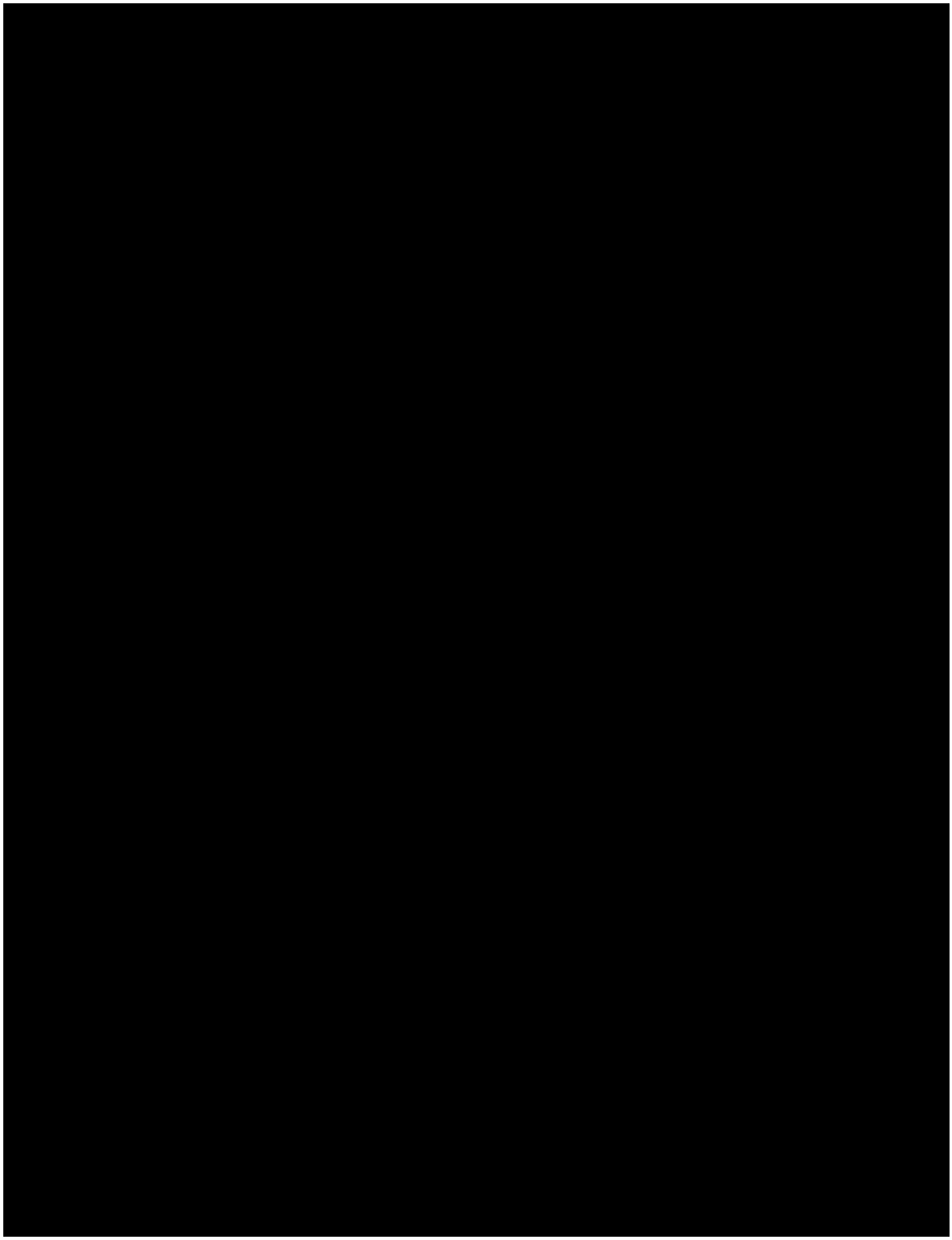


Figure 7-9. Sketch map of site 48CK2078.

48CK2079 (Vx4)

Elevation: [redacted]
Cultural Period: prehistoric
Site Type: camp
Sketch Map: Figure 7-10

Description: This prehistoric camp site is situated on a high terrace within a broad, [redacted] bend of the Little Missouri River. [redacted] The Little Missouri has intermittent pools of standing water [redacted] The terrace cut banks reveal deep deposits of fine sediments. The terrace is slowly deflating and includes areas of hardpan. Most of the cultural material was observed along the eroded terrace margin, but quartzite FCR was also observed embedded in the sod of the terrace surface. The site location is generally exposed to prevailing winds, but provides good views of a portion of the nearby stream valleys. Local vegetation includes mixed grasses, forbs, prickly pear cactus, and sagebrush. Surface visibility was poor, averaging around 10 percent or less. The site is bounded on the west by a road cut [redacted] No cultural material was observed in the disturbed area. A few parts of sanitary cans were observed near the road. These are probably modern in age.

Observed cultural material includes an estimated 15-20 pieces of FCR, a shatter flake of orange, fine-grained quartzite, and a secondary flake of brown, fine-grained quartzite. Most of the FCR was of quartzite, but there are two pieces of petrified wood that might be FCR as well. The FCR was observed embedded in the sod of the terrace surface (at least two pieces) and along the eroded edge and cut bank slope. Though the observed material is sparse, it appears to be eroding from the subsurface.

National Register Recommendation: This site is tentatively recommended as eligible for the NRHP under Criterion D, pending a remote sensing study. The site is situated in a favorable environment for the preservation of subsurface cultural components- a high terrace along the Little Missouri River. Although observed cultural material is relatively scant, surface visibility is rather poor, and there is FCR embedded in the sod of the terrace surface, and FCR and artifacts on the eroded edge of the terrace. This material appears to be eroding from the subsurface, and indicates a possibility of buried, intact hearths with associated activity areas. The site therefore has good potential to yield additional important information regarding local prehistory. Further work involving a remote sensing (magnetometer) survey, follow-up truth testing of any detected anomalies, and excavation of any intact subsurface components is recommended prior to any action that might disturb the site.

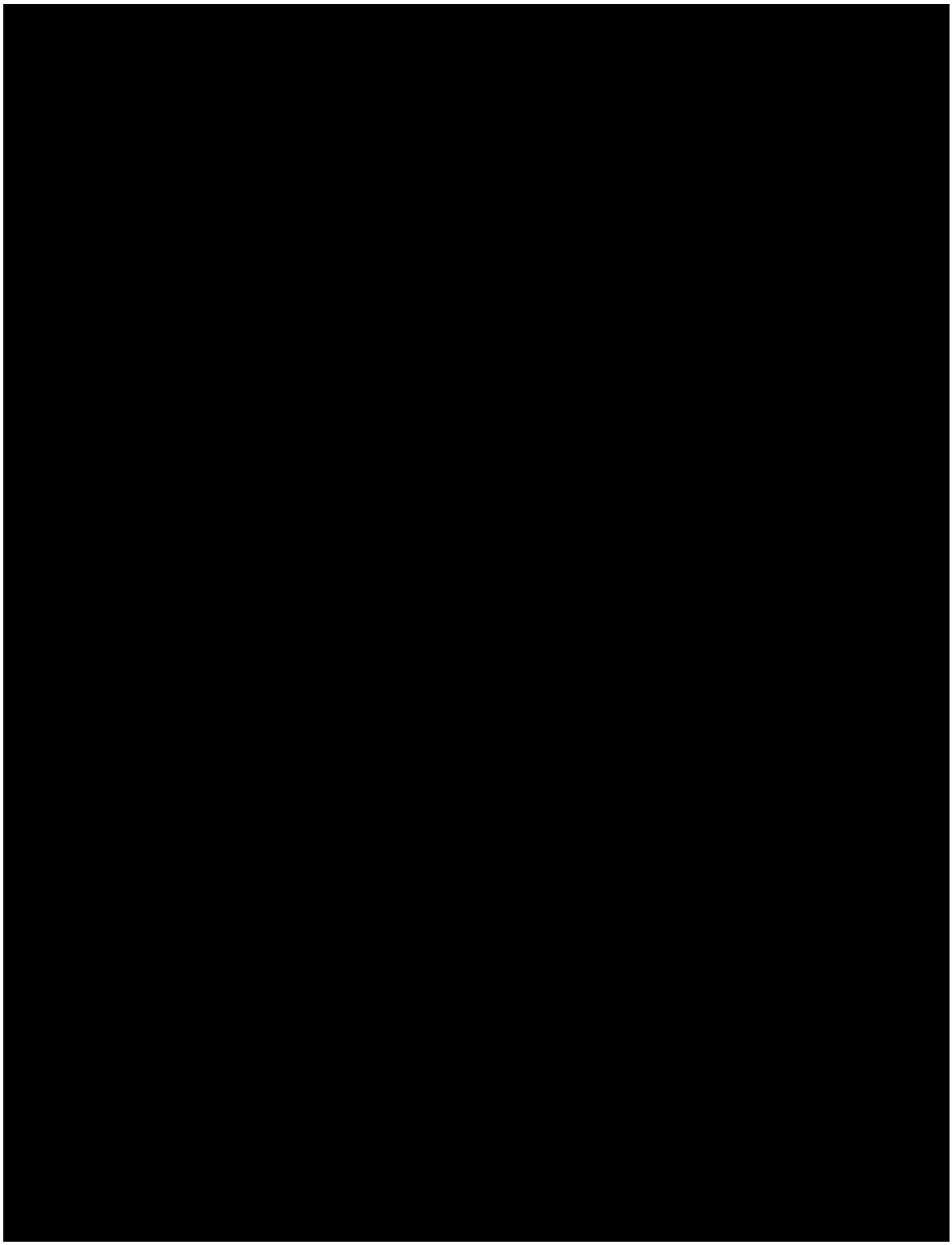


Figure 7-10. Sketch map of site 48CK2079.

48CK2080 (Wv)

Elevation: [redacted]
Cultural Period: prehistoric
Site Type: camp
Sketch Map: Figure 7-11

Description: This prehistoric camp site is situated on a high terrace on the [redacted] side of the Little Missouri River. [redacted]. [redacted]. The terrace cut banks reveal deep deposits of fine sediments. The terrace is slowly deflating and includes areas of hardpan. All of the cultural material was observed along the eroded terrace margin. Beyond the terrace margin to is a more stable, grassy area with poor surface visibility. The site location is generally exposed to prevailing winds, but provides good views of a portion of the stream valley. Local vegetation includes mixed grasses, forbs, prickly pear cactus, and sagebrush. Surface visibility was poor, averaging around 10 percent or less. The site is bisected by an overhead utility line, with one pole set in the middle of the site. This utility pole was utilized as a temporary datum.

Observed cultural material includes an estimated 15-20 pieces of quartzite FCR and one secondary flake of tan, fine-grained quartzite. The FCR was observed in diffuse clusters [redacted]. The flake is situated adjacent to one of the pieces. Though the observed material is sparse, all of it was observed along the terrace edge, suggesting that perhaps substantial additional material lies in the subsurface.

National Register Recommendation: This site is tentatively recommended as eligible for the NRHP under Criterion D, pending a remote sensing study. The site is situated in a favorable environment for the preservation of subsurface cultural components- a high terrace along the Little Missouri River. Although observed cultural material is scant, surface visibility is rather poor, and there are FCR and artifacts on the eroded edge of the terrace that appear to be eroding from the subsurface. This indicates a possibility of buried, intact hearths with associated activity areas. The site therefore has some potential to yield additional important information regarding local prehistory. Further work involving a remote sensing (magnetometer) survey, follow-up truth testing of any detected anomalies, and excavation of any intact subsurface components is recommended prior to any action that might disturb the site.

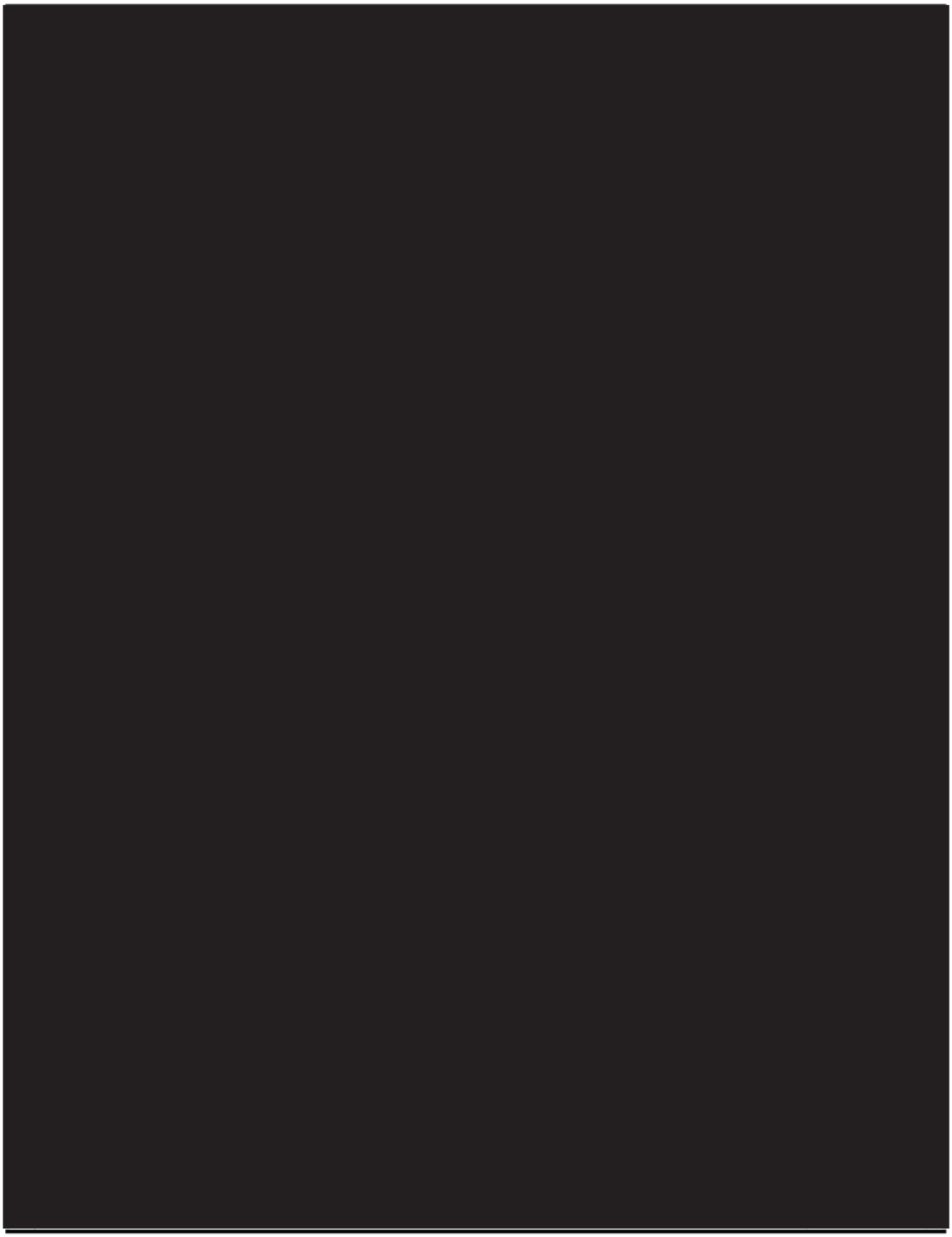


Figure 7-11. Sketch map of site 48CK2080.

48CK2081 (Vx1)

Elevation: [redacted]
Cultural Period: prehistoric
Site Type: camp
Sketch Map: Figure 7-12

Description: This prehistoric camp site is situated on a high terrace [redacted]. The terrace cut bank reveals deep deposits of fine sediments. A thick, dark gray lens was observed at a depth of about 85 cm that might represent a secondary deposit of coal. This dark lens was below buried faunal remains found in the northern portion of the site. The site location is somewhat sheltered by surrounding uplands, and provides partial but extensive views of the surrounding country. Local vegetation includes mixed grasses, forbs, prickly pear cactus, and sagebrush, but the terrace surface is very grassy and has been utilized as a hay field. Surface visibility was generally poor, averaging around 10 percent or less. The site is bisected by a two track road leading over a stock dam along Deadman Creek.

Observed cultural material was relatively sparse but was observed only in areas of exposure, including the terrace cut bank or eroded edge, rodent back dirt, and the hayfield. Observed material includes widely scattered FCR, at least four flakes, buried rib bones and fragments, and tooth enamel. The rib bones were observed in the terrace cut bank at a depth of about 19 cm. It is not known for certain if the bone or tooth enamel is cultural, but the tooth enamel was found adjacent to a flake and piece of FCR along the terrace edge, and flakes and FCR were also found not far from the buried bone. Observed debitage includes one secondary flake of brown, fine-grained quartzite, a primary flake of gray banded silicified sediment, and one gray porcellanite secondary flake. At least seven pieces of FCR or suspected FCR were observed. Six of the pieces were of quartzite, which is very common in this area. One was quite large and might not be thermally altered. One piece appeared to be of petrified wood. This last piece measured about 3-4 cm across and was jaggedly cracked, possibly as a result of quick cooling.

National Register Recommendation: This site is tentatively recommended as eligible for the NRHP under Criterion D, pending a remote sensing study. The site is situated in a favorable environment for the preservation of subsurface cultural components- a high terrace [redacted]. There is widely scattered FCR and bones of a large mammal exposed in the terrace cut bank. This material indicates a likelihood of additional buried bone and intact hearths with associated activity areas in the subsurface.
The site therefore has good potential to yield additional important information regarding

local prehistory. Further work involving a remote sensing (magnetometer) survey, follow-up truth testing of any detected anomalies, and excavation of any intact subsurface components is recommended prior to any action that might disturb the site.

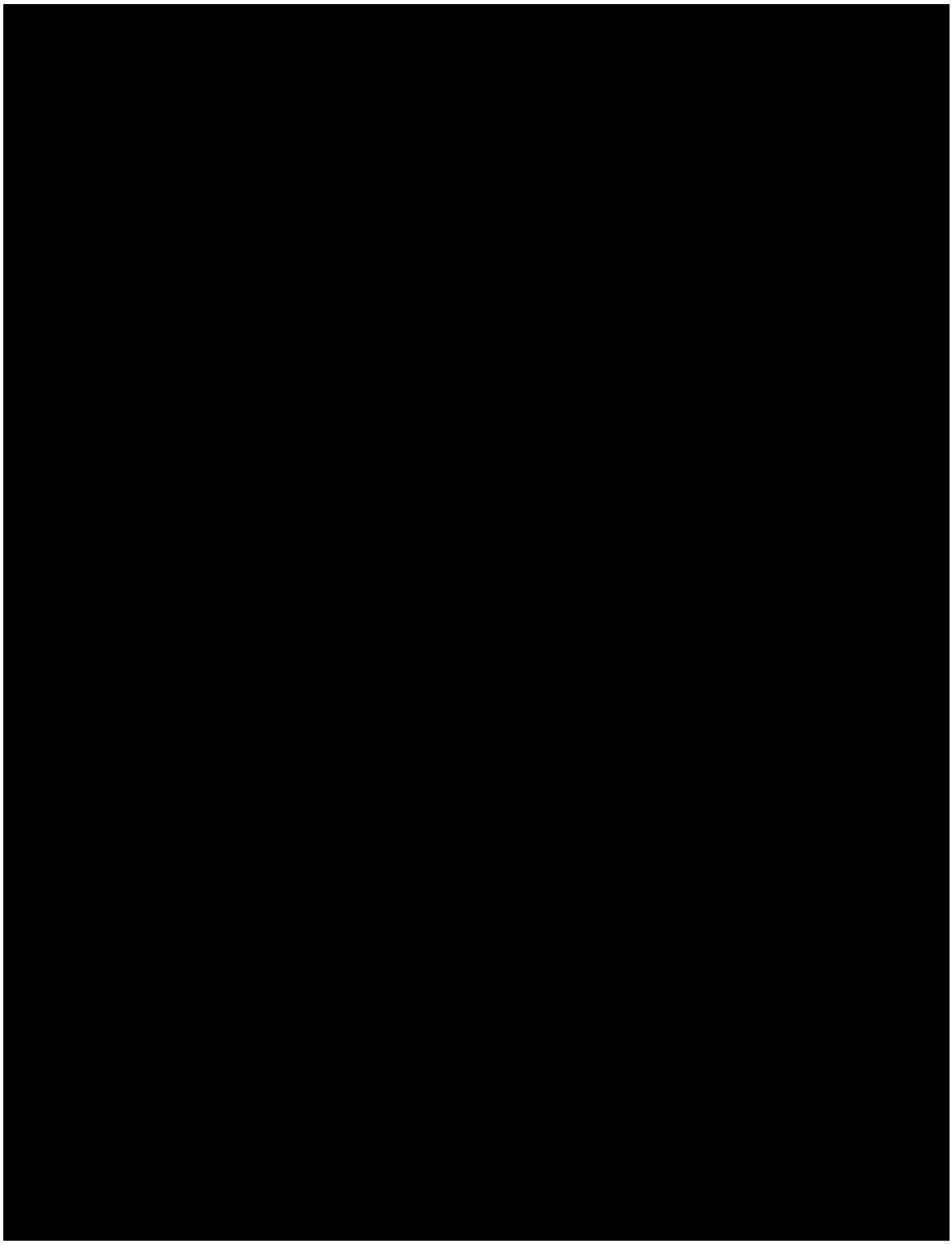


Figure 7-12. Sketch map of site 48CK2081.

48CK2082 (W2)

Elevation: [redacted]
Cultural Period: prehistoric
Site Type: camp
Sketch Map: Figure 7-13

Description: This prehistoric camp site, which also includes scant historic or modern material, [redacted]. The terrace cut bank reveals deep deposits of fine sediments that have been deposited over a bedrock bench toward the northwestern end of the site. These deposits appear to become more gravelly towards the southeastern end. The site location is sheltered by higher ground to the north, and provides partial but extensive views of the surrounding country. Vegetation includes dense grasses, forbs, sagebrush, and prickly pear cactus. Surface visibility was generally poor, averaging around 10 percent or less, and was particularly poor in the grassy area of the terrace away from the eroding edge. [redacted]

Prehistoric cultural material was observed within the cut bank and along the eroded edge of the terrace. Observed material includes weathered bone, quartzite FCR, a biface (tool A1), a possible sandstone metate (tool A2), and three flakes.

The FCR is all of quartzite. There is a cluster of about 3-5 pieces near some flakes and stone tools towards the northwestern end of the site. One piece was observed in the cut bank at a depth of about 20 cm. Debitage includes one brown agate secondary flake, a fine-grained maroon quartzite secondary flake, and a large petrified wood primary flake.

One bone, which appears to be a clavicle of a medium to large sized mammal, was observed in the cut bank at a depth of about 15 cm. Some additional fragments were observed on the terrace slope in the same general area- towards the southeastern end of the site. It is not known for certain whether the bone is cultural, but the close proximity of cultural material makes it seem likely.

Tool A1 is a large Stage I biface of pinkish-white quartzite measuring about 55 mm long by 95 mm wide by 40 mm in cross-section. The biface was observed just below the eroded edge of the terrace.

Tool A2 is a large tabular piece of sandstone that appears either ground or eroded on one face and may be a metate. Lichens are growing along the edges, but not within the eroded or ground portion, which occupies most of the dorsal face. In cross-section, the

slab is rounded on top and flat on the bottom. The artifact measures about 20 cm long by 18 cm wide by 7 cm in cross-section. Tool A2 was found on the terrace surface immediately adjacent to the eroded edge.

Historic or modern material consists of a post-1950 evaporated milk can and a sanitary can lid. The post-1950 date for the evaporated milk can be inferred from its size- 2 15/16 in. diameter by 3 15/16 in. length.

National Register Recommendation: This site is tentatively recommended as eligible for the NRHP under Criterion D, pending a remote sensing study. The site is situated in a favorable environment for the preservation of subsurface cultural components- a high terrace [redacted]. Weathered bone and FCR is exposed in the cut bank of the terrace, and there is scattered FCR, flakes, and stone tools along the terrace edge that appear to have eroded from the terrace. This subsurface material indicates a likelihood of intact hearths with associated activity areas in the subsurface. The site therefore has good potential to yield additional important information regarding local prehistory. Further work involving a remote sensing (magnetometer) survey, follow-up truth testing of any detected anomalies, and excavation of any intact subsurface components is recommended prior to any action that might disturb the site.

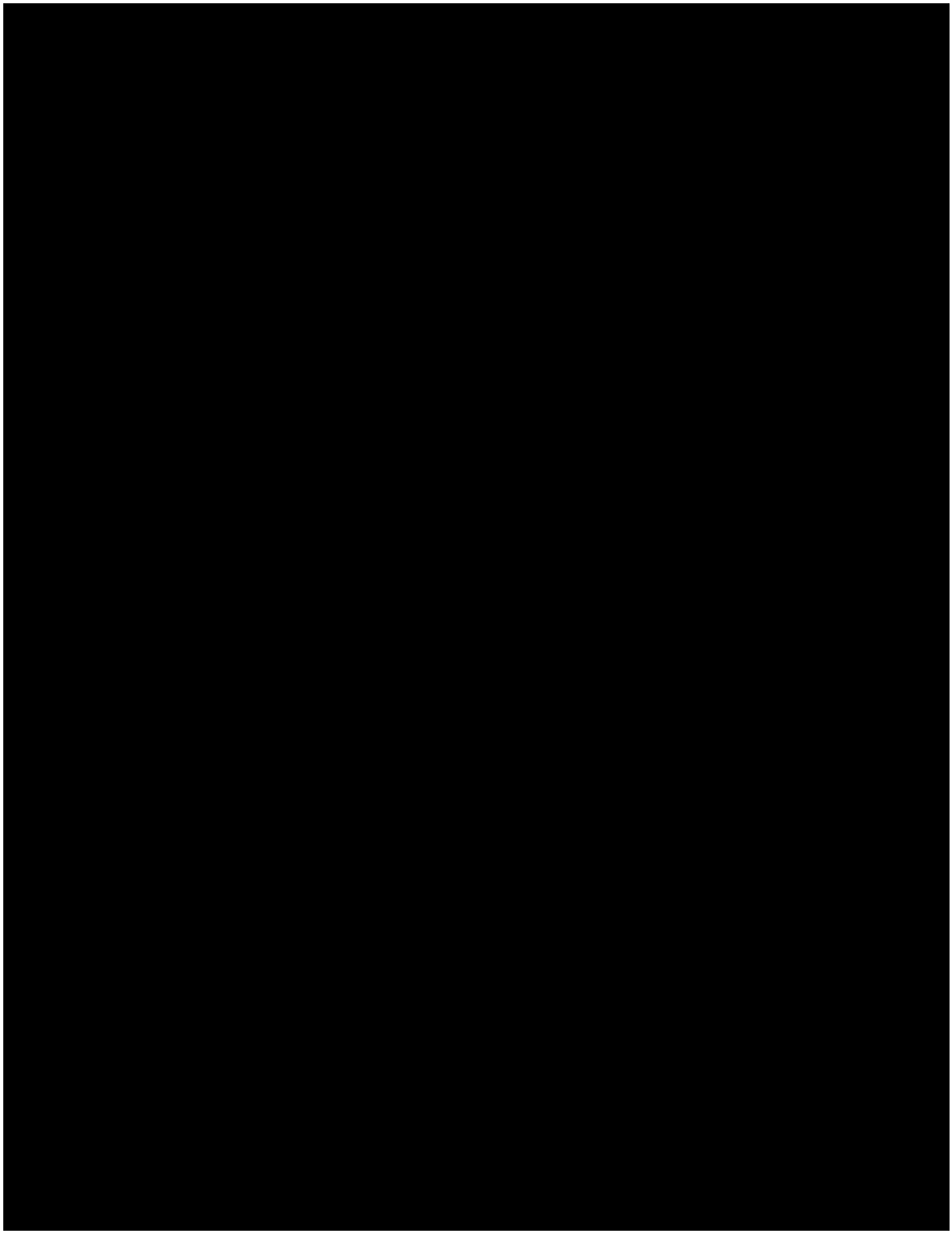


Figure 7-13. Sketch map of site 48CK2082.

48CK2083 (DX2.J3-5)

Elevation: [redacted]
Cultural Period: prehistoric
Site Type: camp
Sketch Map: Figure 7-14

Description: This prehistoric site consists of fire-cracked rock, chipped stone debitage and bison bone and tooth enamel exposed along cut banks [redacted]. The site area is irregularly shaped and covers an area about 145 m north-south by 70 meters east west. In actuality, the site area is much smaller because of severe shoreline erosion. The site area consists of blowouts and cut banks cause by wave action, as well as intact terrace remnants. Any potentially significant deposits will be found in the terrace remnants. Surface visibility ranges from 100 percent in the eroded areas to 20 percent on the terrace top. Vegetation is sparse bunch grass and prairie junegrass. Soil is pale brown silt loam overlying pale gray clay loam. There appears to be soil accumulations of at least 40-50 cm overlying the clay loam. A buried charcoal or ash stained soil lens is exposed along the cut bank at at about 45 cm below surface.

Observed cultural material includes a Late Archaic Period corner-notched point (A1), a stage II biface fragment made of brown quartzite, fragments of bison tooth enamel at two locations, and a cluster of bison bone fragments at a third location, as shown on the sketch map. All of the faunal remains are in proximity to fire-cracked quartzite and orthoquartzite, as well as lithic debitage. Chipped stone material observed includes the projectile point and biface, a tested cobble of silicified wood and 12 flakes. The flakes consist of brown quartzite tertiary (n=1); porcellanite secondary (n=4); reddish pink quartzite (n=5); white quartzite primary (n=1) and secondary (n=1).

The projectile point (A1) is a nearly complete corner-notched type affiliated with the Late Plains Archaic Period. It is made of brown chalcedony, popularly called Knife River Flint because of well-known sources of this type of material in Dunn and Mercer Counties, North Dakota. It likely occurs elsewhere in the region in lag gravels. This specimen is 40.3 mm long by 15.8 mm wide by 5.0 mm thick. It has a neck width of 6.4 mm. (See inset figure below for illustration).

The site setting suggests that there is a possibility of intact subsurface cultural material. Mapping the terraces with a magnetometer is the most effective and efficient way to assess the sites content in terms of intact thermal features. Given that the site has faunal remains associated with a specific cultural period and potential for buried materials, this site is recommended for further work prior to any disturbance.

National Register Recommendation: This site is recommended as eligible for the NRHP under Criterion D, pending a remote sensing study. The site is situated in a potentially favorable environment for the preservation of subsurface cultural components- a terrace along the Little Missouri River. Although there is severe shoreline erosion from Oshoto

reservoir, faunal remains, FCR and artifacts exposed along the margins of the terrace remnant appear to be eroding from the subsurface. This indicates a possibility of buried, intact hearths with associated activity areas and dateable organic material. A temporally diagnostic Late Archaic projectile point recovered from the site provides archeological context. The site therefore has some potential to yield additional important information regarding local prehistory. Further work involving a remote sensing (magnetometer) survey, with follow-up "truth testing" of any detected anomalies, and excavation of any intact subsurface components is recommended prior to any action that might disturb the site.

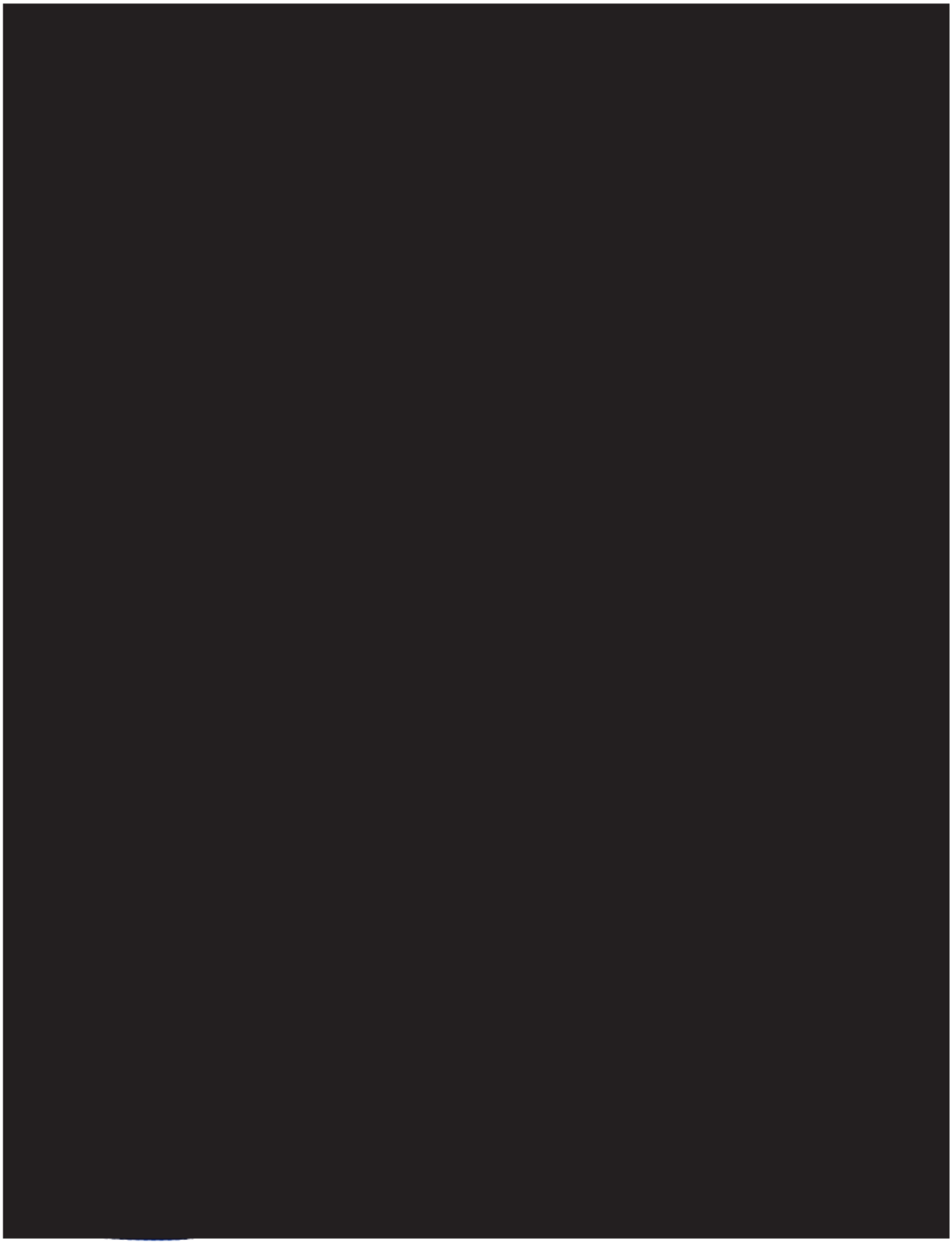


Figure 7-14. Sketch map of site 48CK2083.

48CK2084 (DH179)

Elevation: [redacted]
Cultural Period: prehistoric/paleontological
Site Type: camp/fossil bone
Sketch Map: Figure 7-15

Description: This prehistoric site consists of very widely scattered debitage and what appears to be ortho-quartzite fire-cracked rock located on at the crest of a [redacted] ridge on the [redacted] side of an unnamed tributary [redacted] of the Little Missouri River. The site area slopes with aspects to the south, east and west. Soil is gravelly loam and sand. Vegetation consists of sparse bunchgrasses, with widely scattered yucca, sage and rabbitbrush. Lithic artifacts as well as fragments of fossilized bone are exposed in sandy blowouts on the top and slopes of the ridge. The bone is clearly not eroding in situ, but has weathered out of parent rock (Lance Formation). The fossil bone was too fragmentary for (layperson) identification, but some fragments gave the appearance of turtle shell. Severe water and wind erosion has scoured out sandy basins and arroyos on the ridge. Most of the observed artifacts and fossil bone are in these settings.

A total of 18 lithic artifacts were counted, including nine fragments of what appears to be fire-cracked ortho-quartzite FCR, two pieces of oxidized sandstone and seven pieces of chipped stone debitage. The debitage consists of: gray chert secondary reduction (n=1); gray silicified sediment secondary reduction (n=2); pink chert secondary reduction (n=1); tan quartzite (n=2); and, a bifacially modified core of silicified wood.

The site setting, overlooking the headwaters of the Little Missouri River drainage and the presence of lithics suggest that this was a lithics workshop. The site might have been located here to exploit lag gravels occasionally found on the higher ridges. The presence of FCR indicates that there was at least a minimal duration of occupation. The lack of temporally diagnostic material, formal tools or intact features precludes the site from having the potential to realistically yield significant archaeological information. The lack of soil precludes this site from being recommended for additional investigation (i.e., a magnetometer survey for buried thermal features). No testing was conducted. The sloping and erosive character of the site precludes a subsurface component.

National Register Recommendation: This site is recommended as not eligible for the NRHP under any criteria. Consideration under Criterion D was dismissed due to the eroded and deflated character of the site and a lack of potential to contain cultural material in sufficient archaeological context to realistically yield significant information about prehistory. Artifacts observed are limited to widely scattered ortho-quartzite FCR and chipped stone debitage on an erosive ridge top and sides. No features, formal tools or dateable organic materials were found. The site has no means of establishing a temporal context and in fact may be a collapsed deposit spanning multiple occupations. The site area affords a good view of the Little Missouri River valley and is interpreted as a lithic reduction station where locally available gravels were tested and primary reduction occurred. No shovel tests were conducted. The gravel veneer on the hilltop

clearly spoke to the lack of soil development and there is no possibility of a subsurface component. No further work is recommended.

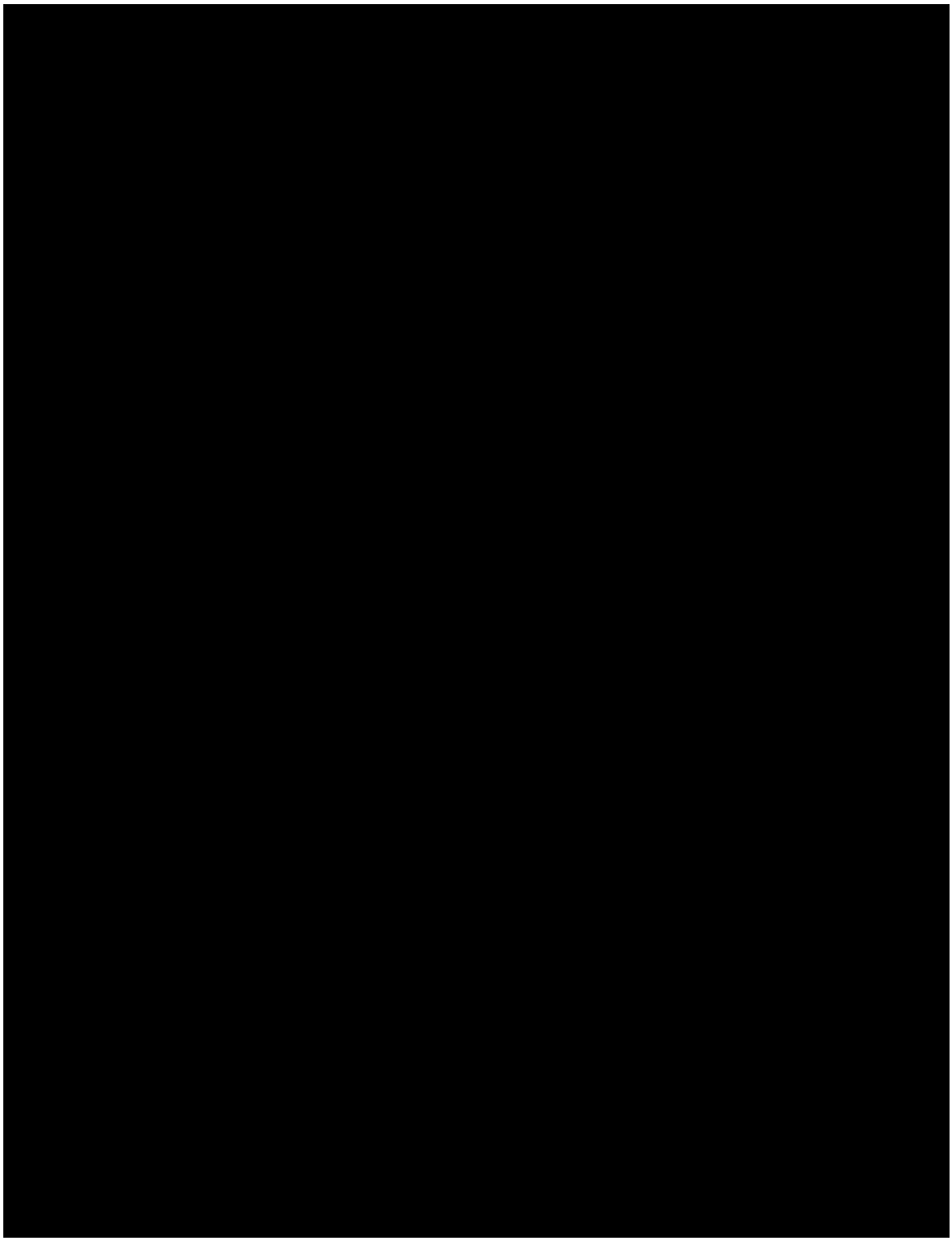


Figure 7-15. Sketch map of site 48CK2084.

48CK2085 (DX6)

Elevation: [redacted]
Cultural Period: prehistoric
Site Type: camp
Sketch Map: Figure 7-16

Description: This prehistoric site consists of fire-cracked rock, chipped stone debitage, bison bone and tooth enamel exposed along cut banks [redacted] The site area is irregularly shaped and covers an area about 90 m north-south by 150 meters east west. In actuality, the site area is much smaller because of severe shoreline erosion, which left areas of complete hardpan exposure and has carved an irregular remnant of a once broad terrace. The site area contains of blowouts and cut banks cause by wave action, as well as intact terrace areas. Any potentially significant deposits will be found in the intact terrace remnants. Surface visibility ranges from 100 percent in the eroded areas to 20 percent on the terrace top. Vegetation is sparse bunch grass and prairie junegrass. Soil is pale brown silt loam overlying pale gray clay loam. There appears to be soil accumulations of at least 40-50 cm overlying the clay loam. Along the terrace margin are bison bone, tooth enamel, debitage and fire-cracked rock eroding from the topsoil at about 45 cm below surface.

Observed cultural material includes a bifacially modified chert flake (A1), four pieces of chipped stone debitage, and at least ten widely scattered fragments ortho-quartzite FCR. Approximately 50 bison bone fragments are exposed, including some exhibiting green fractures, some skull fragments and tooth enamel fragments mainly along the north edge of the terrace. The faunal material is in close proximity to fire-cracked ortho-quartzite and debitage. Chipped stone material observed includes the bifacially modified flake (A1), and the debitage, which includes a brown quartzite tertiary flake, a reddish pink quartzite primary flake; a white quartzite secondary flake and a gray chert secondary flake.

There is a high possibility of intact subsurface cultural material. Mapping the terraces with a magnetometer is the most effective and efficient way to assess the sites content in terms of intact thermal features. This site is recommended for further work prior to any disturbance.

National Register Recommendation: This site is recommended as eligible for the NRHP under Criterion D, pending a remote sensing study. The site is situated in a potentially favorable environment for the preservation of subsurface cultural components- a terrace along the Little Missouri River. Although there is severe shoreline erosion from Oshoto reservoir, faunal remains, FCR and artifacts exposed along the margins of the terrace remnant appear to be eroding from the subsurface. This indicates the presence of a cultural component with the possibility of intact hearths and associated activity areas, as well as dateable organic material. The site therefore has the potential to yield additional important information regarding local prehistory. Further work involving a remote

sensing (magnetometer) survey, with follow-up "truth testing" of any detected anomalies, and excavation of any intact subsurface components is recommended prior to any action that might disturb the site.

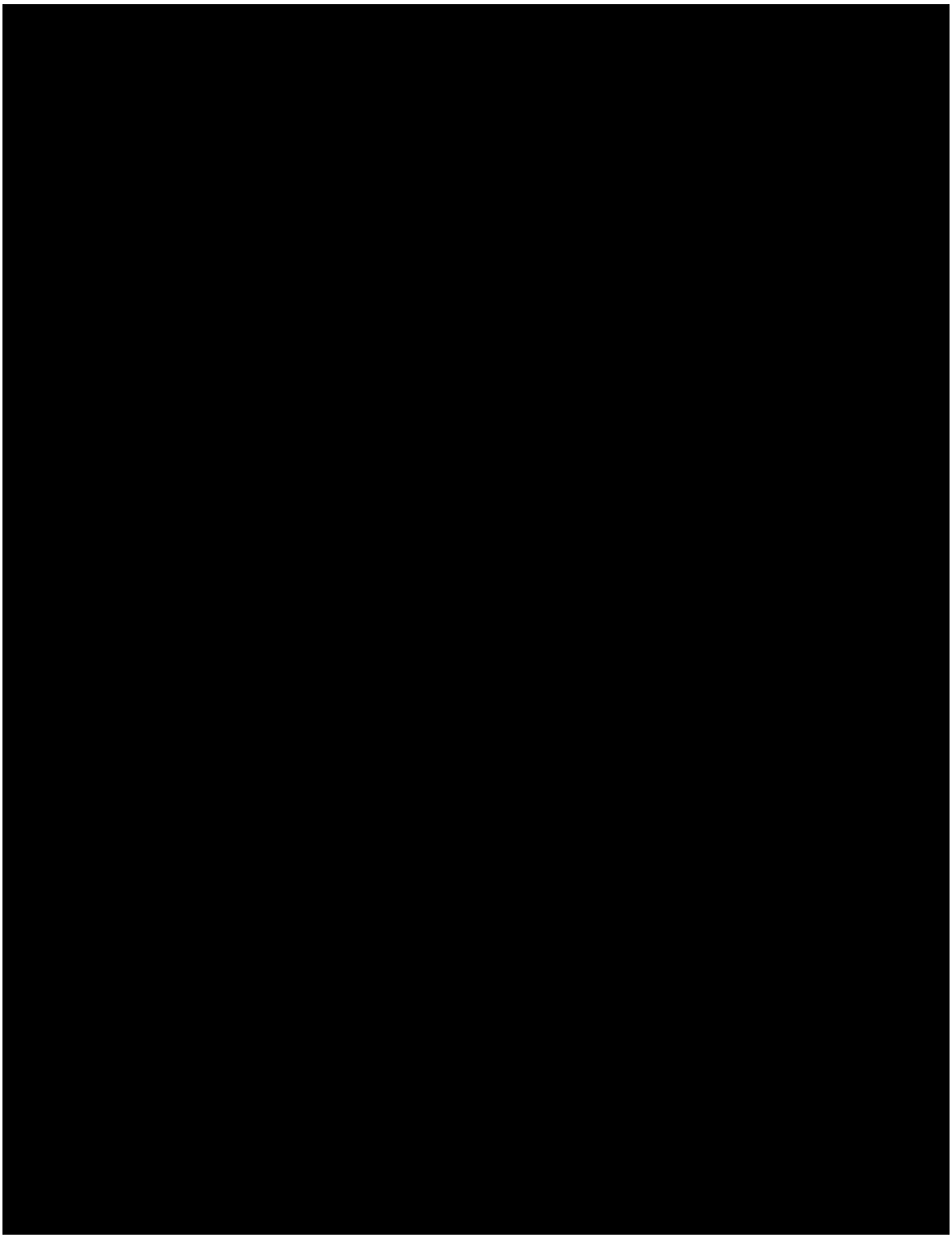


Figure 7-16. Sketch map of site 48CK2085.

48CK2086 (DX7)

Elevation: [redacted]
Cultural Period: prehistoric
Site Type: camp
Sketch Map: Figure 7-17

Description: This prehistoric lithic scatter is located [redacted]. The site is located on both private and BLM land. Cultural material at the site consists of 12 widely scattered flakes, seven fragments of ortho-quartzite FCR and an unmodified stream cobble that was apparently manuported to the site for use as a knapping hammer. [redacted] Some impact to the site may have occurred during dam construction. [redacted]. Vegetation at the site consists of non-native crested wheatgrass, fringed sagewort, green rabbitbrush, prairie junegrass, western wheatgrass, snowberry, yarrow and phlox. Surface visibility ranges from poor to near 100 percent at the terrace margin where severe erosion is in evidence.

One shovel test was conducted. The test was placed [redacted] on what appears to be an old terrace of the Little Missouri River. The 40 by 40 by 25 cm deep test yielded no cultural material. The soil in this location is light gray clayey loam with a veneer of pebble gravel.

National Register Recommendation: This site is recommended as not eligible for the NRHP under any criteria. Consideration under Criterion D was dismissed due to the eroded and deflated character if the site and a lack of potential to contain cultural material in sufficient archaeological context to realistically yield significant information about prehistory. A total of 12 widely scattered flakes, seven fragments of ortho-quartzite FCR and an unmodified stream cobble that was possibly used as a knapping hammer was found at the site. No intact features and no formal or diagnostic tools were found. The site lacks features, faunal material, dateable organics and a variety of cultural material. The site setting is not favorable for soil accumulation, except perhaps in a small saddle area that has been impacted by a two-track road, dam building activity and a modern irrigation pipe stack yard. One shovel test placed in the interior of the landform yielded no cultural material and demonstrated that minimal soil is present at this locale. The terrace lobes containing the bulk of the cultural material are almost completely eroded away by wave action from Oshoto Reservoir. No further work is recommended.

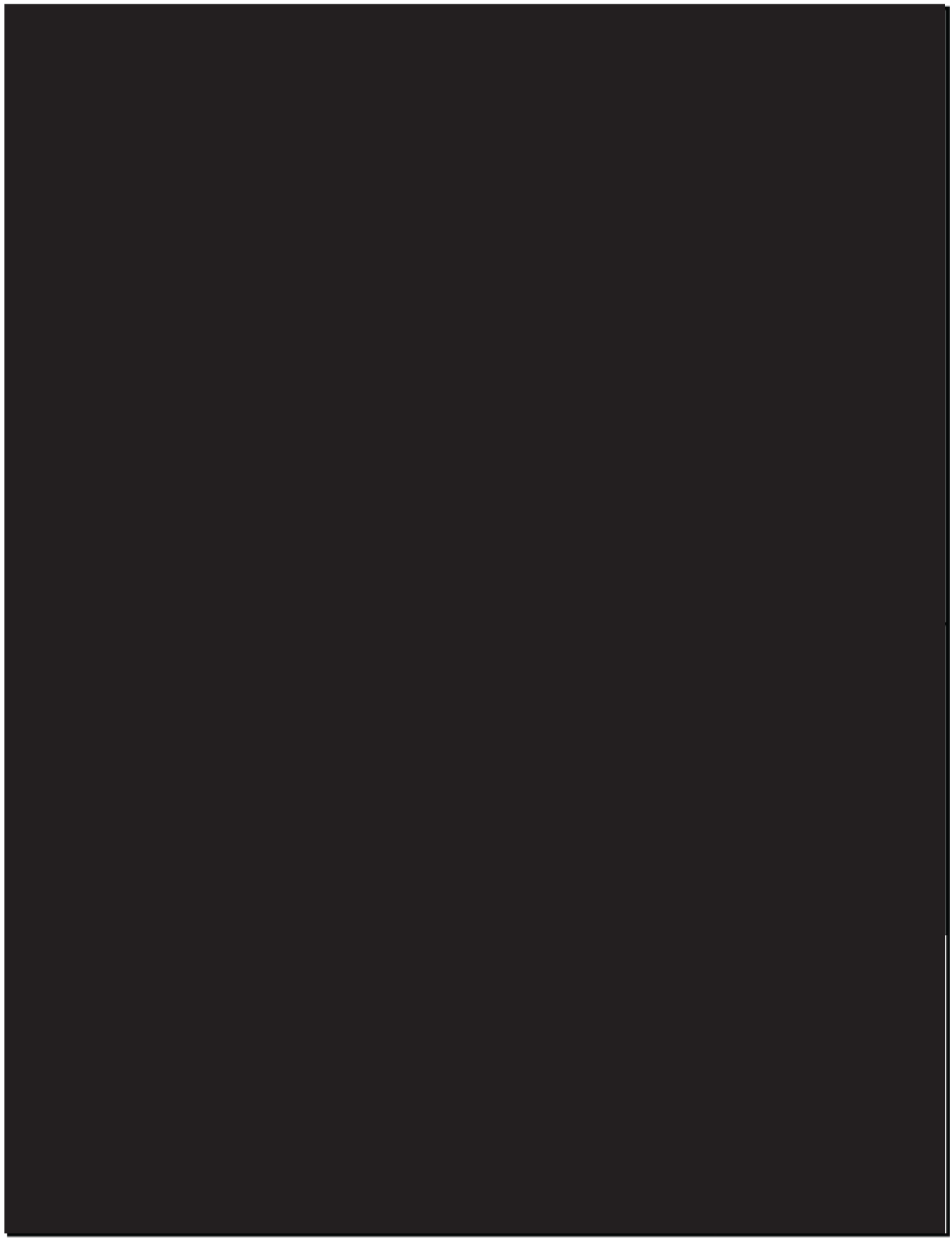


Figure 7-17. Sketch map of site 48CK2086.

48CK2087 (DX11)

Elevation: [redacted]
Cultural Period: unknown
Site Type: cairn
Sketch Map: Figure 7-18

Description: This site consists of a rock cairn [redacted]
Both drainages are about [redacted] km from the site and merge about [redacted] km [redacted] of the site.

The dome-shaped cairn is made of 90+ sandstone slabs piled on a sandstone outcrop. The partially collapsed or disarticulated pile occupies an area roughly two meters north-south by 1.8 m east-west by 0.4 m tall. The constituent rocks are mostly slabs, having maximum diameters ranging from 10 to 60 cm. There is a heavy lichen cover on the rocks. No temporal or cultural context is possible. There is no soil at the feature so no shovel testing was possible.

National Register Recommendation: This site is recommended as not eligible for the NRHP under any criteria. No association with a person or event significant to history can be established, there are no significant design elements and no significant information can be realistically extracted from the site. The site consists of a rock cairn of unknown and undiscoverable antiquity. The cairn is built on a natural sandstone outcrop with no possibility of a subsurface component. While the cairn could be of prehistoric age, it also lies very near to a half section line and may be a survey marker or an otherwise historic manifestation. No further work is recommended.

Figure 7-18. Sketch map of site 48CK2087.

48CK2088 (DX12)

Elevation: [redacted]
Cultural Period: historic
Site Type: homestead
Sketch Map: Figure 7-19

Description: This site consists of the scant remains of a circa 1910s-1920s era homestead located along the upper reaches of the Little Missouri River drainage. The historic site consists of five recognizable features spread out over an area 200 m north-south by 150 m east-west. The site area lies within previously cultivated ground characterized by a predominance of crested wheatgrass, an introduced species. A small prehistoric component is also noted. Observed prehistoric cultural material includes a quartzite secondary flake in the two track and three fragments of ortho-quartzite FCR.

Feature 1 is a rectangular rock outline of footings for a homestead dwelling 30 feet by 15 feet. The footings are native sandstone slabs and blocks. An interior "wall" separates an attached 15 by 15 ft addition on the northwest corner that is designated as Feature 2. Feature 2 may have been a wood or coal shed. While Feature 1 is a leveled area, Feature 2 has been excavated out to about four feet deep, probably indicating that a root cellar was originally built under the floor. Fifteen feet tot eh west of Feature 2 is a 36 by 48 inch concrete pad with a cast iron well casing for a hand or windmill pump. The casing is cast with, "Red Jacket Davenport Iowa." Feature 4 is the foundation of a barn excavated into the north bank of the Little Missouri River. The excavated foundation is approximately 54 ft by 24 ft by 5 ft deep with stacked rock and mortar retaining walls at each end. The northeastern retaining wall is 4 ft high by 20 feet long. About 45 meters south of Feature 4 is a collapsed dug out feature (Feature 5) that is also excavated into the upper terrace of the drainage. Feature 5 is 22 ft long by 12 ft wide by about 7 ft deep. The roof has collapsed but vertical pole supports are present as well as some of the roof boards and log rafters. The roof rafters are logs from 10 to 15 inches in diameter. Round wire nails were used to attach the roofing planks. The roof may have been sod covered. The dug out has been used for dumping bailing twine and fencing debris from an adjacent modern stack yard.

Artifacts observed include common usage items of the period 1910s-1920s. The artifacts in or adjacent to Feature 1-3 include: clear glass; green bottle glass; a 5-gallon kerosene can; a paint can lid; at least 10 "sanitary" type food cans; tin fragments; white-ware "utility" grade crockery fragments; red brick fragments; blue-green bottle glass; and, one piece of melted glass. Artifacts found in or adjacent to Feature 4 include: window pane glass; tin stove parts; logs and milled lumber fragments; and, a wheel from a farm implement. Artifacts observed at Feature 5 include: logs, boards and round wire nails.

A review of the General Land Office records (document no. 09693) on file with the Bureau of Land Management indicated that this location was conveyed from the USA to Mary Etta Dickinson (who married Frank Maros between the time of initial filing and the patent issuance). The accession number is 645812, and the patent date is August 22,

1918. The instrument is the Original Entry Homestead Act of 1862. The Maros homestead consisted of 320 acres. Through of Ancestry.com, a check of the 1910 census for Mary Etta Dickinson in Wyoming turned up nothing. The 1920 census includes Mary Etta and Frank Maros or Crook, Wyoming and indicates that Mary was born in Iowa around 1888 and that her father was born in Illinois. Frank was born in Texas and his father was born in Indiana and claimed Dutch heritage. In 1920, Mary was listed as 40 years of age, Frank of 39 years. No children were listed. The 1930 census finds Mary Etta and Frank Maros living in Ojai, Ventura, California. Frank's occupation is listed as "rancher" in both the 1920 and 1930 census, but oddly enough he claimed Polish heritage in 1930. From the census data it can be extrapolated that Mary Etta married prior to 1918, that she was rather mature for marriage (by the standard of the day), being somewhere around 37 or so at the time. Also, it appears evident that, as so many of northeastern Wyoming's homesteaders, they gave up their homestead about the time that agricultural prices collapsed, circa 1926 or so. They did not enter a government assisted resettlement program, but were able to sell out to a private party. In any case, the homestead was occupied only from the mid-1910s to the mid 1920s at best. From current observations no more than about 40 acres was ever cultivated at the site. Undoubtedly, a better future awaited them in Ventura!

National Register Recommendation: This site is recommended as not eligible for the NRHP under any criteria. The site is not associated with a historically significant event or person, retains no design or architectural significance, and no important information can realistically be expected from the site. The site consists of scant remains of a homestead known to have been at least intermittently occupied between 1913 and 1920 and to have been abandoned prior to 1930. No standing structures remain and few artifacts of the period remain. No additional work is warranted.

Figure 7-19. Sketch map of site 48CK2088.

48CK2089 (DX17)

Elevation: [redacted]
Cultural Period: prehistoric
Site Type: camp
Sketch Map: Figure 7-20

Description: This prehistoric site consists of widely scattered ortho-quartzite fire-cracked rock and 13 flakes located [redacted] The lower (or north) end of the sloping landform appears to be an old terrace. The margin of the landform is extensively eroded with sandy blowouts over one meter deep containing the bulk of the observed artifacts. A total of 52 fragments of what appears to be fire-cracked or rapidly cooled ortho-quartzite FCR were flagged. The site map includes representational distribution of the FCR, although it was not piece-plotted. In addition, 13 flakes were observed, and these too were widely scattered across the site area. Lithic materials include white quartzite, white chert, and gray chert. All observed debitage was either secondary reduction or shattered flake fragments.

The site setting, overlooking the Little Missouri River and the presence of FCR suggest that this was a short-term campsite, possibly where stone boiling of bison bones occurred. The lack of temporally diagnostic material, formal tools or intact features precludes the site from having the potential to realistically yield significant archaeological information. The lack of soil precludes this site from being recommended for additional investigation (i.e., a magnetometer survey for buried thermal features).

Two shovel tests were conducted on the most stable appearing interior of the landform. Both tests were placed near what appears to be ortho-quartzite FCR exposed on the surface. The tests measured 40 cm square by 25 cm deep. Soil consisted of brown sandy loam from 0-18 cm below surface, with increasing pebble-sized gravel with depth. No evidence of a buried cultural component was observed and the site does not appear to have sufficient soil accumulation to warrant a magnetometer mapping.

National Register Recommendation: This site is recommended as not eligible for the NRHP under any criteria. Consideration under Criterion D was dismissed due to the eroded and deflated character of the site and a lack of potential to contain cultural material in sufficient archaeological context to realistically yield significant information about prehistory. Although fire-cracked rock exposed at the terrace margins and elsewhere at the site, no discrete clusters or intact features were identified. Chipped stone artifacts are limited to 13 widely scattered flakes but no tools. The soil is shallow and gravelly on the terrace top and eroded blowouts of sandy loam on the terrace margins contain the bulk of exposed materials. Two shovel tests placed in the interior of the landform yielded no cultural material and demonstrated that minimal soil is present at this locale. The terrace lobes containing the bulk of the cultural material are almost completely eroded away by the Little Missouri River. No further work is recommended.

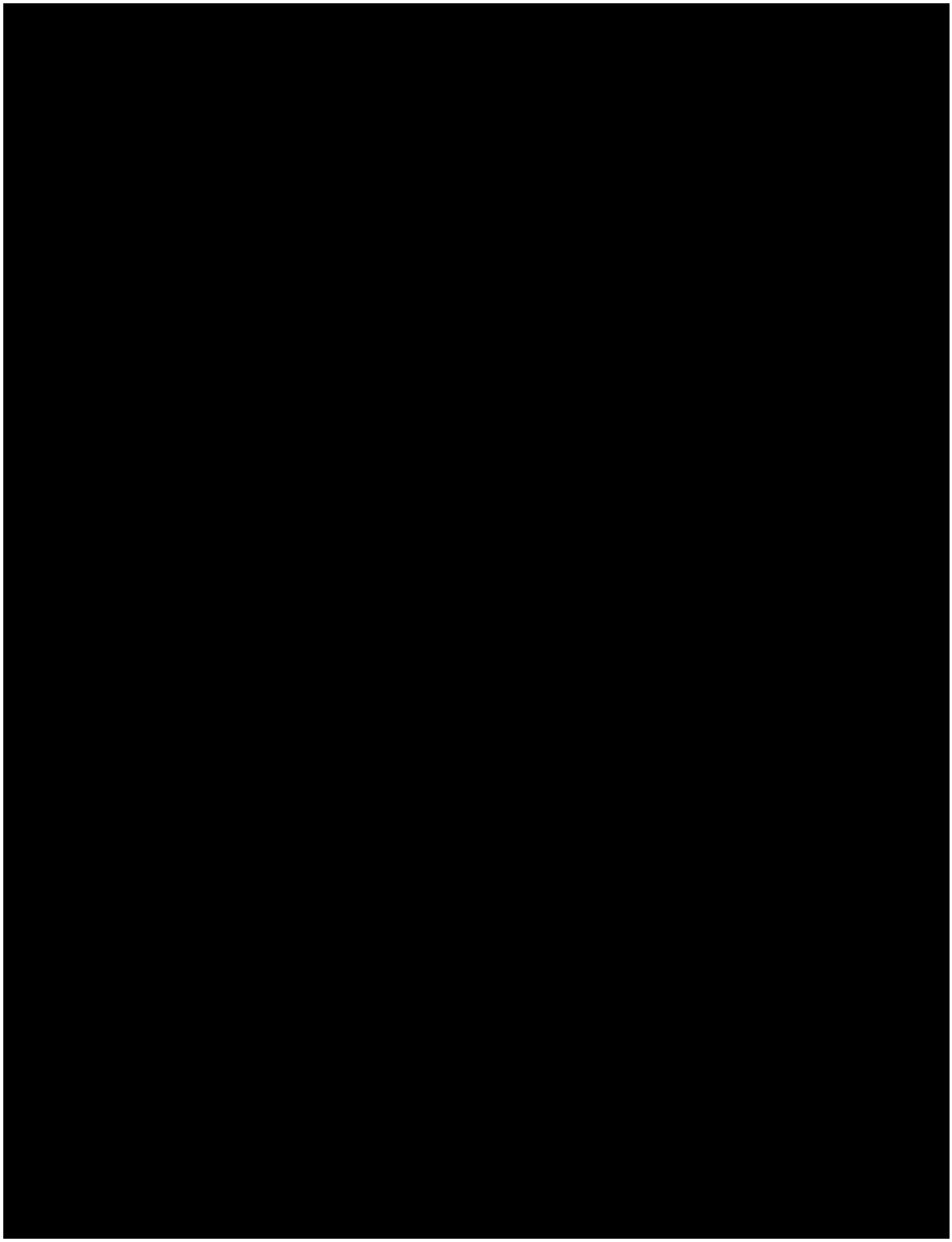


Figure 7-20. Sketch map of site 48CK2089.

48CK2090 (DX19)

Elevation: [redacted]
Cultural Period: prehistoric
Site Type: camp
Sketch Map: Figure 7-21

Description: This prehistoric site consists of scattered debitage and what appears to be ortho-quartzite fire-cracked rock located on the [redacted] terrace [redacted] [redacted] of the [redacted]Little Missouri River. The site area contains areas of hardpan near the north end of the lobe shaped terrace, with pale gray shaley clay and sparse vegetation. In the eroded area, two flakes and 27 pieces of ortho-quartzite FCR were observed. All rock observed on the site surface appears to be cultural. Elsewhere on the landform, there appears to be soil accumulations of at least 20 or 30 cm overlying shaley clay. Soil on the terrace is pale brown sandy loam. Vegetation consists of bunchgrasses, with sage and rabbitbrush. Plains cottonwood grows along the drainage to the north edge of the site. The lower terrace is ill-defined and eroded. The upper terrace is nearly level and appears to be stable to depositional, except along the margins.

Observed lithic artifacts include 27 pieces of what appears to be fire-cracked ortho-quartzite FCR, and two pieces of chipped stone debitage. The debitage includes a brown quartzite secondary reduction flake and a white quartzite primary reduction flake.

Two shovel tests were conducted. Test 1 was placed at a cluster of ortho-quartzite FCR. The 40 by 40 by 35 cm deep test revealed one fragment of orthoquartzite FCR from the 0-10 cm below surface level. The soil is pale brown sandy loam to about 30 cm below surface, under which is a pale gray clayey loam. Test 2 was placed at a brown quartzite secondary reduction flake found on the surface and within the terrace interior. The 40 by 40 by 25 cm deep test yielded no subsurface cultural material but did confirm that loamy soil extends to about 24 cm below surface, and overlies a clayey loam. The site setting suggests that there is a possibility of intact subsurface cultural material. Mapping the terraces with a magnetometer is the most effective and efficient way to assess the sites content in terms of intact thermal features.

National Register Recommendation: This site is tentatively recommended as eligible for the NRHP under Criterion D, pending a remote sensing (magnetometer) study. The site is situated in a favorable environment for the preservation of subsurface cultural components- a stable, s[redacted] terrace along the [redacted] Little Missouri River. Although observed cultural material is relatively scant, surface visibility is rather poor, and the site may contain a buried campsite component based upon FCR observed in eroded areas. The presence of FCR and debitage, coupled with the stable landform, and the setting's proximity to water and firewood suggest that this may be a campsite with good archaeological context. The site therefore has some potential to yield additional important information regarding local prehistory. Further work involving a remote sensing (magnetometer) survey, follow-up truth testing of any detected anomalies, and excavation of any intact subsurface components is recommended prior to any action that

might disturb the site.

Figure 7-21. Sketch map of site 48CK2090.

48CK2091 (J09/DX8)

Elevation: [redacted]
Cultural Period: prehistoric
Site Type: camp
Sketch Map: Figure 7-22

Description: This prehistoric site consists of scattered debitage and what appears to be ortho-quartzite fire-cracked rock located on terraces on both sides of an unnamed drainage [redacted]r. The site lies [redacted] and occupies stream terraces as well as the northwest-facing slope of an eroded or older terrace. The site area contains areas of hardpan, with pale gray shaley clay and sparse vegetation. Elsewhere there appears to be soil accumulations of at least 30 or 40 cm overlying the shaley clay. Soil on the terrace is pale brown clayey loam with gravelly loam and sand on the upper landform. Vegetation consists of bunchgrasses, with sage and rabbitbrush. The lower terraces are nearly level and appear to be stable except at the margins where they are eroding into low cut banks and blow outs.

Observed lithic artifacts include a burned sandstone slab, 12 pieces of what appears to be fire-cracked ortho-quartzite FCR, 12 pieces of chipped stone debitage, a biface fragment and a projectile point (A1) that is classified as a McKean Lanceolate associated with the Middle Plains Archaic Period. The debitage consists of: white quartzite secondary reduction (n=2); white silicified sediment secondary reduction (n=2); gray ortho-quartzite shatter (n=1); ortho-quartzite flaked core (n=1); gray chert secondary reduction (n=1); white chert secondary reduction (n=1); milky chert tested cobble (n=1); pink translucent chert tertiary reduction (n=1); orange heat treated chert secondary reduction (n=1); reddish tan quartzite secondary reduction (n=1). The projectile point is a proximal fragment 20.3 mm long by 14.6 mm wide by 5.3 mm thick. It has a base notch about 3.9 mm deep and exhibits the diamond-shaped cross section typical of McKean complex projectiles. This specimen is of the base indented or base-notched lanceolate form and is made of brown quartzite. A stage II biface fragment found across the tributary drainage from the projectile point is also made of brown quartzite. Also present at the site and significant in terms of its potential to yield additional information, are bison bone fragments eroding from the terrace margin with the burned sandstone slab exposed nearby.

The site setting suggests that there is a possibility of intact subsurface cultural material. Mapping the terraces with a magnetometer is the most effective and efficient way to assess the sites content in terms of intact thermal features. Given that the site has faunal remains associated with a specific cultural period and potential for buried materials, this site is recommended for further work prior to any disturbance.

National Register Recommendation: This site is tentatively recommended as eligible for the NRHP under Criterion D, pending a remote sensing study. The site is situated in a favorable environment for the preservation of subsurface cultural components- a high

terrace along a major tributary [redacted] of the Little Missouri River. Although observed cultural material is scant, surface visibility is rather poor, a diagnostic projectile point places a Middle Archaic component at the site and there is FCR and artifacts exposed along the eroded margins of the terrace that appears to be eroding from the subsurface. This indicates a possibility of buried, intact hearths with associated activity areas. The site therefore has some potential to yield additional important information regarding local prehistory. Further work involving a remote sensing (magnetometer) survey, follow-up truth testing of any detected anomalies, and excavation of any intact subsurface components is recommended prior to any action that might disturb the site.

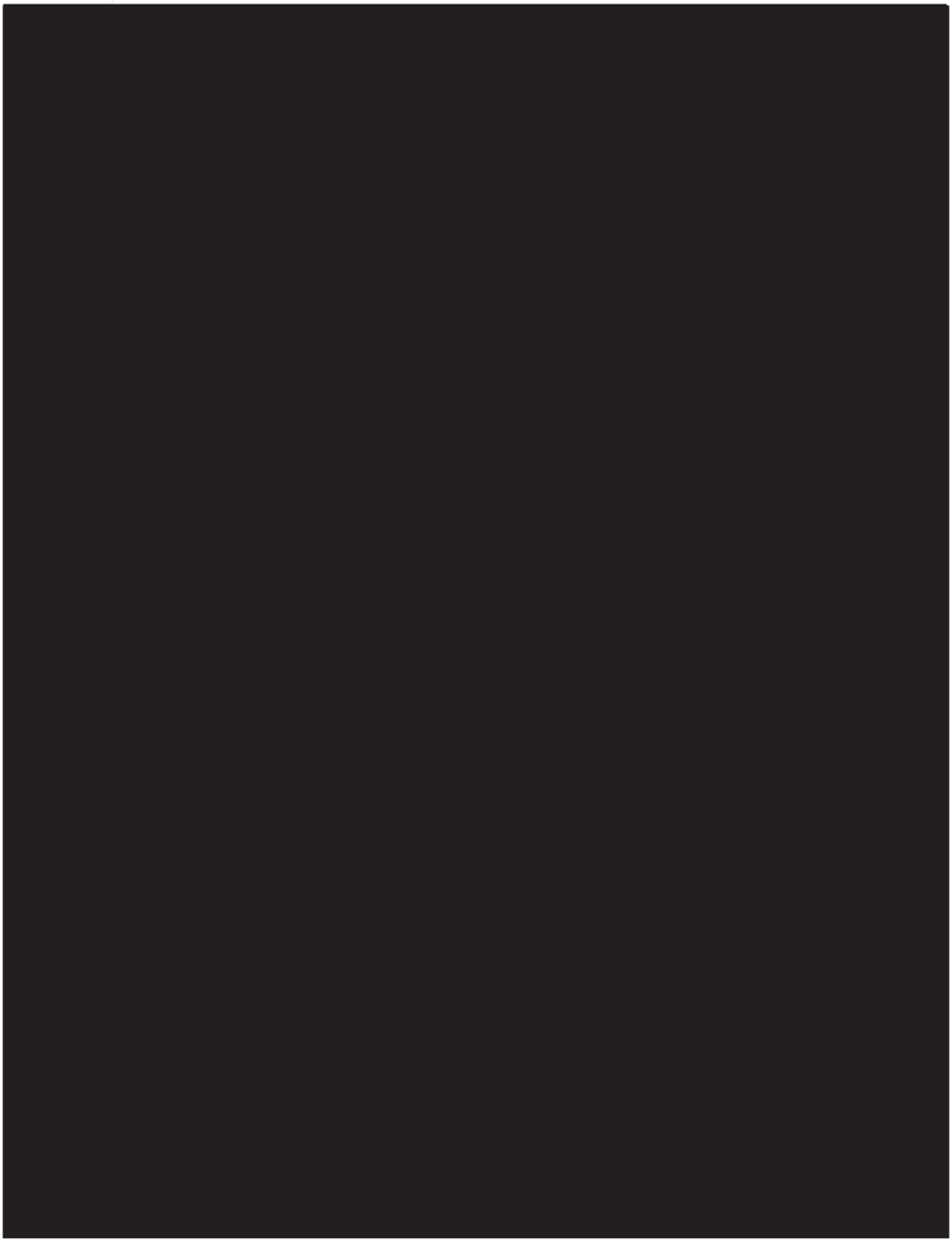


Figure 7-22. Sketch map of site 248CK2091.

48CK2092 (J10)

Elevation: [redacted]
Cultural Period: prehistoric
Site Type: camp
Sketch Map: Figure 7-23

Description: This prehistoric site consists of scattered debitage and what appears to be ortho-quartzite fire-cracked rock located on a terrace on the [redacted] side of Deadman Creek, [redacted]. The site occupies a stable looking stream terrace that has erosion along its margins but may be depositional in its interior.
The site area contains areas of hardpan, with pale gray shaley clay and sparse vegetation underlying. Elsewhere there appears to be soil accumulations of at least 30 or 40 cm overlying the shaley clay. Soil on the terrace is pale brown clayey loam with gravelly loam and sand on the upper landform. Vegetation consists of bunchgrasses, with sparse sage and rabbitbrush. The terrace is nearly level and appears to be stable except at the margins where it is eroding into low cut banks and blow outs.

Observed lithic artifacts include nine pieces of what appears to be fire-cracked ortho-quartzite FCR, ten pieces of chipped stone debitage, and a biface fragment (A1) made of silicified sediment. The debitage is comprised of: gray porcellanite shatter (n=1); pink chert secondary reduction (n=2); agate secondary (n=1); gray chert primary (n=1); gray quartzite secondary reduction (n=2); tan quartzite secondary reduction (n=1); heat treated brown chert (n=1); and, brown chalcedony (Knife River Flint) secondary (n=1).

One shovel test was conducted. The 40 by 40 by 30 cm deep test indicates that soil, pale brown silty loam, is present on the intact portion of the terrace to at least 30 cmbs. Underlying the topsoil is pale gray clay.

The site setting suggests that there is a possibility of intact subsurface cultural material. Mapping the terraces with a magnetometer is the most effective and efficient way to assess the site's content in terms of intact thermal features. Given that the site has faunal remains associated with a specific cultural period and potential for buried materials, this site is recommended for further work prior to any disturbance.

National Register Recommendation: This site is tentatively recommended as eligible for the NRHP under Criterion D, pending a remote sensing study. The site is situated in a favorable environment for the preservation of subsurface cultural components- a high terrace [redacted] of the Little Missouri River. Although observed cultural material is scant, surface visibility is rather poor, a diagnostic projectile point places a Middle Archaic component at the site and there is FCR and artifacts exposed along the eroded margins of the terrace that appears to be eroding from the subsurface. This indicates a possibility of buried, intact hearths with associated activity areas. The site therefore has some potential to yield additional important information regarding local prehistory. Further work involving a remote sensing (magnetometer)

survey, follow-up truth testing of any detected anomalies, and excavation of any intact subsurface components is recommended prior to any action that might disturb the site.

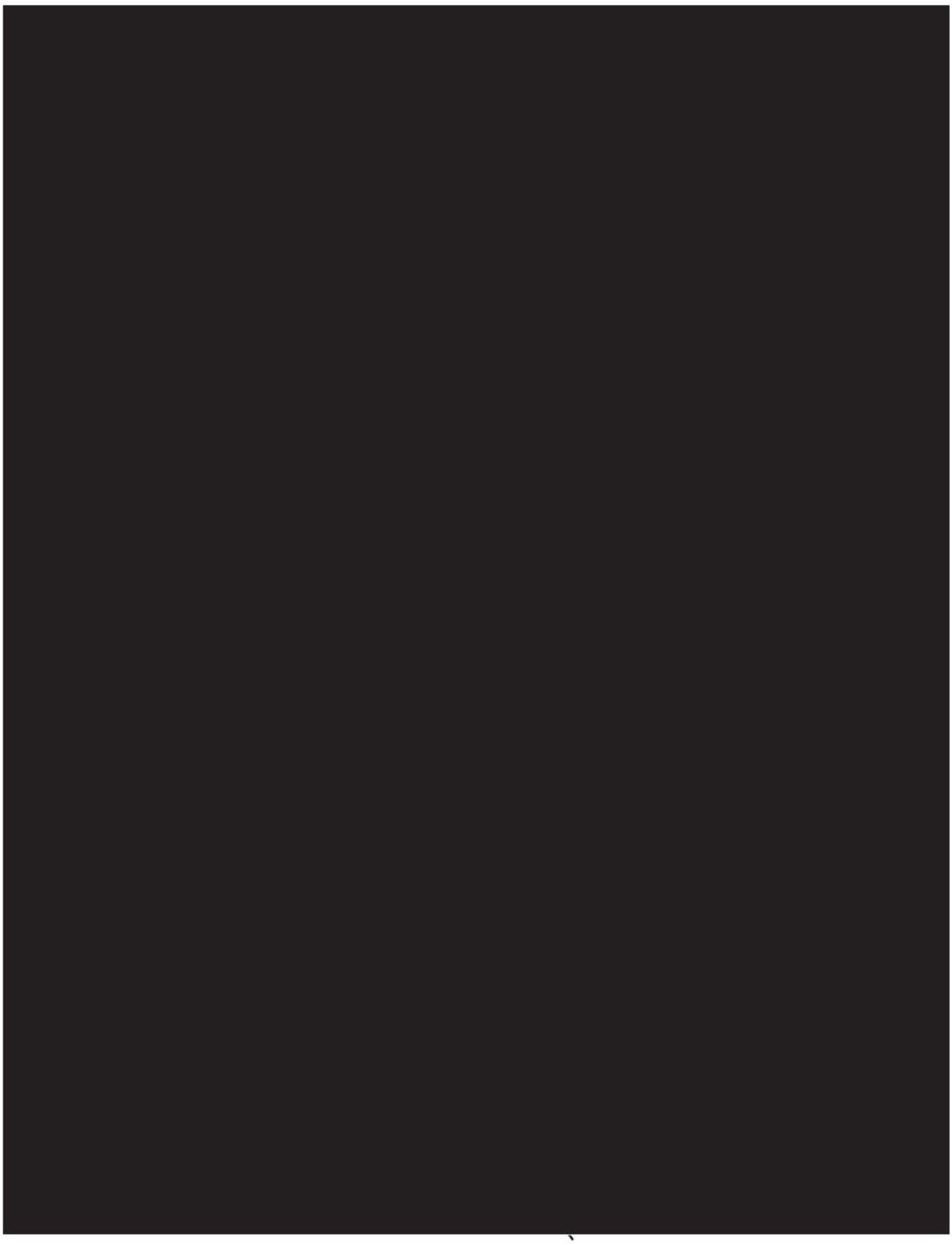


Figure 7-23. Sketch map of site 48CK2092.

48CK2093 (J11)

Elevation: [redacted]
Cultural Period: prehistoric
Site Type: camp
Sketch Map: Figure 7-24

Description: This prehistoric site consists of widely scattered debitage and what appears to be ortho-quartzite fire-cracked rock [redacted] The site area slopes with aspects to the south, east and west. Soil is gravelly loam and sand. Vegetation consists of sparse bunchgrasses, with widely scattered yucca, sage and rabbitbrush. A total of 45 lithic artifacts were counted, including 12 fragments of what appears to be fire-cracked ortho-quartzite FCR and 33 pieces of chipped stone debitage. The debitage consists of: brown quartzite (n=11); tan quartzite (n=3); gray ortho-quartzite (n=5); pink translucent chert (n=2); chalcedony (n=1); silicified sediment (n=2); tan chert (n=2); gray porcellanite (n=1); silicified wood (n=2); pink quartzite (n=1); and dark gray quartzite (n=1); and, gray chert (n=2). The debitage represents primary reduction of pebble-sized cores, with some secondary reduction and shattered flake fragments present.

The site setting, overlooking the Little Missouri River and the presence of lithics and some FCR suggest that this was a lithics workshop with a minimal duration of occupation. The lack of temporally diagnostic material, formal tools or intact features precludes the site from having the potential to realistically yield significant archaeological information. The lack of soil precludes this site from being recommended for additional investigation (i.e., a magnetometer survey for buried thermal features). No testing was conducted. The sloping and erosive character of the site precludes a subsurface component.

National Register Recommendation: This site is recommended as not eligible for the NRHP under any criteria. Consideration under Criterion D was dismissed due to the eroded and deflated character of the site and a lack of potential to contain cultural material in sufficient archaeological context to realistically yield significant information about prehistory. Artifacts observed are limited to ortho-quartzite FCR and chipped stone debitage scattered over a wide area on an erosive ridge top. No features, formal tools or dateable organic materials were found. The site has no means of establishing a temporal context and in fact may be a collapsed deposit spanning multiple short-term occupations. The site area affords a good view of the Little Missouri River valley and is interpreted as a lithic reduction station where locally available gravels were tested and primary reduction occurred. No shovel tests were conducted. The gravel veneer on the hilltop clearly spoke to the lack of soil development and there is no possibility of a subsurface component. No further work is recommended.

Figure 7-24. Sketch map of site 48CK2093.

CHAPTER 8. CONCLUSIONS AND RECOMMENDATIONS

Avoidance of any NRHP-eligible cultural properties is almost always the preferable alternative except, for example, where natural erosion is threatening to destroy a site. However, in a mining operation, even of a minimally destructive type, this may not be a realistic alternative. Unlike an open pit mine, the ISR technology provides some flexibility in terms of avoiding cultural sites, and to that degree avoidance is recommended.

Pending Agency review and State Historic Preservation Office consultation, NRHP eligible sites that could be disturbed will need to go through an approved mitigation process. In general, the NRHP eligible sites in the project area would all benefit from a remote sensing (magnetometer survey) study to determine the presence or absence of buried thermal features (hearths) and if present, to map their specific locations in order to guide excavations. The magnetometer study should be conducted of all relevant cultural sites prior to planning any investigation through excavation, as the mapping may show non-existent or expanded cultural deposits.

The headwaters of the Little Missouri River in this study area obviously were intensely occupied in prehistory. The critical issue for archaeology is whether the degree of site preservation is sufficient for research purposes. This inventory focused on landforms as a determining factor in NRHP recommendations. Intact terrace settings with even minimal cultural material were generally recommended as eligible for the NRHP due to there *potential* to yield significant information. Landforms clearly lacking soil development, and eroded or deflated surfaces were discounted due to the low research value of collapsed or mixed cultural deposits.

The following 15 sites are recommended as NRHP eligible and avoidance is recommended: 48CK2071, 48CK2072, 48CK2073, 48CK2075, 48CK2077, 48CK2078, 48CK2079, 48CK2080, 48CK2081, 48CK2082, 48CK2083, 48CK2085, 48CK2090, 48CK2091, and 48CK2092.

All other cultural properties recorded during this project, including all isolated finds, are recommended as not eligible for the NRHP and no further work is recommended at them.

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