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Archeological Survey For The Canadian River Municipal Water Authority (CRMWA) II Water Pipeline, Carson, Gray, Potter, And Roberts Counties, Texas

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ARCHEOLOGICAL SURVEY FOR THE CANADIAN RIVER MUNICIPAL WATER AUTHORITY (CRMWA) II WATER PIPELINE, CARSON, GRAY, POTTER, AND ROBERTS COUNTIES, TEXAS

by

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ABSTRACT

An archeological survey was conducted between March 8 and June 17, 2016, for the Canadian River Municipal Water Authority (CRMWA) II pipeline in Carson, Gray, Potter, and Roberts Counties, Texas. The proposed pipeline will transport water from wells located 27 km (17 miles) northeast of Pampa, Texas, to Amarillo, Texas. The total length of the pipeline, including a lateral line to the City of Pampa, is 108 km (68 miles). The pipeline will occupy a right of way that is 120 ft (36.6 m) wide, resulting in an Area of Potential Effects (APE) totaling 985 acres. The average depth of the proposed line will be between 4 and 6 ft (1.2–1.8 m).

The pedestrian survey examined the full length and width of the APE only in areas with a moderate to high potential for archeological sites, consisting of playas and stream channels emptying into playas on the Southern High Plains surface and the Canadian Breaks environment. These settings account for about 47 km (29 miles) of the pipeline route and encompass about 430 acres. The remainder of the route, with a low potential for sites, was not examined by pedestrian survey.

The survey recorded four archeological sites: 41CZ86, 41CZ87, 41CZ88, and 41PT514. Sites 41CZ87, 41CZ88, and 41PT514 are small prehistoric sites of unknown ages; 41CZ86 consists of a surface scatter of early-twentieth-century artifacts. All four sites lack the capacity to contribute important information and are considered ineligible for listing in the National Register of Historic Places and designation as State Antiquities Landmarks because of the disturbed and surficial nature of the cultural deposits, the lack of buried intact cultural deposits, and the paucity of interpretable artifacts and features. It is recommended that the project be allowed to proceed without any additional archeological investigations.

INTRODUCTION

Between March 8 and June 17, 2016, personnel from Prewitt and Associates, Inc., conducted an archeological survey for the proposed Canadian River Municipal Water Authority (CRMWA) II water pipeline in Carson, Gray, Potter, and Roberts Counties, Texas (Figure 1). The survey was authorized by the State of Texas Antiquities Code (Texas Natural Resource Code of 1977, Title 9, Chapter 191, VTCS 6145-9) and conducted under Texas Antiquities Permit No. 7568. The work was performed under a subcontract with Freese and Nichols, Inc., of Fort Worth, Texas, for CRMWA. Karl W. Kibler served as project archeologist and principal investigator.

The proposed pipeline will transport water from wells located 27 km (17 miles) northeast of Pampa, Texas, to Amarillo, Texas (Figure 2). The total length of the pipeline, including a lateral line to the City of Pampa, is 108 km (68 miles). The pipeline will occupy a right of way that is 120 ft (36.6 m) wide, resulting in an Area of Potential Effects (APE) totaling 985 acres. The average depth of the proposed line will be between 4 and 6 ft (1.2–1.8 m).

This report presents the findings of the archeological survey. Report sections include background information on the natural environment and archeology and history of the region, the methods of investigations, the results of the survey, and assessments and recommendations.

ENVIRONMENTAL BACKGROUND

The CRMWA II pipeline right of way traverses the landscapes of the Canadian Breaks and the Southern High Plains physiographic regions of Texas (Kier et al. 1977). The Canadian Breaks is a rugged and broken landscape formed through incision of the Canadian River and headward erosion of its network of tributaries. This may have been initiated by dissolution of bedded salt layers in the underlying Permian formations, which resulted in a trough that surface runoff was naturally drawn to, subsequently forming the Canadian River valley (Spearing 1991:376). The Canadian River is the only drainage that cuts entirely across the Southern High Plains, separating the Llano Estacado (southern part of the Southern High Plains) from the Panhandle section (northern part of the Southern High Plains). The uplands on either side of the Canadian Breaks are a vast expanse of lands without relief, save for numerous shallow playas and a few shallow tributaries, known locally as draws, that drain the Southern High Plains plateau. The plateau itself was formed during the late Tertiary when alluvial outwash from the southern Rocky Mountains was deposited over a large area of eastern New Mexico and Colorado and western Texas, Oklahoma, and Kansas (Reeves 1976). These sediments, known as the Ogallala Formation, were deposited on eroded Permian and late Triassic redbeds and Cretaceous limestones, shales, and sandstones, although the latter two are absent in many places. Capping this sequence is a petrocalcic soil horizon (i.e., caliche) that armors the upper margins of the uplands. Overlying the caliche, the entire plateau is blanketed by a thin mantle of Quaternary eolian sediments known as the Blackwater Draw Formation (Holliday 1989; Reeves 1976:213, 219).

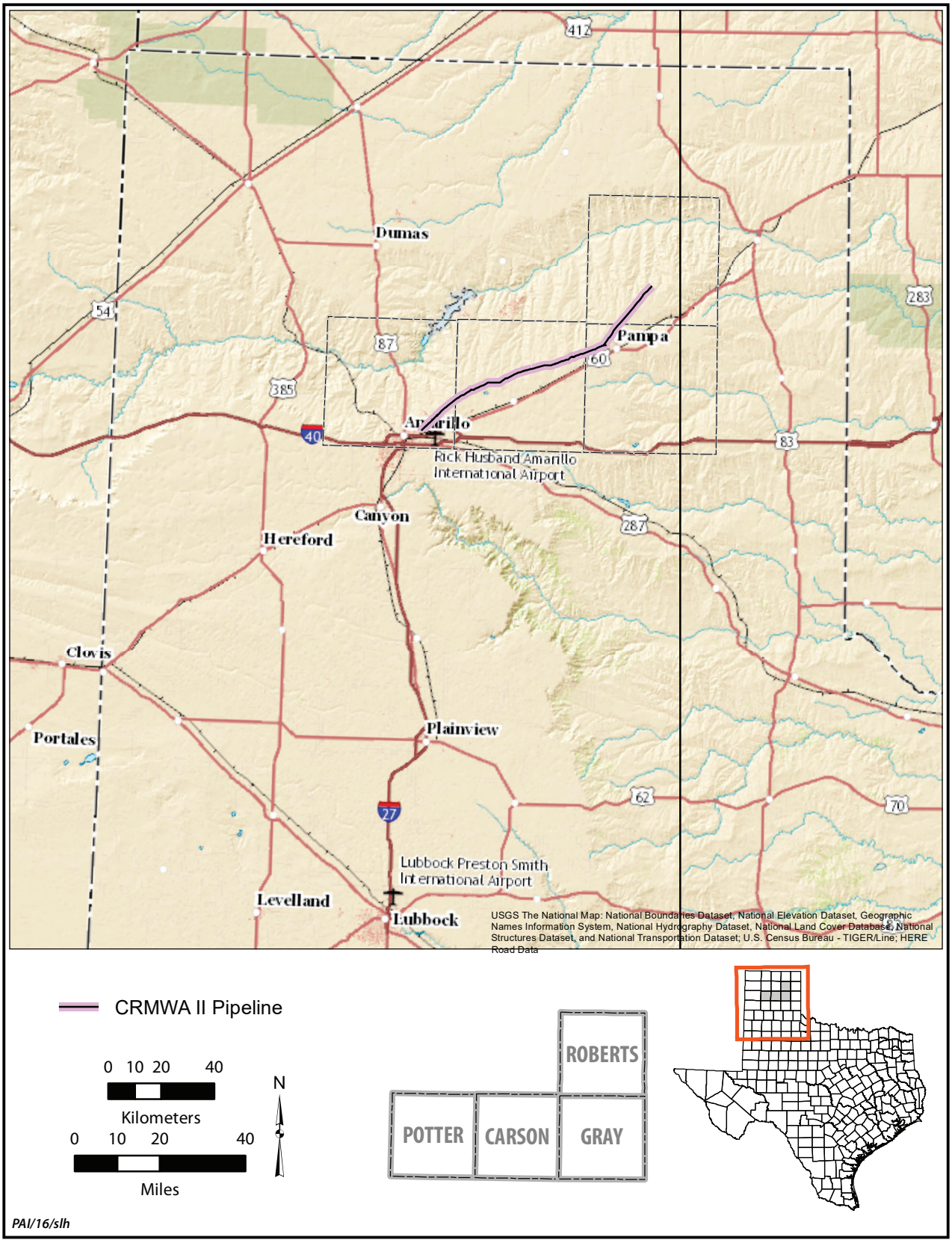

Figure 1. Project area location map.

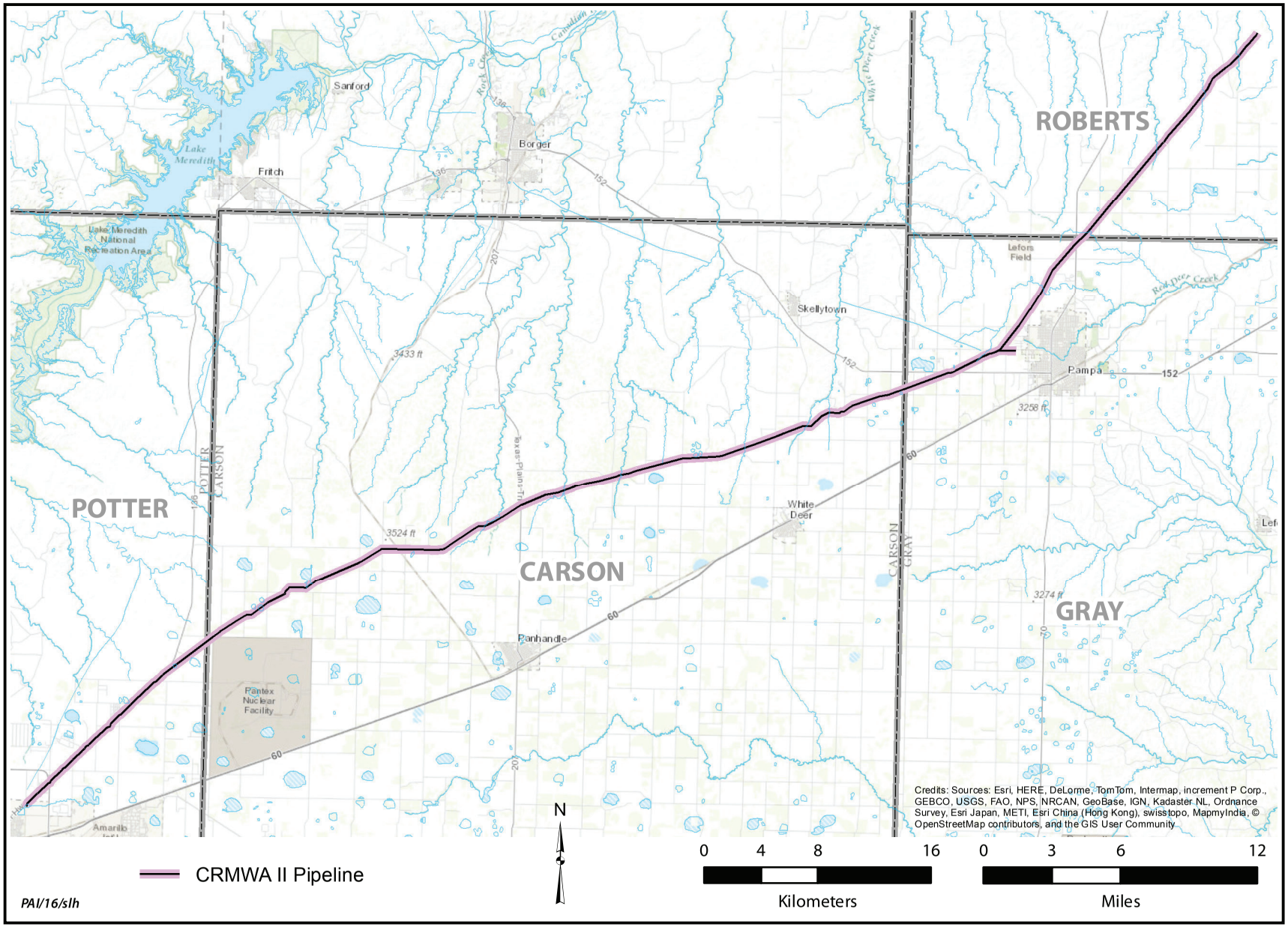

Figure 2. Map showing the pipeline route relative to drainages and playas.

The Permian, Triassic, and late Tertiary (Ogallala) units, as well as the caliche caprock atop the Ogallala Formation, are important archeologically because they contain knappable stone that was regularly quarried or collected and fashioned into tools by prehistoric Native Americans (Banks 1990). In the Canadian Breaks, the most common knappable stone is Alibates agatized dolomite from the Permian Quartermaster Formation (Banks 1990:91–92; Holliday and Welty 1981:207). Below and along the margins of the Southern High Plains surface, the Triassic Tecovas Formation contains knappable cherts or jaspers, and the Ogallala Formation contains a variety of quartzites, cherts, and flints suitable for tool production (Holliday and Welty 1981:207–208). Opalite, or opalized caliche, from the caliche caprock is also a locally available stone tool resource (Holliday and Welty 1981:209).

Different groups of soils mantle the surfaces of the two physiographic regions. Aridisols, Inceptisols, and Mollisols formed on calcareous loamy to sandy alluvium and colluvium derived from the Ogallala Formation blanket the surface of the Canadian Breaks environment (Byrd 2009; Jacquot 1962; Wyrick 1981). Most of these soils belong to the Berda, Berthoud, Mobeetie, Paloduro, and Potter series. Mollisols formed on calcareous loamy to clayey eolian deposits of the Blackwater Draw Formation mantle the Southern High Plains surface (Byrd 2009; Jacquot 1962; Pringle 1980; Williams and Welker 1966; Wyrick 1981). Most of these soils belong to the Pullman, Estacado, and Mansker series. The many playas that are inset to the surface of the Southern High Plains contain clayey Vertisols belonging to the Randall series.

The Southern High Plains were once covered with a shortgrass prairie composed of buffalograss (*Buchloe dactyloides*), blue and sideoats grama (*Bouteloua* spp.), and silver bluestem (*Bothriochloa laguroides ssp. torreyana*) (Bezanson 2000:215). Today, much of the area is tilled for agriculture (Schmidley 2002:534). An estimated 7 million bison once populated the region (Flores 1990:200). They were the most prominent element of a prairie ecosystem that no longer functions as an interdependent web of bison (*Bison bison*), black-tailed prairie dog (*Cynomys ludovicianus*), black-footed ferret (*Mustela nigripes*), burrowing owl (*Athene cunicularia*), ferruginous hawk (*Buteo regalis*), coyote (*Canis latrans*), swift fox (*Vulpes velox*), deer (*Odocoileus* spp.), pronghorn (*Antilocarpa americana*), mountain lion (*Puma concolor*), gray wolf (*Canis lupus*), and snakes (Griffith et al. 2007:21). Today, isolated prairie dog towns and some pronghorn herds still remain in places. The larger playas attract migratory waterfowl such as green-wing teal (*Anas crecca*), widgeon (*Anas americana*), northern pintail (*Anas acuta*), and sandhill cranes (*Grus canadensis*) in the fall and spring months.

The flora and fauna of the Canadian Breaks are often characterized as undifferentiated from the surrounding Southern High Plains, although the floral patterns tend to be complex with communities varying based on landscape position. Vegetation patterns and communities have changed significantly over the past 100–120 years due to overgrazing, suppression of natural range fires, and invasion of weedy plants such as broom snakeweed (*Gutierrezia sarothrae*) and thorny brush such as catclaw acacia (*Acacia greggii*) (Wyrick 1981:46). Prior to these disruptions, short grasses dominated much of the landscape of the Canadian Breaks. Upland

areas supported short grasses such as blue and sideoats grama and buffalograss and contained very little woody vegetation (Wyrick 1981:10–12). Steep sandy slopes and broken areas also supported short grasses such as blue and sideoats grama and buffalograss, as well as sand sagebrush (*Artemisia filifolia*) (Griffith et al. 2007:26; Wyrick 1981:1, 17–19). Bottomlands supported tall and mid grasses, such as switchgrass (*Panicum virgatum*), sand bluestem (*Andropogon hallii*), and indiangrass (*Sorghastrum nutans*), along with arboreal species such as black willow (*Salix nigra*), cottonwood (*Populus deltoides*), hackberry (*Celtis occidentalis*), and plum (*Prunus* sp.) (Griffith et al. 2007:26; Wyrick 1981:1, 23). Sandy areas or dune fields in the bottomlands supported indiangrass, sand bluestem, little bluestem (*Schizachyrium scoparium*), and shinnery oak (*Quercus havardii*) (Wyrick 1981:1, 39). At least 59 mammals, 48 reptiles, 15 amphibians, and over 100 birds visit or inhabit the Canadian Breaks year-round (Lintz 1986:62). Like the Southern High Plains, many large mammalian species such as bison and wolves are absent from today's Canadian Breaks landscape.

The climate of Carson, Gray, Potter, and Roberts Counties is classified as dry steppe-like with mild winters and hot summers, with an average annual precipitation of 19.8 inches and a prevailing wind from the south and southwest (Natural Fibers Information Center 1987). Daytime temperatures during the summer months are hot with low humidity, and nights are cool. The winter months are mild, although cold spells are frequent but often short lived. From 1951 to 1980, the average daily high and low for the month of July were 93.5 and 65.8°F for the four-county area, and the average daily high and daily low for January were 48.8 and 21.0°F (Natural Fibers Information Center 1987).

ARCHEOLOGICAL AND HISTORICAL BACKGROUND

Humans have inhabited the Texas Panhandle and Southern High Plains for at least the last 13,000 years. However, much of this prehistory is poorly understood even though some of the earliest archeological investigations in the state were carried out in this region (e.g., Holden 1929, 1930, 1932, 1933; Mason 1929; Sayles 1935). The complete cultural sequence can be divided into four broad periods—Paleoindian, Archaic, Late Prehistoric, and Historic—but many of the characterizations of these periods, particularly the earlier ones, are drawn from comparisons with sites and assemblages from adjacent regions. Thorough overviews of Texas Panhandle and Southern High Plains archeology can be found in Drass (1998), Hofman et al. (1989), Holliday (1997), J. Hughes (1991), Johnson and Johnson (1998), and Kay (1998).

The Paleoindian period (ca. 13,000–8000 B.P.) is part of a much larger cultural tradition that occurred throughout much of North America. The environment was vastly different, most likely cooler and wetter than today (Holliday 1997; Wendorf and Hester 1975), and thus presented an array of different exploitable resources. The period often is described as having been characterized by small but highly mobile bands of foragers who were specialized hunters of Pleistocene megafauna. However, a more accurate view of Paleoindian lifeways probably includes the utilization of a much wider array of resources, in addition to megafauna. Paleoindian archeological

manifestations in the region often are represented by isolated projectile points in disturbed or surface contexts (Meltzer 1986), but intact sites, particularly kill sites, in and around draws and playas also are common (Bever and Meltzer 2007:75). Early investigations by E. H. Sellards at the Miami site in Roberts County produced Clovis dart points in association with the remains of several mammoths at a playa (Sellards 1938). Other important Paleoindian sites in the region include Blackwater Draw Locality No. 1 (Hester 1972) and Lubbock Lake (Johnson 1987).

The Archaic period (8000–1800/1500 B.P.) is poorly understood, largely because the archeological record of this time period is scant, particularly for the early half (Kay 1998:186). The scarcity of sites suggests decreased use of the region, if not selective abandonment of certain parts of it. Much of the known material culture exhibits an affinity to the Edwards Plateau to the southeast, particularly projectile point styles (Hofman et al. 1989:58; J. Hughes 1991:13). In general, the Archaic represents a shift to hunting and gathering of a wider array of animal and plant resources and a decrease in group mobility. In the Texas Panhandle and Southern High Plains, Archaic hunters and gatherers had to adapt to increasingly arid climatic conditions, which did not ameliorate until ca. 2000 B.P. (Meltzer 1991). Archaic components are found at Blackwater Draw Locality No. 1 (Hester 1972) and Lubbock Lake (Johnson and Holiday 1986), two localities better known for their Paleoindian components. The only Archaic phase identified in the region is the Little Sunday Complex (J. Hughes 1955, 1991), which dates to the latter half of the period. The Little Sunday Complex is associated with bison hunting and large corner-notched dart points, although overall the complex is poorly defined.

The Late Prehistoric period (1800/1500–450 B.P.) is better understood than the preceding Archaic period and includes significant technological changes with the introduction of the bow and arrow and the widespread use of ceramics, along with cultural influences from adjacent regions. In the Texas Panhandle and Southern High Plains, the period is divided into an earlier Plains Woodland tradition and a later Plains Village tradition (J. Hughes 1991:40). The Woodland tradition spread westward from the upper Midwest into the Plains in the first millennium A.D., arriving in the Texas Panhandle and Southern High Plains by A.D. 500 (Johnson and Johnson 1998:217). The Woodland tradition is marked by the appearance "corner-notched dart and arrow points, shell disc beads, burial in mounds or ossuaries, an increase in the frequency of ground stones, and the appearance of tools associated with horticulture," but cord-marked ceramic vessels with conical-shaped bottoms are the hallmark of the tradition (Vehik 1984:175). Plains Woodland remains in the Texas Panhandle are referred to as the Lake Creek complex (J. Hughes 1962, 1991). Contemporaneous influences from the Jornada Mogollon region of south-central New Mexico also are seen in archeological assemblages across the Southern High Plains south of the Canadian and Red Rivers in the form of Mogollon brownware pottery (Boyd 1995). Such sites represent the Palo Duro complex.

By A.D. 800 to 900, semisedentary societies appeared on the Southern Plains (Drass 1998:415), and by A.D. 1000 to 1200 these cultures developed into societies characterized by permanent houses and small hamlets, horticultural and hunting (particularly bison) economies, and diverse artifact assemblages representing a

sedentary way of life. This Plains Village tradition is composed of various phases and complexes (Drass 1998); in the Texas Panhandle, these include the Antelope Creek phase and the Buried City complex.

Antelope Creek sites date to A.D. 1200–1500 and are concentrated along the Canadian River but also occur along the North Canadian River in Oklahoma and the Prairie Dog Fork of the Red River to the south (Lintz 1986). Major sites include Alibates 28, Antelope Creek 22, Saddleback Mesa, Coetas Creek Ruin 55, Arrowhead Peak, and Black Dog Village in Texas and Stamper, Roy Smith, and Two Sisters in Oklahoma (Lintz 1986). Houses with stone-slab wall foundations are characteristic of the Antelope Creek phase, although there is variability in the overall architecture of houses, which may consist of single rooms or multiple contiguous rooms. The typical Antelope Creek house is a large, rectangular, semisubterranean structure. Single-room houses have a central floor channel extending from the east wall to the west wall with wide benches along the north and south walls and a raised platform or alter along the west wall (Lintz 1984).

Chipped stone tool assemblages from Antelope Creek sites include small unnotched and side-notched triangular arrow points (Fresno, Harrell, and Washita), ovate and four-beveled-edged knives, expanding-base drills, and side and end scrapers (Drass 1998:421). Most of these are made of Alibates agatized dolomite, access to which was probably controlled by Antelope Creek peoples. Antelope Creek ceramics consist primarily of cord-marked, sand-tempered wares called Borger Cordmarked. Vessels tend to be thin-walled, globular jars with wide mouths and vertical to slightly flaring rims. Artifact assemblages also contain exotic items, such as obsidian, turquoise, and *Olivella* shell beads, which indicate trade relations with Puebloan peoples to the west and southwest.

The Buried City complex consists of Plains Village sites centered along Wolf Creek, a tributary of the North Canadian River (D. Hughes 1991). Major sites include Buried City, Moorehead, Courson, Kirk Courson, and Kit Courson. Dated to A.D. 1200–1400, the complex is not as well understood as the Antelope Creek phase, but it represents a similar way of life focusing on bison hunting and horticulture. There are slight differences in material culture between the two archeological manifestations, however. Ceramics mark one of the differences. Buried City assemblages contain cord-marked, sand-tempered wares similar to Borger Cordmarked, but they also contain smoothed or smoothed-over cord-marked, sand-tempered wares (Drass 1998:425).

Population increases along with drier climatic conditions from A.D. 1300 to 1500 led to changes in Plains Village societies in the Texas Panhandle. These included changes in settlement patterns, expansion of trade networks, and conflict or warfare to control resources (Lintz 1986). By A.D 1500 Apachean groups had moved into the region, which also brought pressures to indigenous groups (Drass 1998:422). By the time Spanish explorers came through the region, the Antelope Creek and Buried City villages were in ruins, and only seminomadic to nomadic, bison-hunting peoples were encountered. Archeologically, these Apachean groups are seen as the Tierra Blanca complex and possibly the Garza complex (J. Hughes

1991:34–36). The presence of southwestern ceramics in Tierra Blanca and Garza assemblages suggests these groups had trade relations with Puebloan peoples to the west.

By the early eighteenth century, the Apaches had been pushed out by the Comanches, who then dominated the area. By the latter half of the nineteenth century, encroaching Anglo settlements into Comanche territory brought about increasing hostilities and conflicts between Native Americans and settlers. The hostilities ended in 1874–1875 when the United States military defeated the Comanches and their allies in the Red River War, removing Native American groups from the Texas Panhandle and Southern High Plains to reservation life in Oklahoma. Carson, Gray, Potter, and Roberts Counties were created soon after, and permanent Anglo settlement followed.

Carson, Gray, Potter, and Roberts Counties were formed in 1876 from Bexar County (Abbe 1996a, 1996b; Anderson and Leffler 1996; Odintz 1996). Ranches were established in the four-county area as early as the following year. In Potter County, David T. Beals and W. H. Bates established their LX Ranch headquarters on the north side of the Canadian River in 1877 (Anderson and Leffler 1996). In the same year, Henry Whiteside Cresswell established the first ranch in Roberts County (Odintz 1996). The Cresswell Ranch included most of Roberts County and ran 45,000 cattle on land spanning several other counties. In 1878, Perry LeFors established a small ranch on Cantonment Creek in Gray County (Abbe 1996b). And in 1882, the Francklyn Land and Cattle Company purchased a huge tract of land that included the western part of Gray County and parts of Carson County (Abbe 1996a, 1996b). In Carson County the JA Ranch of Charles Goodnight and John G. Adair and the Turkey Track Ranch both grazed large tracts of land by 1880 (Abbe 1996a).

The first stagecoach stop was established on Red Deer Creek at the future town site of Miami in Roberts County in 1879 (Odintz 1996), but it was the construction of railroads that facilitated settlement and growth in the area. By 1886 the Southern Kansas Railway, a subsidiary of the Atchison, Topeka and Santa Fe Railway, had built a line from Kiowa, Kansas, southwest to the Texas-Indian Territory (now Oklahoma) border. The Southern Kansas Railway of Texas was later formed to extend the line into Texas. Passing through Roberts and Gray Counties, the line reached the town of Panhandle (in Carson County) in 1888, a railhead that was established a year earlier in anticipation of the railroad line (Abbe 1996a, 1996b; Odintz 1996). Another line, the Fort Worth and Denver City Railway, was constructed across the Texas Panhandle leading to Amarillo in 1887 (Anderson and Leffler 1996). More railroads were built leading to Amarillo. These included the Santa Fe line in 1899 and the Choctaw, Oklahoma, and Texas Railroad, a subsidiary of the Choctaw, Oklahoma, and Gulf Railroad, which built a line west from Oklahoma into the Panhandle reaching Amarillo in 1902 (Abbe 1996b; Anderson and Leffler 1996).

The construction of railroads led to population increases and a need for local governments. In Potter County, an election was held in 1887 for the purpose of organizing the county, the results of which named Amarillo as the seat of county government (Anderson and Leffler 1996). A petition for organization was circulated

through Carson County in 1888, and in November of that year an election was held naming Panhandle, the county's only town at the time, as the county seat (Abbe 1996a). Roberts County was organized in January 1889, and Miami was chosen as the county seat (Odintz 1996). By 1900, Gray County's stable ranching and farming population felt a growing need for self government, and as a result in 1902 the county was organized (Abbe 1996b). The town of Lefors was designated the county seat and served as such until the seat of county government was moved to the city of Pampa in 1928.

The population of the four-county area dramatically increased following the organization of county governments, from 116 in 1880 to 3,389 in 1900 and 18,906 by 1910, with much of the growth occurring in Amarillo in Potter County (Abbe 1996a, 1996b, Anderson and Leffler 1996; Odintz 1996). During this period, farmers moved to the area, and more land went into crop production once it was discovered that abundant groundwater could be pumped to the surface by windmills (Abbe 1996a). Thousands of acres were put into wheat production, more than 16,000 and 29,000 acres in Potter and Roberts Counties by 1920 (Anderson and Leffler 1996; Odintz 1996).

In 1918, a natural gas field, one of the largest in the world, was discovered about 25 miles northwest of Amarillo (Anderson and Leffler 1996). The discovery ushered in another period of dramatic growth and fundamentally changed the economy of the region. Experimental drilling by the Gulf Oil Corporation in Carson County led to the Panhandle's first production of oil in late 1921 (Abbe 1996a). Oil and gas production soon became a major component of Carson County's economy. Oil and gas exploration also began in Gray County in the early 1920s (Abbe 1996b). A major discovery in 1926 five miles south of Pampa, at the H. F. Wilcox Oil and Gas Company's Worley-Reynolds well, led to more developments and drilling. Production peaked in 1929 as Gray County became and remained a substantial oil producer. Oil was discovered in Roberts County in 1945, and by 1990 over 40 million barrels had been produced (Odintz 1996). Although very little oil was found in Potter County in the early part of the twentieth century, Amarillo quickly became the headquarters of several oil companies resulting in a population increase from about 15,500 in 1920 to over 43,000 in 1930 (Anderson and Leffler 1996). Oil and gas exploration and production across the four-county area resulted in an increase in population from 25,920 in 1920 to 77,372 in 1930 (Abbe 1996a, 1996b, Anderson and Leffler 1996, Odintz 1996).

The Great Depression and the Dust Bowl of the 1930s dealt severe blows to the economy of the area, as a number of oil companies went out of business, and the number of acres under cultivation decreased due to drought, dust storms, and abandonment or foreclosure of farms (Anderson and Leffler 1996; Odintz 1996). Croplands in Carson County dropped from 220,734 acres in 1929 to 180,971 in 1940, and the number of farms in the county decreased over the same period from 542 to 493 (Abbe 1996a). In Potter County, croplands declined from 42,546 acres in 1930 to 38,037 acres in 1940 (Anderson and Leffler 1996). During the Great Depression, Amarillo became the regional center for federal New Deal programs, which provided work and aid for many families (Anderson and Leffler 1996).

Agricultural production increased during World War II, and the local economy was stimulated in part by the federal government's establishment of the Amarillo Army Air Field and the Pantex Ordnance Plant (Abbe 1996a; Anderson and Leffler 1996). The airfield was closed in 1946, but it reopened as the Amarillo Air Force Base in 1951 (closed in 1968). Opened in September 1942 to produce munitions for World War II, the Pantex Plant was located on 16,076 acres in southwestern Carson County, where it operated until August 1945 (Anderson 1996). In 1949, Texas Technological College (now Texas Tech University) acquired the site for use as an agricultural experiment station. During the outbreak of the Korean War in 1951, the federal government (Atomic Energy Commission) took back more than 10,000 acres of the site for use as a nuclear weapons assembly plant. By the 1980s Pantex had become the only nuclear assembly plant in the country, but its mission changed after the end of the Cold War. Today, Pantex disassembles nuclear warheads and stores the components in secured bunkers.

Although Pantex still employs a large number of workers, federal spending has a smaller impact on the local economy today than it did during World War II and the years following. Today the economy of the area consists largely of a mix of oil and gas, farming and ranching, and more recently wind-generated electricity.

METHODS OF INVESTIGATIONS

Prior to the fieldwork, a search for previously recorded sites within or near the project area was conducted using the Texas Historical Commission's online Archeological Sites Atlas. Although several archeological surveys have been conducted close to the project area, the Atlas showed no previously recorded sites within the project area or within 1 km of it. The closest sites, 41PT140 and 41PT141, are 1.4 km away, near the western end of the project. Both are small prehistoric sites that are ineligible for listing in the National Register of Historic Places or designation as State Antiquities Landmarks. Many of the nearby previous archeological investigations, particularly linear surveys that traversed the Southern High Plains surface, yielded no findings.

Based on the negative findings from previous linear surveys in the area and the project area's geologic and geomorphic settings, the potential for prehistoric archeological sites is low across much of the project area, particularly those segments of the route that cross the flat, featureless Southern High Plains surface (Figure 3). The lack of significant Holocene sediment deposition, the absence of water resources, and years of cultivation combine to make sites with contextual integrity highly unlikely in this setting, which accounts for about 61 km (38.1 miles) of the pipeline route, or 57 percent of the project area. Hence, these areas were not covered by pedestrian survey.

In contrast, playas and stream channels emptying into playas on the Southern High Plains surface have a high probability areas for archeological sites, particularly playas that are coupled with dunes or lunettes on their downwind margin (Figure 4). Such high-probability areas account for 5.6 km (3.5 miles) of the pipeline corridor and were covered by intensive pedestrian survey.

Figure 3. Photograph of the flat, featureless Southern High Plains surface in Carson County. Such settings have a very low potential for prehistoric archeological sites.

Figure 4. Photograph of a small playa on the Southern High Plains in Carson County (middle of the frame). Such settings have a high potential for prehistoric archeological sites.

The Canadian Breaks environment accounts for 42 km (26.2 miles) of the pipeline where it crosses several headwater tributaries—Middle Dixon, East Dixon, White Deer, Red Deer, Chicken, and Indian Creeks—of the Canadian River (Figure 5). This environment has a high potential for archeological sites, and these areas were covered by intensive pedestrian survey. Sites in this setting tend to be exposed on the surface or be shallowly buried in localized eolian deposits, and it is also possible that sites can be shallowly buried in thin alluvial deposits along the low-order drainages or at the toeslopes of valley walls. Given that the landscape is highly erosional, however, portions of any buried sited are likely to be exposed on the surface.

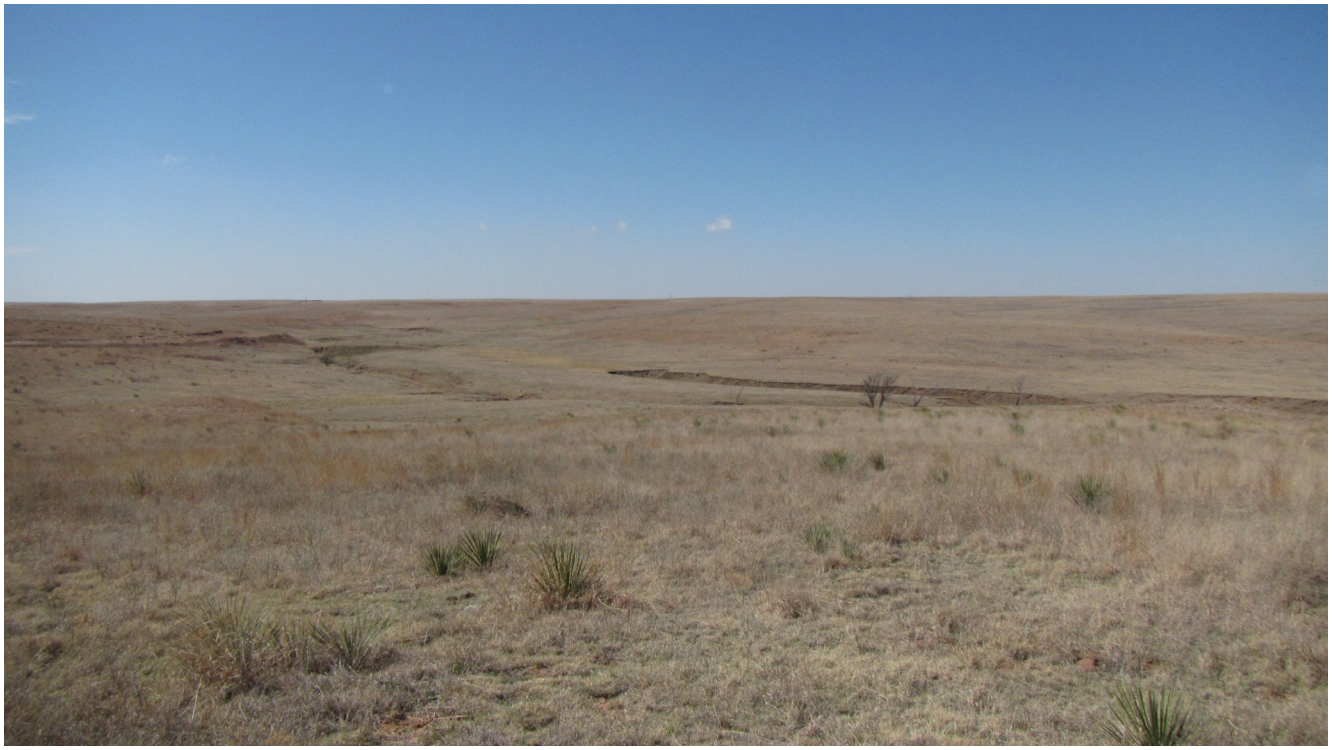

Figure 5. Photograph of the Canadian Breaks environment in Roberts County. Such settings have a high potential for prehistoric archeological sites.

The relationship between site location and the environment is not as strong for archeological sites from the historic period. To assess and evaluate the potential for encountering intact historic sites across the project area, a series of historic maps and aerial photographs were examined prior to the fieldwork. The map and photograph review revealed that the pipeline does not intersect or cross any previous or currently standing structures (e.g., houses, ranch complexes, corrals, or windmills), indicating that the route does not transect any areas with a high probability of historic sites.

The prefield examination of topographic, geologic, and soils maps and aerial photographs identified 11 segments of the pipeline that cross settings judged to have a moderate to high potential for archeological sites (Figure 6). Designated

Survey Areas 1–11, they range in length from 0.2 to 24.4 km (Table 1), accounting for about 47 km (29 miles) of the route and encompassing 430 acres. These 11 areas were covered by intensive pedestrian survey.

The pipeline was not marked or staked on the ground, and a Trimble® GeoXT® handheld GPS unit with the pipeline right of way and 11 survey areas depicted on aerial photographic and topographic map backgrounds was used to navigate across the landscape. The survey areas were walked by crews of two or three archeologists. Two-person crews used the GPS unit to navigate along the centerline of the pipeline corridor, with the second crewmember positioned 20–30 m to the right or left of the centerline. With a pipeline right of way width of 120 ft (36.6 m), the centerline was walked twice (down and back) with the second crewmember walking the opposite side of the centerline on the return trip. Three-person survey crews also used the GPS unit to navigate along the centerline with the second and third crew members positioned 20–30 m to the left and right of the centerline. With a three-person crew, the pipeline corridor was walked only once in one direction.

Ground surface visibility throughout the survey areas was good (greater than 30 percent), particularly in areas under cultivation or subject to grazing. Coupled with the fact that most of the survey areas are in uplands with minimal Holocene sediment deposition, shovel testing as a means of site detection was not necessary, although shovel tests were excavated at two of the four archeological sites encountered. All archeological sites were documented through the completion of temporary archeological site forms, digital photography, and a daily journal kept by the project archeologist. All sites were mapped with the GPS unit. The onsite shovel tests were excavated in 20-cm levels, and all matrix was passed through 1/4-inch-mesh hardware cloth. Shovel test depths ranged from 25 to 40 cm. Forms were completed for all shovel tests excavated, recording the presence or absence and quantity of cultural materials by level and the nature of sediments. No artifacts were collected. All field records were kept in a standard format and included project area maps and aerial photographs, shovel test records, photograph logs, and temporary site forms. The locations of the sites were plotted on the USGS 7.5-minute topographic maps.

RESULTS OF INVESTIGATIONS

The archeological survey encountered four sites; 41CZ86, 41CZ87, 41CZ88, and 41PT514 (Figure 7). Three sites (41CZ87, 41CZ88, and 41PT514) contain prehistoric materials, and one (41CZ86) contains historic artifacts.

Site 41CZ86

Site 41CZ86 occupies the southern margin of a small playa (ca. 200 m in diameter) inset into the Blackwater Draw Formation on the Southern High Plains surface (Figure 8). The playa bottom and surrounding upland surface are nearly level and covered with short grasses. Ground surface visibility varies from good to excellent (greater than 50 percent). The site lies at 3,550–3,555 ft above mean sea level. Soils of the McLean series, specifically mapped as McLean clay,

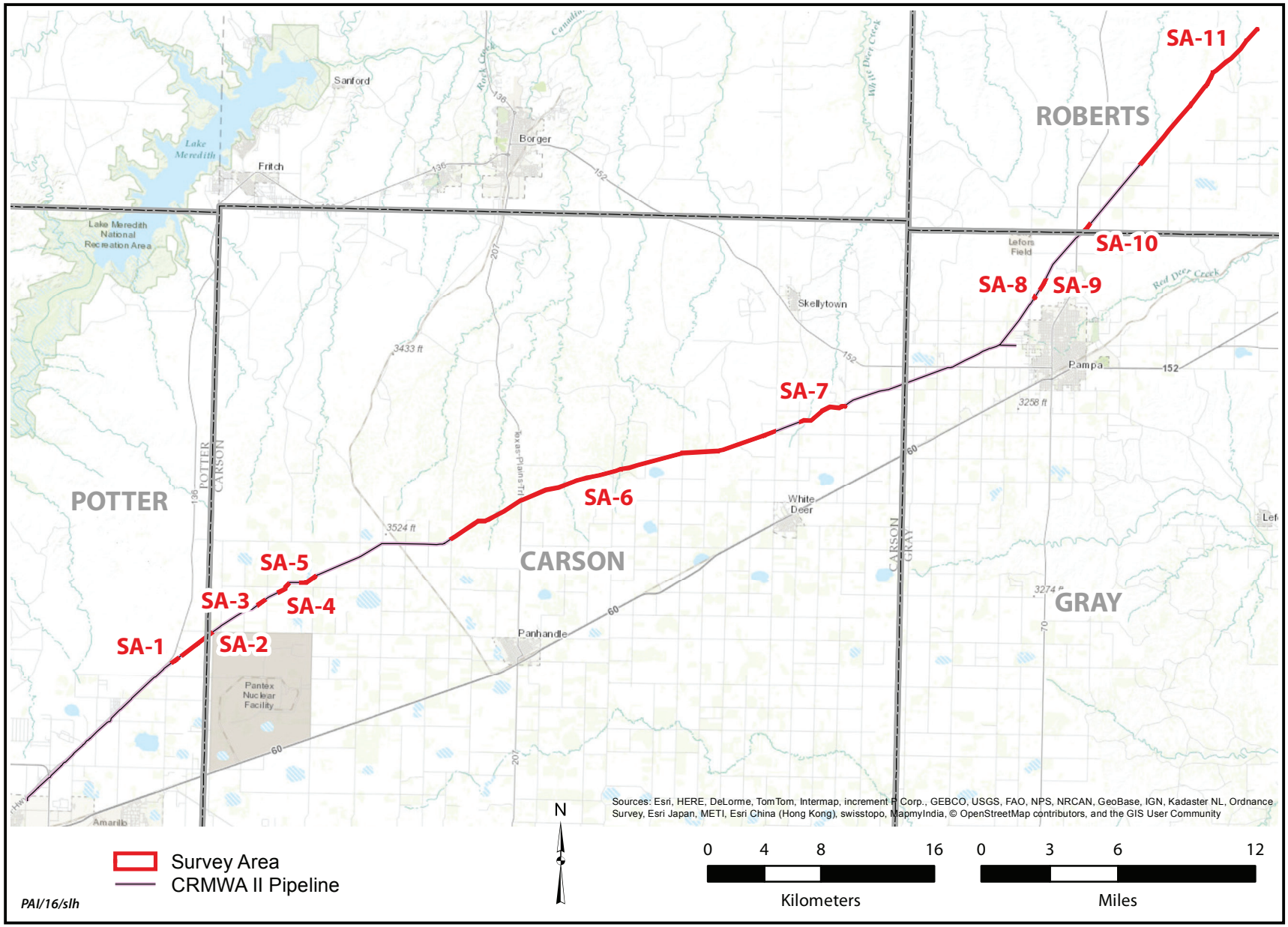

Figure 6. Map showing locations of Survey Areas 1–11.

Table 1. Survey areas

Survey Area	Length (km)	Landform or Drainage Basin	Physiographic Region
1	0.48	Playa	Southern High Plains
2	2.55	Streams emptying into playa	Southern High Plains
3	0.46	Playa	Southern High Plains
4	0.96	Playa	Southern High Plains
5	1.18	Streams emptying into playa	Southern High Plains
6	24.40	Middle Dixon and East Dixon Creeks	Canadian Breaks
7	3.65	White Deer Creek	Canadian Breaks
8	0.20	Red Deer Creek	Canadian Breaks
9	0.70	Red Deer Creek	Canadian Breaks
10	0.45	Chicken Creek	Canadian Breaks
11	12.60	Chicken and Indian Creeks	Canadian Breaks

0–1 percent slopes, occasionally ponded, are mapped for the playa (U.S. Department of Agriculture, Natural Resources Conservation Service 2016). McLean soils are very deep, somewhat poorly drained Vertisols formed on clayey lacustrine deposits of Quaternary age. Soils of the Pullman series, specifically mapped as the Pullman clay loam, 0–1 percent slopes, are mapped for the upland surface surrounding the playa. Pullman soils are very deep, well-drained Mollisols formed on clayey eolian deposits of the Pleistocene-age Blackwater Draw Formation.

The site consists of a small, sparse surface scatter of early-twentieth-century household items. Artifacts include green, clear, aqua, and solarized purple bottle glass fragments; plain whiteware ceramic sherds; brown-glazed stoneware sherds; transfer-print ceramic sherds; and porcelain fragments (Figure 9). Only the solarized glass, which dates to 1880–1915 (Munsey 2014:4), is temporally diagnostic. No shovel tests were excavated due to the Pleistocene age of the surface and the absence of structural remains such as piers and footings. Based on the surface extent of these artifacts, the site measures 15 m north-south by 25 m east-west. No signs of a historic structure or feature were observed in the vicinity, nor were any architectural items observed among the artifacts. The site probably is a discard deposit associated with a large farmstead complex on the same tract of land about 1.4 km to the west.

This tract, Section 48 of Block T, was patented to the corporation of Hooper and Wade on January 22, 1875 (Texas General Land Office 1878, 1919a). The Texas General Land Office sold certificates for all 68 sections of public school lands making up Block T to this firm and two others (Beaty, Seale, and Forwood; and Adams, Beaty, and Moulton) in the mid 1870s, but years passed before the land would be improved or occupied.

In December 1890, Walter Pattie Cannon (1869–1957) applied to acquire Section 48 for $1,248 (Find A Grave 2008a; Texas General Land Office 1893). The young man occupied his only property in 1891, when it was valued at $1,280, and in 1892, when it was valued at $1,330 (Carson County, Ad Valorem Tax Records). Within a few years, Cannon held three other nearby surveys and he had forfeited Section 48 by August 1, 1893 (Carson County, Ad Valorem Tax Records; Texas General

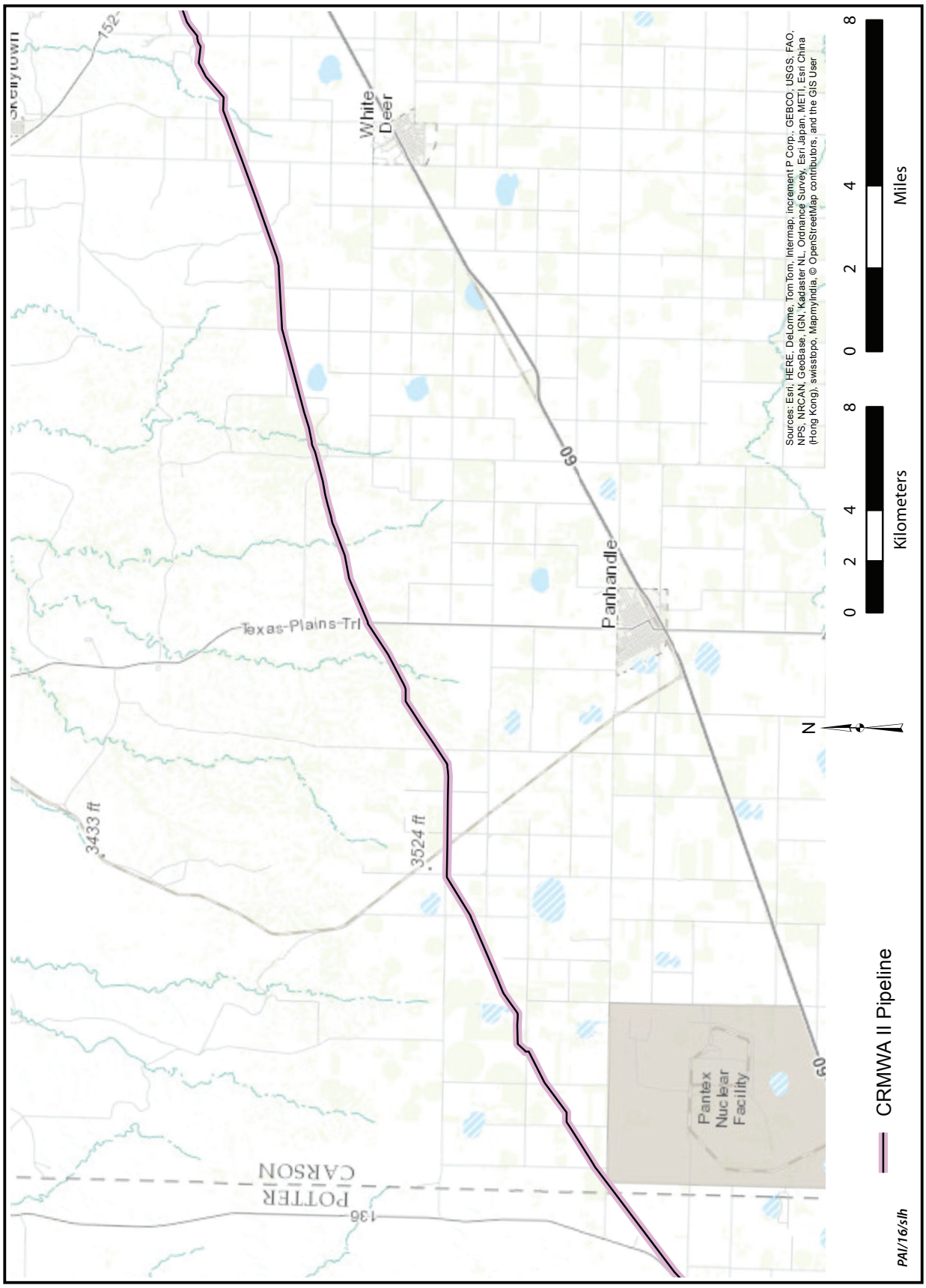

Figure 7. Map showing site locations.

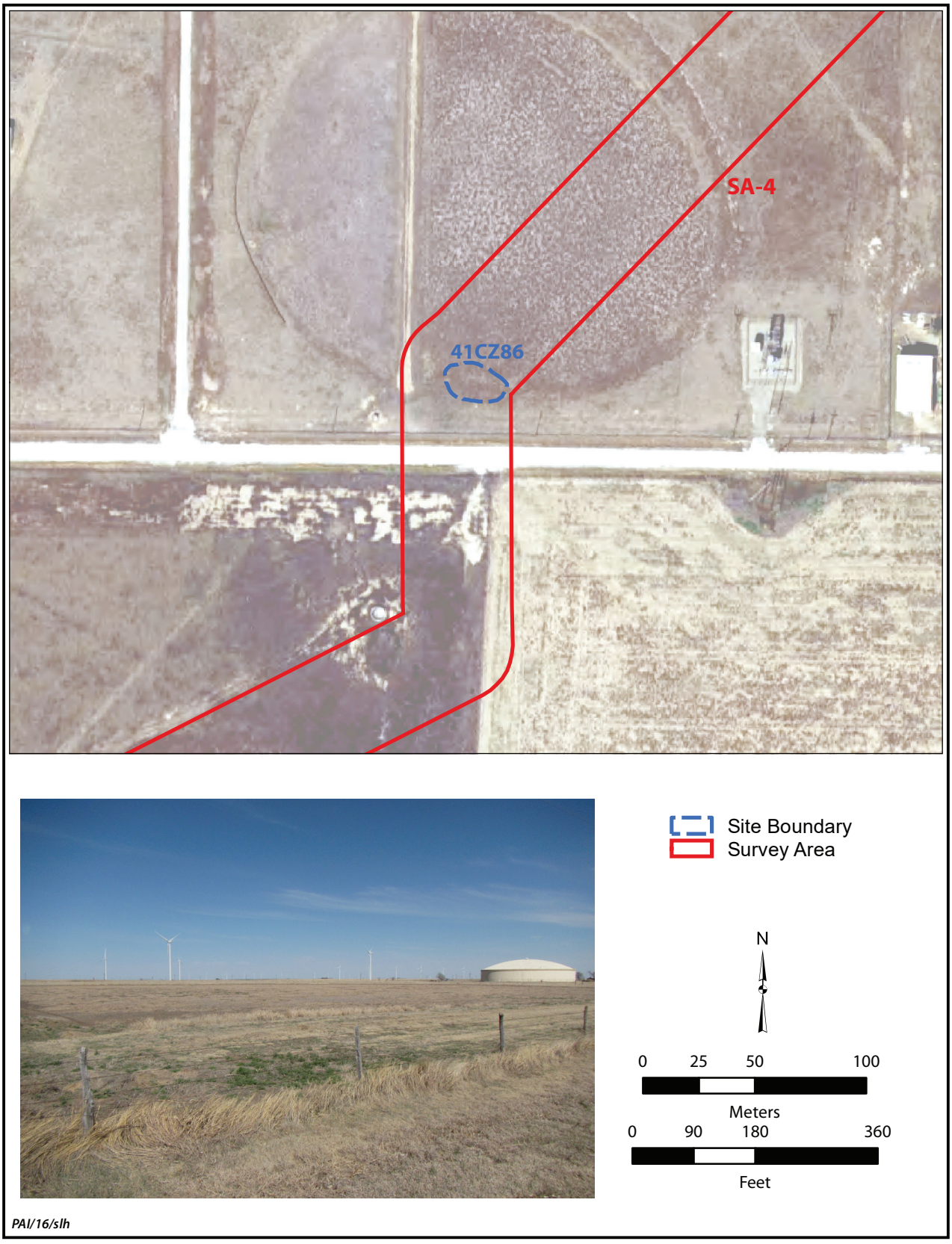

Figure 8. Map and photograph of 41CZ86; view is from the county road looking northeast across the site and playa in the background.

Figure 9. Photograph of selected artifacts from 41CZ86.

Land Office 1893, 1906, 1929). The section remained unclaimed and unoccupied until the end of the decade.

In March 1899, native Missourian Thomas Allen Jameson (1849–1925) simultaneously acquired four adjacent sections out of Block T, including Section 48, for $624 each (Figure 10) (Find A Grave 2012a; Texas Board of Health, Bureau of Vital Statistics 1925; Texas General Land Office 1919a, 1919b, 1919c, 1919d). Jameson's parents had migrated to Grayson County, Texas, with their young family in 1850, where they lived in 1860 and 1870 (U.S. Department of the Interior, Census Office 1850, 1860, 1870). Jameson and native Mississippian Laura Julina "Julie" Clayton (1856–1925) married in about 1876. By 1900, 7 of the Jamesons' 10 children survived, and the family operated a livestock farm on these four sections (Find A Grave 2012b; U.S. Department of the Interior, Census Office 1900a). In 1900 and 1901, each section was valued at $640. In 1901, the Jamesons had 18 equine, 115 bovine, 1 wagon, tools worth $25, and miscellaneous property worth $200. In 1902, the value of three sections, including Section 48, remained static, and the easternmost Section 46 was most heavily improved and valued at $1,240, implying they lived on that tract and not Section 48. That year, the Jamesons had 16 equine, 100 bovine, 3 hogs, 1 wagon, and tools worth $58 (Carson County, Ad Valorem Tax Records).

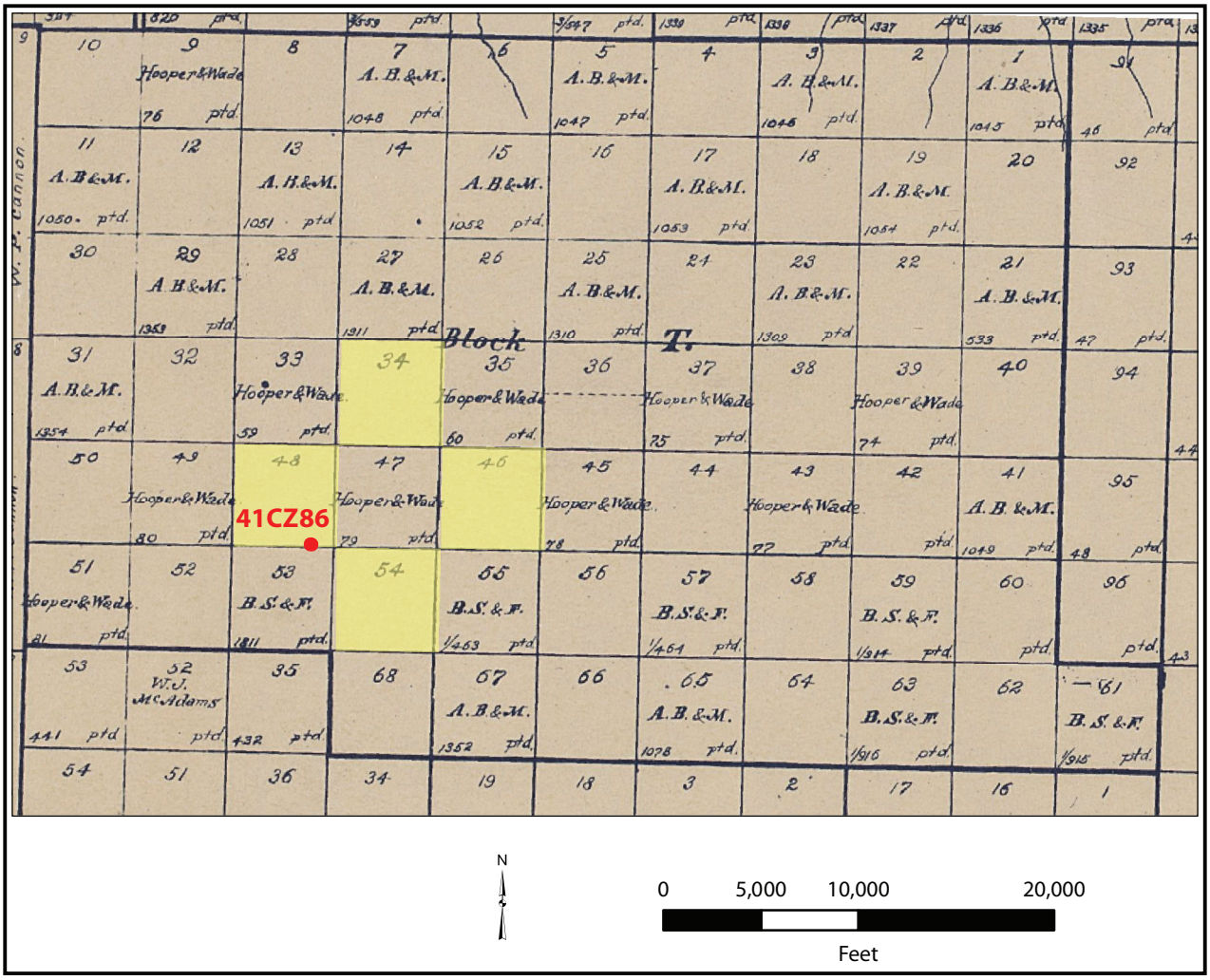

Figure 10. Section of Texas General Land Office map of Carson County depicting the locations of Sections 34, 46, 48, and 54 of Block T, which were united as a livestock ranch from 1899 through the late twentieth century; central Section 47 was added in 1924 (Pressler 1898).

Although the Jamesons were assessed for the land through 1902, they quitclaimed all four sections to Stephen Lee Trigg on July 18, 1901, for $3,500. That November, Trigg sold the four sections to James Calvin Eubank for $3,500 (Texas General Land Office 1919a). The 67-year-old Eubank (1833–1918) was a livestock dealer living in Fort Worth with his wife, 60-year-old Martha F. "Mattie" Thomas Eubank (1840–1923) and two young adult daughters in 1900 (Find A Grave 2003, 2009; U.S. Department of the Interior, Census Office 1900b). After a brief stint living on the Carson County property, the couple quitclaimed the land back to Trigg on February 2, 1902, and returned to Fort Worth (Texas General Land Office 1919a; U.S. Department of Commerce and Labor, Bureau of the Census 1910a).

Trigg's parents, native Tennesseean David Curd "Tuck" (1850–1934) and native Virginian Sarah Louise Bowling (1855–1935) Trigg, had migrated to Texas by the mid 1870s where their three young children were born (Find A Grave 2014a,

2014b; U.S. Department of the Interior, Census Office 1880). In 1880, the family resided in Tarrant County, and he was a cattle dealer. That year, the Trigg household included three male boarders, one employed as a cattle dealer and the other two as farm laborers (U.S. Department of the Interior, Census Office 1880). The elder Triggs remained rooted in Fort Worth but branched out with the their oldest son, Stephen Lee "Steve" Trigg (1878–1937), to expand their livestock business (Find A Grave 2007a; Texas Board of Health, Bureau of Vital Statistics 1937; U.S. Department of Commerce, Bureau of the Census 1920a, 1930a; U.S. Department of Commerce and Labor, Bureau of the Census 1910a; U.S. Department of the Interior, Census Office 1900b). Father and son operated as purchasing agents in the Texas Panhandle on behalf of the British government and acquired equine for the Second Boer War, which lasted from 1899 to 1902 (*The Amarillo Globe* 1937:1; Spratt 2014:103). Their time in the Panhandle led the Trigg family to invest locally.

Steve Trigg occupied and improved the four sections between 1903 and 1910. Section 48 was the location of his homestead, climbing in value from $1,280 to $2,560 during this period. The value of his adjacent sections increased, although less so, from $960 to $1,920. Trigg's livestock holdings fluctuated substantially during these years, reflecting active participation in livestock ranching. He also had tools and implements and one or two vehicles, probably wagons (Carson County, Ad Valorem Tax Records).

In subsequent years, the Triggs' ranching enterprise flourished. In 1910, the 32-year-old Trigg resided on his Carson County livestock farm with three younger siblings and his parents, who also maintained their home in Fort Worth (U.S. Department of Commerce and Labor, Bureau of the Census 1910a, 1910b). That year, Trigg and Bess Bell Whittle (1886–1976) married. She was born in Georgetown where she received a degree from Southwestern University in 1907 (*The New Mexican* 1976:A8; Find A Grave 2007b). In 1912, the Triggs and John Shelton leased a large amount of acreage from the XIT Ranch and purchased 27,000 cattle. The partnership dissolved four years later with substantial profits to each principal (*The Amarillo Globe* 1937:2). By 1915, Steve and Bess Trigg resided in Amarillo, and tenants may have occupied the Carson County property. That year, Sections 46 and 48 were each valued at $2,000, and Sections 34 and 54 were valued at $1,600. Trigg had acquired a 170-acre parcel elsewhere that was the most heavily improved of his Carson County holdings at $800, or just more than $4.70 an acre (Carson County, Ad Valorem Tax Records). The State of Texas patented the four sections to Trigg on February 11, 1919 (Texas General Land Office 1919a, 1919b, 1919c, 1919d). In addition, eight Potter County sections were patented to Trigg and his father that year (Texas General Land Office 1919e, 1919f, 1919g, 1919h, 1919i, 1919j, 1919k, 1919l). In the late 1910s, the Triggs also began to acquire ranch land in northeastern New Mexico, where they would eventually reside (*The Amarillo Globe* 1937:2; Gosnell et al. 2011:25; *The New Mexican* 1976:A8; U.S. Department of Commerce, Bureau of the Census 1930b). In 1920, the Triggs resided with her parents at 1500 Harrison Street in Amarillo. The couple had three young children, and a nurse lived with the family to care for their young invalid son (U.S. Department of Commerce, Bureau of the Census 1920b). That year, when the Carson County lands were appraised

as the holdings of David Curb Trigg and Son, Section 48 was valued at $2,200, the three other sections were valued at $2,000, and the 170-acre parcel had declined in value to $400 (Carson County, Ad Valorem Tax Records).

In 1921, the Triggs conveyed the four sections and the 170-acre parcel to Alabama native Robert Benjamin "Ben" Masterson Jr. (1881–1957) (Anderson 2016; Carson County, Ad Valorem Tax Records; Find A Grave 2007c; Masterson 1972:62). Masterson's grandparents brought their family to Travis County in 1854 and then to Williamson County. Masterson Sr. (1853–1931) and Sallie Lee Exum (1863–1884) married in 1880 and had two sons, Robert Benjamin Jr. and Thomas Bennett, before her 1884 death from pneumonia (Find A Grave 2006a, 2006b). In 1886, their father married their mother's younger sister, Anna Eliza Exum (1868–1951), and the couple had several children, of which three daughters survived to adulthood (Anderson 2016; Find A Grave 2006c; Masterson 1972:62). The Mastersons founded the JY Ranch in 1898 with 40,000 acres in eastern King County. The family partnership included thousands of acres and cattle (Anderson 2016; Masterson 1972:62; Masterson Ranch 2016; Raynor 2000).

The Mastersons never occupied their Carson County holdings. Masterson Jr. and Laura Ann Tumlin (1881–1958) married in 1903 and had a son in 1904 and a daughter in 1906 (Find A Grave 2007d; Masterson 1972:62). The couple was estranged in 1910 when the children lived with her. That year, she reported herself both as divorced and living with her parents in Wichita County and as widowed and living with her brother-in-law and family in Fort Worth (U.S. Department of Commerce and Labor, Bureau of the Census 1910a, 1910c). By 1920, the Mastersons had reunited and resided in Amarillo with their children and an African American servant (U.S. Department of Commerce, Bureau of the Census 1920b). In 1923, the couple had a home built at 1619 Tyler Street, where they resided for many years (Masterson 1972:64; U.S. Department of Commerce, Bureau of the Census 1930c, 1940a). In 1924, Masterson purchased Section 47 (see Figure 10) (Masterson 1972:62). For the next several years, each of the sections was assessed equally, although the value fluctuated mildly: $2,640 in 1926, $1,920 in 1927, $3,000 in 1929, $3,200 in 1930, $2,560 in both 1935 and 1945, and $3,200 in 1947 (Carson County, Ad Valorem Tax Records).

Tenants occupied Section 48 while the Mastersons owned the land (Masterson 1972:63). In 1930, a cousin, Benjamin J. (1892–1942) and his wife Cora Ann (1894–1976) McGregor lived on the property (Find A Grave 2007e, 2007f; Masterson 1972:63). The McGregors had owned Carson County land in 1920 but were renting in 1930 (U.S. Department of Commerce, Bureau of the Census 1920c, 1930d). In 1940, the McGregors' son Marvin S. and daughter-in-law Vione McGregor rented and lived on the property (Masterson 1972:63; U.S. Department of Commerce, Bureau of the Census 1940b).

In 1955, the Mastersons sold their five Carson County sections to the City of Amarillo for $500,000 (Carson County, Deed Record 100:633). Masterson and his son-in-law and partner, Beaumont Stinnett, leased the land back from the city for dryland farming (Masterson 1972:63–64). In 1960 and 1961, Section 48 was valued

at $3,520 (Carson County, Ad Valorem Tax Records). In 1962, the City of Amarillo conveyed Section 48, with the exception of several easements and wells, to Milton Ford (1918–2006) and Winifred Faye Lain for $72,900 (Carson County, Deed Record 123:236; Find A Grave 2008b). The Lains occupied the property as their homestead for many years (Carson County, Ad Valorem Tax Records).

Twentieth-century maps and aerial images portray improvements on Section 48 west of 41CZ86. A house was present in 1941 (Texas Highway Department 1941). In 1951 and 1954, a house, several outbuildings, and a very large barn with corral were on the land (Figure 11) (Historic Aerials 1951, 1954). By 1961, the City of Amarillo had constructed a water pipeline and storage facility at the southeast corner of Section 48 (Texas Highway Department 1961). By 1967, the barn and corral were no longer extant, and new buildings were apparent (Historic Aerials 1967). Thirty years later, the property had been subdivided, and at least two new houses were present, both of which remain today (Historic Aerials 1997, 2004, 2008, 2010, 2012).

In summary, Walter Pattie Cannon occupied Section 48, on which 41CZ86 is situated, from late 1890 until about 1893. The land was unoccupied between about 1893 and 1899. Between 1899 and 1902, two families—the Thomas Allen and Laura Julina "Julie" Clayton Jameson family and the James Calvin and Martha F. "Mattie" Thomas Eubank family—consecutively occupied an adjacent section and operated Section 48 as part of a livestock farm. Stephen Lee "Steve" Trigg occupied Section 48 from about 1903 until 1910. Subsequent occupants of Section 48 were tenants until at least 1955, including Benjamin J. and Cora Ann McGregor in 1930 and Marvin S. and Vione McGregor in 1940.

Based on the presence of solarized glass, which dates to 1880–1915 (Munsey 2014:4), in the artifact scatter, 41CZ86 probably is associated with occupation of Tract 48 by Cannon, Trigg, or tenants. The absence of architectural items or features indicative of any structures at this location and the overall scarceness of artifacts argue that this is a secondary trash deposit removed from its locus of production rather than a primary house-associated disposal area. Based on this interpretation, 41CZ86 has no potential to contribute important information and is judged ineligible for listing in the National Register of Historic Places or designation as a State Antiquities Landmark. No additional work is recommended.

Site 41CZ87

Site 41CZ87 occupies the surface of a late Holocene alluvial terrace on the west side of a low-order ephemeral tributary of Middle Dixon Creek, with which it merges ca. 70 m downstream from the site (Figure 12). The terrace surface stands 2–3 m above the channel, is nearly level, and is 10–40 m wide, narrowing to less than 1 m in width at its downstream end. The terrace is sandwiched between the valley wall, which rises precipitously to the upland surface some 3–9 m above the terrace, and a lower narrow floodplain surface that stands less than 1 m above the channel. The surface of the terrace is sparsely covered with short grasses and is at 3,355–3,360 ft above mean sea level. Ground surface visibility is excellent. Soils

Figure 11. 1951 aerial photograph of Section 48 depicting improvements, including a house, several outbuildings, and a very large barn with corral (Historic Aerials 1951).

belong to the Bippus series, specifically mapped at the site as Bippus clay loam, 0–2 percent slopes, occasionally flooded (U.S. Department of Agriculture, Natural Resources Conservation Service 2016). Bippus soils are deep, well-drained Mollisols formed on loamy alluvium.

The site consists of four small decorticate flakes of Alibates agatized dolomite resting on the terrace surface. No other cultural materials were observed. Two shovel tests excavated to 40 cm a few meters upstream of the flakes did not yield any cultural materials. Nor were any buried cultural materials observed in a narrow cow path incised ca. 20 cm into the terrace surface. It is probable that the observed flakes were eroded from a site upstream and redeposited downstream given the lack of other cultural materials. Based on the extent of the surface artifacts and the negative results from shovel testing, the site measures 25 m north-south by 15 m east-west.

Due to the paucity of artifacts and their surficial nature, 41CZ87 has no capacity to contribute important information and is judged ineligible for listing in the National Register of Historic Places and designation as a State Antiquities Landmark. No additional work is recommended.

Site 41CZ88

Site 41CZ88 is situated along an upland margin overlooking the valley of a low-order tributary of White Deer Creek to the east (Figure 13). The upland surface represents the Pleistocene-age Blackwater Draw Formation and exhibits a thin, somewhat deflated soil with a calcic horizon. The site surface gently dips eastward, lies at an elevation of 3,280–3,300 ft above mean sea level, and is vegetated with short grasses and a few yuccas. Ground surface visibility is excellent. Soils belong to the Estacado series, specifically mapped at the site as Estacado clay loam, 1–3 percent slopes (U.S. Department of Agriculture, Natural Resources Conservation Service 2016). Estacado soils are deep, well-drained Mollisols that formed in calcareous, loamy eolian deposits of the Pleistocene Blackwater Draw Formation.

The site consists of a small, low-density surface scatter of small pieces of burned caliche, small decorticate flakes of Alibates agatized dolomite, and one small ground stone tool fragment (igneous rock). The burned caliche pieces and Alibates flakes total fewer than 20 specimens. No temporally diagnostic artifacts were observed. Three shovel tests were excavated to depths of 25 cm below the surface, encountering the calcic horizon just below the surface. No artifacts or other cultural materials were recovered. A natural gas pipeline running northwest-southeast has impacted the northern margin of the site, which also has been affected by wind and surface flow erosion. Based on the extent of the artifact scatter and the negative results from shovel testing, the site measures 40 m north-south by 30 m east-west.

Based on the paucity of artifacts and the lack of intact subsurface deposits, 41CZ88 has no capacity to contribute important information and is judged ineligible for listing in the National Register of Historic Places and designation as a State Antiquities Landmark. No additional work is recommended.

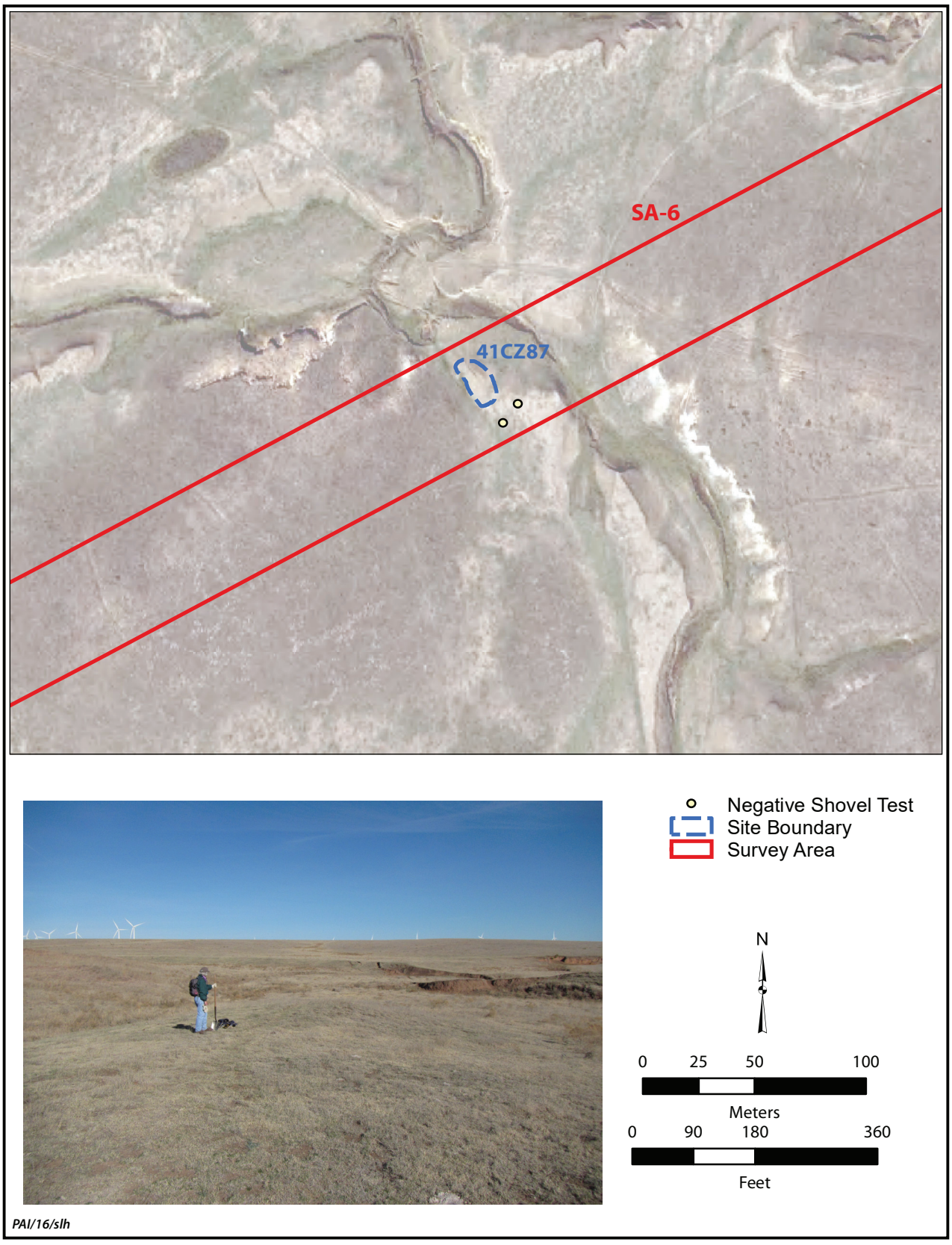

Figure 12. Map and photograph of 41CZ87; view is to the northwest looking across terrace and site surface.

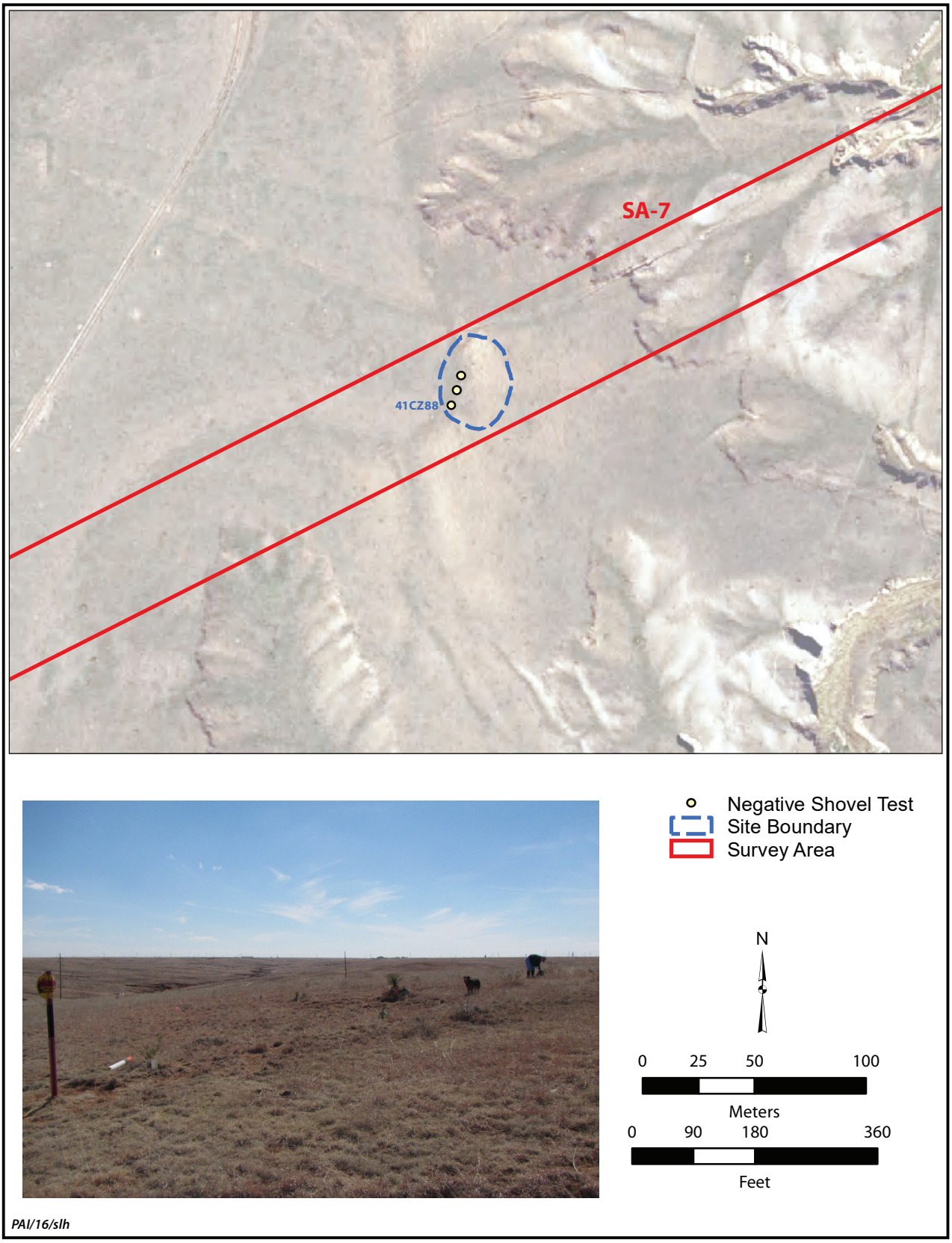

Figure 13. Map and photograph of 41CZ88; view is to the south looking across site surface.

Site 41PT514

Site 41PT514 is situated on the surface of a gentle southwesterly dipping upland slope overlooking a small ephemeral drainage to the southwest and a large playa to the south (Figure 14). The surface lies at an elevation of 3,580 to 3,585 ft above mean sea level. Soils belong to the Pullman series, specifically mapped at the site as Pullman clay loam, 1–3 percent slopes (Pringle 1980). Pullman soils are very deep, well-drained Mollisols formed in clayey eolian deposits of the Pleistocene-age Blackwater Draw Formation. Site vegetation is patchy and consists largely of short grasses. Ground surface visibility varies from good to excellent. The surface of the slope has been impacted by construction of several low artificial contour berms that mimic the natural contours of the slope.

The site consists of a low-density scatter of cultural materials resting on the surface of two of these berms, spaced 75–100 m apart, and the area between them. Construction of these berms has clearly impacted the surface of the site. Observed artifacts consist of three drill fragments (two proximal and one medial), a few small decorticate flakes, and one piece of burned caliche. All of the chipped stone materials are Alibates agatized dolomite. No shovel tests were excavated because of the Pleistocene age of the surface and its disturbed nature. Based on the extent of the artifact scatter, the site measures 115 m north-south by 200 m east-west.

Based on the paucity of artifacts, their surficial context on an ancient surface, and the disturbed nature of that surface, 41PT514 has no capacity to contribute important information and is judged ineligible for listing in the National Register of Historic Places or designation as a State Antiquities Landmark. No additional work is recommended.

ASSESSMENTS AND RECOMMENDATIONS

Archeological survey conducted between March 9 and June 17, 2016, for the CRMWA II water pipeline in Carson, Gray, Potter, and Roberts Counties, Texas, encountered four archeological sites: 41CZ86, 41CZ87, 41CZ88, and 41PT514. Sites 41CZ87, 41CZ88, and 41PT514 are small prehistoric sites of unknown ages; 41CZ86 consists of a surface scatter of early-twentieth-century artifacts. All four sites lack the capacity to contribute important information and are considered ineligible for listing in the National Register of Historic Places and designation as State Antiquities Landmarks. These recommendations are based on the disturbed nature of the cultural deposits, the lack of buried intact cultural deposits, and the paucity or absence of interpretable artifacts and features. It is recommended that the pipeline project be allowed to proceed without additional archeological investigations.

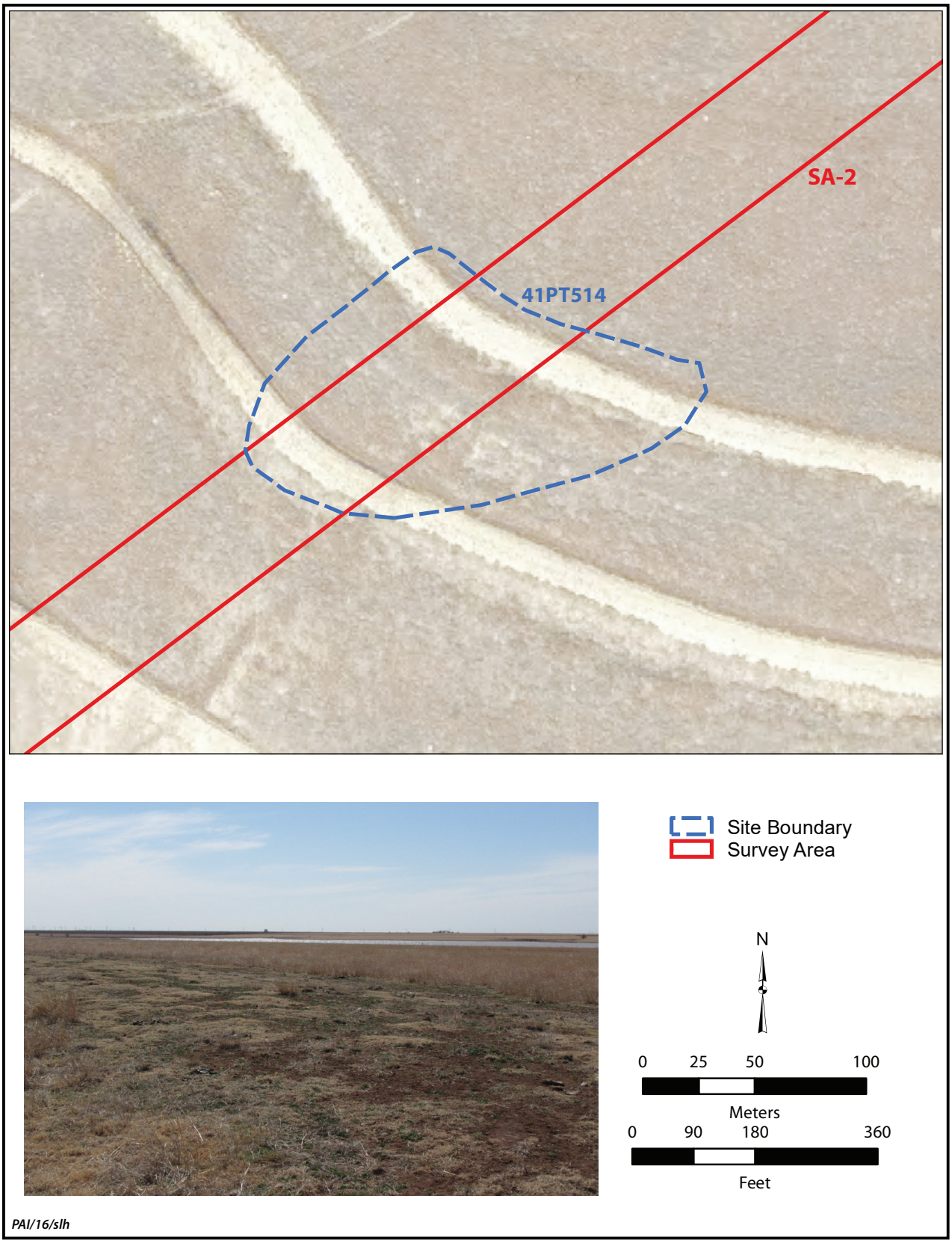

Figure 14. Map and photograph of 41PT514; view is looking southwest across site surface.

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