

ARCHAEOLOGY OF THE PLANNED LOCATION OF THE TOYOTA MOTOR MANUFACTURING PLANT, SAN ANTONIO, BEXAR COUNTY, TEXAS

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RUSSELL D. GREAVES, JASON D. WESTON, STEVE A. TOMKA,
I. WAYNE COX, RICHARD B. MAHONEY, BRUCE K. MOSES,
JENNIFER NEEL-HARTMAN, AND STACY A. WAGNER



Prepared for
Public Works Department
City of San Antonio
San Antonio, Texas

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Center for Archaeological Research
The University of Texas at San Antonio
Archaeological Survey Report, No. 333

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TEXAS ANTIQUITIES COMMITTEE PERMIT NO. 2982

STEVE A. TOMKA
PRINCIPAL INVESTIGATOR



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Abstract:

From October 2002 to January 2004, the Center for Archaeological Research (CAR) of The University of Texas at San Antonio conducted archaeological investigations for the City of San Antonio in a 2,570.25-acre project area that is the future site of the San Antonio Toyota Motor Manufacturing Plant. The work was conducted under Texas Antiquities Permit No. 2982 with Dr. Steve A. Tomka, CAR Director, serving as Principal Investigator.

The project included the reconnaissance of over 500 acres of the project area, the excavation of 376 shovel tests, 250 mechanical auger borings, and 42 backhoe and Gradall trenches. The backhoe and Gradall trenches were dug for geoarchaeological investigations and in one instance to search for a presumed historic cemetery. Reassessment for National Register of Historic Places and State Archeological Landmark status was conducted for 16 previously documented archaeological sites (41BX125, 41BX349, 41BX652, 41BX653, 41BX654, 41BX655, 41BX656, 41BX657, 41BX658, 41BX659, 41BX660, 41BX661, 41BX662, 41BX676, 41BX681, and 41BX832) and five newly identified sites (41BX1571–41BX1575). Of the 21 sites examined during this project, 12 are prehistoric, seven are historic and two have both prehistoric and historic components. The prehistoric sites are lithic and burned rock scatters, possibly the remnants of campsites. Diagnostic artifacts found in previous surveys indicate Archaic and Late Prehistoric time frames. The historic sites present are farmstead-ranch complexes including residential structures and outbuildings. Also encountered were tenant farmer residences and a small brick kiln. The historic components are primarily late-nineteenth and early-twentieth-century, although original surveys noted early-nineteenth-century artifacts. All artifacts collected are curated at the Center for Archaeological Research laboratory facility.

Management Summary:

The construction of the planned Toyota Motor Manufacturing Plant will impact an area measuring approximately 2,570.25 acres in south-central Bexar County. The majority (2,546 acres [1,030 ha]) of this area is bounded between Applewhite Road, Leon Creek, and the Medina River. The remaining segment consists of a linear right-of-way of 24.25 acres north of Leon Creek that will serve as the site of a railroad spur to connect the plant to a nearby Union Pacific rail line.

Archaeological services associated with the planned construction of the manufacturing plant involved the reconnaissance and/or survey of all previously unsurveyed portions of the project area (approximately 500 acres), the documentation of all newly identified sites, and the relocation and assessment of all previously known archaeological sites to determine whether they warrant designation as State Archeological Landmarks (SALs) and/or nomination to the National Register of Historic Places (NRHP).

The reconnaissance and survey efforts resulted in the documentation of five new sites. Of these, three are prehistoric (41BX1571, 41BX1572, and 41BX1573), and two are historic (41BX1574 and 41BX1575). Based on the work conducted at 41BX1571 and 41BX1572 and the documentation of the two historic sites (41BX1574 and 41BX1575), it is recommended that these sites do not warrant designation as SALs and/or nomination to the NRHP. The work at 41BX1573 was not sufficient to clearly assess the NRHP/SAL status of the site and continued protection of this site is recommended.

Sixteen previously recorded sites are present within the project area. Four of these (41BX652, 41BX653, 41BX662, and 41BX832) are designated as State Archeological Landmarks. CAR was able to relocate 14 of the 16 previously recorded sites. Using traditional survey methods, and a ground penetrating radar survey conducted by Raba-Kistner Consultants, Inc., site 41BX676, the presumed location of a cholera cemetery, could not be relocated. Based on informant interviews, it is suggested that the location never contained a cemetery and that the actual cemetery is outside of the project area. Prehistoric site 41BX832, originally recorded based on buried archaeological deposits in a deep arroyo, also could not be relocated. It is assumed that erosion of the arroyo has removed the archaeological deposits that were previously exposed in the cutbank. Nonetheless, given that the site consisted of deeply buried cultural materials, it is recommended that the presumed location of 41BX832 be protected in case additional, hitherto unexposed buried materials may still be present in the vicinity.

Twelve of the 14 relocated sites were extensively shovel tested to determine their eligibility status. The remaining two sites, 41BX660 (a surface scatter of historic artifacts) and 41BX681 (a modern ranch complex) were not shovel tested. The deposits of each of the 14 sites have been subject to extensive erosion and based on the testing we recommend that none of them warrant designation as SALs or nomination to the NRHP. Of the 14 sites that were successfully relocated, one site, 41BX662 (a historic brick kiln) is a significant historic resource and its protection is recommended. A second site, 41BX681, was the historic Frank Walsh (Kiker/Gembler/Walsh) house and ranch complex built in 1906. The compound of structures was determined eligible for NRHP listing. Following Level I HABS (Historic American Buildings Survey) documentation, the most significant of the structures, two pigeon coops, were relocated to City of San Antonio property (soon to be Land Heritage Institute property) south of the Medina River. The remainder of the structures were demolished and removed from the project area.

In summary, a total of 2570.25 acres has been subjected to reconnaissance and/or survey within the project area. Of the 16 previously documented sites, two (41BX662 and 41BX832) are recommended for protection. Of the five newly documented sites, only 41BX1573 warrants continued protection since its eligibility status has not been fully assessed. It is recommended that site number 41BX676 be deleted from the project area since the existence of a site could not be confirmed in the area. Based on the work conducted under this contract, no additional properties warrant designation as SALs or nomination to the NRHP.

In Memory of
Idys Wayne Cox

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* Due to the sensitivity of archaeological sites, detailed site location maps are not included in the text but are located in a pocket at the back of this report.

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Chapter 1: Introduction

From October 2002 through January 2004, the Center for Archaeological Research (CAR) of The University of Texas at San Antonio conducted archaeological and geoarchaeological investigations at the proposed location for the Toyota Motor Manufacturing Plant in south-central Bexar County. These archaeological services were provided in partial fulfillment of cultural resources compliance under the Antiquities Code of Texas (Title 9, Chapter 191 of the Texas Natural Resource Code). The work was performed for the City of San Antonio and for use by Raba-Kistner Consultants, Inc. of San Antonio in fulfillment of U.S. Army Corp of Engineers (COE) 404 permit requirements. Investigations were carried out under Texas Antiquities

Permit No. 2982, with Steve A. Tomka, CAR Director, serving as Principal Investigator.

The location for the proposed Toyota Motor Manufacturing Plant is in the south-central portion of Bexar County (Figure 1-1). This area is an approximately 2,546-acre property bounded on the west by Applewhite Road, on the north by Leon Creek, on the south by the Medina River, and on the east by the confluence of these two streams. An additional 24.25 acres to the north of Leon Creek will be the site of a railroad spur that will connect the plant to the Union Pacific rail line running parallel to Pleasanton Road (Figure 1-1). This brings the total project acreage to 2,570.25 acres.

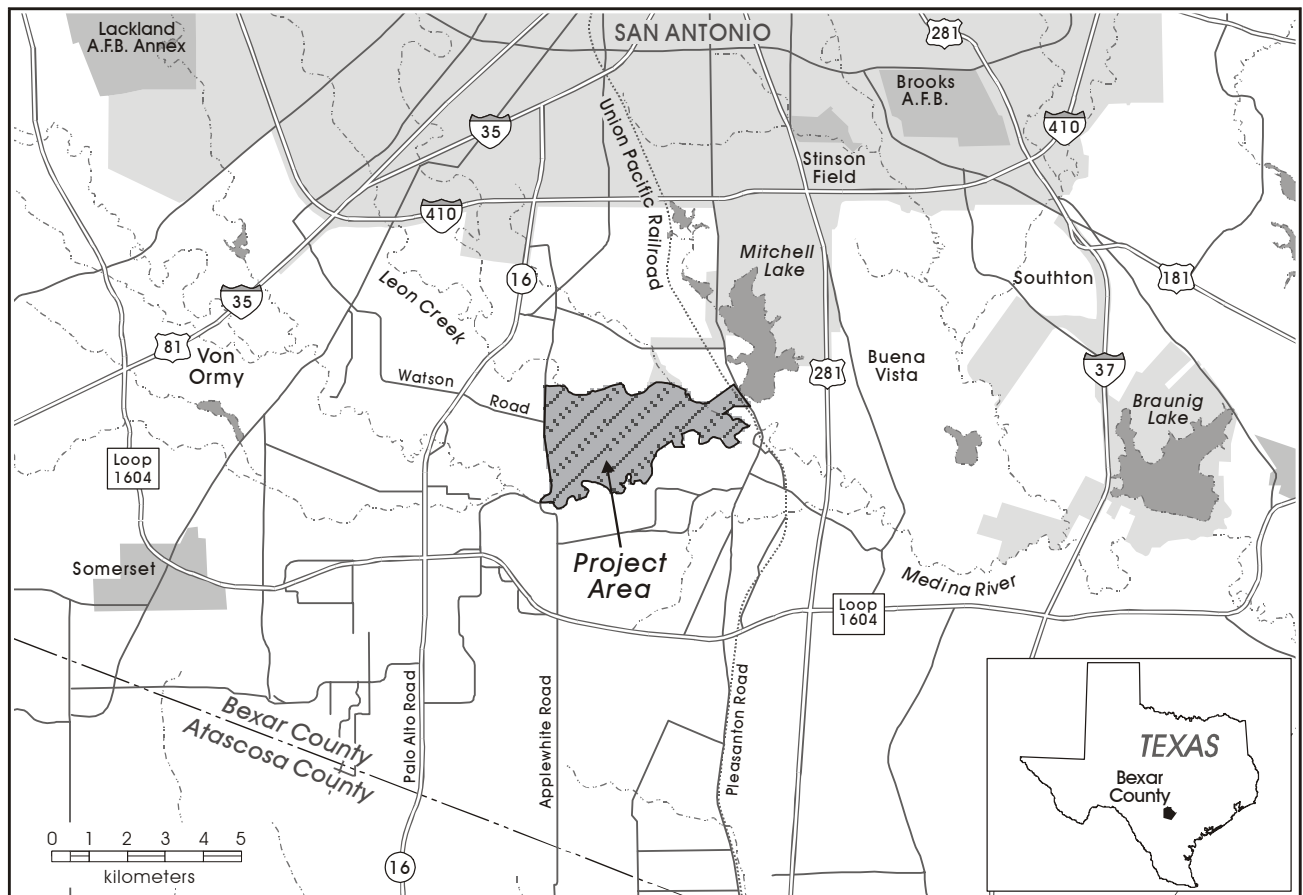


Figure 1-1. Project area location map.

Project Background and Overview

The primary objective of the original scope of work (Tomka et al. 2002) was the cultural resources clearance of an approximately 1,100-acre (445-ha) tract for the footprint of the manufacturing plant itself. Eight additional phases involving a variety of tasks were eventually undertaken as the scale of the project expanded. CAR sought and received approval for these additional tasks through six modifications to the original permit application. By the end of the project, all previously unsurveyed portions of the project area had been subjected to reconnaissance or survey and all previously known archaeological sites had been tested to determine whether they warranted designation or continued designation as State Archeological Landmarks (SALs) or nomination to the National Register of Historic Places (NRHP). We refer to continued SAL designation because four previously recorded archaeological sites had officially been designated as SALs prior to the current project. Below we briefly summarize the nine distinct phases as general project background.

During the first phase of the work, CAR was asked to look at the distribution of known archaeological sites within the proposed 2,546-acre project area and define a 1,100-acre tract, the Area of Potential Effects (APE), that would disturb the fewest possible known archaeological sites and would also provide a 700-m (2,297-ft.) buffer zone from the Medina River and a 500-m (1,640-ft.) buffer zone from Leon Creek (Figure 1-2, located in pocket at back of report). Following identification of the APE, and as part of this first phase of the project, CAR was to reassess the SAL/NRHP eligibility status of any archaeological site that fell within the proposed APE. Site 41BX660 and the location of a possible nineteenth-century cholera cemetery were investigated as part of these efforts.

As part of the Phase II work on the project, CAR was asked to test a portion of a previously recorded prehistoric site, 41BX653, one of the four designated SAL sites within the project area (McGraw and Hindes 1987:216). Subsurface testing of the northern portion of this site was desired due to its proximity (<100 m [<328 ft.]) to the project area buffer zone and the possibility that intact features may be disturbed if development inadvertently crossed the buffer zone.

Much of the previous archaeological work associated with the proposed Applewhite Reservoir had concentrated on the area west of the dam footprint and on the south-descending bank of the Medina River. None of the area between the

dam footprint and the confluence of the Medina River and Leon Creek had been surveyed prior to this project. As part of Phase III of the current project, CAR was asked to conduct a reconnaissance of a previously unsurveyed 239-acre (97-ha.) tract of land (Figure 1-2) and perform archival research and photographic documentation of a historic ranch property (41BX681). With the addition of the 239-acre survey outside of the original APE, it became evident by the beginning of Phase III of the project that the APE had increased to incorporate the entire property bounded by Leon Creek, Medina River and Applewhite Road.

As plans for the proposed manufacturing plant were being defined, it became clear that the project area and APE needed to be connected to major transportation arteries within the region. One such possibility was the existing Union Pacific Railroad located northeast of the project area. Therefore, as part of Phase IV of the project, CAR was asked to conduct a preliminary, unsystematic reconnaissance of a portion of the right-descending bank of Leon Creek in the approximate location where a planned railroad spur could enter the project area (Figure 1-2). The exact location of the anticipated railroad spur had not been established at the time of the fieldwork but two backhoe trenches were excavated along the south bank of Leon Creek in the general area that was anticipated to be the location of the railroad spur.

The reconnaissance of the 239 acres conducted during Phase III identified one archaeological site (41BX1571). In addition, both of the backhoe trenches excavated during the investigations of the possible railroad spur location on the south bank of Leon Creek during Phase IV uncovered buried archaeological materials. Therefore, in Phase V of the project, CAR delimited the boundaries of and shovel tested site 41BX1571 and mechanically auger tested and Gradall trenched 84.7 acres surrounding the two positive backhoe trenches excavated during Phase IV (Figure 1-2).

Phase VI of the project consisted of the intensive mechanical auger testing of an 18-acre parcel in an area surrounding positive Gradall trenches excavated during the previous phase and the reconnaissance of 175 acres located at the extreme eastern end of the project area adjacent the confluence of Leon Creek and Medina River (Figure 1-2). Subsurface inspection using 16 backhoe trenches accompanied the surface reconnaissance of the landform. This reconnaissance completed the inspection of all previously unsurveyed property within the Applewhite Road, Leon Creek, and Medina River-bounded project area.

At this point in the project, it was determined that the re-evaluation of the SAL/NRHP eligibility of all 16 previously documented archaeological sites would be desirable. This process began in Phase VII with the investigation of five of these sites: 41BX653, 41BX654, 41BX655, 41BX656, and 41BX676 (Figure 1-2).

Phase VIII of the project consisted of the re-evaluation of SAL/NRHP eligibility of eight additional previously documented sites: 41BX349, 41BX652, 41BX657, 41BX658, 41BX659, 41BX661, 41BX662, and 41BX832. Three of these sites, 41BX662, 41BX662, and 41BX832, are designated SALs. In addition, two positive backhoe trenches, preliminarily designated as Field Sites 5 and 6 (FS 5 and FS 6) excavated during the reconnaissance of the 175 acres at the extreme eastern end of the project area were evaluated using intensive mechanical auger borings. Finally, two localities with standing structures were noted in transit between sites during the site re-evaluation process. These localities were preliminarily designated as Field Sites 7 and 8 (FS 7 and FS 8; Figure 1-2). When it was determined that these sites had not been previously documented and may now be more than 50 years old, it was decided to revisit and evaluate these sites.

The last phase of the project, Phase IX, consisted of the re-evaluation of site 41BX125, a ground penetrating radar (GPR) survey of site 41BX676—the second supposed cholera cemetery reported to have been within the project area—and survey of the 24.25-acre railroad spur right-of-way on the north bank of Leon Creek.

As each phase of the fieldwork was completed, CAR produced and submitted an interim report to the client (City of San Antonio) and the Texas Historical Commission (THC) to facilitate the timely review of findings and recommendations. The THC review and compliance office in turn reviewed each report and issued responses to recommendations provided in each interim report. As it became evident midway through the project that the construction project would also necessitate a 404 federal permit, CAR provided copies of all review letters and interim reports to Raba-Kistner Consultants, Inc., the principal party involved in securing the federal permit. These documents were in turn forwarded to the COE office. While the interim reports and the ongoing coordination with the THC and COE were critical, it was agreed that a management summary report would be produced at the completion of all fieldwork and that this would in turn be followed by a comprehensive

technical report detailing the results and recommendations of each phase of work. It is the goal of this report to serve as a comprehensive summary of all aspects of the project including the field methods employed and the findings and recommendations.

Report Organization

This report is comprised of six chapters and one appendix. Following this introductory chapter, Chapter 2 presents the modern environmental setting for the project area and reviews the 10,000-year paleoenvironmental sequence for the region. Chapter 3, as a backdrop to the present study, presents the regional culture history and chronological framework, as it is currently understood, and a discussion of the archaeological investigations in the region that preceded the current work and helped to establish this framework. Chapter 4 outlines the methodology employed in each phase of the project including the reconnaissance, shovel testing, auger testing, backhoe trenching, and geoarchaeological investigations. Also provided is a brief review of the laboratory methods employed in the processing of the artifacts and the curation of the associated documentation. Chapter 5 discusses the phase-by-phase result of the investigations, while Chapter 6 represents an overview and management summary of the findings. The single appendix (Appendix A) presents the results of the geophysical survey performed by Raba-Kistner Consultants, Inc.

Due to the sensitivity of archaeological sites, detailed site location maps are not included in the text but are located in a pocket at the back of this report.

Chapter 2: Environmental Setting

The goal of this chapter is to provide an overview of the modern environment in the project area and also summarize the reconstructed paleoclimatic conditions that may have existed in the region over the last 10,000 years. In keeping with these objectives, the chapter is divided into two main sections, the modern environment and a regional paleoclimatic summary.

Modern Environmental Conditions

Climate

The climate of the region is subtropical and subhumid, with mild winters and warm to hot summers (Taylor et al. 1991). January highs average 60.8°F and lows average 37.9°F. July highs average 95.0°F with lows of 75.0°F (Bomar 1999:214–222). The growing season around San Antonio averages about 267 days a year (Bomar 1999:214–222). Average annual precipitation in San Antonio is 30.98 inches (Bomar 1999:228–230). Precipitation during the year tends to be bimodal, with an initial peak occurring in May (mean = 4.22 inches) and June (mean = 3.81 inches), and a secondary peak in September (mean = 3.41 inches) and October (mean = 3.17 inches). It should be noted that in more recent years (2001–2004) the first peak in rainfall occurred in June and July. The driest period of the year is between December and March, when precipitation averages 1.64 inches per month. These average precipitation totals mask considerable variability. For example, average annual precipitation has varied from a high of 52.28 inches in 1973 to a low of 10.11 inches in 1917 (Bomar 1999:228).

Hydrology

The project area is situated on a series of high, abandoned terraces of Leon Creek and Medina River at an elevation ranging from approximately 580 ft. AMSL along Applewhite Road to 480 ft. AMSL at the confluence of the two streams. A USGS benchmark at the intersection of Watson and Applewhite roads is identified as the highest point in the project area at 588 ft. AMSL. The Medina River begins in the western portion of Banderita County atop the Edwards Plateau, flows across the Balcones Escarpment in Medina County, and traverses the southern portion of Bexar County where it confluences with the San Antonio River. Leon Creek

forms in the Balcones Canyonlands of extreme northwestern Bexar County and flows south to its confluence with the Medina River at the eastern end of the project area. A variety of smaller, unnamed intermittent tributaries also drain into the Medina River and Leon Creek. The geomorphic profile (Figure 2-1) of the project area indicates minor fluctuations in the elevation that may represent at least three older terrace surfaces. Examination of recent aerial imagery and older photographs (Taylor et al. 1991:Sheet 78) show that the channel of the Medina River was at one time north of its current position, Leon Creek may have been slightly south of its modern channel, and their confluence was west of its current position by approximately 760–914 meters (2,500–3,000 ft.). All of this area represents old, high terraces of the Medina River and Leon Creek that are not subject to recent flooding. Both streams are abundant sources of chert, although gravels are more accessible in Leon Creek.

Soils

Most of the soils in the project area consist of the Venus-Frio-Trinity association and are formed on older alluvium (Taylor et al. 1991:6–7, Figure 4). Also common is the San Antonio-Crockett association (Taylor et al. 1991:General Soil Map Bexar County). Within these associations, the dominant soil series on the uplands are Lewisville silty clay and Venus clay loam (Taylor et al. 1991:Sheet 78). The Lewisville series is a moderately deep, dark colored, level alluvial soil and the Venus clay loam is a level to gently sloping soil that is deep with a moderately dark color and is indicative of terraces or alluvial fans (Taylor et al. 1991:25, 32). Also present on the uplands are Crockett fine sandy loam, Duval loamy fine sand, Hockley loamy fine sand, Houston Black clay, Leming fine sand, Patrick soils and Karnes loam. Associated with the Medina and Leon bottoms are Gullied Land and Frio Series soils. The Gullied Land occurs where high terraces are eroding toward the streams (Taylor et al. 1991:17). The rough, steeply sloped regions are subject to heavy erosion. This type of setting dominates the project area on the high terrace above the left-descending bank of the Medina River where most of the previously recorded sites are located. The floodplains of the Medina and Leon consist of Frio Series soils—limey alluvial soils that are moderately deep and grayish brown to dark grayish brown in color (Taylor et al. 1991:16).

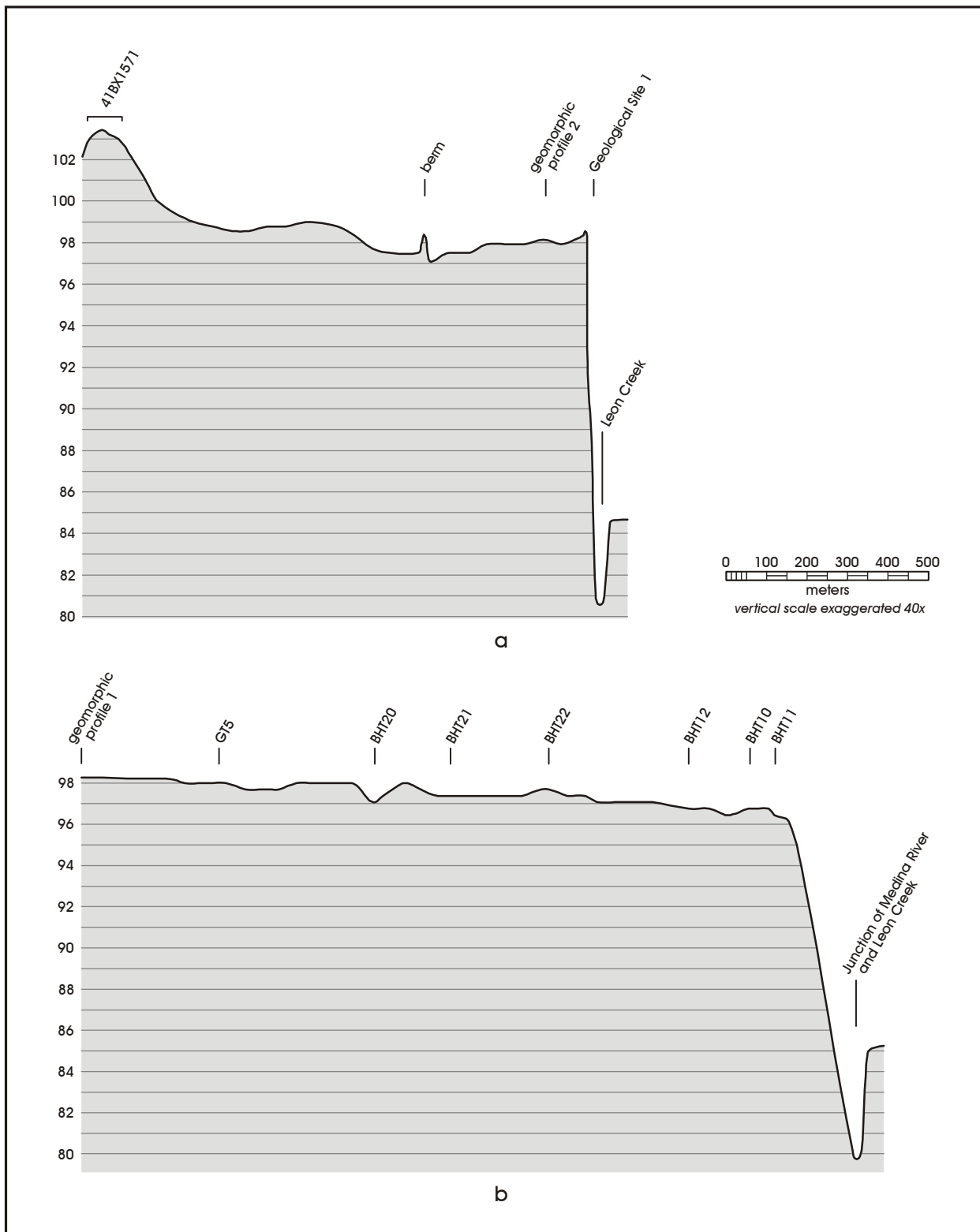


Figure 2-1. Geomorphic profiles across the eastern portion of the project area. a) Geomorphic Profile 1 extending from site 41BX1571 to Leon Creek; b) Geomorphic Profile 2 extending from Geomorphologic Profile 1 to the Medina River.

In their study of the Applewhite terrace adjacent to the Medina River, Thoms and Mandel (1992) identified six buried paleosols in a nearly 20-meter-tall profile. The majority of these buried soils appear to have formed over a relatively short period of pedogenesis, although the Leon Creek paleosol may have formed over about a 1000–1500 radiocarbon-year period of relative landscape stability (Nordt et al. 2002:183, Figure 2).

Flora

The project area is located in a transitional zone between the South Texas Brush Country and the Blackland Prairies. However, the vegetation is shaped less by nature and more by ranching and agricultural practices that have impacted the area over the past 200 years. In the western one-third of the project area, grass pasture for cattle grazing dominates the uplands. In the center of the project area, several species of oak (*Quercus* sp.; Kavanagh 2000) compete with juniper (*Juniperus ashei*; Gould 1975:17; Vines 1960:32–33). Where the juniper cover is intermittent, a variety of smaller trees, bushes, and shrubs have invaded creating a dense understory. Much of this brushy undergrowth is characterized by whitebrush (*Aloysia gratissima*), mescalbean (*Sophora secundiflora*), agarita (*Mahonia trifolia*), persimmon (*Diospyros texana*), and pricklypear cactus (*Opuntia phaeacantha*; Elias and Dykeman 1990:140; Vines

1960:273, 568–569, 780). The dense, brushy understory vegetation makes up most of the area surveyed during this project (Figure 2-2). The extreme eastern portion of the project area is an open, fallow hay field. Around the edges of the field and uplands, along the high terraces overlooking Leon Creek and the Medina River, oaks and a dense brush understory again dominate. Down in the deeply incised floodplains of the Leon and Medina drainages is a lush riparian zone dominated by ancient cottonwoods and other water-loving vegetation.

Fauna

The variety of non-domestic species and their distribution in the region has been altered during the past 200 years. Currently, white-tailed deer (*Odocoileus virginianus*) is the most common grazer, although both bison and antelope probably ranged across the area prior to the 1900s. A variety of smaller mammals and an assortment of reptiles, birds and insects are also present. Species noted during survey were the Yellow Garden Spider (*Arigope aurantia*; Jackman 1997), Praying Mantis (*Mantis religiosa*), Western Diamondback (*Crotalus atrox*), Texas Spiny Lizard (*Sceloporus olviaceus*; Conant 1975:102, 110, 236), Roadrunner (*Geococcyx californianus*; Robbins et al. 1983:172), wild pig (*Sus scrofa*) and javelina (*Tayassu tajacu*; Whitaker 1996:816, 820). It is of interest that the



Figure 2-2. Vegetation typical of the project area.

javelina were encountered in the northern portion of the project area while the wild pigs were in the southern portion. Both species frequented the fallow hay field.

Regional Paleoclimatic Summary

Recent research has contributed to our understanding of the paleoenvironment of Texas (e.g., Bousman 1998; Brown 1998; Frederick 1998; Fredlund et al. 1998; Nordt et al. 2002; Ricklis and Cox 1998). Unfortunately, the paleoclimate of Texas contains significant gaps primarily due to the scarcity of deep, finely stratified and well-dated deposits (Stahle and Cleaveland 1995:51), as well as an uneven history of work across the state. This section relies on information taken from a variety of studies located primarily to the north of the current project area but also from a study along the south bank of the Medina River, very near the

current project area (Nordt et al. 2002). This locality was originally identified in 1994 during the Applewhite Reservoir study (Nordt et al. 1994) and is located at archaeological site 41BX831 (Thoms et al. 1996). The relationship between the current project area and the various sources of paleoenvironmental data can be seen in Figure 2-3.

In an attempt to document aspects of the paleoenvironment from the close of the Pleistocene until the modern era (Holocene), a number of different data sets are used. These include pollen, phytolith, geomorphic observations, oxygen-isotopes, organic carbon, and faunal remains. The Medina River study measured proportions of organic carbon produced by C_3 and C_4 plants in buried paleosol. C_4 organic carbon is produced by grasses adapted to warmer climates. These grasses do not tolerate shade and need moisture only immediately before the growing season (Nordt et al. 2002: 184–185). Dominance of organic carbon from C_4 plants in

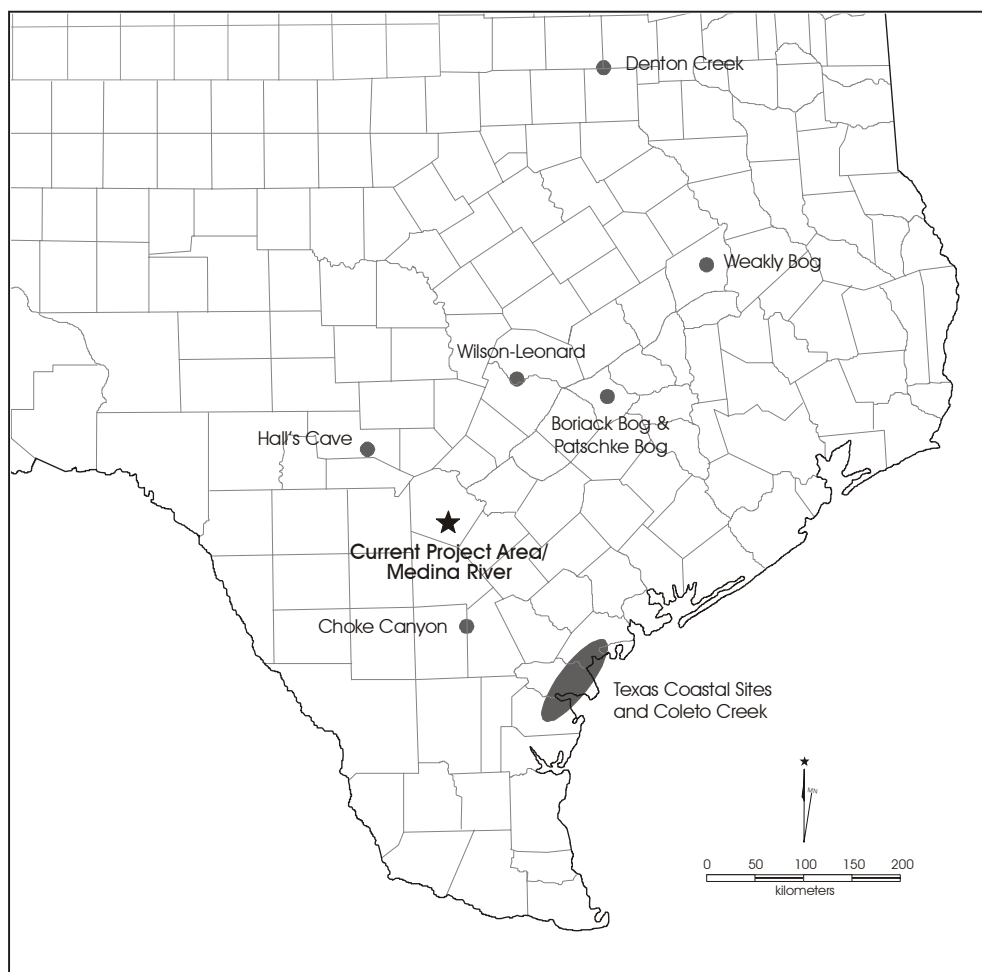


Figure 2-3. Locations of regional paleoenvironmental data discussed in text.

the paleosol indicates a warm, often dry grassland with few to no trees (Nordt et al. 2002:185). Organic carbon from C_3 plants is added to the paleosol by species adapted to cool, wetter climates and include some grasses, herbaceous dicots, and primarily trees and shrubs (Nordt et al. 2002:185). The Medina River study also examined changes in seawater salinity as recorded in negative delta¹⁸O isotope levels in foraminifera from the Gulf of Mexico. These changes in delta¹⁸O isotope levels document episodes of glacial melting that correlate with climate changes (Nordt et al. 2002:185).

Each of the data sets monitor climate and vegetation changes at varying spatial and temporal scales. In addition, each data set has specific problems associated with preservation, sampling, chronological control, and interpretation.

Late Pleistocene (ca. 18,000–10,000 BP)

The Pleistocene epoch spans from 1.8 million years ago to 8,000 years ago (10,000 BP [BP=years before 1950]). This encompasses the latest period of glaciation cycles including the most recent episode of glaciation occurring from 18,000 BP to 10,000 BP (*Wikipedia* 2004a).

Data from the Medina River study (Figure 2-4) shows lower levels of organic carbon from C_4 plants from 15,500–14,000 BP indicating a cooler climate (Nordt et al. 2002:185). However, pollen spectra from Boriack Bog, located roughly 200 kilometers to the northeast of the project area (Figure 2-3), exhibit a decline in arboreal pollen by 15,000 BP, suggesting a trend toward a warmer climate (Bousman 1998:Figure 4). Bousman's (1992) oxygen isotope evidence from South Texas complements the bog pollen data and suggests warming by 15,000 BP.

Camper (1991) has reanalyzed the Patschke Bog data (see Figure 2-3) which was originally investigated by Potzger and Tharp (1943, 1947). The samples studied by Camper appear to represent a continuous and relatively well-dated sequence stretching back to 17,000 BP. However, as Bousman (1998:207–208) notes, the Patschke data have significant frequencies of local marsh taxa, such as *Alnus* and *Cyperaceae*, which make the identification of regional changes difficult. In an attempt to clarify the pattern of regional change indicated at Patschke Bog, Nickels and Mauldin (2001) reviewed the raw pollen grain counts from Patschke Bog (Camper 1991). While Bousman (1998) is correct in noting the high level of marsh taxa throughout the deposits, Nickels and Mauldin (2001) note that Camper's

grain counts, unavailable to Bousman in 1998, are extremely high, with an average of just over 370 grains per level, and a minimum count of 270 grains for any single level. In response to this, the original data was reworked, eliminating the potential contaminants from the pollen data (Nickels and Mauldin 2001:34–35). Figure 2-5 presents the revised percentages for grass (*Poaceae*) taxa for Patschke Bog (Nickels and Mauldin 2001), as well as the grass percentages for Boriack Bog with major contaminants removed (Bousman 1998).

Based on the revised data, the Patschke pollen sequence suggests that between roughly 17,000 BP and 15,500 BP, a grassland environment may have been present (Figure 2-5). After 15,500 BP, a rapid decline in grass pollen is indicated, reaching a low roughly around 14,000 BP. This coincides with the C_4 organic carbon decline noted in the Medina River study between 18,000 BP and 17,200 BP (Nordt et al. 2002:185).

Organic carbon levels from C_4 plants in paleosols from the Medina River study increase between 17,200 BP and 15,500 BP indicating a brief warming period prior to a cooler period expressed by decreasing C_4 levels between 15,500 BP and 12,000 BP (Nordt et al. 2002:185–186). This decrease correlates well with a confirmed episode of glacial melting of the Laurentide ice sheet immediately preceding the Younger Dryas. This input of cold, fresh water is evidenced by lower seawater salinity and higher sea levels in the Gulf of Mexico (Leventer et al. 1982; Spero and Williams 1990). The introduction of this mass of cold water served to cool the climate, thus providing the cause of climatic shifts during the Late Pleistocene (Nordt et al. 2002:185).

Toomey et al. (1993) argue that faunal data from Hall's Cave on the Edwards Plateau, roughly 100 kilometers to the northwest of the project area (Figure 2-3), indicate summer temperatures in the Late Pleistocene were 6°C cooler than present averages until 13,000 BP (or 12,500 BP [Toomey and Stafford 1994]), when a warm and more arid interval began.

The pollen spectra from Boriack Bog suggest a shift from grasslands to woodlands between 15,500 BP and 14,500 BP, indicating a moist and cool climate (Bousman 1998:Figure 4). From about 14,500 BP to 13,000 BP, the data indicate that a wetter episode stimulated an increase in arboreal pollen. This wetter period is followed by a drier episode between 13,000 BP and 11,000 BP resulting in increased grassland communities and grass pollen. The Hall's Cave

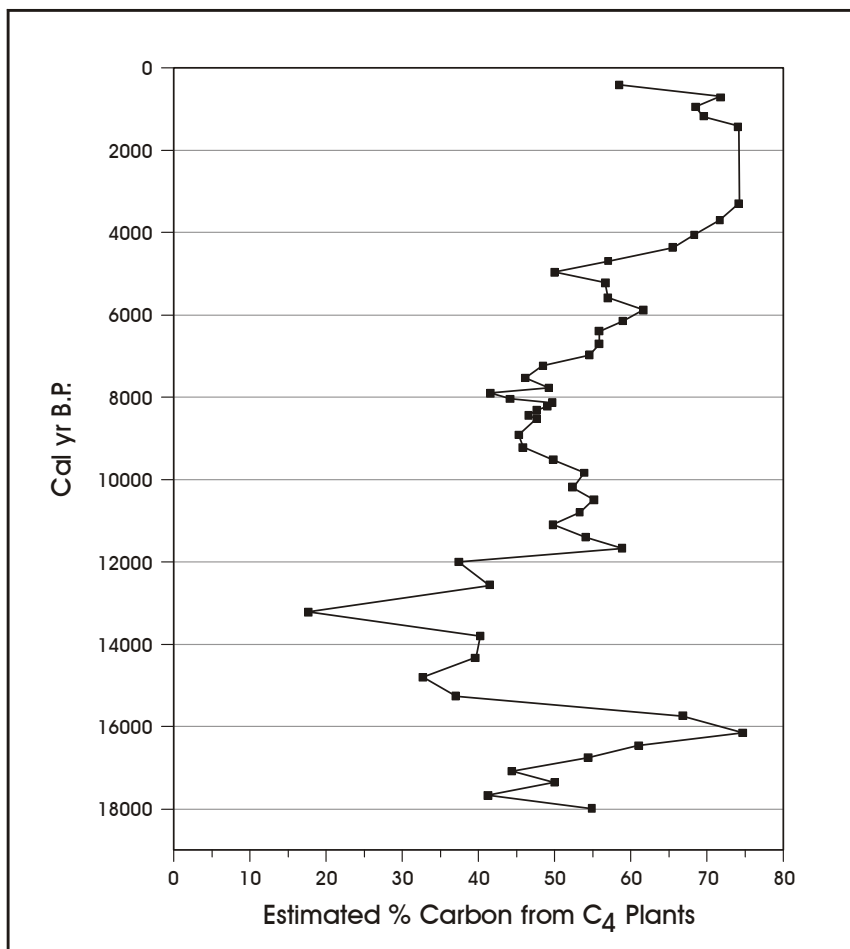


Figure 2-4. Estimated percent of organic carbon from C_4 plants from the Medina River study area. Adapted from Nordt et al. 2002:Figure 3.

record indicates a wet interval around 11,000 BP (Toomey and Stafford 1994). This coincides with a warmer period from 11,700–9,800 BP expressed by increased C_4 organic carbon levels in the Medina River study area (Figure 2-4; Nordt et al. 2002:186). The Patschke Bog data (Figure 2-5) show a brief spike in grass percentages around 13,200 BP, after which grass pollen percentages decrease until roughly 10,500 BP.

Holocene (ca. 10,000–0 BP)

The Holocene encompasses the period of geological time since the last retreat of the Pleistocene glaciers (*Wikipedia* 2004b). It is divided into Early, Middle, and Late subperiods. Pollen samples from the Llano Estacado and the dry caves of the Trans Pecos region prompted Bryant and Shafer

(1977:15–19) to suggest a gradual warming and drying trend throughout the Holocene (after about 10,000 BP). Others, including Aten (1979) and Gunn and Mahula (1977), use data from Oklahoma and eastern Texas to propose a more variable change from the colder, wetter Pleistocene to the modern climate.

Early Holocene (ca. 10,000–8000 BP)

Innovative research in opal phytoliths from archaeological sites in the Coletto Creek drainage of the Coastal Plain of South Texas (Figure 2-3) shows that, at least since the Early Holocene, climatic change has been highly variable (Robinson 1979). Based on the Boriack Bog and Weakly Bog (Figure 2-3) pollen data, Bousman (1998) suggests significant climatic fluctuations during this subperiod with the overall result being one of increased grass pollen at the

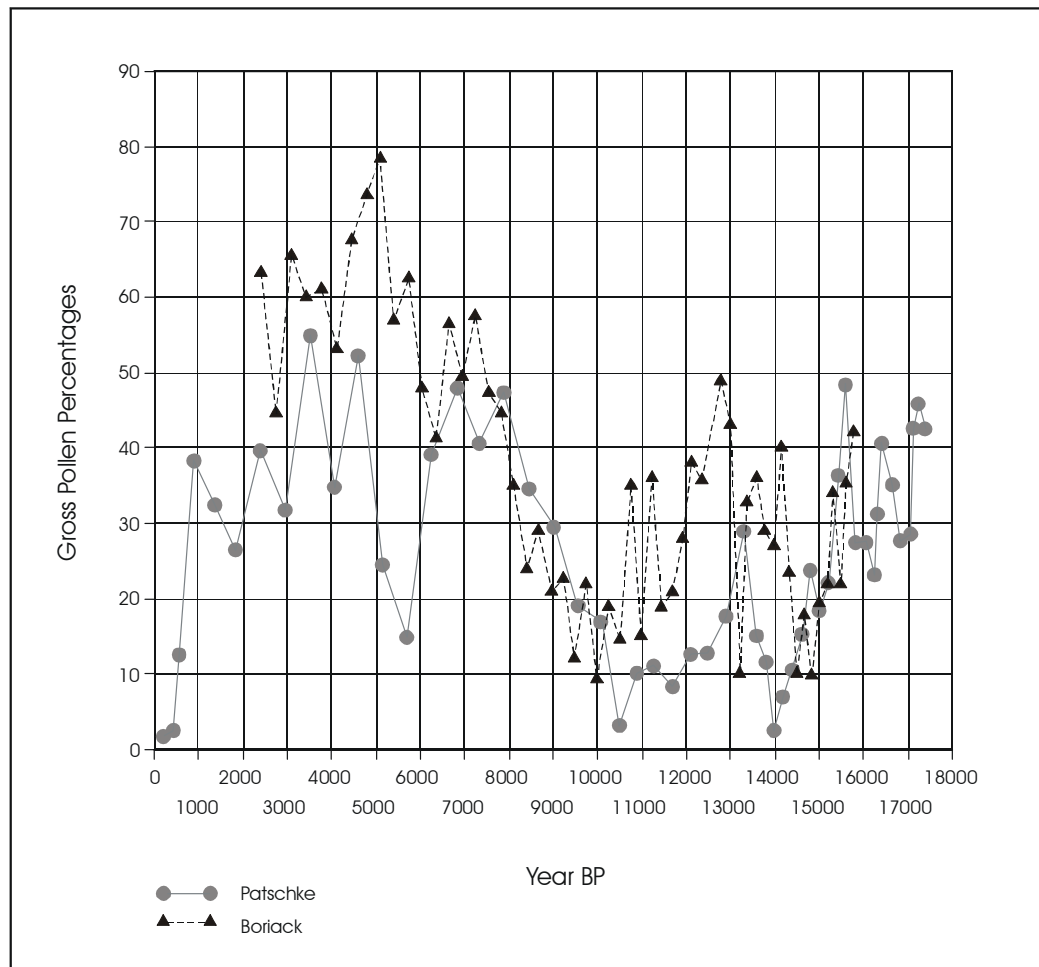


Figure 2-5. Grass pollen percentages from Boriack and Patschke bogs.

expense of woody species and arboreal pollen. During the same period, the Medina River study shows that C₄ organic carbon levels were decreasing somewhat, although overall levels were still higher than between 15,000 BP and 12,000 BP suggesting a relatively warm and dry climate from 10,000–8000 BP. This warming trend is also evident in the consistent increase in grass pollen at Patschke Bog (Figure 2-5). Pollen from cold-adapted arboreal species such as spruce (*Picea*) are not present in the Patschke sequence after 8000 BP and had not been common since the Late Pleistocene (Bousman 1998). Robinson (1979:109) associated his oldest white oak phytolith sample, although poorly dated, with the late Paleoindian period and suggested an age of about 8000 BP. The predominance of tall grass species, white oak phytoliths, a generally high frequency of unidentifiable tree species and the generally small size of the grass phytoliths suggests a wet and perhaps cooler environment.

Middle Holocene (ca. 8000–4000 BP)

In the Middle Holocene an arid period began as indicated in the Boriack Bog data (Bousman 1998:Figure 4). This dry period is also evident in the Medina River organic carbon data that show an increase in the C₄ grasses indicative of a warmer, drier period between 7500 BP and 4800 BP (Figure 2-4; Nordt et al. 2002:186). Humphrey and Ferring (1994) identify the same arid episode lasting from 6500 BP to 4000 BP in Denton Creek terraces in north-central Texas. This pattern is roughly replicated in the revised interpretation from Hall’s Cave for an arid episode between 7000 BP and 2500 BP (Toomey and Stafford 1994). The opal phytolith records from the Wilson-Leonard site (Figure 2-3; Fredlund 1994), and two sites on Coletto Creek in South Texas (Robinson 1979:111), agree with increasing aridity in the Middle Holocene, indicated by spreading grasslands around 4500 BP.

In contrast to the data supporting the Altithermal, a sample from slightly higher in the Coletto Creek strata with roughly the same age argues for a quickly appearing, yet brief, wet episode (Robinson's [1979:111] Sample 4). This was followed by a return to an arid climate up to ca. 2750 BP. The Medina River study also shows a brief respite in the Altithermal around 5000 BP (Nordt et al. 2002:186) and Bousman (1994:80) notes that arboreal pollen slowly increased with the appearance of a wetter climate around 6000 BP. Grass pollen data from Patschke Bog suggest a grassland setting for the Middle Holocene, but with a marked, brief decline between 6000 BP and 5000 BP, hinting at a wet interval as well (Figure 2-5). Phytolith analysis of sediments from the Choke Canyon project adds to the claim of considerable climatic variability (Robinson 1982:597–610). Between 5300 BP and 4300 BP, a cool, mesic climatic regime existed that shifted to a more arid period after 4300 BP (Robinson 1982:598). The data then suggest a return to both cooler and wetter conditions by 3250 BP (Robinson 1982:598).

Late Holocene (4000–0 BP)

There are indicators that climate continued to fluctuate in the Late Holocene. Nordt et al. (1994) suggest a warm and dry episode between 3000 BP and 1500 BP based on stable carbon ratios from alluvial deposits derived from the Fort Hood Military Reservation in central Texas. The data from the Medina River study area suggest a warmer and drier period dominating from about 4,000–1,200 BP followed by a marked decrease in organic carbon from C₄ plants until around 500 BP (Nordt et al. 2002:186; Figure 2-4).

Brown (1998) suggests that the mean oxygen isotope values (¹⁸O) for freshwater mussel shells from Denton Creek (41DL270) in north-central Texas can be used to make general inferences about past air and water temperatures, rainfall, and evaporation. Isotope values occurring in a small sample of mussel shells from dated contexts suggests a cool and wet climate around 3500 BP followed by a warm, dry climate by around 2850 BP. The early portion of this trend is in contrast to the Medina River data.

Humphrey and Ferring's (1994) study of soil carbonate stable isotopes from north-central Texas supports the conclusions reached from Brown's study of freshwater mussels. The carbon isotope data indicates that between 4500 BP and 2000 BP the climate was moist, but began drying by 2000 BP.

Ricklis and Cox's (1998) study of oyster growth patterns on the Texas Gulf Coast (Figure 2-3) tentatively implies a shift to a cooler climate at about 3000 BP, emerging out of a much warmer Middle Holocene. Toomey and Stafford (1994) identified a wet period appearing about 2500 BP at Hall's Cave. Their observations agree with those of Robinson (1979:112), suggesting a very wet episode. The Gulf Coast data tends to agree with the Choke Canyon analysis that points to mesic conditions (similar to today) by 2450 BP (Robinson 1982:598–599).

A shift to relatively drier conditions occurred by 1000 BP but Robinson suggests that conditions may have still been more mesic than modern conditions. The predominance of short grass species agrees with large quantities of bison remains documented in archaeological deposits at Choke Canyon (Robinson 1982:599). Grass pollen frequencies in the Boriack and Weakly bog pollen spectra indicate drying episodes around 1500–1300 BP and 500–400 BP (Bousman 1998:Figure 5). Data from Patschke Bog suggest a fluctuating but generally dry period early in the Late Holocene, with a brief mesic interval around 1000 BP. Nordt et al. (2002:186–187) identified a slight drop in C₄ organic carbon levels from 1500 BP to 500 BP indicating a slight cooling trend and likely wetter conditions (Figure 2-4). Brown (1998) and Humphrey and Ferring (1994) also suggest the climate grew wetter around 1500 BP.

Summary

The previous discussion suggests that the paleoenvironment of Texas was quite varied. While, in part, this variability may reflect problems with comparing different data sets that measure different aspects of climate at varying spatial and temporal scales, as well as problems with the temporal assignment of particular samples or sequences, the variability may be real, especially during certain periods. This point can be seen in Figure 2-6, a summary of climate patterns suggested by five different data sets. The figure includes two faunal data sets as relative indicators of xeric and mesic conditions. The first data set uses Dillehay's (1974) presence/absence data for bison in the Central Texas and Southern Plains area (see also Collins 1995). The second faunal data set is based on faunal material from Hall's Cave reported by Collins (1995). In addition, two pollen data sets are used. These are the frequency of grass pollen taken from the revised counts at Patschke Bog (Nickels and Mauldin 2001) and the arboreal pollen frequencies taken from the

second counts at Boriack Bog (Bousman 1998). The fifth data set is the estimated percentage of organic carbon from C₄ plants as identified at the Medina River study area (Nordt et al. 2002).

Climatic variations can include wet-cool or wet-warm combinations and dry-cool or dry-warm combinations. With this being the case, there is not always a positive correlation between the wet/dry data sets and the predominantly warm/cool data sets as can be seen in Figure 2-6. A variety of other data sets are available, however, these five were selected because they span much of the 12,000 years of primary interest and illustrate three different data types: fauna, pollen, and residuals of C₃ and C₄ organic carbon in the soil.

There is a rough agreement between these five data sets. There are also periods throughout the sequence where differences are present. In general, each indicates the waning of the Pleistocene clearly marked a transition from a cool, wet environment to one that steadily grew warmer and drier. All five data sets indicate that much of the Early Holocene was relatively mesic. The early portion of the Middle Holocene, between roughly 8000 BP and 6200 BP, was generally warm and/or dry and is associated with the Altithermal. A brief mesic period is suggested sometime between 6200 BP and 5200 BP or as late as 5000 BP, followed by a return to dry conditions. The faunal data sets seem to indicate the onset of a more mesic regime at roughly 4500 or 4000 BP, while the pollen data sets suggest that the xeric conditions continued, perhaps until as late as 3000 BP. The C₄ data suggest cooler temperatures from 4000 BP to 2500 BP. Beginning between 1500 BP and 750 years ago, the available data sets hint at a dryer period, while a wetter interval is suggested by two of the three applicable data sets for the last 750 to 800 years with cooler temperatures present from 1500 BP to 500 BP.

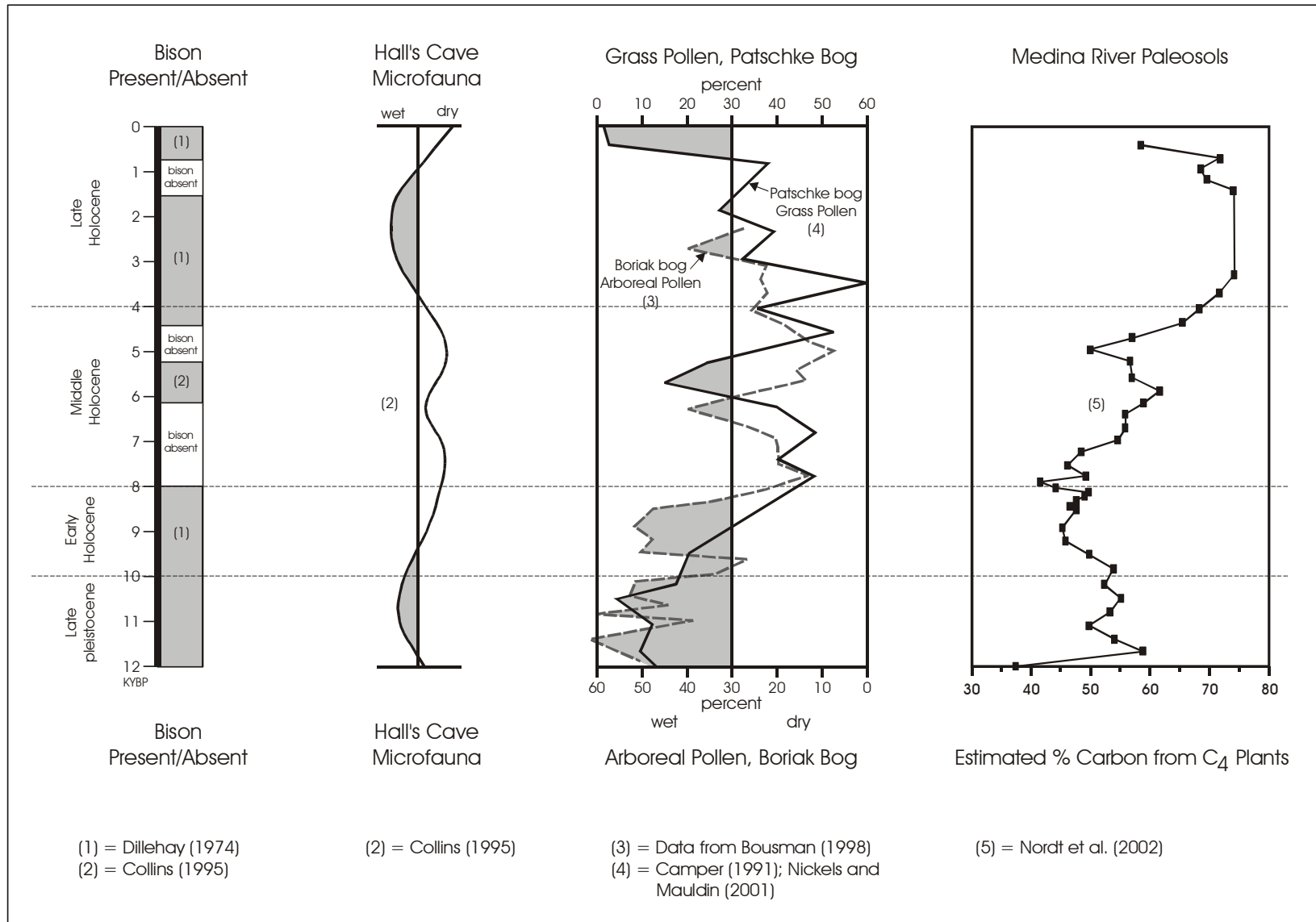


Figure 2-6. Comparisons of several different climatic sequences from Central and South Texas.

Chapter 3: Archaeological Background

This chapter presents a brief overview of the regional culture history and chronological framework and a synopsis of previous archaeological investigations conducted in the project area and its immediate vicinity. Knowledge of the culture history and chronological framework of the project area is critical to understanding the nature and age of archaeological deposits encountered during the current project. The review of the previous archaeological investigations within the project area and its vicinity inform us about the actual archaeological record including the number and types of sites, their physiographic location, and the cultural materials recovered.

Culture History and Chronological Framework

Archaeological investigations within central and south-central Texas have yielded a significant amount of detail regarding the sequence and characteristics of hunter-gatherer adaptations over the past 10,000 years. The archaeological research coupled with the systematic use of radiocarbon dating have helped not only define regional sequences but also identify broad regional similarities and differences in adaptation between Central and South Texas. Because the project area lies near the southern margin of the Central Texas archaeological region (Prewitt 1981) and the northern edge of the South Texas archaeological region (Hester 1995), where appropriate, this review will incorporate aspects of both regions.

This summary divides the prehistoric era into several periods. The summary of these periods is partially based on more comprehensive reviews of culture chronologies and archaeological investigations found in Black (1989), Hester (1995), Tomka et al. (1997), and Vierra (1998).

Paleoindian Period (11,500–8800 BP)

The Paleoindian period is usually divided into an early and a late portion, in part to reflect the distinction between the two oldest known archaeological units and subsequent manifestations. The early Paleoindian period lasted from

approximately 11,500 BP to 10,100 BP and consists of the archaeological manifestations of Clovis and Folsom adaptations. The late Paleoindian period follows the Folsom and lasts until about 8800 BP.

Archaeological materials found on Clovis-age sites consist of fluted Clovis points, engraved stones, prismatic blades, and bone and ivory tools and shaft straighteners (Mauldin and Nickels 2001:56). Clovis sites include kill localities, quarry/workshops, residential camps, burials, and caches indicative of repeated return to the same locations (Collins 1995:381–382). The Folsom tool kit consists of fluted Folsom points, spurred end scrapers, and large, ultra-thin bifaces. These tools indicate a hunting-oriented subsistence pattern. Sites utilized by Folsom hunter-gatherers include kill localities, quarry/workshops, and residential camps (Collins 1995:382).

In general, the people that made the Clovis and Folsom dart points are often assumed to have lived in small, highly mobile groups focusing primarily on the exploitation of large game. However, recent research on Paleoindian materials from the Wilson-Leonard site in Central Texas (Collins 1998), and new perspectives on Paleoindian adaptations (e.g., Tankersley and Isaac 1990) suggest that the land-use strategies and subsistence practices of these groups may have been much more varied than previously assumed. On a seasonal basis, a variety of small game may have served as common sources of animal protein. Similarly, in some cases, the distance traveled by groups may have been much smaller than previously assumed (Tankersley and Isaac 1990).

During the late Paleoindian period, the diversity of projectile point styles increased, although very little is known about the factors that precipitated this increase. The dart point types common in the later part of the Paleoindian period include Wilson, Golondrina and Barber (Collins 1995:382). The cultural material in the later Paleoindian seems to represent a diversification of survival strategies as people adapted to local environmental conditions. The distances traveled by groups were still large, although projectile point styles were more regionalized than during the early Paleoindian period.

Archaic Period (8800–1200 BP)

Based on archaeologically detected changes in subsistence, behavior and technology, this period is divided into three sub-periods: Early, Middle and Late. The basic characteristics of each period are described in the following paragraphs.

Early Archaic (8800–6000 BP)

Dating from 8800–6000 BP (Collins 1995:383) or 6500–3600 B.C. (Johnson and Goode 1994:20–24), the stone tool kit, including dart point styles, became significantly more diverse during the Early Archaic. Grinding stones used in plant processing are present in Early Archaic sites as are woodworking tools such as Clear Fork and Guadalupe tools/bifaces and a wide array of other unifacial and bifacial tool forms (Collins 1995:383). Point styles and other tool forms became regionally differentiated, due in part to decreased mobility. As big game became less available, subsistence shifted from a heavy reliance on hunting to an increased dependence on plant foods and a variety of small to medium body sized animal species (Collins 1995:383). The projectile point styles present during the period show a mixture of lanceolate Paleoindian-like traits (i.e., Angostura) and a diversity of stemmed forms including Early Split Stem types (i.e., Gower, Uvalde) and corner-notched types (i.e., Martindale).

Middle Archaic (6000–4000 BP)

In the Middle Archaic, rock-lined hearths, possibly used for the processing of xeric plants such as sotol, become more common at sites. Drought resistant plant species are assumed to have spread out of the Lower Pecos and South Texas onto the Edwards Plateau and perhaps the southern Llano Estacado as climatic conditions were dominated by the warm and dry Altithermal. Bison population densities may have been relatively high during a brief mesic period between 6000–5000 BP. The archaeological record indicates that during this time, hunter-gatherers relied on bison procurement. For the most part, however, extended drought conditions appear to have limited bison population densities, perhaps in favor of grassland and open-country medium-sized species such as antelope. Some of the common projectile point forms (i.e., Travis, Nolan) still retain affinities to earlier lanceolate types, although new triangular styles (i.e., Taylor, Baird, Tortugas) and basally notched forms (i.e., Bell-Andice, Calf Creek) make their appearance. Bone and woodworking tools became more numerous during the Middle Archaic. Group mobility appears to be further limited and regional projectile point styles appear to emerge

in response reduction in the scale of mobility (i.e., Tortugas points in southern Texas and northern Mexico; Calf Creek points in the Midwest).

Late Archaic (4000–1200 BP)

During the Late Archaic the climate grew wetter (Collins 1995:384; Decker et al. 2000:20–21, 38). The use of heated rock ovens, demonstrating a heavy reliance on plant foods, intensified during this time (Mauldin et al. 2003). The increase in greater effective moisture following the Altithermal led to an increase in bison population densities and their incorporation once again into hunter-gatherer subsistence, at least during the first part of the period. Projectile point styles proliferate with large broad bladed forms (i.e., Pedernales, Lange, Marshall, Castroville, Montell, Marcos) common during the first part of the period. These forms tend to be associated with groups focused on bison procurement. The later part of the period sees the diminution of dart points to smaller forms such as Edgewood, Ensor, Frio, and Fairland just to name a few (Collins 1995:384; Turner and Hester 1999). The Late Archaic saw an increase in population (Collins 1995:385) and expanded trade networks (Johnson and Goode 1994:35–38). Darl is the final projectile point type used during the Archaic prior to the appearance of bow and arrow technology in the region. Bison population densities had decreased by the last 1,000 years of the Late Archaic and much of the subsistence and land use was dependent on the exploitation of plant resources and the hunting of medium body sized animals and a range of other prey within a relatively broad diet.

Late Prehistoric (1200–270 BP)

The Late Prehistoric period is divided into two subunits based on distinct subsistence practices, and the appearance of new traits of material culture. The first of these subperiods (A.D. 600–1200) is known as the Austin Interval and it is defined on the basis of the appearance of the bow and arrow and the manufacture of small, corner-notched arrow points that fall in the Scallorn and Edwards types (Turner and Hester 1999:212, 230). While subsistence and land use differed little from the later portion of the Late Archaic (Collins 1995:385), the introduction of the new weapon system doubtless influenced hunting strategies. Given small bison population densities during the interval, the subsistence base appears to have emphasized plant resources, although some aspects of the lithic technology (i.e., large numbers of formal bifacial knives) suggest that hunting remained a principal activity.

Significant cultural change is evident in the archaeological record with the arrival of the Toyah Interval around A.D. 1200 or 1300 (Johnson 1994:187). A greater contrast can often be seen between the assemblages and subsistence patterns of the Austin and Toyah intervals than between the Austin Interval and the Late Archaic (Johnson 1994:244, 286; Johnson and Goode 1994:40). During the Toyah Interval, bison returned to the area and ceramics were introduced as well as new cultural/religious influences from eastern Texas (Collins 1995:385; Johnson and Goode 1994:40–42). The Toyah peoples occupying the Edwards Plateau relied less and perhaps seasonally on plant gathering and small game hunting and more on bison hunting for their sustenance (Johnson and Goode 1994:40–42). The sharp increase in the frequency of bison bone in Toyah sites is distinctive, suggesting that the importance placed on hunting large game increased dramatically, although small mammals, riverine species and mussels continued to be important contributions to the diet (Hall 1981; Hester and Hill 1975; Prewitt 1981; Skelton 1977). The Toyah tool kit is characterized by Perdiz and Clifton arrow points, beveled bifaces, drills, tear-drop shaped end scrapers, a flake-blade lithic technology, and bone-tempered Leon Plain ceramics (Hall 1981; Prewitt 1981; Skelton 1977). Tools made from bison bone are also common. The Late Prehistoric period ended in the area of present-day Bexar County with Spanish contact in the late seventeenth century (Chapa 1997:90–92; Collins 1995:386).

Historic Period

The Historic period begins with the arrival of Europeans in the New World. The earliest decades of the Historic period are characterized by intermittent European contact, particularly of Spanish and French origin. However, the effects of Europeans were already impacting indigenous American cultures. The introduction of the horse in the Southwest had allowed some groups to rise to power forcing territorial changes and sparking conflicts between native peoples. In addition, the northward expansion of Spanish occupation of Mexico also impinged on indigenous groups in northern Mexico displacing them into South Texas. These circumstances appear to have concentrated a large number of indigenous groups into northern Mexico and South and Central Texas and also provided the context for the establishment of missions in Texas and the increasing impact of Euro-American culture on the lifeways and traditions of indigenous groups.

McGraw and Hinds (1987) compiled information on native groups living in the San Antonio area before or at the time of the early Spanish presence. The Apache and Comanche were prominent in Texas in the 1700s and 1800s and gave pause to the spread of colonists into Texas. The Comanche were often in conflict with the Apache, the Spanish, and later settlers but maintained a good alliance with the Wichita (McGraw and Hinds 1987:54–56). The Sulujam, Sigames and Siupam lived around the headwaters of the San Antonio River. The Pampopa and Pastia lived along the lower Medina River. The Payaya were in a similar area as the Pampopa and Pastia. The Chayopines were found along the San Antonio River east of its confluence with the Medina. The Lipan Apache were along the Medina River and to the south. The Comanche ranged anywhere and everywhere, being a highly mobile horse-culture. The Wichita and Tonkawa groups ranged to the north. The interaction between local Native American groups and the Spanish was well established by A.D. 1700 as Spanish settlement in the San Antonio Valley had been developing since the late 1600s (Chapa 1997:91–92).

Spanish colonization in the area around San Antonio de Bexar became permanent and assured in 1718 when Mission San Antonio de Valero and the Presidio of Bexar were founded (Cox 1997:8). Mission San José was moved to its current location in San Antonio by 1727 (Cox 1997:8). Missions Concepción, San José and Espada were established in what is now San Antonio, as was the first official colony-town in the San Antonio Valley, in 1731. The town, San Fernando de Bexar, was settled by 56 persons from the Canary Islands (Cox 1997:10). The settlement was made official by the Viceroy in 1734 (Cox 1997:11). By 1767 the village had become known as San Antonio de Bexar (Cox 1997:2, Figure 2-1).

A Brief History of the Pérez-Linn-Walsh Ranch Property in Relation to the Current Project Area

The descendants of the original settlers of San Antonio began to move outward from the town and settle in *ranchos* along the Medina River (McGraw and Hinds 1987:110, 111, 113). The current project occupies a portion of the larger Pérez-Linn-Walsh family ranch that dates from the mid to late 1700s (McGraw and Hinds 1987:258–259). The land was originally granted to the Pérez family between the years of 1754 and 1780. Additional land was acquired for the tract

by grants to Juan Ignacio Pérez from the Spanish government (McGraw and Hinds 1987:111). He served the Spanish Crown after the Casas Revolt in 1812, fighting with General Joaquín de Arredondo at the battle of Medina and riding with Colonel Ignacio Elizondo in pursuit of the rebels to the Trinity River in 1813. It was during this battle that the Dolores Crossing (41BX682; see *Previous Investigations* section) of the Medina River, just outside the current project area, may have been fortified by the rebels before they were driven off. The Dolores may also have been the crossing for the *Camino Real para el Río Grande* running south from San Antonio de Bexar (Cox 1997:9, Figure 2-1). Pérez served as interim governor from July 27, 1816, to March 20, 1817. In 1808 he received a grant of four leagues of land on the Old Spanish Road below the Medina River, as well as an adjoining league between the Medina and Leon Creek, the site of the current project area. This holding of over 20,000 acres was known as Rancho de la Purísima Concepción. Juan Ignacio's eldest son, José Ignacio, inherited the bulk of the estate upon the death of his father in 1823 (Jackson 1996:149–150). While Juan Pérez had helped put down the first rumblings for independence from Spain, the family's fortunes were not damaged when Mexico obtained independence in 1821 (Henson 1996:18–20).

Unlike his father, José Pérez had little interest in the military or politics and devoted his time to ranching and farming during the turbulent period of Mexican rule. However, his loyalty to the centralist government caused him to flee to northern Mexico during the Texas struggle for independence. Upon his return, in 1846, he found much of the ranch claimed by settlers in the new Republic of Texas. He began a protracted legal battle to reclaim his holdings, concluded in 1851 by the Texas Supreme Court decision "*Paschal et al vs. Pérez et al.*" The court upheld his claims to the league between the Leon and the Medina, but awarded four leagues (16,000 acres) to the west of the Medina to other claimants (Hipp 2000:39–43). Upon his death on October 26, 1852, he was buried in the small family chapel (41BX277) at the original ranch headquarters (41BX274) of Rancho de la Purísima Concepción (Chabot 1937:179).

José's will divided his estate among his children, all receiving a portion of Juan Ignacio's home on Military Plaza, the structure that would later be known as *The Governor's Palace*, and a division of the ranch. To his daughters, Trinidad, María Josefa, and Concepción, he bequeathed equal portions of the ranch. María Josefa married Jacob Linn in 1855, the year the will was finally probated, and a formal division of the property was undertaken. Each of the daughters received one-third of the ranch, 1,390.5 acres each

(Hipp 2000:44–46). In 1867, Linn built a thirteen-room wooden home on his wife's portion of the ranch to the west of Applewhite Road. This location is now known as site 41BX549 and ruins of the stone chapel and the stucco construction of the Pérez-Linn home are still visible today. Jacob died on December 8, 1878, at age 53 and was buried in the family chapel (Hipp 2000:48–51).

In 1883 José's eldest daughter, Trinidad, married Santiago Herrera, the son of this union, Jacob, was adopted by his grandmother and inherited her portion of the ranch and became the guardian of his aunt, Concepción. After the death of her mother and sister, Concepción and Jacob became sole heirs of the ranch. On November 5, 1891, Concepción married Francis (Frank) Thomas Walsh, son of an Irish-immigrant construction family. Frank and Concepción had seven children: Mary, Anita, Lottie, Bessie, Francis T., Harry J. and Edward (Ed) Patrick (Hipp 2000:51–57). Ed Walsh became the ranch manager and on June 10, 1939, married Mary Louise Yarborough in the Walsh Ranch Chapel (41BX277). After the birth of their first daughter, Ed built a home complex on his homestead acreage on the east side of Applewhite Road, the beginning of the complex at 41BX681.

The Frank Walsh home and ranch complex (41BX681; referred to as the Kiker/Gembler/Walsh property throughout this report) was constructed in 1940 and became the family's homestead. The two-story, six-room home had 1,755 square feet of living space. The complex also contains a garage, two patios, two utility sheds, two wood pigeon coops, and two wood-corrugated metal barns (REDI 1989).

Historic structures and oral interviews indicate that during the 1880s–1930s the ranch was occupied not only by the owners but by tenant farmers as well (who helped operate the still sizable holdings; McGraw and Hinds 1987:223–225). Tenant farmer residences dot the project area and are included among the historic sites studied in this report. By the mid-twentieth century, likely sometime after World War II, mechanization had made the tenant system obsolete and the residences were abandoned.

Recent History of the Project Area

During the late-nineteenth and early-twentieth centuries small towns sprang up around San Antonio to service farmers. Just outside the project area, east of the confluence of the Medina River and Leon Creek, is the historic settlement of Cassin or Earle. There is some disagreement regarding the location of Cassin and/or Earle. A 1903 USGS topographic map of San Antonio shows Earle on the south

bank of the Medina River and no settlement of Cassin. The 1954 version of the same topographic map shows Earle on the north bank and Cassin on the south. The 1967 USGS *Southton 7.5'* quad map shows Earle on the south bank and Cassin Siding on the north. A 1985 USGS 1:1,000,000 map of the State of Texas again shows Earle on the south bank and Cassin on the north bank. The most recent road map of the San Antonio area places the settlement of Cassin south of the Medina River and fails to show the settlement of Earle (Mapsco 2000:Map 716).

The *Handbook of Texas Online* states that in 1890 the town of Earle had a blacksmith, post office and a general store. Earle also had a butcher and a doctor. The post office operated there from 1887 to 1904 (Long 2004). The entry does not mention which bank of the Medina River Earle was on. The *Handbook* reports Cassin was established before 1900 and by 1913 it was a stop for the San Antonio, Uvalde and Gulf Railroad (Cameron 2004). In the 1930s the town included the Asa Mitchell School, a church and a store. While the population in 1947 had been 175, by 1990 it was reported at 50 persons (Cameron 2004). Again, there is no mention of which side of the river the settlement is or was located on.

Information from a recent conversation with Mr. Sonny Mayfield, current owner of the land bordering both sides of the new railroad right-of-way north of Leon Creek, suggests Cassin was on the north bank. He reports that a schoolhouse once stood west of the railroad spur area's entrance gate. Mr. Mayfield himself went to class there roughly 60 years ago. This school was the Asa Mitchell School associated with the settlement of Cassin, since Earle had no school (Cameron 2004; Long 2004). This would suggest that Cassin was on the north side of the Medina River. Also on the north bank, the railroad had a siding nearby for the loading of livestock from a large system of pens and corrals (Mayfield, personal communication 2004). The 1967 USGS *Southton* quad map identifies this location as the *Cassin Siding* indicating its association with a railroad spur. The recorded site name in the Texas Archeological Sites Atlas for 41BX629 on the north bank of the Medina is *Cassin Siding* and for 41BX628 on the south bank is *Earle*.

Previous Investigations

According to the Texas Archeological Sites Atlas, one of the first sites recorded in the project area was 41BX125 recorded by P. McGuff in 1971. Surface visibility was excellent, and debitage, fire-cracked rock and mussel shell were noted on

the surface. Subsurface testing was not conducted at the time of discovery, therefore, no indication was available regarding the depth of these cultural-bearing deposits.

The majority of the current project area is contained within the former bounds of the proposed Applewhite Reservoir. The area for the intended reservoir was subject to cursory archaeological reconnaissance in the mid-1970s by CAR (Hester 1975:21). This brief inspection of the proposed reservoir site was the first professional work conducted along this part of the Medina River. By design, the fieldwork consisted of limited reconnaissance of the project area only to determine what types of cultural resources may be present. Results of that fieldwork revealed both prehistoric and historic cultural resources within the proposed reservoir.

At least three sites (41BX273, 41BX274, and 41BX277) were recorded during the 1975 reconnaissance (Hester 1975:22). The Monk Home, site 41BX273, is described as a one-room limestone structure located along the right-descending bank of Elm Creek near its confluence with the Medina River and west of the current project area. The structure was estimated to be roughly 100 years old at the time of the survey. Site 41BX274 appeared as a surface scatter of lithic material atop a remnant terrace along the left-descending bank of the Medina River. No temporally diagnostic material was encountered during the initial site survey. The Pérez Family Cemetery and Chapel, site 41BX277, known also as the Walsh Cemetery, is located within the Pérez Ranch west of Applewhite Road and consists of a roofless chapel and an estimated 50 interments. An additional site, 41BX525, was described during the survey near the Monk Home, but did not receive trinomial designation until CAR returned to the project area in 1981.

CAR personnel surveyed a portion of the Medina River floodplain within the current project area between 1981 and 1984 (see McGraw and Hinds 1987). The survey focused primarily on the Medina River Valley and the high terrace above it. This work resulted in the documentation of 78 archaeological sites. Thirteen sites were recorded along the upper terrace of the northern bank of the Medina; they are 41BX349, 41BX652–41BX659, 41BX661, 41BX662, 41BX76 and 41BX832. Two additional sites (41BX660 and 41BX681) were documented on the uplands of the project area. During the survey, the Pérez Ranch, site 41BX274, was tested and prehistoric deposits as well as Spanish Colonial and later historic artifacts dating to the Pérez family occupation were identified (McGraw and Hinds 1987:108–125). Site 41BX681 is the Kiker/Gemblers/Walsh Ranch site

first documented in 1984. At the time, it consisted of a stone dwelling and outbuildings of wood frames and corrugated metal siding constructed in the first half of the twentieth century. The house was constructed partially of bricks from the nearby site of 41BX662, a historic brick kiln. Site 41BX660 was described as a highly deflated and eroded historic site that at one time contained a small wooden tenant shack occupied in the 1920s and 1930s. No structural evidence was present at the time of the original survey, although a light to moderate scatter of small, unidentifiable glass fragments, rusted metal and several wire nails were observed. It was estimated that roughly 80% of the site had been destroyed by erosion (McGraw and Hinds 1987:222, 223). Given its heavily eroded condition, no further work was recommended for the site at the time of the original CAR survey.

Just outside the current project area, to the east, site 41BX629 was recorded on the north bank of the Medina River. According to the Texas Archeological Sites Atlas, this nine-acre site was originally recorded by the Texas State Department of Highways and Public Transportation (now the Texas Department of Transportation) in 1984. The site consisted of a scatter of prehistoric debitage on the west side of Pleasanton Road and a residence on the east side. As mentioned previously, the interview with Mr. Mayfield places a school inside the eastern entrance gate just outside the bounds of 41BX629, the Cassin Siding site. On the south bank of the Medina, at the other end of the Pleasanton Road Bridge, is site 41BX626. This is a historic site consisting of standing structures.

Thirteen more sites were located along the south bank of the Medina River outside the current project area. These sites were further investigated in 1990–1991 by the Center for Ecological Archaeology at Texas A&M as a part of the Applewhite Reservoir Project and have been designated as State Archeological Landmarks (Thoms et al. 1996:8). A comprehensive report on these investigations has not yet been completed. One of the most notable sites identified by A&M was the Richard Beene Site, 41BX831. This site was excavated by A&M and the Southern Texas Archaeological Association (STAA) during its 1995 field school. The cultural deposits at this site were buried in a series of paleosols 9–11 meters below the surface (Thoms et al. 1996:14). Artifacts included quantities of fire-cracked rock, mussel shell, animal bone, diagnostic artifacts and charcoal samples. The radiocarbon dates and diagnostic implements such as Desmuke, Travis, Bell-Andice-Calf Creek and Angostura projectile points and Clear Fork tools along with

geoarchaeological data establish that the site contained cultural materials spanning from the later Paleoindian through the Late Prehistoric periods (Thoms et al. 1996:8).

Near the eastern end of the Applewhite Reservoir project area, north of 41BX626 and 41BX629, a surface survey was conducted by Espey, Huston and Associates in 1999. The survey included the very eastern end of the current project railroad right-of-way north of Leon Creek but located no sites within the immediate vicinity of the current project area.

The planned construction of the Toyota manufacturing plant within the current project area has sparked the interest of development west of Applewhite Road on other properties that were once part of the Pérez Ranch. In 2003 CAR personnel conducted investigations on two separate former Pérez Ranch properties south of Watson Road and north of the Medina River between Highway 16 (Palo Alto Road) and Applewhite Road.

The first property, immediately east of Highway 16, is slated to become the Medina River City Park and contains 12 archaeological sites. Eight sites were recorded during the 1981–1984 CAR Applewhite survey (McGraw and Hinds 1987). These sites are 41BX346a, 41BX346b, 41BX347, 41BX348, 41BX350, 41BX519, 41BX675, 31BX837 and 41BX857 (Figueroa and Tomka 2004:1–3). The recent survey reassessed the historic and prehistoric sites within the area. Of note is the historic Thompson Cemetery (41BX675). At the time of its original recording, a wrought iron fence and headstones were present, although the recent survey did not identify any remains of the fence or headstones (Figueroa and Tomka 2004:22). Erosion has severely impacted most of the sites revisited during the project (Figueroa and Tomka 2004:11–24). Four new sites were identified during the survey. Site 41BX1577 contains lithic debitage and Goliad ceramics (Figueroa and Tomka 2004:26). Site 41BX1578 is a scatter of historic glass and prehistoric materials and sites 41BX1579 and 41BX1580 are prehistoric lithic and burned rock scatters (Figueroa and Tomka 2004:28–32).

The second property, immediately west of Applewhite Road, contained the Spanish Colonial headquarters of the Pérez Ranch. The Pérez Ranch Project involved the reassessment of four sites identified by CAR in the mid-1970s and during the Applewhite Reservoir project. These sites are 41BX274, 41BX277, 41BX682 and 41BX988 (Weston 2004:1). Site 41BX988 is a heavily eroded scatter of historic artifacts related to an early-twentieth-century laborer/tenant farmer

shack. Site 41BX274 was the site of the Juan Ignacio Pérez ranch headquarters including the hacienda. Site 41BX277 is the nearby Pérez Family Cemetery and Chapel. The chapel and surrounding cemetery are well protected by a livestock fence (Weston 2004:16). The current chapel structure was rebuilt at an unknown time on the foundation of the original structure (McGraw and Hinds 1987:126). At site 41BX274, the Spanish Colonial and prehistoric deposits in the northern portion of the site were found to be spatially separated from the later historic and prehistoric deposits in the southern portion of the site. On the basis of this finding, the southern deposits were designated as a separate archaeological site, 41BX274a. Site 41BX682 is the Dolores Crossing which still functions as the crossing of Applewhite Road over the Medina River. The construction of a concrete bridge has severely impacted the crossing (41BX682).

Chapter 4: Methodology

This chapter outlines the basic methodology for each phase of the project and discusses the variations in the application of each task. Overall, the archaeological services provided to the City of San Antonio in association with this project can be grouped into four main categories: surface reconnaissance, pedestrian survey, mechanical auger borings, and mechanical Gradall and/or backhoe trenching. Table 4-1 presents a tabulation of the methods employed during the nine phases of the project. In addition to these main tasks, several smaller support tasks also were performed including a preliminary photo documentation and mapping of 41BX681, the Frank Walsh [Kiker/Gemler Walsh] home and ranch complex, and the compilation of basic archival documentation related to the property. Finally, as part of the work related to cultural resources clearance of the property, Raba-Kistner Consultants, Inc. undertook a geophysical survey of the presumed location of a cholera cemetery, site 41BX676, and John Speegle of Speegle and Associates of San Antonio carried out Level 1 HABS (Historic American Buildings Survey) documentation of the Frank Walsh (Kiker/Gemler/Walsh) home and ranch complex. Because the results of the geophysical work are crucial to our recommendations regarding 41BX676, we are including it as an appendix to this report. However, the HABS documentation report is not part of this document. In the following sections, we review in some detail the methods employed in surface reconnaissance, pedestrian survey, and the mechanical auger borings and Gradall/backhoe trenching for large-scale subsurface investigations. The first section of this chapter reviews the field methods employed while the second, shorter section briefly summarizes the laboratory methods.

Field Methods

Surface Reconnaissance

Because much of the project area is in an upland setting, in consultation with the Texas Historical Commission, it was determined that upland areas that had not been previously surveyed (i.e., by CAR, Texas A&M University, or Southern Methodist University) would be subject only to a surface reconnaissance rather than a systematic pedestrian survey. With the exception of one instance (Phase VI), surface reconnaissance did not involve subsurface investigations of any type. Surface reconnaissance was carried out during four phases of the project (Table 4-1). In two instances, Phase III and Phase VI, the reconnaissance covered 239 and 175 acres, respectively. In Phase I the reconnaissance was limited to the vicinity and surface of 41BX660, a site that was originally identified as a deflated scatter of historic artifacts. During Phase IV, the reconnaissance was limited to a small area measuring approximately three acres on the south-descending bank of Leon Creek in search of archaeological deposits within the right-of-way of the planned railroad spur. Because this area was in the floodplain of Leon Creek, and in such settings there is a likelihood of rapid and deep burial of cultural materials, two backhoe trenches were excavated during the reconnaissance.

In general, surface reconnaissance involved 100% pedestrian walkovers in systematic transects across the target area. Transect intervals varied depending on the amount of area to be covered. In the case of non-site locations measuring 200 acres or more (Phase III, 239 acres), transects were

Table 4-1. Methods Used during each Phase of Investigations

Phase	Reconnaissance	Survey	Mechanical Auger Boring	Gradall/Backhoe Trenching
I	X			X
II		X		
III	X			
IV	X			X
V		X		
VI	X		X	X
VII		X		
VIII		X	X	
IX		X	X	X

spaced at 30-meter intervals. In the case of non-site locations measuring less than 200 acres (Phase VI, 175 acres), transect spacing was reduced to 15 meters. Finally, CAR recommended that the surfaces and locations of three previously documented sites should be inspected only through reconnaissance. Site 41BX660 was originally recorded as a deflated surface site and no subsurface investigation seemed to be warranted for its investigation. Site 41BX676 was originally recorded as the probable location of a cemetery, and given the potential that burials could be disturbed through subsurface probing, only surface reconnaissance was recommended for its relocation. Finally, site 41BX832 was defined on the basis of cultural materials buried approximately three meters below the surface within a cut bank of an arroyo. It was suggested that surface reconnaissance of the arroyo bottom rather than subsurface probing with shallow shovel tests would be an effective tool to relocate the site.

During reconnaissance activities, all artifacts and artifact concentrations encountered were mapped and diagnostic artifacts were photographed or drawn but not collected. Pertinent notes were maintained on all reconnaissance.

Pedestrian Survey

In contrast to surface reconnaissance efforts, pedestrian surveys within the project area consisted of both surface inspections and systematic shovel testing. Pedestrian surveys were employed in two different contexts during the project: (1) the survey of an 84-acre parcel on the south-descending bank of Leon Creek during Phase V; and (2) the relocation and testing of all previously and newly recorded archaeological sites during phases VII–IX.

Once the right-of-way of the planned railroad spur was identified on the south-descending bank of Leon Creek, CAR recommended that a 100% pedestrian survey be conducted within the lowland portion of the proposed right-of-way. Given the terrace setting and its closeness to the confluence of the two streams, it was assumed that the proposed right-of-way would represent an area of high site probability. Therefore, rather than just a surface reconnaissance, CAR recommended a systematic pedestrian survey accompanied by shovel testing and backhoe trenching. Shovel testing was to identify shallowly buried deposits while backhoe trenching was to search for deeply buried cultural materials and also provide geomorphological information related to terrace formation dynamics. During this survey, the transect interval was to be 30 meters and shovel tests were to be excavated every 60 meters.

The relocation of previously recorded sites and the SAL/NRHP eligibility assessment of previously recorded and newly identified sites consisted of pedestrian survey accompanied by shovel testing. First, each site was relocated using aerial photographs of the project area depicting the original site boundaries based on UTM coordinates and the original site plan view drawn on USGS topographical maps. The day before the shovel testing work was to begin, the site was relocated and a Global Positioning System (GPS) reading was taken near its center. The coordinates were downloaded onto the project area map to confirm the correct location. The survey and shovel testing of the site and its vicinity took place only after the accuracy of the location was confirmed. Shovel testing was performed on sites 41BX125, 41BX349, 41BX652, 41BX653, 41BX654, 41BX655, 41BX656, 41BX657, 41BX658, 41BX659, 41BX661 and 41BX662.

Given differences in site sizes, CAR recommended different shovel test densities for large, medium, and small sites. While the survey transects were to be spaced 20 meters apart, CAR recommended that on small sites (2,500 m² or less; 41BX125, 41BX349, 41BX657, 41BX658, 41BX659, 41BX661, 41BX662) a total of 20 shovel tests was to be excavated. On medium-sized sites (approximately 5,000 m²; 41BX654, 41BX655, 41BX656) a total of 30 shovel tests was recommended. On large sites that occupied approximately 10,000 m² (41BX652 and 41BX653), a total of 40 shovel tests was to be excavated. Shovel tests were to be positioned 15–30 meters apart along transects depending on site size.

Shovel tests measured 35 cm in diameter and were excavated in 10-cm levels. The maximum depth of the shovel tests was 60 cm below surface (cmbs), unless otherwise unable to reach this depth, and all matrix was screened through ¼-inch hardware cloth (Figure 4-1). All artifacts encountered in shovel tests were collected and bagged by provenience and individual shovel test forms were filled out for each unit. The artifacts collected were returned to the CAR laboratory for processing and tabulation. The location of each shovel test was mapped using a GPS unit. Locations also were recorded on aerial photos, hand-drawn maps, or topographical maps as a backup.

Following the shovel testing, each of the re-evaluated sites were categorized into one of three eligibility categories: not eligible, eligible, and eligibility unknown. In general, sites without intact deposits and/or features either due to erosion, human activity, or other factors, were considered not eligible.



Figure 4-1. Shovel test excavation in eastern portion of project area.

Sites with intact deposits and/or features, the presence of datable materials (i.e., charcoal and/or temporally diagnostic artifacts), and data types that may yield significant scientific advances in regional archaeology (i.e., faunal remains, macrobotanical remains, lithic assemblages) were considered eligible. Sites that contain data types and/or quantities of data that could yield significant advances in the study of research themes relevant to regional and general hunter-gatherer archaeology, but the integrity of the deposits could not be effectively established through shovel testing, were identified as eligibility unknown.

Mechanical Auger Boring

Most of the cultural deposits in the eastern portion of the project area near the confluence of Leon Creek and Medina River were too deeply buried to be reached with shovel tests. CAR proposed to use mechanical auger borings as a solution to this limitation. Mechanical auger borings were proposed for three phases (VI, VIII, and IX) of the project. In the first instance, Phase VI, CAR proposed the use of auger borings to investigate the extent and nature of cultural materials in the vicinity of two positive backhoe trenches excavated during Phase IV on the south bank of Leon Creek in the area of the proposed railroad spur. Next, during Phase VIII, auger borings were proposed in the vicinity of a positive backhoe trench excavated during Phase VI near the

confluence of the Medina River and Leon Creek. CAR proposed to mechanically excavate 36 auger borings on a 20-meter grid across a 10,000-m² area incorporating the backhoe trench. Since the initial concern was to establish the presence/absence of cultural deposits, the matrix from each boring was excavated as one unit and screened through ¼-inch hardware cloth. The auger tests were excavated by a hydraulic auger mounted on a Bobcat (Figure 4-2). The auger tests were dug using a 22.9-cm (9-in.) in diameter auger bit and to a depth of 182.9 cm (6 ft.). Any artifacts encountered in auger tests were collected and notes on each auger test were recorded on standardized forms. The location of each auger test was recorded with a GPS unit and mapped on aerial photos and hand-drawn maps as backups.

Given the deep alluvial deposits evident on the south-descending bank of Leon Creek, CAR proposed the use of mechanical auger borings to investigate the railroad spur right-of-way on the north-descending bank of the creek during Phase IX. One hundred six auger borings were excavated, positioned roughly 15 meters on either side of the centerline and every 20 meters along each survey transect. The survey transects were positioned approximately 20 meters apart. The matrix from each auger boring was excavated and screened as a single mass, since our interest was to identify the presence/absence of cultural materials. The auger tests were recorded on standardized forms. Each



Figure 4-2. Mounted hydraulic auger used for auger testing.

auger boring was mapped using a GPS unit and also noted on aerial photos and hand-drawn maps as backups.

Gradall and Backhoe Trenching

In the Scope-of-Work, all proposed Gradall and backhoe trenches were to be one to two meters wide and up to 10 meters long. The depth of the trenches could vary based on soil conditions but were to be generally 1.6 meters. When deeper trenches were required, excavations were to widen and bench the trenches to maintain OSHA standards for protection of employees in excavations (29 CFR 1926.652). Specifically, proper slope angles were to be maintained at all times when an archaeologist was required to enter a trench in excess of the standard safety depth of 1.6 meters.

All artifacts identified in Gradall and backhoe trench profiles were to be collected as were charcoal samples for possible radiocarbon dating and various soil samples for flotation and magnetic soil susceptibility testing. The matrix removed from the trenches was not to be screened but sediments were to be inspected upon excavation (Figure 4-3). The location of each Gradall or backhoe trench was to be recorded with a GPS unit and mapped on aerial photos as a backup.

In addition to geoarchaeological investigations of these Gradall and backhoe trenches, two cutbank localities with

clear evidence of buried surfaces (paleosols) located on Leon Creek and the Medina River (Geological Sites 1 and 2; see Figure 1-2) also were inspected. These localities offered an opportunity to inspect the depositional history of these areas of the landform without the need to employ heavy equipment.

The standard procedure used to carry out the geoarchaeological examinations consisted of the examination of the soil stratigraphy and the profiling of one wall of each backhoe trench. In the case of multiple trenches, if little difference was evident between trench profiles it was recommended that only one representative trench be profiled. As a standard procedure, both walls of a trench were troweled and examined for evidence of any potential archaeological artifacts, features, or significant indicators of formation events. Standard geoarchaeology investigations include complete field soil observations on soil texture, consistence (wet only), presence and morphology of clay films, grain coatings, structure, abundance and size of roots, abundance and size of pores, horizon boundaries, and Munsell colors (wet only). These attributes permit designation of the soil and sedimentary horizons in standard soil nomenclature (Birkeland 1984:353–360; Soil Survey Staff 1993:117–135). Soils were also tested for calcium carbonate (CaCO_3) presence using a 3% solution of hydrochloric acid (HCl) to gage the reaction as slight, moderate, slight to violent, or violent. Based on the soil analysis, stratigraphic profiles were drawn of the backhoe and Gradall trenches



Figure 4-3. Archaeologists monitoring backhoe trenching.

and descriptive tables were produced. When soils and sediments were similar across an area, descriptions for each individual backhoe and Gradall trench were unnecessary. Regardless, some notes were made for the soils in each of the trenches where full descriptions were not performed.

To allow the timely investigation of the first suspected location of a cholera cemetery, CAR proposed the use of backhoe trenching as an exploratory device. In addition, as it became clear during the early phases of the field work that the eastern portion of the project area consisted of deep alluvial deposits, CAR recommended the systematic use of Gradall and backhoe trenching to investigate buried deposits. The trenches allowed the exploration of buried deposits and provided an opportunity to carry out geomorphic investigations across portions of the project area. Gradall and/or backhoe trenching was carried out on five phases of the project (I, IV, V, VI, and IX).

During Phase I, CAR proposed the excavation of 11 Gradall trenches to investigate subsurface stratigraphy and deposits in an area thought to have been the location of a former cholera cemetery. This area was not recorded as a formal cemetery but had been identified on a *Terrell Wells* USGS quadrangle sheet housed at the Texas Historical Commission as a possible cholera cemetery. The trenches were 5–10 meters long and 1.5 meters wide. They were dug to the sterile

clay substrate. Six trenches, located in the most plausible portion of the landform to contain the cemetery, were excavated in 10-cm thick layers to assure that burials, if present, would not be disturbed. The remaining five trenches were more widely scattered to investigate lower probability sections of the landform. A single trench that best exemplified the natural stratigraphy on the landform was profiled and described. No matrix was screened from the backhoe trenches.

During Phase IV, the reconnaissance of a portion of the south-descending bank of Leon Creek, CAR proposed the excavation of two Gradall trenches to explore buried deposits within that portion of the floodplain. The trenches were 5–10 meters long, 1.2–1.5 meters wide and excavated to a depth of 1.5 meters. Profiles of both trenches were drawn to document the stratigraphy in this portion of the floodplain. No matrix was screened.

During Phase V, the survey of the 84-acre tract containing the railroad spur right-of-way on the south-descending bank of Leon Creek, previously available information (Phase IV) and the data from shovel tests was augmented by the excavation of four Gradall trenches placed roughly in the center of the target area running in an east-west direction. Again, no matrix was screened and only representative trenches were profiled.

The majority of the 16 backhoe trenches that were excavated during Phase VI, the reconnaissance of the 175 acres at the eastern end of the project area, were concentrated along the 500-foot AMSL terrace margin encircling the landform. CAR recommended this strategy because this terrace appeared to be where the majority of the previously recorded archaeological sites were located (also Alston Thoms, personal communication 2003). To investigate the potential that buried archaeological deposits may be located in other portions of the area, three trenches were placed along the center of the landform.

CAR also recommended backhoe trenching during Phase IX to investigate the right-of-way of the planned railroad spur on the north-descending bank of Leon Creek. Because we assumed that the likelihood of deeply buried deposits decreased as one moved away from the edge of the active channel, CAR proposed that within the first 100 meters from the channel, trenches should be placed at a distance of 30 meters apart. Over the next 600 meters of the right-of-way, as the floodplain rose out of the drainage, CAR recommended that the trenches be placed at 100-meter intervals, with additional trenches placed as needed based on field decisions associated with landform layout, site probability, and presence of surface materials. All backhoe trench locations were selected through pacing along a compass transect of the centerline.

Additional Field Tasks

Several additional field tasks were proposed by THC, the City of San Antonio, and/or CAR during the project to provide further documentation on specific sites. For instance, during Phase III, at the request of the THC, CAR carried out preliminary photo documentation and archival research related to 41BX681, the Frank Walsh (Kiker/Gembler/Walsh) home and ranch complex. Later, during Phase VI, at the request of the City, CAR mapped the site using a Total Data Station. During Phases VII and VIII, the THC requested photo documentation of two standing structures at two newly documented historic sites (41BX1574 and 41BX1575). Finally, in an effort to verify the location of 41BX676, a supposed cholera cemetery, the City contracted with Raba-Kistner Consultants, Inc. to carry out a geophysical survey of the assumed location of the site. Given that this task was carried out in support of CAR's efforts to relocate the site, with the consultant's approval, the resulting report is included as an appendix in this report. Below, we briefly summarize the methods employed in each of these tasks.

Photographic Documentation

Photographic documentation during Phase III focused on the main building and associated structures on the Frank Walsh (Kiker/Gembler/Walsh) home and ranch complex (41BX681) at the northwest end of the project area. Steve A. Tomka was met by Mr. Philip M. Ross, the family's attorney, who accompanied him during the photography session. The goal of the visit was to visually document the architectural details of the main house and associated buildings. Certain details of the main house could not be properly documented due to improper lighting or lack of access.

The photographic documentation of the historic tenant farmer residential structures at 41BX1574 (Field Site 7) and 41BX1575 (Field Site 8) during Phases VII and VIII was carried out to record the condition of the structures and details of their construction. The tenant shack at site 41BX661 was also photographed during the Phase VIII reassessment to document the deterioration of the structure that had occurred since it was originally recorded during the Applewhite Reservoir project in 1981–1984.

Photographic documentation of sites without structures (prehistoric and historic) involved photographing selected artifacts, the crew at work, erosional features, landmarks, disturbed and cleared areas, and general views of each site.

Archival Research

In the 1980s a great deal of archival research was carried out by CAR for the Applewhite Reservoir project (McGraw and Hinds 1987). In addition to this, Kay Hinds conducted archival research that compiled a comprehensive history of ownership and occupation of the Frank Walsh (Kiker/Gembler/Walsh) property (41BX681). Much of the archival summary on the Pérez-Walsh family in this report was compiled from the notes and personal communication provided to CAR by Kay Hinds. The pertinent information was summarized by Wayne Cox. Additional historic archival research for the railroad spur area north of Leon Creek was compiled by the authors or obtained from oral interviews with Mr. Sonny Mayfield in January 2004. All archival information related to the historic use of the project area has been incorporated into Chapter 3.

Geophysical Survey

Since the Phase VII surface reconnaissance failed to locate any signs of a cemetery at the mapped location of 41BX676, geophysical investigations involving a ground penetrating

radar (GPR) survey were undertaken by Raba-Kistner Consultant, Inc. at the request of the City during Phase IX. The specific technical aspects and methods of this investigation are provided in Appendix A along with the results of the GPR survey.

Laboratory Methods

The processing of materials recovered during the current project involved the cleaning, labeling and cataloging of artifacts and samples. Artifacts are stored in 4-mil re-closable polyethylene bags placed in poly-corrugated boxes. CAR laboratory and curation procedures follow the Council of Texas Archeologists guidelines and meet state and federal regulations. All records, including field notes, level forms, sketch maps, photographs and logs, forms and miscellaneous data are printed or written on acid-free paper and curated in acid-free folders. All artifacts and records are permanently curated at the CAR facility.

All laboratory analyses of data pertinent to the archaeological investigations for the project were performed by the authors of this report and the Principal Investigator, with the exception of the geophysical survey and analysis completed by personnel at Raba-Kistner Consultants, Inc.

Chapter 5: Results

This chapter details the results of the archaeological and geoarchaeological investigations conducted for the City of San Antonio related to the planned construction of the Toyota Motor Manufacturing Plant. As in previous chapters, the organization of this discussion follows the chronological order of the nine phases of the project.

Archaeological examination of the proposed APE property occurred between October 2002 and January 2004 and consisted of nine phases. Efforts included pedestrian reconnaissance, survey, shovel testing, mechanical augering, and archaeological and geoarchaeological Gradall/backhoe trenching of select locations. Sixteen previously identified and recorded archaeological sites were re-examined. Four newly identified archaeological sites were recorded and examined during this project. In addition, geoarchaeological investigations of terrace deposits between Leon Creek and the Medina River were performed as part of archaeological services performed for the City of San Antonio.

Even prior to the initiation of the field efforts, CAR was contacted by Raba-Kistner Consultants, Inc. to define a specific project area that encompassed approximately 1,100 acres and was centered roughly between Leon Creek and the Medina River and did not encroach on previously recorded archaeological sites located along the north-descending bank of the river. During the original discussions with Raba-Kistner, the Texas Historical Commission (THC) indicated that it would be advisable to delineate a 1,100-acre tract that left a buffer zone of approximately 700 m from the Medina River and 500 m from Leon Creek while also remaining some distance west of the actual confluence of the two streams. Using ArcView®, the CAR drafting department overlaid the suggested buffer zone on the 2,546-acre project area bounded by Applewhite road, Leon Creek and the Medina River (Figure 5-1, located in pocket at back of report). Using this buffer zone, the available acreage within the uplands amounted to only approximately 786 acres, well under the desired 1,100 acres. As a next step, the buffer zone was decreased to 600 m and 400 m from the Medina River and Leon Creek, respectively (Figure 5-1). This strategy produced a potential project area of approximately 982 acres, still under the desired 1,100 acres. As an additional trial of this strategy, the buffers were further reduced to 500 m and 300 m from the Medina River and

Leon Creek, respectively (Figure 5-1). This strategy yielded a project area that was approximately 1,194 acres. However, the new boundary included a portion of site 41BX653 on the north-descending bank of the Medina River and contained all of site 41BX676, a site that was supposed to be the location of a historic cemetery. In addition, this project boundary also included site 41BX681, the Frank Walsh (Kiker/Gembler/Walsh) home and ranch complex, as well as 41BX660, an eroded upland historic site.

Given the potential impact on the archaeological sites along the Medina River, CAR surmised that this strategy and project area would be undesirable. Instead, CAR proposed that the boundary of the 1,100-acre APE be directed by actual site locations along the southern margin (i.e., adjacent the Medina River) of the project area. That is, since this area had been surveyed and site locations were well documented, a boundary could be delineated that would avoid known sites yet it could include areas that had been subject to previous archaeological survey and found not to have archaeological remains. Furthermore, if desired, along the northern portion of the project area, adjacent the historic ranch (41BX681), the project boundary could be adjusted such that it could entirely exclude the site and also leave a 150–300 m buffer along the Leon Creek channel. A narrower buffer zone was justified along Leon Creek because much of the south-descending bank of the creek is relatively steep, potentially making it less favorable for prehistoric occupation.

Using these new parameters, a more flexible boundary was delimited across the 2,546-acre project area (Figure 5-2, located in pocket). This boundary excluded site 41BX681 and provided an approximately 300-m buffer away from Leon Creek in the north-central portion of the APE. The buffer zone narrowed to approximately 150 m along the northeastern portion of the APE where the creek bank is relatively steep. Along the Medina River, the project boundary intruded upon the area previously surveyed by the Applewhite Reservoir project but moved around the known documented sites within the area and excluded all known sites found along the north-descending bank of the river. This strategy produced an APE of approximately 1,217 acres and left only one site, 41BX660, within its borders. This site had been previously judged not to possess significant research value (McGraw and Hinds 1987:222–223).

Phase I

The first phase of fieldwork occurred following the definition of the APE. It consisted of two field efforts: (1) the subsurface investigation of an area in the central portion of the APE that was presumed to be the location of an unrecorded cholera cemetery; and (2) the NRHP/SAL assessment of 41BX660. The field efforts involved Gradall trenching of the suspected cemetery location and surface reconnaissance of site 41BX660. These efforts were performed on November 1, 2002.

Inspection of the Area of the Presumed Cholera Cemetery

During initial discussions between CAR and the members of the Texas Historical Commission, it was discovered that the *Terrell Wells* USGS quadrangle sheet on file at the THC contained an area circled in the center of the proposed APE with the hand written notation “possible cholera cemetery.” Although no site number was associated with this notation and it was not known who made this notation on the map, in consultation with the THC, it was decided that the location would have to be investigated.

The presumed cemetery location is an area of terrace deposits between Leon Creek and the Medina River (Figure 5-3, located in pocket). An unnamed intermittent tributary of the Medina River bisects the suspected location of the cemetery. This stream drains the prairie uplands to the north and west of the most likely area where such a cemetery might have been placed. Much of the project location is low-lying terrain subject to ponding following heavy rainfall. Prior to investigation, this area had received a substantial amount of rain. The soils in the center and southeastern portions of the target area were saturated during the field work. The water table was encountered near ground surface in each trench excavated in these portions of the area tested.

Eleven Gradall trenches were excavated in an effort to inspect the area of the suspected cemetery (Figure 5-4). This work was performed on November 1, 2002. CAR had originally proposed the excavation of six trenches to fully explore the suspected location. At the request of Dr. James Bruseth of the THC, five additional Gradall trenches were excavated in the eastern half of the area investigated.

Although initial field examination indicated it was unlikely that the area was a cemetery location, due to its topographic position, the northwest portion (Gradall Trenches [GTs] 1

and 2) was deemed the most likely area to have been used as a cemetery. Although this area contained only one-tenth of the target area, it represented the highest elevation of the floodplain associated with the unnamed tributary. As revealed during subsurface examinations, the area also contained the deepest sediments that could be readily excavated above hard clay. Additionally, the osteological specialist pointed out that interment of victims of infectious diseases such as cholera would have most likely occurred in an area that was (1) inconspicuous and of little practical use; (2) amenable to easy burial pit excavation; and (3) not likely to be re-excavated during future ranch development or maintenance activities.

On the basis of these assessments, the most intensive investigations concentrated in the northwest portion of the target area. Two parallel Gradall trenches (GTs 1 and 2) were placed in this location and detailed profiling was performed only for this portion of the site (Figure 5-4). The southwestern portion of the target area was deemed the second most likely area to contain burials. Three trenches (GTs 3, 4, and 6) were subsequently excavated along the western side of the north-south fence line.

The northeast section of the target area was the next focus of mechanical testing. This area contained the head of the unnamed intermittent tributary. There was significant ponding of water from recent rains in this area. Live oak and mesquite hindered access to the lower-lying portions of the area. Because of these access problems, the Gradall was restricted to the compacted ranch road. A single trench (GT 5) was excavated in this area perpendicular to the stream and the ranch road.

The southeast section of the target area was the final portion to be investigated. At the suggestion of Dr. Bruseth, five 5-m-long trenches were excavated in this area (GTs 7–11). Standing water in this area made Gradall access difficult. This area contained much thinner sandy alluvium (~1 m) overlying the older, very hard sediment or paleosol remnant. Careful inspection of these five trenches was not possible due to their waterlogged condition and the project schedule. However, the backdirt piles were inspected for cultural materials. No materials were identified.

Geoarchaeological Investigations

Given the schedule of this investigation, only one (GT 1) of the eleven trenches excavated during Phase I was investigated in detail. A profile drawing (Figure 5-5) and description (Table 5-1) was performed on GT 1. This trench

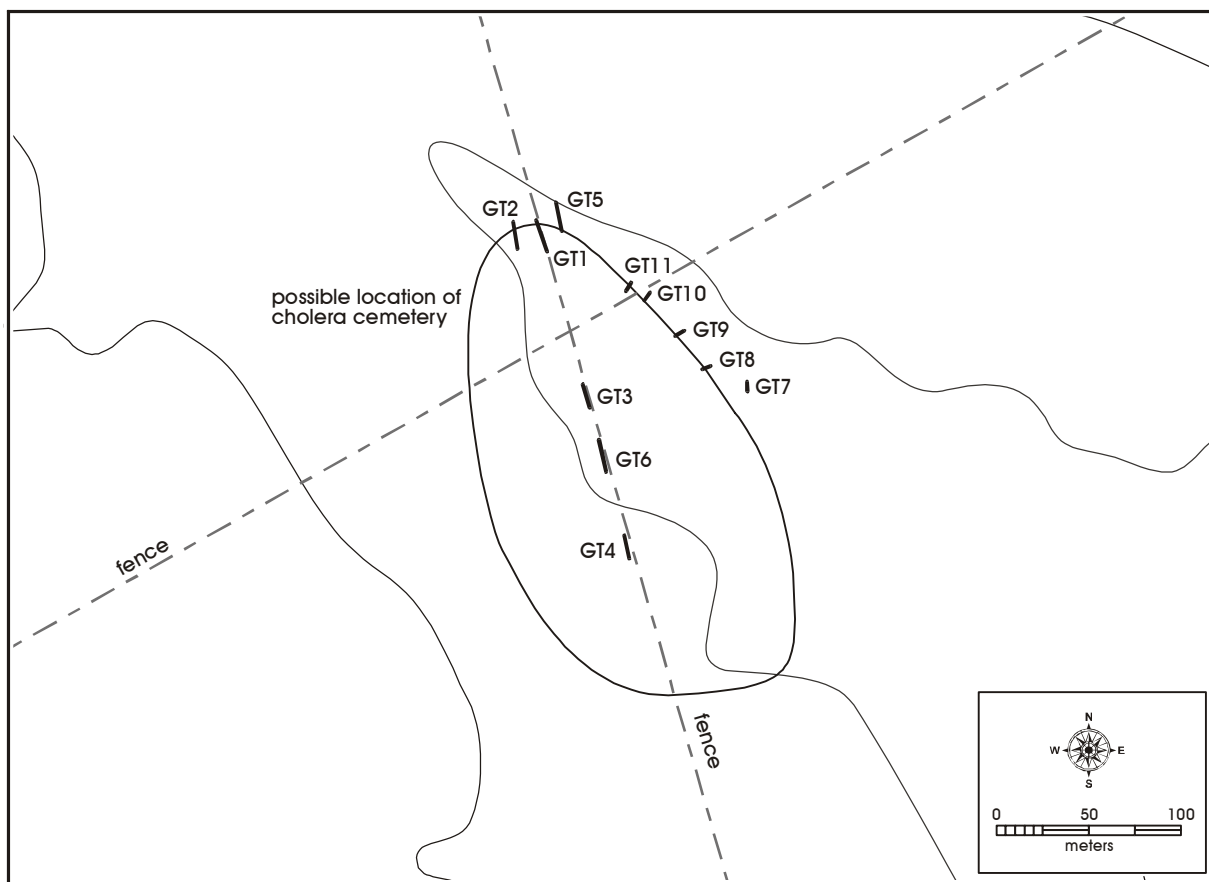


Figure 5-4. Locations of the 11 Gradall trenches excavated during Phase I in the presumed location of the cholera cemetery.

contained the deepest solum and sediments exposed in excavations of the project area. These soils and floodplain deposits rested above an older rubified sediment. Description of this trench permitted the more abbreviated examinations of the other trenches to be anchored to this more thoroughly investigated witness stratigraphic section. The profile walls of an additional five trenches (GTs 2–6) also were examined carefully for indications of any historic or prehistoric cultural materials or features. Inspection of the final group of five trenches (GTs 7–11) was performed with only minimal examination of the exposed profiles. It is felt that conditions permitted adequate determination that no anomalies were present in these profiles that would indicate cultural features or burial excavations.

Gradall Trench 1

Only GT 1 was fully recorded during this project. GT 1 was placed in the most likely location to encounter burials in relation to the map information available and soil conditions.

Adjacent areas were saturated from retention of groundwater in the intermittent drainage. GT 1 was 14.9 m long, and oriented 157°–337° from magnetic north. The maximum depth of this trench was 150 cm. Excavations were terminated approximately 5–20 cm into an apparently much older 2C soil with distinct differences from the overlying C horizon sediments (C1–C3). As with all trenches, GT 1 was carefully monitored during excavation to identify any possible disturbances that might have indicated burials or other cultural features. Both walls of the trench were examined and had no evidence of any cultural modifications or ambiguous disturbances. The western wall was carefully troweled, examined, drawn (Figure 5-5) and described (Table 5-1). Soils in the 10 other trenches were analogous to those identified in this excavation.

There were three sedimentary units represented within GT 1. The solum was restricted to the uppermost 50 cm. The A1 horizon extended approximately 10–15 cm deep and

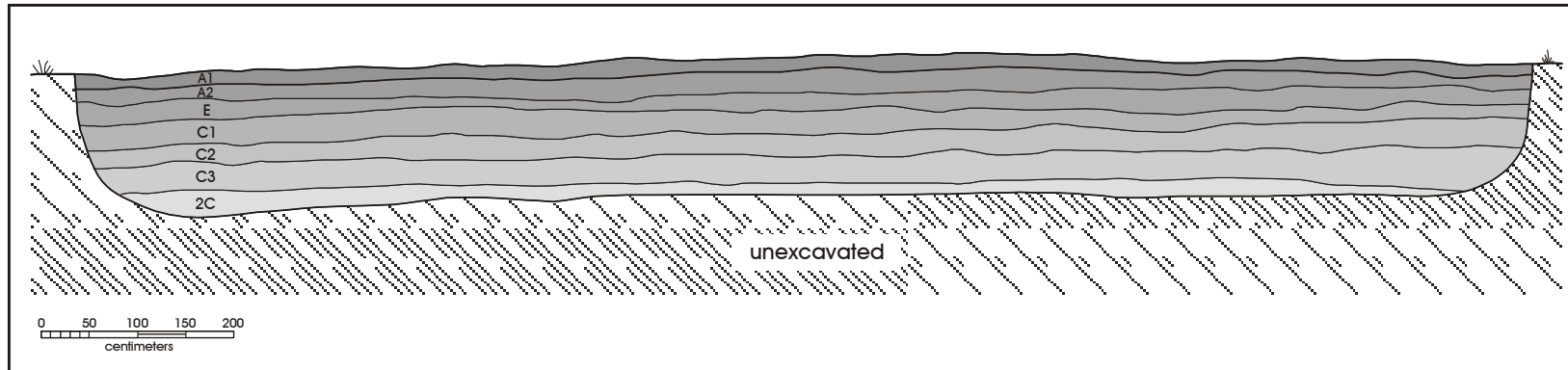


Figure 5-5. Profile of west wall of Gradall Trench 1 (Phase I) within possible location of cholera cemetery.

Table 5-1. Description of Soil Profile of West Wall of Gradall Trench 1, Phase I

Horizon	Texture	Consistence Wet/Dry	Clay Films	Grain Coatings	Structure	Roots	Pores	CaCO ₃	Boundary	Color Wet/Dry	Comments
A1	fine, well sorted loamy sand	W=non-sticky; non-plastic D=hard	0	organics	weak; fine; subangular blocky	abundant; fine-med	0	0	abrupt; smooth	W=10YR 2/1; D=10YR 4/2	
A2	fine, well sorted sand	W=non-sticky; non-plastic D=hard-v hard	0	organics	moderate; fine-medium; angular blocky	many; fine-med	few; fine	0	abrupt; smooth	W=10YR 2/2; D=10YR 4/2	base of plow zone?
E	poorly sorted sand	W=non-sticky; non-plastic D=soft	0	many, thin discontinuous silt bridges	weak; med-coarse; angular blocky	few; fine-med	v few; fine	0	abrupt; smooth	W=10YR 4/2; D=10YR 5/3	common clasts at upper and lower boundaries (2 cm or less diam)
C1	fine, well sorted clay	W=v sticky; v plastic D=v hard	few; thin; discontinuous	colloidal stains	mod-strong; med-coarse; angular blocky	few; fine	few; fine	0	clear; smooth	W=10YR 5/6; D=10YR 4/4	
C2	moderately well sorted silty clay	W=sticky; plastic D=v hard	few; thin; discontinuous	colloidal stains	strong; coarse; angular blocky	few; fine	0	0	clear; smooth	W=10YR 4/3; D=10YR 4/3	few clasts (5 mm or less diam)
C3	poorly sorted sandy loam	W=sticky; plastic D=v hard	few; thin; discontinuous	colloidal stains	strong; med-coarse; angular blocky	0	0	0	abrupt; smooth	W=10YR 4/3; D=10YR 4/4	many clasts (1 cm or less diam)
2C	poorly sorted sandy loam	W=sticky; plastic D=v hard	0	colloidal stains	strong; coarse; angular blocky	0	0	0	unknown	W=10YR 4/6; D=10YR 4/4	prominent mottling (W=2.5YR 4/6)

was fine, well-sorted, loamy sand. The A2 horizon was well-sorted sand that was maximally 25 cm thick. These epipedons overlie an E horizon of poorly sorted sands with few clasts that are less than 2 cm in diameter. This 10–25-cm-thick unit was noticeably more gray than the overlying A horizons and had no organic staining grains but some silt bridges were present. These three units represent a separate, recent deposit of sediments that overlie the older C horizons. Soil formation of the modern solum has not affected the lower sediments. The texture indicates a fining upward sedimentary deposit represented in the E, A2, and A1 parent materials. Especially apparent at the extreme southern end of the trench, the boundary between the E and C1 horizons was very abrupt, but did not appear to represent an erosional unconformity.

Water permeability shows a pronounced boundary effect at the uppermost C horizon. The clay-rich C1 unit was noted as a barrier to vadose water flow in all trenches. Underlying the solum was a series of three C horizons that represent a fining upward sequence of sediments that are unrelated to the A–E epipedons. All of these horizons are significantly light enough in color that identification of potential intrusive pits would have been straightforward. Bioturbation was minimal in the profiles examined. C1 was a 15–25-cm-thick fine, well-sorted clay. This was underlain by a 20–25 cm C2 horizon that was a moderately well-sorted silty clay. There were few clasts in this unit that are up to 5 mm in maximum dimension. The C3 horizon was a poorly sorted sandy clay with few-to-many clasts 1 cm or less in size. This unit was 25–30 cm thick, except at the extreme northern end of the trench where it was almost 50 cm thick. The lower boundary of this horizon was abrupt, and the C3 was underlain by a distinctively different sediment. This boundary appeared to be an erosional unconformity. The 2C was a poorly sorted sandy clay loam with abundant mottling of ferric inclusions (2.5 YR4/6). Although designated as a 2C horizon, this unit may represent a paleosol remnant of a truncated deposit.

Abbreviated Observations of Other Gradall Trenches

Soils and sediments in the other Gradall trenches were analogous to those seen in GT 1, although they varied in the thickness and color of the different horizons. The schedule of the project permitted careful examination of GTs 2–6, but no recording of the exposed profiles was possible. The lengths of these trenches were not measured, but each was approximately 10 m long. GTs 2–6 varied from 60–120 cm in maximum depth. Given the evidence that the 2C horizon was significantly older than the overlying sediments, this

horizon was used as a termination point for subsurface investigations. GTs 7–11 were excavated at the request of Dr. James Bruseth during his visit to the project area. Only cursory observations were possible on these five short trenches excavated in super-saturated soils. GTs 7–11 were approximately 4–5 m long and 78–119 cm deep. Depths were measured with a tape but lengths were estimated through pacing.

Gradall Trench 2

GT 2 was located adjacent and to the west of GT 1. This trench was oriented 160°–340° from magnetic north and was maximally 120 cm deep. The A horizons in GT 2 were not as dark as those seen in GT 1. These A horizon soils also were slightly thinner than those in GT 1. Gradall Trench 1 was nearer to areas of standing water, and there is likely a greater amount of organic enrichment in that location. The excavation of GT 2 was terminated at 120 cm below the modern ground surface at the contact of the C3 with the distinctive 2C horizon. There was some gleying apparent in the uppermost portion of the C1 horizon.

Gradall Trench 3

GT 3 was excavated southeast of the location of GT 1. GT 3 was oriented 157°–337° from magnetic north and extended to 90 cm below surface. The 2C sediment was encountered at approximately 80 cm below surface (cmbs). There was some rubification of the uppermost portion of the C1 unit. The solum was shallower at this location. It appears that the thinner A–E horizons in GTs 3, 4, and 6 may be due to their position farther away from the unnamed intermittent drainage and association with less luxuriant grass cover than the moister and slightly lower location of GT 1. The thickest soils were apparent in GT 1 and GT 2. These two trenches were on slightly lower elevations than GTs 3, 4, and 6 suggesting they represent slightly younger terrace sediments. In addition to only slight elevational differences, all of the epipedons contained nearly identical soils, indicating that no significant differences in age, sedimentation, and pedogenesis were apparent within this sample.

Gradall Trench 4

GT 4 was south of GT 3, also oriented 158°–338° from magnetic north. The excavation of GT 4 was terminated at 60 cmbs where the 2C sediments were encountered. The A–E soils and the C horizons were all significantly thinner in this trench. There also was rubification of the uppermost C horizons underneath the boundary with the lowermost portion of the solum.

Gradall Trench 5

GT 5 was excavated to the east of GT 1. This trench was oriented 175°-355° from magnetic north but was not excavated to the contact with the 2C horizon because of problems with the Gradall sinking into the wet, ephemeral drainage deposits. GT 5 was located in super-saturated sediments that made observations problematic. Active subsurface flow was observed at the E/C1 contact and all trench walls slumped after excavation. This trench was excavated to 80 cmbs, but did not encounter the 2C sediment before termination of excavation because of the saturation and slumping in this trench. This trench was located near GT 1 and the A horizon was only slightly thinner in GT 5 than in GT 1.

Gradall Trench 6

GT 6 was located between GTs 3 and 4 along the same transect, oriented 157°-337° from magnetic north. It was excavated to 120 cmbs and identified a more rubified 2C sediment in a higher position relative to the modern ground surface than seen in the other trenches. No absolute elevations of ground surfaces or subsurface boundaries were recorded during this investigation, so it cannot be determined if the unit was expressed at a higher position or if the overlying sediments and soils were thinner. This 2C unit exhibited more uniform rubification than its mottled appearance in GT 1. The upper portion of the C1 horizon also was slightly reddened. The thickness of the solum was much thinner than seen in GT 2 and GT 1.

Gradall Trenches 7–11

GTs 7–11 were short, shallow excavations performed at the end of the investigation. Geoarchaeological observations of these trenches were much more brief than for GTs 2–6. Soils and sediments also were analogous to those described in GT 1 and identified in GTs 2–6. All exhibited a similar A–E solum overlying C horizons that would have made any pit disturbances readily visible. All were terminated within the C horizons and only GTs 7 and 8 were excavated to the top of the 2C deposit. GTs 7–11 were situated in super-saturated soils; this made controlled observations problematic given the project schedule. All of these trenches were completely unstable and began slumping and infilling with vadose water immediately following excavation. Although it is clear that no burials were encountered in these trenches, their geoarchaeological value is negligible because of the inability to make more than minimal observations on the soils and sediments in these excavations.

GT 7 was the most southern of this group of trenches. GT 7 was oriented 15°-195° from magnetic north and was approximately 5 m long. It was excavated to a maximum of 79 cmbs and the 2C sediment was identified at approximately 68 cmbs. The solum was lighter colored than in GT 1 but not significantly thinner.

GT 8 was approximately 4 m long and oriented 17°-197° from magnetic north. Excavation of GT 8 stopped at 119 cm deep, at the top of the 2C sediment. The uppermost portion of the C1 horizon exhibited significant rubification. The solum was slightly thicker than recorded in GT 1.

GT 9 was oriented 273°-207° from magnetic north and was approximately 4 m long. GT 9 was excavated to a depth of approximately 95 cmbs, but the 2C sediment was not encountered in the floor or walls of this trench. The A horizon was slightly thicker in this trench than in GT 1.

GT 10 was oriented 42°-222° from magnetic north and excavated approximately 4 m long. It was maximally 83 cm deep and did not encounter the 2C unit. The modern soil was approximately the same thickness as in GT 1. The uppermost portion of the C1 unit also showed rubification.

GT 11 was approximately 4 m long, oriented 42°-222° from magnetic north, and was excavated to approximately 78 cmbs. The A–E horizons of the epipedon were of equivalent thickness to those recorded in GT 1. The 2C deposit was not exposed in this trench.

Status of the Presumed Cholera Cemetery

The CAR bioarchaeologist monitored the entirety of the mechanical excavations. In addition to inspections of the trench floors during excavation (except those that were super-saturated) both the bioarchaeologist and geoarchaeologist carefully inspected each profile to assure that no burial pits or human remains were missed. There was no evidence in any of the Gradall trenches of burials, past excavation pits, or any kind of prehistoric or historic disturbances of the natural sediments and soils.

Due to the shallow nature of the sandy alluvial deposits near the headwaters of this small, upland drainage, it is unlikely that a cholera cemetery would have been located here. The very hard 2C sediments and shallow sandy soils would have made this an unattractive location even for minimally hygienic disposal of individuals who were victims of a

disease such as cholera. The lethally contagious nature of cholera would likely be associated with less elaborate and protracted handling of bodies.

Finally, during the trenching, Mr. John Small visited the project. Mr. Small is the current landowner whose family has been in the area for several generations. In reviewing a copy of the THC map with Mr. Small, he indicated that the possible location of the cholera cemetery was likely mis-plotted on the THC quadrangle map. Apparently, the known cholera cemetery is outside the project area where the historically known Applewhite and Watson properties meet. This location is often confused with the juncture of Applewhite and Watson Roads. Based on Mr. Small's information, it seems most likely that the description of the cemetery being located at this boundary of the Applewhite and Watson properties was confused with a location near Applewhite and Watson roads. It is probably this error that resulted in an incorrect map record of the cemetery location in the area investigated during Phase I.

Site 41BX660

Originally recorded during the 1984 CAR survey, this site was described as a sparse, deflated surface scatter of historic artifacts (McGraw and Hinds 1987:222). Historic and modern plowing may have contributed to the heavily deflated nature of the deposits. Oral histories suggest that 41BX660 was the former location of a tenant house occupied in the 1920s and 1930s. Less than 20% of the site was estimated to be intact at the time of its recording (McGraw and Hinds 1987:123). The site was identified as having no research potential, and no additional work was recommended (McGraw and Hinds 1987:222–223).

Inspection of historic maps of the project area prior to the current survey failed to reveal a recorded standing structure in the area defined as 41BX660. The 1903 USGS map shows no structure in the area of 41BX660. The nearest structure shown is approximately 570 m to the north-northwest of 41BX660. The 1921 (revised 1942) USACE map shows only those structures located in close proximity to Applewhite Road. None of the structures known to have existed along secondary ranch roads in the interior, eastern portion of the project area during this time are depicted. Similarly, no structures are shown in the vicinity of 41BX660 on the 1953 USGS map.

Despite relatively good surface visibility (40–50%), the surface inspection of the locality of site 41BX660 failed to identify any cultural materials. The lack of artifacts suggests that the site has been severely impacted by sheet wash. No subsurface investigations were performed to determine whether there is a buried component at 41BX660.

Phase II

Phase II consisted of the NRHP/SAL eligibility assessment of the northwest extension of site 41BX653. The field efforts consisted of surface reconnaissance and shovel testing. This field evaluation was performed on November 7 and 8, 2002.

Site 41BX653

Site 41BX653 was recorded as a prehistoric site (McGraw and Hinds 1987:215). It is officially designated as a State Archeological Landmark. As depicted in Figure 5-2, the northwest extension of 41BX653 was located in the immediate vicinity of the originally defined APE. As a result, it was decided to reassess this portion of the site to determine whether any significant archaeological deposits were present within this area.

During CAR surveys in the 1980s, no subsurface testing was conducted at the site, although the presence of eroded hearth features was noted on the surface (McGraw and Hinds 1987:215–216). It is unclear whether these features were within this northwestern extension of the site or the main distribution of surface material to the south. This northwest extension of 41BX653 is a triangular shaped segment that encompasses approximately 9.4 acres.

A preliminary surface reconnaissance was performed and encountered no cultural material on the northwestern portion of 41BX653. Subsequently, shovel tests were placed along 30-m transect intervals across the northwestern portion of the site. Some additional test units were excavated at closer intervals to fill gaps in areal coverage.

Shovel Testing

Thirty-one shovel tests were excavated in an effort to inspect the deposits (Figure 5-6). Shovel test transects were extended slightly beyond the known boundary of 41BX653 to ensure that the original limits of the site were accurately defined.

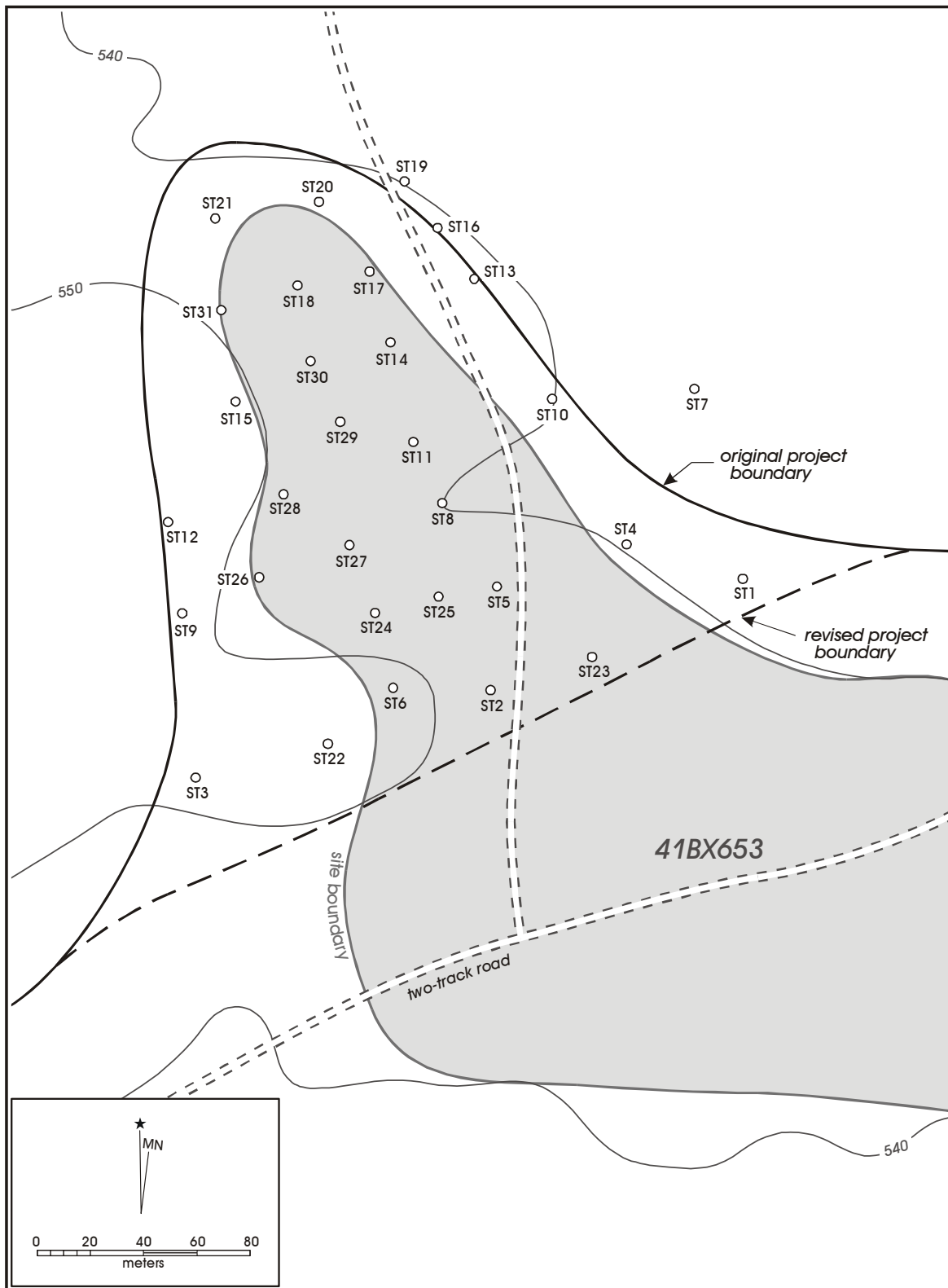


Figure 5-6. Distribution of shovel tests across northeastern extension of 41BX653.

The stratigraphy identified within the shovel tests appeared relatively similar in all units. The upper 30–40 cm consisted of dark gray sandy loam, and the lower 20–30 cm consisted of dark brown sandy loam with reddish-orange and/or black clay loam mottling. No archaeological materials were recovered from any of the 31 shovel tests excavated in this portion of site 41BX653. Surface inspection of the main body of the site located immediately south of the shovel tested area indicated that the nearest artifacts (two flakes) were approximately 90 m south of Shovel Test (ST) 2, the southern end of the area tested during this project. The two flakes were found in the vicinity of the intersection of two unimproved two-track roads.

Discussion

Surface inspection of 41BX653 revealed no cultural materials on the northwest extension of the site. In addition, no archaeological deposits were identified in any of the shovel tests excavated within or immediately outside of the previously defined site boundaries of the 9.4-acre northwest extension of 41BX653. Surface reconnaissance of the main body of the site, situated south of the extension, indicates that the nearest surface artifacts are approximately 90 m from the tested portion of the site, in the vicinity of an intersection of two dirt roads. The results of the shovel testing indicate that even if this portion of 41BX653 once contained archaeological materials, these materials have since been eroded downslope and no archaeological manifestation of the site is present within the area subject to shovel testing.

Given the absence of surface and subsurface artifacts and features within the northwest extension of 41BX653 tested by CAR, it is concluded that this portion of the site has no research potential. Therefore, we recommend that the site boundary be redrawn to exclude this northwest spur. The main portion of 41BX653 was subsequently examined through shovel testing during Phase VII.

Phase III

Phase III included the NRHP/SAL assessment of site 41BX681 the Frank Walsh (Kiker/Gempler/Walsh) home and ranch complex, and pedestrian survey of a 239-acre tract of land in the eastern portion of the subject property. Previous and more recent archival investigations of this property were performed as background information for evaluation of the site's significance. The field efforts consisted of photographic documentation of the existing architecture and surface reconnaissance of the site.

Site 41BX681

Site 41BX681 is the Frank Walsh (Kiker/Gempler/Walsh) home and ranch complex (Figure 5-7). It was constructed in 1906 and became the family's homestead. The two-story, six-room home has 1,755 square feet of living space. The complex also contains a garage, two patios, two utility sheds, two wood pigeon coops, and two wood and corrugated metal barns (REDI 1989).

Archival research pertinent to this site was performed by CAR during the Applewhite Reservoir project (McGraw and Hinds 1987). Additional archival research was conducted by Kay Hinds to produce a comprehensive history of ownership and occupation of the historic ranch complex. The archival summary presented in Chapter 3 as part of the history of the Perez Ranch is a compilation of these sources produced by the late Wayne Cox from notes and personal communication provided by Kay Hinds.

Photo Documentation of the Frank Walsh (Kiker/Gempler/Walsh) Home and Ranch Complex

Photo documentation of the ranch complex was performed on December 6, 2002, and focused on the main building and associated structures on the Walsh property at the northwest end of the project area. Steve A. Tomka was met by Mr. Philip M. Ross, the family attorney, who accompanied him during the photographic documentation.

The goal of the visit was to photo document the architectural details of the main house and associated buildings (Figures 5-8 through 5-20). Certain details of the main house could not be properly photographed due to improper lighting or lack of access.

The main house on 41BX681 was originally built in 1906. More recent architectural elements have been added to the structure since its construction. The family raised pigeons and at least two of the associated buildings on the property are pigeon coops. Several more recent barns and storage structures exist on the property. These are a combination of mid-twentieth-century and later construction materials and styles. During a fall 2002 site visit by the members of the Architectural Division of the Texas Historical Commission, they concluded that the compound of structures was eligible for listing on the National Register. In early 2004, the City of San Antonio hired John Speegle of Speegle and Associates of San Antonio to complete Level 1 HABS documentation

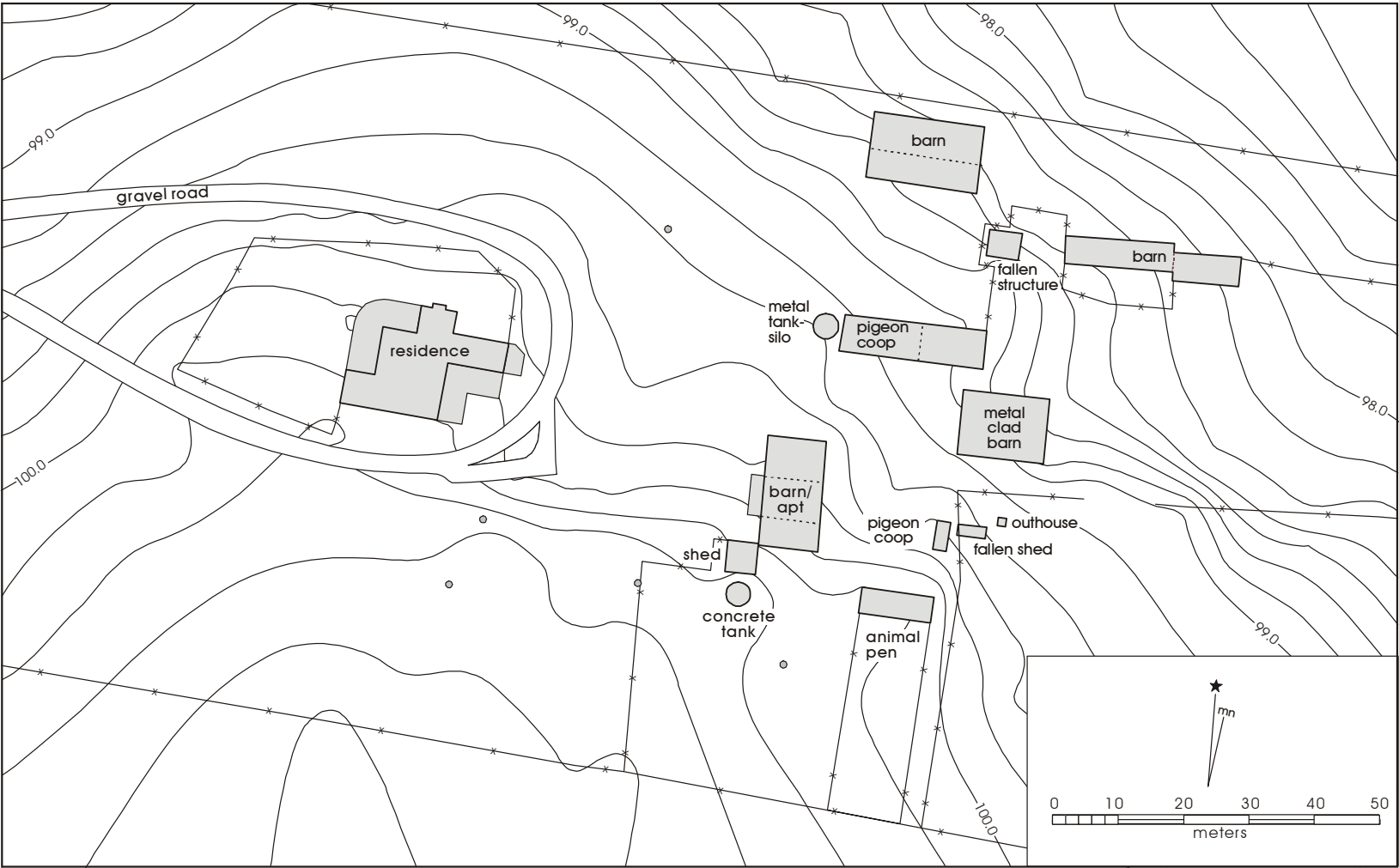


Figure 5-7. Site map of 41BX681, the Frank Walsh (Kiker/Gemler/Walsh) home and ranch complex.



Figure 5-8. Overview of main house, 41BX681.



Figure 5-9. Façade of back of main house, 41BX681.



Figure 5-10. Interior view of porch at front of house, 41BX681.



Figure 5-11. Roof detail, 41BX681.



Figure 5-12. *Detail of gabled roof and balcony, 41BX681.*



Figure 5-13. *Window detail on east side of house, 41BX681.*



Figure 5-14. *Partially collapsed barn/stall, 41BX681.*



Figure 5-15. *Detail of barn/stall roof, 41BX681.*



Figure 5-16. *Wood and corrugated metal composite barns, 41BX681.*



Figure 5-17. *Construction detail of palisade barn, 41BX681.*



Figure 5-18. *Barn-residence combination, 41BX681.*



Figure 5-19. *One of the two pigeon coops on the property, 41BX681.*



Figure 5-20. Detail of the second pigeon coop on the property, 41BX681.

of the Frank Walsh (Kiker/Gemler/Walsh) complex. Subsequent to this documentation, the most significant of the structures, the two pigeon coops, were relocated to City property (soon to be Land Heritage Institute property) south of the Medina River.

239-acre Tract Survey

According to Kay Hinds (personal communication, November 2002) the area located east of the proposed Applewhite Reservoir dam footprint had never been subject to archaeological survey. The dam footprint is now occupied by a power line that cuts across the property from northwest to southeast. The 239.1 acres east of this power line were examined through surface reconnaissance.

The reconnaissance area was divided into two portions, north and south, delineated by a heavily used ranch road running east-west through the approximate center of the area (Figure 5-21, located in pocket). The northern reconnaissance area extends from the road north to an arbitrary boundary 200 m south of Leon Creek. This northern area is bisected by a second east-west running power line and associated unimproved two-track road. This power line continues across Leon Creek and outside of the project area.

The southern portion of the reconnaissance area extends south from the heavily used ranch road to a lesser-traveled two-track road. This less-used road is approximately 250–300 m north of the Medina River. Both the northern and southern portions of the project area were investigated for the presence of surface materials using 30-m pedestrian survey transect intervals. The reconnaissance area was covered with dense vegetation. The area was dominated by white brush, greenbrier, mesquite, and numerous species of cacti, grasses, and forbs. With the exception of the two-track roads, ground surface visibility within the reconnaissance area ranged from 0–3%. Surface visibility on the two-track roads ranged from 90–100%. Not surprisingly, the only cultural materials observed during the reconnaissance were found in the two-track road running along the cleared easement of the northernmost power line.

The lithics noted during the reconnaissance included a moderate amount of debitage, two cores, two non-diagnostic bifaces, and a small quantity of angular burned rock.

The surface scatter was not visible within the heavily vegetated area south of the cleared power line corridor. Because no shovel testing was recommended during the reconnaissance, the full extent of the site boundaries could

not be defined, therefore, no site map was produced. Nonetheless, the concentration was defined as Field Site 1, and it was recommended that shovel testing should be performed at a later date to define the site boundaries.

Field Site 1, subsequently identified by the trinomial 41BX1571, is the only archaeological surface site documented within this 239-acre tract that was subjected to surface reconnaissance. Along all but one transect, the surface visibility was reduced to zero by vegetation. The only exception was the two-track road where 41BX1571 was identified.

Phase IV

This phase of the project consisted of two tasks. The first task was the production of a literature summary of the characteristics of all archaeological sites documented along the northern bank of the Medina River during prior investigations. Given that the summary of the previously documented archaeological sites has been presented in Chapter 3 of this report, the detailed summary provided to the Client will not be reproduced here. The second task consisted of the reconnaissance of an approximately three-acre area on the south-descending bank of Leon Creek in search of archaeological deposits within the right-of-way of a planned railroad spur. Because this area was in the floodplain of Leon Creek, and in such settings there is a likelihood of rapid and deep burial of cultural materials, two Gradall trenches were excavated during the reconnaissance.

Limited Archaeological Reconnaissance in the Vicinity of the Leon Creek Railroad Spur

Because it was known that a railroad line would have to enter the project area and the likely place where it would cross Leon Creek could be approximated based on creek and floodplain morphology, CAR was asked to conduct surface reconnaissance in the vicinity of the proposed crossing site (Figure 5-22, located in pocket). Therefore, on February 4, 2003, personnel from CAR initiated a brief surface reconnaissance along the south-descending bank of Leon Creek.

As fieldwork began on the morning of the 4th, it was evident that the right-of-way of the proposed railroad crossing had not been staked and its location had not yet been precisely

determined, although it was likely to eventually be situated in the approximate location of the reconnaissance. During the early hours of the reconnaissance, three small clusters of artifacts were identified and mapped using a GPS unit. The first cluster, consisting of six artifacts, was found in immediate proximity to the proposed crossing location (Figure 5-22). One chert core and five pieces of fire-cracked sandstone were in this cluster. The second cluster contained a chert biface and a chert flake. The third cluster consisted of five flakes. No surface artifacts were collected.

Given that the reconnaissance area was likely to be within the railroad spur right-of-way, at the request of the Client, two Gradall trenches were excavated on the south bank of Leon Creek in the estimated location of the railroad crossing. Both Gradall trenches uncovered buried cultural remains. During excavation of GT 1, the remains of a small thermal feature (Feature 1) were identified, recorded and sampled. The feature remnants consisted of two fire-cracked rocks within a dark organic matrix containing pieces of charcoal. It was identified in the bottom of the trench at a depth of 130–138 cmbs. One unifacial lithic also was recovered from GT 1 at a slightly lower depth (157 cmbs) than the possible hearth. No definitively cultural artifacts were found during examination of GT 2, although two pieces of possible fire-cracked rock (FCR) and a small amount of charcoal was noted between 120–160 cmbs—not in association with each other.

The presence of the remnants of a feature (Feature 1), isolated FCR, and a uniface within fine, well-sorted silt loams or silty clay loams that contain no evidence of high-energy alluvial sediments were strong indicators of the presence of a buried archaeological site at this location. Accordingly, these remains were designated as Field Site 2, later identified by trinomial 41BX1572.

Geoarchaeological Investigations

The reconnaissance area and site 41BX1572 are situated on a high, abandoned terrace of Leon Creek and the Medina River. Examination of recent aerial imagery and older photographs (Taylor et al. 1991:Sheet 78) show the Medina's past channel was north of its current position, Leon Creek may have been slightly south of its modern channel, and their confluence was west of its current position by approximately 760–914 m.

Both Gradall trenches were excavated in locations that would have been much nearer to this confluence and perennial sources of water at an unspecified time in the past. Future

dating of the charcoal samples from approximately 1.3–1.6 m below surface, associated with archaeological remains found in these trenches, could provide data on both the age of the cultural occupation and rates of sedimentation in this location. In the absence of a program of integrated research directed toward investigating geomorphological variation, terrace formation, and archaeological events in this area, it is currently impossible to determine whether these sediments derive from Leon Creek or the Medina River or how flood-plain dynamics affected potential archaeological contexts.

Gradall Trench 1

GT 1 was oriented 61° – 241° from magnetic north, was 13.92 m long, and maximally 1.6 m deep. A single column of soil susceptibility samples was collected from 8 m northeast of the southwestern end of the trench. The eastern wall of this trench was profiled (Figure 5-23) and described (Table 5-2). A distinct plow zone was apparent in this profile. The base of the Ap2 horizon was approximately 30 cm below the modern ground surface. Below that, the weakly developed Bk1 and Bk2 horizons extended from 30–110 cm below surface. Snail shells (*Rabdotus* sp.) were most common in the Bk1 horizon. The lowermost stratigraphic units were moderately developed 2Bk1 and 2Bk2 soils.

Although surface artifacts were common in the vicinity of GT 1, no artifacts were identified within either wall of the trench. Feature 1 and the unifacial tool were found in the floor of GT 1. The feature was identified at 130–138 cmbs and the tool was found resting on a surface at 157 cmbs. Two pieces of rubified sandstone that may represent FCR also were recovered between 152–160 cmbs.

Feature 1

A small burned area was seen during excavation of GT 1 and Gradall scraping was halted and the feature was uncovered. The remaining southern portion of the trench was excavated slightly deeper. The feature was mapped in plan view only (Figure 5-24). A sample of a single large (~6 cm in maximum diameter) piece of charcoal was collected from Feature 1. No artifacts or FCR were found in proximity to this thermal feature. The morphology of the upper portion of the feature is unknown because it was removed by the Gradall. The elevation of the part of the feature that was examined was approximately 130–138 cm below the current ground surface. Feature 1 was an ovoid stain containing charcoal and some rubified soil that measured 38 cm northeast-southwest and 25 cm southeast-northwest. The central portion of the feature was a circular area approximately 13–16 cm in diameter that contained moderately abundant charcoal and bioturbated pieces of rubified soil. Two areas of charcoal concentration were identified and mapped. The charcoal sample collected from one of those concentrations has been curated for possible future dating of the archaeological site. The feature fill of charcoal-rich matrix was removed and reserved for possible flotation. A shallow pit with reddened soil was mapped almost directly underneath the central charcoal stain. This area did not exhibit rubification, but there were abundant pieces of reddened soil and charcoal within this depression. The shallow pit measured 13 x 15 cm in dimension and was maximally 8 cm deep. This depression had a nearly level base. Bioturbation was associated only with this feature and not the surrounding soil. Although this feature could represent a very small natural fire, its gross morphology did not suggest a carbonized root.

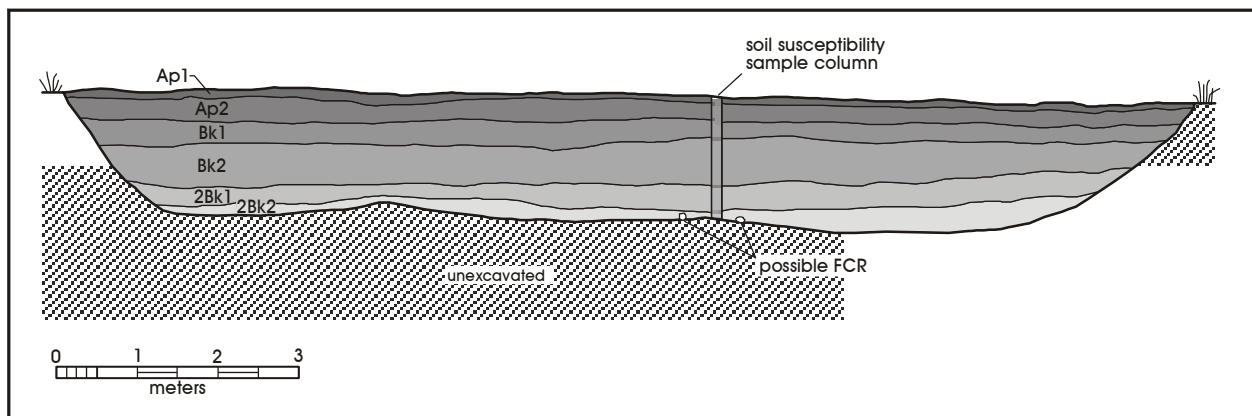


Figure 5-23. East wall profile of Gradall Trench 1 (Phase IV) in railroad spur right-of-way (41BX1572).

Table 5-2. Description of Soil Profile of East Wall of Gradall Trench 1, Phase IV

Horizon	Texture	Consistence	Clay films	Grain Coatings	Structure	Roots	Pores	CaCO ₃	Boundary	Color	Comments
Ap1	fine, well sorted silt loam	non-sticky; non-plastic	0	silt	weak; fine-medium; subangular blocky	abundant; fine-coarse	few; fine	strong	abrupt; smooth	10YR 3/2	
Ap2	fine, well sorted silt loam	slightly sticky; slightly plastic	few; thin; discontinuous, ped faces only	colloidal stains	weak; medium; subangular blocky	many; fine-coarse	few; fine	strong	abrupt; smooth	10YR 3/2	base of plow zone?
Bk1	fine, well sorted silt loam	slightly sticky; slightly plastic	few; thin; discontinuous, ped faces only	colloidal stains	weak; med-coarse; subangular blocky	few; fine-coarse	v few; fine	violent	clear; smooth	10YR 4/3	few, fine CaCO ₃ filaments; <i>rabdatus</i> =common
Bk2	fine, well sorted silt loam	slightly sticky; slightly plastic	few; thin; discontinuous, ped faces only	colloidal stains	weak; med-coarse; subangular blocky	few; fine-coarse	v few; fine-med	strong	gradual; smooth	10YR 4/4	abundant, fine CaCO ₃ filaments; <i>rabdatus</i> =abundant
2Bk1	fine, well sorted silty clay loam	slightly sticky; slightly plastic	thin; continuous, ped faces	N/A	moderate; fine-medium; angular blocky	few; coarse	0	strong	clear; smooth	10YR 4/4	abundant, fine CaCO ₃ filaments; <i>rabdatus</i> =few
2Bk2	fine, well sorted silty clay	slightly sticky; slightly plastic	moderate; continuous	N/A	moderate; fine-medium; angular blocky	0	few; fine	violent	unknown	10YR 4/4	abundant, fine CaCO ₃ filaments; <i>rabdatus</i> =few

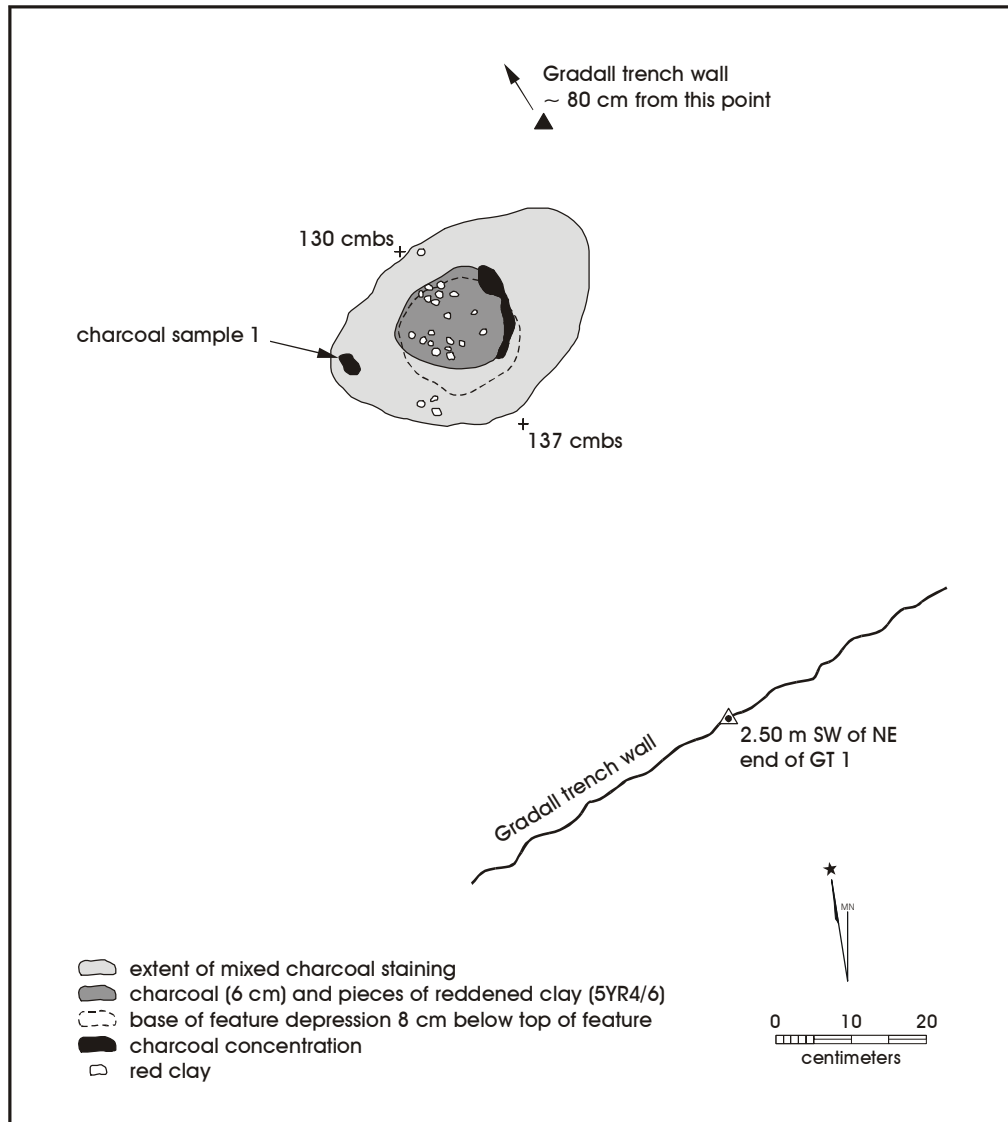


Figure 5-24. Plan view map of Feature 1 in Gradall Trench 1, 41BX1572 (Field Site 2).

A large chert uniface was recovered approximately 5.7 m southwest of this feature at a depth of 157 cmbs. This artifact was only slightly disturbed from its original position by the Gradall, and the indentation of its location was still visible in the trench floor. The Gradall did not damage this artifact. This specimen was 153 mm long and exhibited extensive flaking along one edge. Approximately 50% of the dorsal surface retained cortex. The artifact was thick (34 mm) and one edge exhibited numerous step fracture scars originating from the ventral face. The small size of several of the late removals and the step fracturing present on one edge

suggests that the specimen was most likely a unifacial implement employed in chopping of a relatively hard substance. This uniface was not curated, and its weight was not recorded prior to discard.

This tool was found near two pieces of rubified sandstone in the eastern wall profile (Figure 5-23). There were no associated artifacts identified during troweling adjacent to this artifact. There were many small (less than 3 mm) charcoal flecks in the vicinity of the two pieces of sandstone. The presence of charcoal flecks within the matrix containing

the sandstone rocks does suggest that these pieces may have been FCR, however, no laboratory examination of these rocks was performed prior to their discard. All of the sediments were fine, well-sorted silt loams and silty clay loams. Clasts were not seen in the profile. Although the identification of the sandstone as FCR is not secure, the presence of these rocks does indicate a stable soil surface where non-sedimentary clasts could accumulate. The soil texture, association with Feature 1, and the lithic tool suggest that human agency is likely responsible for the presence of these rocks.

Gradall Trench 2

Gradall Trench 2 was excavated southwest of GT 1 along the same inferred location of the probable railroad spur (Figure 5-22). This trench was oriented 76°-246° from magnetic north. GT 2 was 15.98 m long and maximally 1.65 m deep. The eastern wall of this trench was profiled (not shown). Soils in GT 2 were identical to those described for GT 1.

No chert artifacts were found during examination of GT 2. Two pieces of possible FCR were recorded in the trench floor between 3 m and 3.6 m from the northeastern end of the trench. One FCR was approximately 120 cm below the ground surface and the other was 160 cmbs. A few small pieces of charcoal were seen approximately 30 cm northeast of these rocks. A single piece of charcoal was collected and has been curated for potential future dating. One sandstone clast was visible in the Ap2 of GT 2. All of the sediments in both trenches were fine, well-sorted silt loams or silty clay loams. Except for the two possible pieces of FCR between 120–160 cmbs, no clasts were present in any of the soils underlying these disturbed epipedons.

Phase V

Phase V of the project consisted of two principal tasks: (1) the NRHP/SAL eligibility assessment of 41BX1571 (Field Site 1); and (2) the pedestrian survey of an 85.72-acre tract of land encompassing the proposed railroad spur location on the south-descending bank of Leon Creek. Field efforts consisted of the shovel testing of 41BX1571, pedestrian survey and shovel testing of the 85-acre survey block, and limited Gradall trenching along the proposed railroad spur right-of-way. Examination of 41BX1571, the 85.72-acre survey parcel, and Gradall trenching were performed in February 2003.

Site 41BX1571

Site 41BX1571 was encountered within the clearing of the easement of the power lines running east-west across the northern portion of the project area (see Figure 5-21). However, because the site was located through reconnaissance during the third phase of work in the project area, neither the depth of the deposits nor the boundaries of the site were established. The objectives of the site visit during this phase were to complete these two aspects of site documentation.

Archaeological Work Performed at 41BX1571

To define the 41BX1571 boundaries, and identify the nature and extent of the cultural deposits at the site, 29 shovel tests were excavated. (Figure 5-25). These were placed along transects and excavated to a depth of 60–70 cmbs. Shovel Tests 1–10 were placed in east-west oriented transects at approximately 20-m intervals across the open area disturbed by brush clearing for the road and power lines. Shovel Tests 11–23 were placed in north-south transects into the dense brush south of the power lines. Shovel Tests 24–29 were placed adjacent to positive shovel tests to further examine the density and characteristics of cultural deposits in those areas.

Because the site is located in a non-aggrading setting, it was felt there was a low probability that deeply buried deposits were present at this location. Therefore, no mechanical subsurface trenching was carried out at the site. The staff geoarchaeologist was present on site to perform a geomorphic evaluation of the site setting and evaluate the nature of the deposits exposed in the shovel test excavations.

Of the 29 shovel tests, 26 (89.7%) were excavated to a depth of 60 cmbs and three (10.3%) were dug to 70 cmbs. Twenty-three (79.3%) of the shovel tests were negative and only six (20.7%) contained artifacts (Figure 5-25). Table 5-3 lists the materials recovered from the shovel tests.

The recovered artifacts include 10 pieces of unmodified debitage, eight pieces of possible burned rock, and one threeridge freshwater mussel shell (*Amblema plicata*). None of the artifacts were temporally diagnostic and no lithic tools were present. During the initial identification and examination of this site (Phase III) two biface fragments were found on the surface. Surface artifact density at the time of shovel testing was moderate but the artifact count decreased significantly

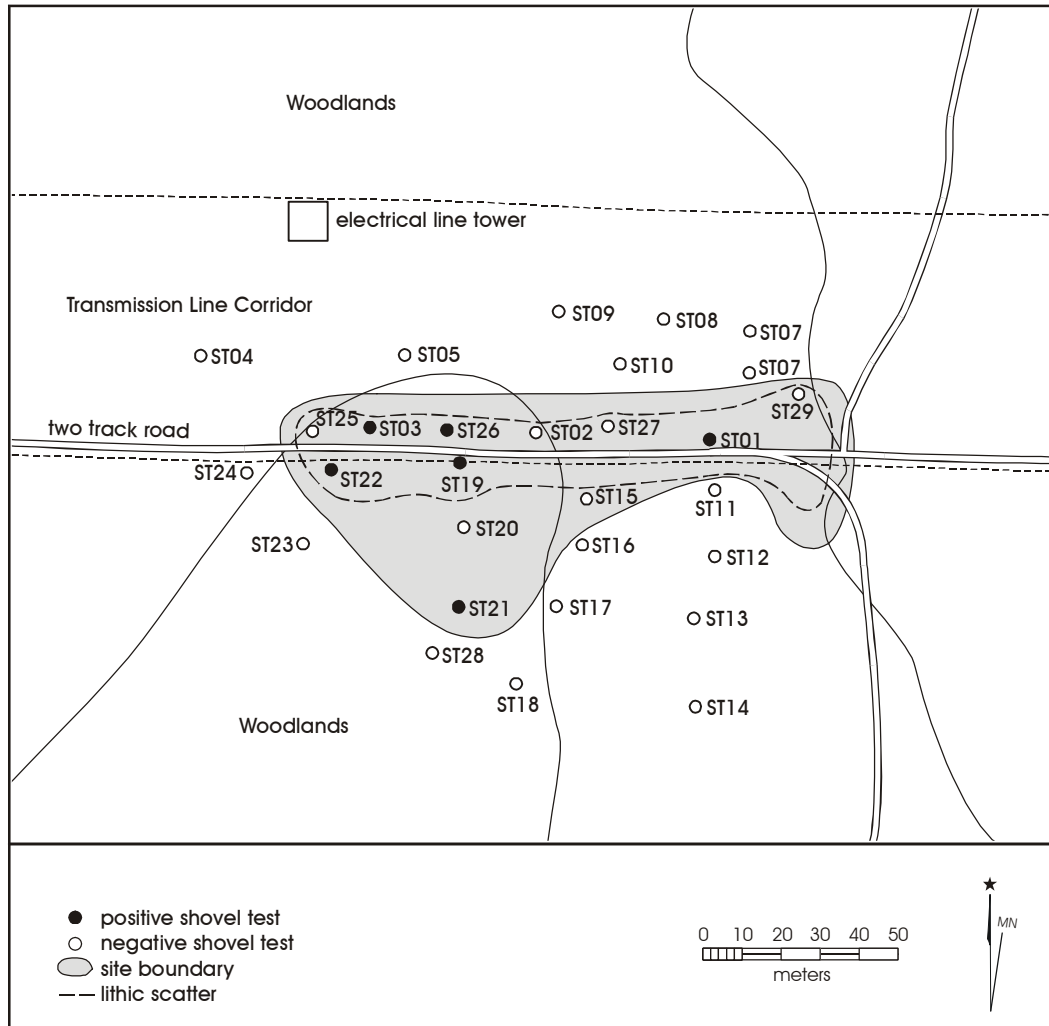


Figure 5-25. Site boundary and distribution of shovel tests, 41BX1571.

below Level 1 (0–10 cmbs). There was a slight increase in artifact density in Level 4 (30–40 cmbs) and Level 6 (5–60 cmbs), although given the small sample size, it is difficult to evaluate the statistical significance of this pattern.

While the surface scatter was of relatively uniform density in the east-west unpaved road from the top of the low rise downhill to the north-south oriented dirt road to the east, shovel testing shows the highest subsurface concentration to be focused in STs 3, 19, 22, and 26 (Figure 5-25 and Table 5-3). This area is topographically the highest point on the site. It appears that the surface deposits represent materials that are at least partially eroded and may have moved downslope compared to the positions of intact buried deposits. No historic materials were noted at 41BX1571.

This site appears to represent a light to moderate lithic scatter of prehistoric affiliation. The horizontal extent of the site is approximately 120 m east-west and 60 m north-south (Figure 5-25). The depth of the archaeological deposits extends from surface to 60 cmbs.

Geomorphological Setting of 41BX1571

41BX1571 is located on a high abandoned terraces between Leon Creek and the Medina River (Figure 5-21). This series of terraces increases in age from east to west, and exhibit a range of surface expressions south of Leon Creek. From the current investigations, it is uncertain whether these formations are abandoned terraces of the Medina River or Leon Creek. 41BX1571 was identified by surface artifacts and materials within the upper A horizon soils between

Table 5-3. Artifacts Recovered from 41BX1571

Cat. #	Unit	Level	Depth (cmbs)	Class	Count	Description
1-001	ST 1	6	50-60	debitage	1	
1-002	ST 1	6	50-60	burned rock	3	
1-003	ST 1	6	50-60	snail	1	
2	ST 3	3	20-30	snail	1	
3	ST 3	4	30-40	debitage	1	
4	ST 14	5	40-50	snail	1	
5	ST 15	2	10-20	snail	1	
6	ST 17	1	0-10	snail	3	
7-001	ST 19	1	0-10	burned rock	2	
7-002	ST 19	1	0-10	debitage	1	
8	ST 21	3	20-30	debitage	1	
9	ST 22	1	0-10	debitage	2	
10	ST 22	2	10-20	burned rock	1	
11	ST 22	5	40-50	debitage	1	
12-001	ST 25	4	30-40	snail	1	
12-002	ST 25	4	30-40	mussel	2	umbo & frag.
13-001	ST 26	4	30-40	debitage	1	
13-002	ST 26	4	30-40	burned rock	1	
14-001	ST 26	3	20-30	debitage	1	
14-002	ST 26	3	20-30	burned rock	1	
15	ST 19	4	30-40	debitage	1	

0–40 cm below the current ground surface. This soil is a silt loam forming the oldest terrace in the immediate vicinity of the site area. The location of 41BX1571 is within Venus-Frio-Trinity association soils formed on older alluvium (Taylor et al. 1991:6–7).

The area in the immediate vicinity of 41BX1571 represents a broad, isolated terrace that extends from the north at the sharp bluff of the southern bank of Leon Creek. The terraces in the modern channel below this elevation were not investigated. For the purpose of this discussion, the terrace at the margin of the incised channel was arbitrarily designated as T10 (allowing for an unknown number of more recent alluvial surfaces associated with deposits subsequent to the downcutting of Leon Creek). The T10 is a single level surface from Leon Creek south to the access roadway south of 41BX1571. From this arbitrary T10 terrace, the T11 surface, forming the majority of 41BX1571, is an eroded portion of a slightly older terrace. 41BX1571 is located at the eastern and northern margin of this terrace. The site was identified where the T11 terrace meets the slighter lower, younger T10 unit at the eastern end of the T11 surface. Topographic maps indicate that the site may be situated on an eroded portion of an older terrace that is more intact west of this location (see Figure 5-21). This interpretation matches the mapping of surface soils identified by Taylor et

al. (1991:Map 78). 41BX1571 appears in the Venus loam of 1–3% slopes (VcB) overlying the Venus loam exhibiting 0–1% slopes (VcA). It is likely that erosion at this interface is responsible for exposure of some of the artifacts.

Examination of bedrock outcrops of sandstone at the margin of Leon Creek north of 41BX1571 provided useful information about natural weathering of this material. This sandstone becomes highly oxidized in these outcrops. Rubification of sandstone, even within archaeological sites in this area, is probably a poor indicator of thermal modification or possible human use of this rock. Inferences about possible heating of sandstone must rely on contextual associations and possibly fracture characteristics rather than color. The presence of this rock only in certain localized outcrops indicates that the inclusion of sandstone within the alluvial deposits of this landform would likely be due to human transport to archaeological contexts rather than natural factors.

85-acre Tract Survey

Included under Phase V was the survey of an 85-acre parcel extending to the east of the previous 239-acre reconnaissance area (Phase III) as shown in Figure 5-26 (located in pocket). This eastern extension is on the southern bank of Leon Creek.

This location represents younger terrace deposits than those to the west. This area has recently been active cattle pasture and is mostly open grassland. The survey area is defined on the northern side by the east-west running power lines and to the south by an engineering survey boundary. The eastern boundary is the incised terrace margin of Leon Creek and the western boundary is the twentieth-century ranch buildings and heavy brush that mark the eastern extent of the previously surveyed 239-acre tract.

Fieldwork within this area consisted of a 100% pedestrian survey, shovel testing and Gradall trenching. Two Gradall trenches (GTs 1 and 2) were excavated in this area under Phase IV of the project. These excavations revealed a buried low-density archaeological site (41BX1572) with apparent features.

Shovel Testing

A total of 41 shovel tests was excavated along linear transects, oriented in a general east-west manner across the 85-acre tract. An additional eight shovel tests were placed in the area surrounding GTs 1 and 2 in order to better define the extent of buried cultural materials identified during Phase IV and defined as site 41BX1572.

None of the shovel tests recovered buried cultural materials even those excavated in the vicinity of GTs 1 and 2 where lithic debris, including a tested chert cobble, had previously been observed on the surface. As the trenching indicated, however, the cultural material is buried at depths in excess of 150 cmbs, a depth that would preclude encounter of artifacts through manual shovel testing.

Gradall Trenching

Phase V included the excavation of four Gradall trenches (GTs 3–6). These trenches, in combination with the two trenches (GTs 1 and 2) dug during Phase IV, represent all of the subsurface investigations of the area of the proposed railroad spur on the southern bank of Leon Creek. Examination of the proposed location of this railroad line on the northern bank of Leon Creek was performed during Phase IX.

Geoarchaeological Investigations

Subsequent to the preliminary effort of the Phase IV investigation, CAR recommended additional subsurface archaeological testing to investigate the boundaries and nature of buried deposits of 41BX1572 and the vicinity of the proposed railroad spur location. Additional survey was requested encompassing an area measuring 84.72 acres that

included the right-of-way associated with the planned railroad line on the south side of Leon Creek.

On February 19, 2003, two Gradall trenches (GTs 3 and 4) were excavated in the deep alluvium west of site 41BX1572. An additional two trenches (GTs 5 and 6) were excavated on February 24, 2003 (Figure 5-27, located in pocket).

Gradall Trench 3

GT 3 was oriented 86°-266° from magnetic north, was 12.2 m long, and maximally 1.68 m deep. A profile was drawn of the south wall (Figure 5-28). Soils in this trench were not described but were similar to those recorded for GT 4. Three A horizons were identified extending to a depth of 35–60 cm below the modern ground surface. It was unclear if these represented a plow zone. No unconformity was seen at the A3 and B horizon boundary. However, there was a thin A3 unit on the western end of GT 3 that was associated with a thicker B horizon. The eastern 8 m of this profile exhibited a thicker A3 associated with a thinner B horizon that may indicate disturbance of the B soil from plowing. All of the A and B horizons were fine, well-sorted silt loams. The lower boundary of the B horizon was consistent across the entire profile at approximately 80 cm below surface. Underlying these soils were a series of three silty clay loam C horizons. The C3 deposit was exposed only in the western half of the trench. A single large krotovina extended from the A3 soil to the base of the trench. This disturbance was approximately 50–60 cm wide.

A plan view map of the floor was drawn to record the locations of a possible cultural feature (Figure 5-28). There were two areas of the floor of this trench where fragmented sandstone was noted. Backhoe trenching was ceased in these portions of the trench and the areas were examined in greater detail after trench excavation was completed. An area in the western portion of the trench had a concentration of small sandstone fragments in a roughly oval distribution. The concentration was designated as possible Feature 2 (Feature 1 was identified in GT 1 during Phase IV). The possible feature was approximately 50 cm east-west and 40 cm north-south and was adjacent to a distinct krotovina. The krotovina was an area of mixed darker soil that did not overlap with the sandstone distribution. It was present in the south wall profile and on the floor of the trench and exhibited clear tunnel and chamber morphology. Feature 2 was an area with small pieces (less than 3 cm) of reddened sandstone with a very light distribution of charcoal. None of the pieces of charcoal were more than 1 cm in maximum dimension. This feature contrasts markedly with the adjacent krotovina.

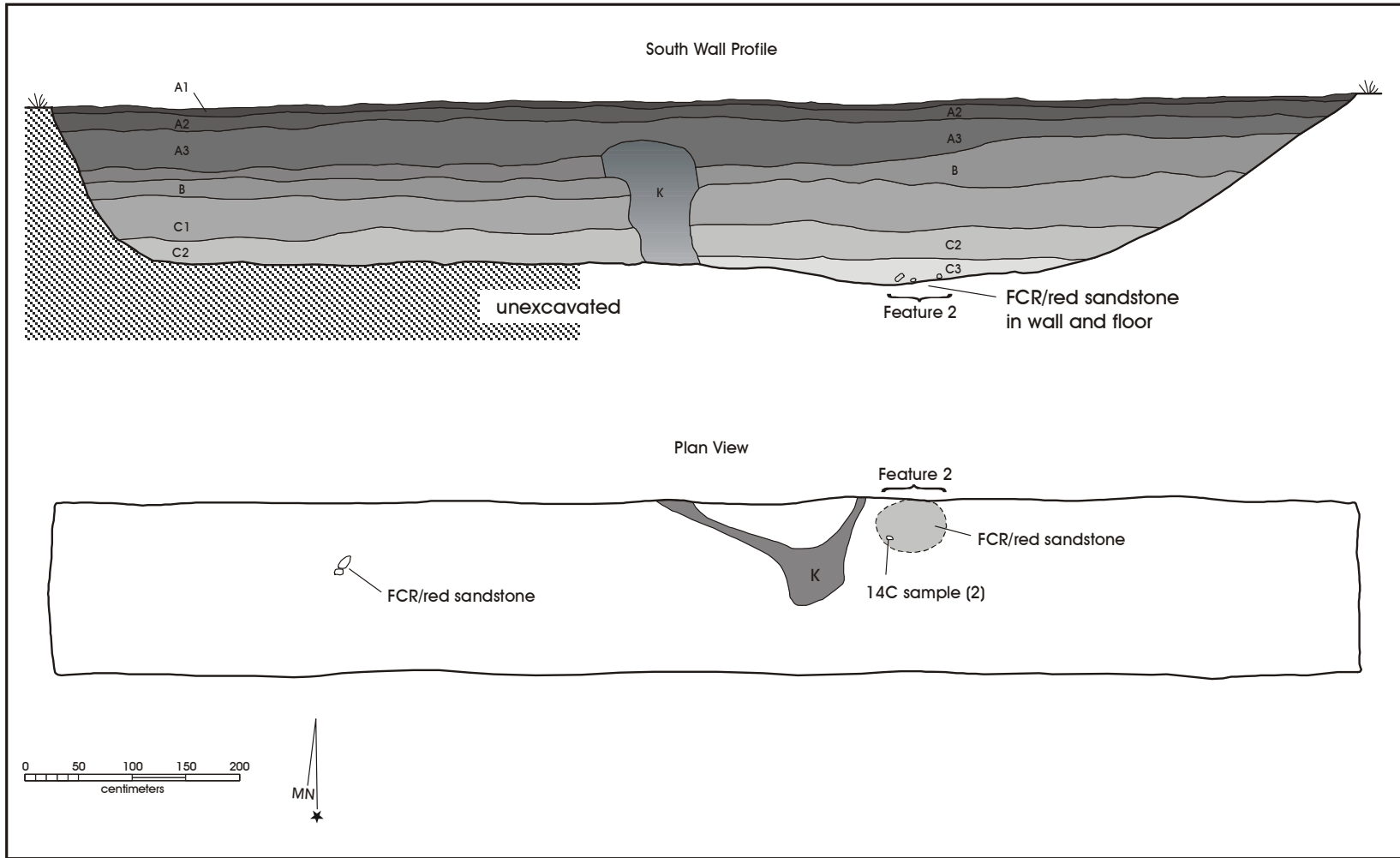


Figure 5-28. Profile of south wall and plan view of the floor of Gradall Trench 3 (Phase V) showing location of possible cultural Feature 2.

Feature 2 was 161–169 cm below the current ground surface and was located between 7.7 and 8.4 m west of the eastern end of GT 3. One charcoal sample was collected from the northeastern portion of this feature.

Two apparently isolated pieces of sandstone were also noted at the eastern end of the trench. These adjacent sandstone fragments were seen during Gradall excavation. These pieces of sandstone were 5–12 cm in maximum length and were found approximately 150 cm below the current ground surface. There was no apparent charcoal staining or other evidence of thermal alteration. No artifacts were identified in proximity to these two rocks. There was no evidence that these were alluvial clasts or part of any higher-energy deposit.

Gradall Trench 4

GT 4 was oriented 88°–268° (from magnetic north), was excavated 12.4 m long and was maximally 2.8 m deep. This trench was stepped to accommodate the depth of the excavation and provide safe access to the lower portion of the profile. The uppermost step exposure ranged from 70–110 cm and the lower segment was approximately 105–148 cm. The southern wall of this trench was profiled (Figure 5-29) and all soils and sediments were fully described (Table 5-4). This Gradall trench provided the deepest view of terrace soils and sediments examined during any of the different phases of the investigations. The A horizons extended to a depth of 40–60 cm below the modern ground surface. No unconformity was apparent to indicate a plow zone. The lower boundary of the single B horizon was at approximately 80–100 cmbs. The A and B horizon soils were fine, well-sorted silt loams and all were weakly developed. A series of five C horizon sediments underlie the B soil and extended to the base of the trench excavation. Two possible thermal features (Features 3 and 4) were encountered in the C3 and C4 soils between 180–220 cmbs. In addition, two anomalous small concentrations of rock were identified in the C3 horizon on the northern wall of GT 4. Some dispersed charcoal was present in the lowest sedimentary unit, C5, from 230–280 cmbs. All of the C horizon deposits were fine, well-sorted silty clay loams. C1 and C2 were weakly developed and C3–C5 exhibited moderate development.

Two thermal features and two small anomalous rock accumulations were recorded in GT 4. None of these features were associated with artifacts and it is uncertain whether they may be cultural or are entirely natural. One thermal feature was identified during Gradall excavation in the trench floor at the eastern end of GT 4 (Figure 5-29). This area

was left higher than the rest of the trench to permit recording and sampling of the burned area. This evidence of burning was designated Feature 3. This was a roughly circular area of slightly reddened soil with few, dispersed, small pieces of charcoal. Feature 3 measured approximately 60 cm east-west by 50 cm north-south. The elevation of the portion remaining was approximately 180–182 cmbs, entirely within the C3 horizon. A single charcoal sample was collected from Feature 3. There were no artifacts associated with this thermal feature, and it is unclear if it may be cultural or represent a natural burn event.

An area of reddened soil and possible charcoal was identified during the profiling of the southern wall of GT 4 at 3.73–4.02 m west of the eastern end of GT 4. This was designated Feature 4. This feature was exposed between 194–228 cmbs in the profile. The upper portion of this feature was within the base of the C3 sediment and the majority was in the C4 horizon. The profile of the rubified soil of Feature 4 formed a lunate localization that was slightly basin shaped. Insect bioturbation had transported small fragments of reddened soil to isolated locations approximately 10 cm below the base of the intact portion of Feature 4. The dark material initially suspected to be charcoal appeared to be localized organic or mineral enrichment, and may also represent insect bioturbation.

Two small clusters of rock were identified during troweling of the north wall of GT 4. All of the sediments in the C horizons were fine, well-sorted silty clay loams and there were no concentrations of high-energy sediments. These anomalous clusters of rock were both identified in the C3 sediment. They were designated as Features 5 and 6, but these designations were intended as geomorphic identifiers and do not imply that the features were of cultural origin. Feature 5 was a small cluster of five rocks 2.87–2.98 m west of the eastern end of GT 4 at 181–197 cmbs. Four of the rocks were fractured pieces of local sandstone and one was corticate river gravel. These rocks were at the base of the C3 unit. A single piece of charcoal was noted adjacent to this cluster. Feature 6 consisted of two pieces of fractured sandstone 5.95–6.05 m west of the eastern end of GT 4. These two rocks were at 174–177 cmbs, within the C3 horizon. No charcoal was associated with these rocks.

Features 3 and 4 exhibited evidence of burning. Features 5 and 6 were anomalous concentrations of rock in sediments that had no other clasts and appeared to be entirely low-energy floodplain deposits. The occurrence of all of these features within the C3 and uppermost portion of C4

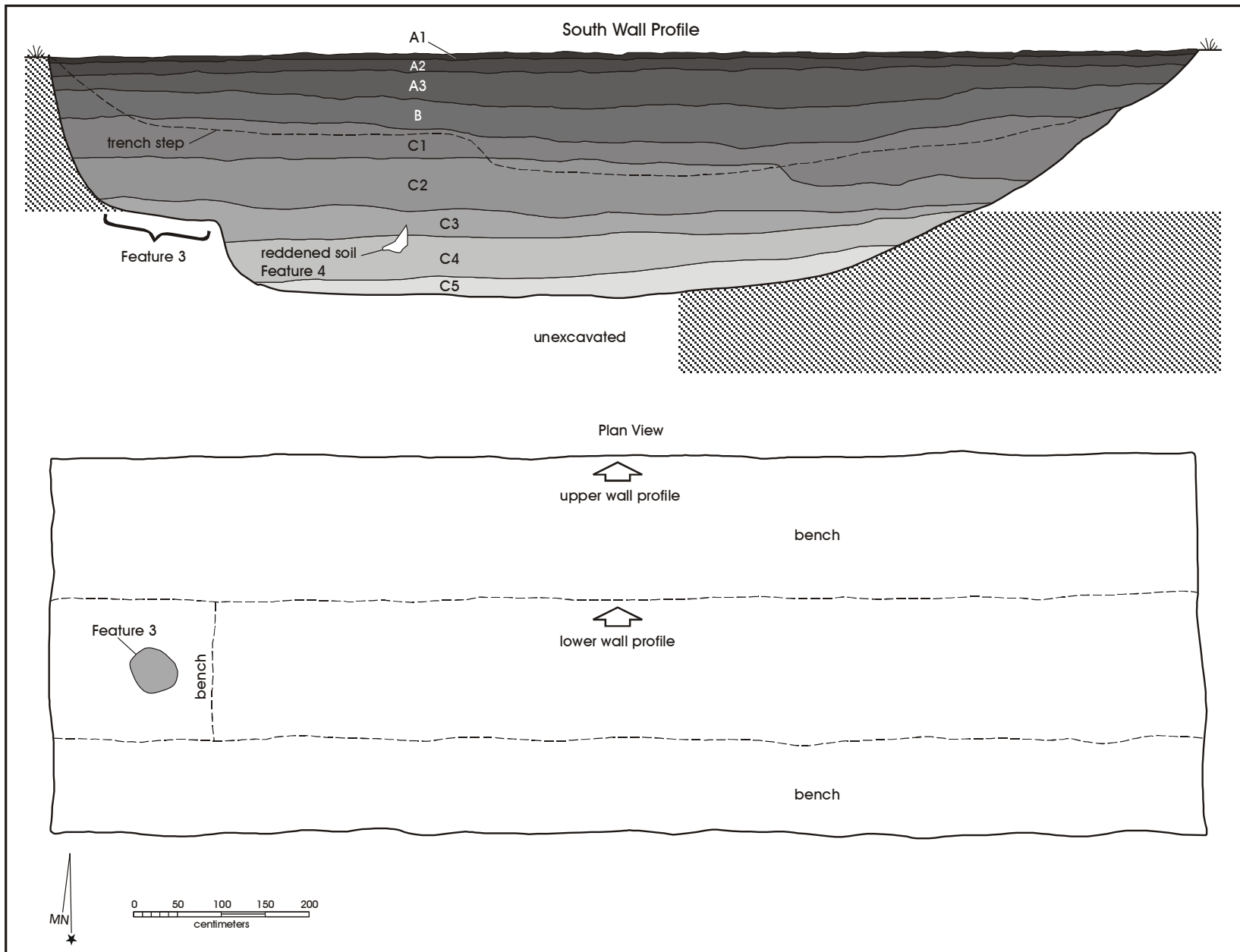


Figure 5-29. Profile of south wall and plan view of the floor of Gradall Trench 4 (Phase V) showing location of possible cultural features (Features 3 and 4).

Table 5-4. Description of Soil Profile of South Wall of Gradall Trench 4, Phase V

Horizon	Texture	Consistence	Clay films	Grain Coatings	Structure	Roots	Pores	CaCO ₃	Boundary	Color	Comments
A1	fine, well sorted silt loam	slightly sticky; slightly plastic	0	silt	weak; fine-medium; platy	many; fine	many; coarse	strong-violent	abrupt; smooth	10YR 2/2	
A2	fine, well sorted silt loam	slightly sticky; slightly plastic	0	silt	weak; medium; angular blocky	few; fine	many; fine-coarse	violent	clear; smooth	10YR 2/1	
A3	fine, well sorted silt loam	slightly sticky; slightly plastic	few; thin; discontinuous	colloidal stains	weak; fine-med; subangular blocky	few; fine	many; fine-med	strong	gradual; wavy	10YR 2/1	
B	fine, well sorted silt loam	slightly sticky; slightly plastic	many; thin-med; continuous, ped faces	colloidal stains	weak; fine-med; subangular blocky	0	many; fine-med	violent	gradual; wavy	10YR 3/2	
C1	fine, well sorted silty clay loam	slightly sticky; slightly plastic	thin; continuous, ped faces	colloidal stains	weak; fine-medium; angular blocky	0	common; fine	violent	clear; wavy	10YR 3/3	
C2	fine, well sorted silty clay loam	slightly sticky; slightly plastic	thin; discontinuous	colloidal stains	weak; fine-medium; subangular blocky	few; fine	few; fine-med	violent	gradual; wavy	10YR 3/4	few, fine CaCO ₃ filaments
C3	fine, well sorted silty clay loam	sticky; plastic	few; thin; discontinuous	colloidal stains	moderate; medium-coarse; subangular blocky	v few; fine	v few; fine	strong	gradual; wavy	10YR 4/3	few, fine CaCO ₃ filaments
C4	fine, well sorted silty clay loam	sticky; plastic	few; thin; discontinuous	colloidal stains	moderate; medium-coarse; subangular blocky	0	0	strong	gradual; wavy	10YR 4/3	common, fine CaCO ₃ filaments; Feature 5
C5	fine, well sorted silty clay loam	sticky; plastic	few; thin; discontinuous bridges	colloidal stains	moderate; coarse; subangular blocky	0	0	violent	unknown	10YR 4/4	common, fine CaCO ₃ filaments; some charcoal

sediments does indicate that this elevation represents a past surface that does not exhibit visually distinct paleosol formation. The reddened soil of Features 3 and 4 is evidence of *in situ* burning. It is uncertain whether the sandstone in Features 5 and 6 may represent FCR. No chipped or ground stone artifacts were found in association with any of these features or in any other portions of the profiles or floors of GT 4. Although it is likely that neither of the four possible features were of cultural origin, this evidence does help identify a past surface that was apparently only stable for a short period of time so that no significant soil formation occurred prior to burial. Dating of charcoal from Feature 3 would offer an opportunity to improve understanding of the rates of sedimentary deposition on this terrace.

Gradall Trench 5

GT 5 was oriented 88°-268° from magnetic north, was approximately 10.5 m long and was excavated to a maximum depth of 1.8 m below the current ground surface. A profile of the south wall of this trench was drawn (Figure 5-30). The soils were not described, but were similar to those detailed in GT 4. Three weakly developed A horizons extended to a maximum depth of 30–35 cm below ground surface. Two B horizons were identified and the lower boundary of the B2 unit was at 70 cmbs. The B1 and B2 soils were weakly developed and both the B and A horizons were fine, well-sorted silt loams. A series of three moderately developed C horizons underlie the B2. The C horizons were fine and well-sorted silty clay loams. Clasts were not seen in any of the sediments.

A very dark concentration of charcoal with a small amount of reddened soil was seen in the floor of this trench during mechanical excavation (Figures 5-31). This was designated Feature 7. The feature consisted of a roughly oval area approximately 24 cm north-south and 36 cm east-west that contained a single large piece of charcoal (maximum dimension = 22 cm) on the western side. This area also contained reddened sediment mixed with small pieces of charcoal. The reddened soil and charcoal extended to the south an additional 20 cm from this main concentration. This may represent materials displaced through bioturbation. A small krotovina (maximally 11 cm long) was associated with this area and a larger krotovina (~20 cm diameter) was apparent in the northeastern quadrant of Feature 7. A single charcoal sample was collected from the large burned piece of wood. The remnant of this feature (after partial Gradall removal of most of the feature) was located at 133–136 cm below ground surface, at the approximate boundary between the C2 and C3 horizons. The large, intact piece of charcoal

suggests that this is a natural burn of a stump or root. The reddened sediment does indicate it was an *in situ* fire. There were no artifacts found in association with this evidence of burning or in the profiles of GT 5.

Gradall Trench 6

GT 6 was oriented 90°-270° from magnetic north, was 11.56 m long, and maximally 1.75 m deep. The southern wall profile was drawn (Figure 5-32), but no soil descriptions were performed for this trench. The soils were similar to those in GT 5 and the descriptions for GT 4. The three A horizons extended to approximately 30 cm below ground surface. Two B horizons were visible in the eastern half of the profile, but the definition of B2 was not seen in the western half. The base of the B horizon was 50–75 cmbs, and was deeper in the eastern half. A series of four C horizons were exposed in this trench. As noted for the other profiles, the A and B soils were weakly developed in fine, well-sorted silt loams. The C1 horizon was weakly developed, but C2–C4 showed moderate development. All of the C sediments were fine, well-sorted silty clay loams. Clasts also were not present in these low-energy floodplain deposits.

An area of dense charcoal and reddened soil was identified in the floor of GT 6 during Gradall excavation (Figure 5-32). This feature was located 5.82–6.58 west of the eastern end of the trench at 159–161 cm below surface. This thermal feature was designated Feature 8. The dimensions of Feature 8 were 76 cm north-south and 69 cm east-west. A charcoal sample was collected from near the center of this feature. There were no artifacts associated with this burned area and none were identified in the profiles of GT 6. This feature was probably a natural stump or root burn.

Discussion

All four of these trenches contained evidence of thermal features. No archaeological materials were found in any of these Gradall excavations. Features 7 and 8 (in GTs 5 and 6, respectively) appeared almost certainly to be evidence of *in situ* burning of stumps or roots. The two thermal features in GT 4 (Features 3 and 4) also were probably the remains of natural fires that rubified the adjacent sediments. Although absolute elevation comparisons are not available for these trenches, this evidence of fire was consistently present in lower C horizon contexts. These features were identified between approximately 130–230 cm below ground surface. Despite probably representing natural burns, these features do document the presence of past ground surfaces that are not apparent as organically enriched paleosols. This lack of paleosol formation also indicates relatively rapid burial of

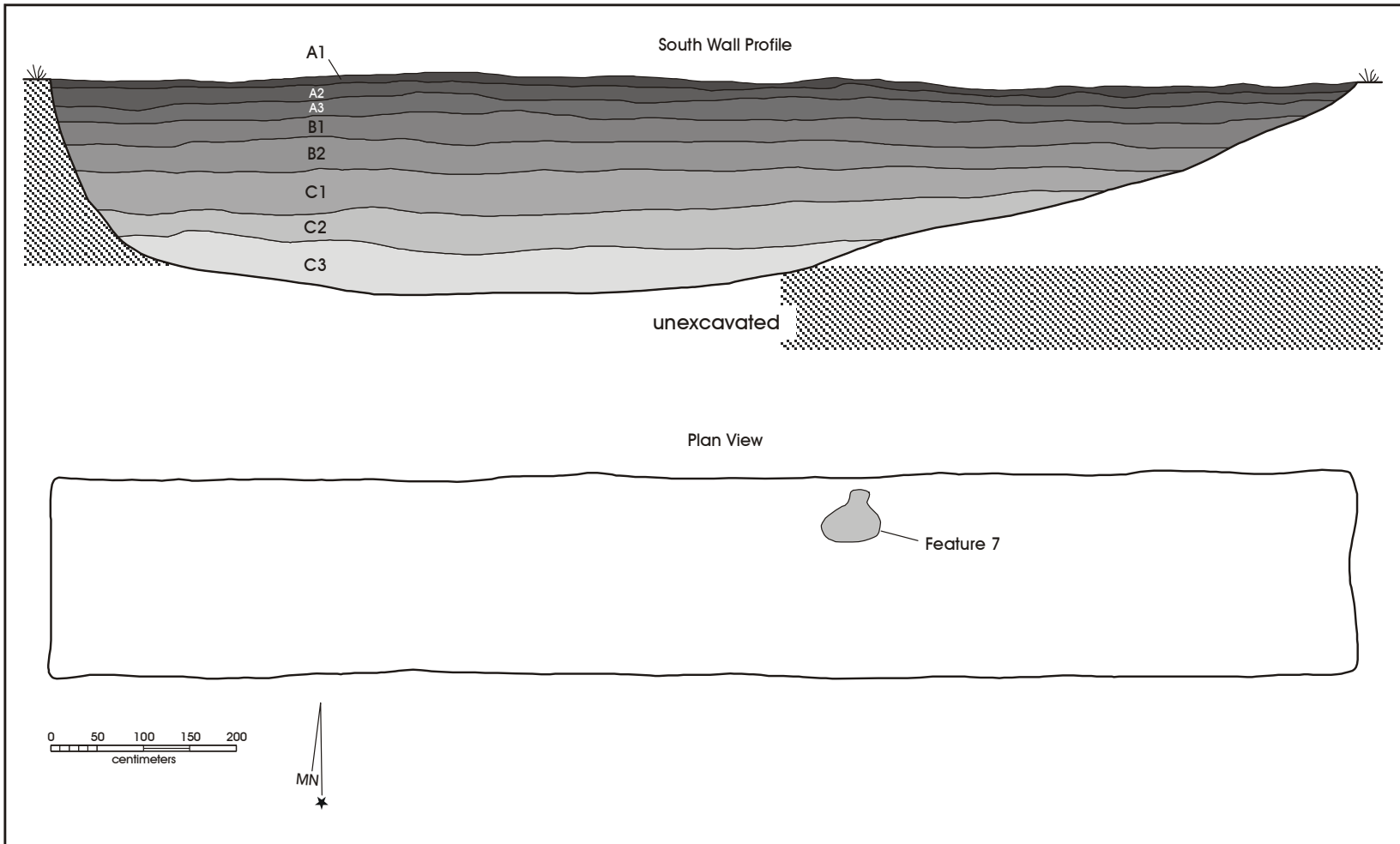


Figure 5-30. Profile of south wall and plan view of floor of Gradall Trench 5 (Phase V) showing location of possible cultural Feature 7.

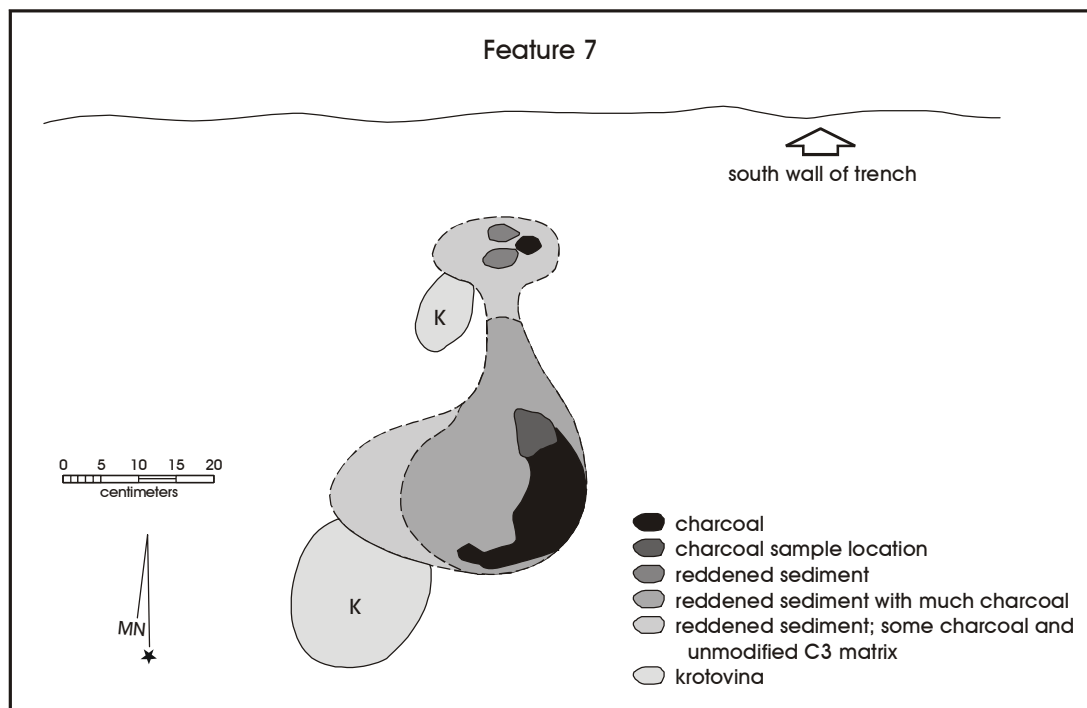


Figure 5-31. Plan view of Feature 7 in bottom of Gradall Trench 5, Phase V.

these surfaces. In GT 4, the two thermal features also were associated with two small anomalous clusters of rock (Features 5 and 6) at approximately the same elevations (174–197 cmbs). All of the trenches present a comparable sedimentary context and soil profile. The parent materials of these deposits are universally fine, low-energy sediments dominated by silts and clays. Natural alluvial clasts indicative of higher-energy deposits were not encountered. Such preservation conditions and the identification of past ground surfaces demonstrate a strong likelihood that additional buried archaeological sites with the potential for significant taphonomic integrity are present across this landform.

While features 3–8 were clearly not cultural, the evidence for burning in GT 3 (Feature 2) may suggest a cultural hearth. No artifacts were found in proximity, however, there was an association of sandstone fragments with the rubified soil and charcoal. There did not appear to be any natural clasts adjacent to these burned areas within fine alluvial sediments. Feature 2 presents a context not unlike Feature 1, and there is a good possibility it represents a hearth associated with

minimal use events. The association of one large unifacial tool and a probable cultural thermal feature in GT 1 at 41BX1572 (Phase IV) indicates that archaeological material is present at the same approximate elevations as the evidence of cultural or natural burning evidenced in the remainder of the trenches expressing thermal features.

All of the trenches present a similar sedimentary context and soil profile. The presence of archaeological features in GTs 1 and 2 (and possibly GT 3) and natural burn features in GTs 4, 5, and 6 (and possibly GT 3) also is consistent across these trenches. The sedimentary parent material was universally fine, low-energy deposits. Most of the soils in these profiles were silt loams. Alluvial clasts were not seen in any deposit. The sandstone is apparently local bedrock which was noted at the margins of drainage cuts along the northern edge of the terrace above the channel of Leon Creek. Some of the naturally outcropping sandstone exhibits a reddish color so that the reddening of some of the sandstone seen in these Gradall trenches is not necessarily due to thermal alteration.

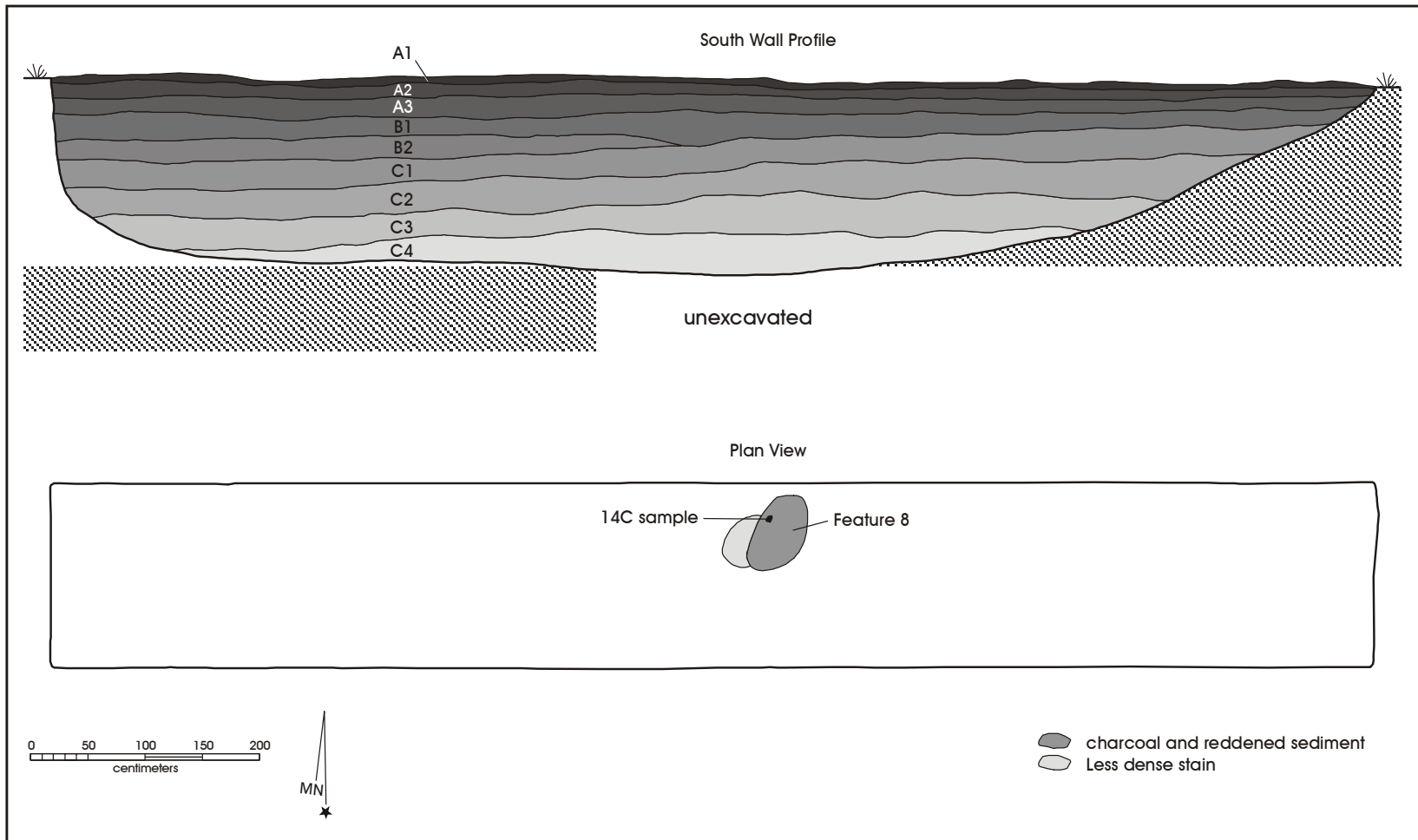


Figure 5-32. Profile of south wall and plan view of floor of Gradall Trench 6 (Phase V) showing location of possible cultural Feature 8.

Phase VI

Phase VI consisted of the NRHP/SAL assessment of 41BX1572, mechanical auger borings of an 18-acre parcel in the vicinity of GTs 1–5, as well as reconnaissance of a 175-acre tract of land located in the eastern portion of the project area. Field efforts consisted of surface reconnaissance, mechanical auger boring, and backhoe trenching.

18-acre Tract Survey

The intensive subsurface survey of an 18-acre tract surrounding 41BX1572 was designed to investigate the deeply buried deposits encountered during excavation of Gradall trenches under Phases IV and V. The previous investigations determined that the deposits were located approximately 130–200 cmbs. As this depth is beyond the practical limits of conventional shovel testing, a backhoe-mounted auger drive and six-foot (1.8 m) auger bit were used to provide systematic and extensive examination of the buried deposits within the survey area.

The 18-acre area began at the bank of Leon Creek and extended west to the location of GT 5. A 30-m grid was established over the 18 acres, with a single auger boring placed at each node along the grid (Figure 5-33, located in pocket). One hundred auger borings were excavated on this grid system. Eight additional auger borings were dug in the immediate vicinity of GTs 3 and 4 to test for the presence of artifacts in the vicinity of the buried features or natural surfaces. No cultural material was encountered in any of the 108 auger borings placed in the 18 acres around 41BX1572.

Site 41BX1572

Auger borings excavated in the vicinity of GTs 1 and 2 identified no buried archaeological deposits. Therefore, no additional information could be gathered relating to the archaeological deposits found at a depth of about 150 cmbs in the Gradall trenches. Surface observations in the vicinity of the trenches were able to identify a light scatter of artifacts (unmodified debitage and two cores) extending to the north-northwest of the trenches. This scatter was linked to the original boundary of 41BX1572. Neither the auger borings nor the shovel tests excavated during Phase V within the site limits produced subsurface artifacts. Based on these findings, the site appears to be a low-density lithic scatter consisting of debris from tool manufacture. No cultural features or temporally diagnostic artifacts were identified.

Gradall Trenches 3 and 4

Auger borings were performed in the vicinity of the GTs 3 and 4 where the presence of thermal features indicated a possibility that buried archaeological materials or identifiable ancient land surfaces might be present. These subsurface investigations failed to locate any cultural materials. Therefore, it is concluded that the thermal features in those trenches do not represent archaeological deposits but rather loci of natural burns or fires.

175-acre Reconnaissance

During the 175-acre surface reconnaissance, transects were spaced 15 m apart and were placed in an east-west orientation. Shovel tests were not employed because their shallow depth was judged to not be sufficient to reach buried deposits within the deep alluvium of this landform. Instead, 16 backhoe trenches were excavated across the landform and two geological profiles or exposures with clear evidence of buried surfaces were investigated (Figure 5-34, located in pocket). Backhoe trenching was performed to identify possible buried archaeological sites and to provide additional geoarchaeological information about these terrace deposits. The geoarchaeological investigation was designed to help reconstruct the geomorphic history of these high terrace settings and determine the likelihood that buried deposits containing archaeological materials are present within the reconnaissance area.

The 175-acre area had a surface visibility between 0% and 5% at the time of the pedestrian survey. The parcel sits at the top of a high terrace approximately 10–15 m above the lower, more recent terrace. Surface artifacts were only identified in the easternmost portion of the parcel. The concentration of artifacts in this area of higher surface visibility associated with the presence of an unpaved ranch road was designated as site 41BX1573 (Field Site 5). No additional prehistoric or historic archaeological materials were identified in any other areas of the 175-acre parcel during this reconnaissance.

Site 41BX1573

41BX1573, originally identified as Field Site 5, consists of a scatter of burned rock and lithic debitage. The light scatter covers approximately 15 m² at the eastern edge of the reconnaissance area at the confluence of the Medina River and Leon Creek (Figure 5-35). The site is visible in a two-track ranch road/trail that runs along the edge of the grass

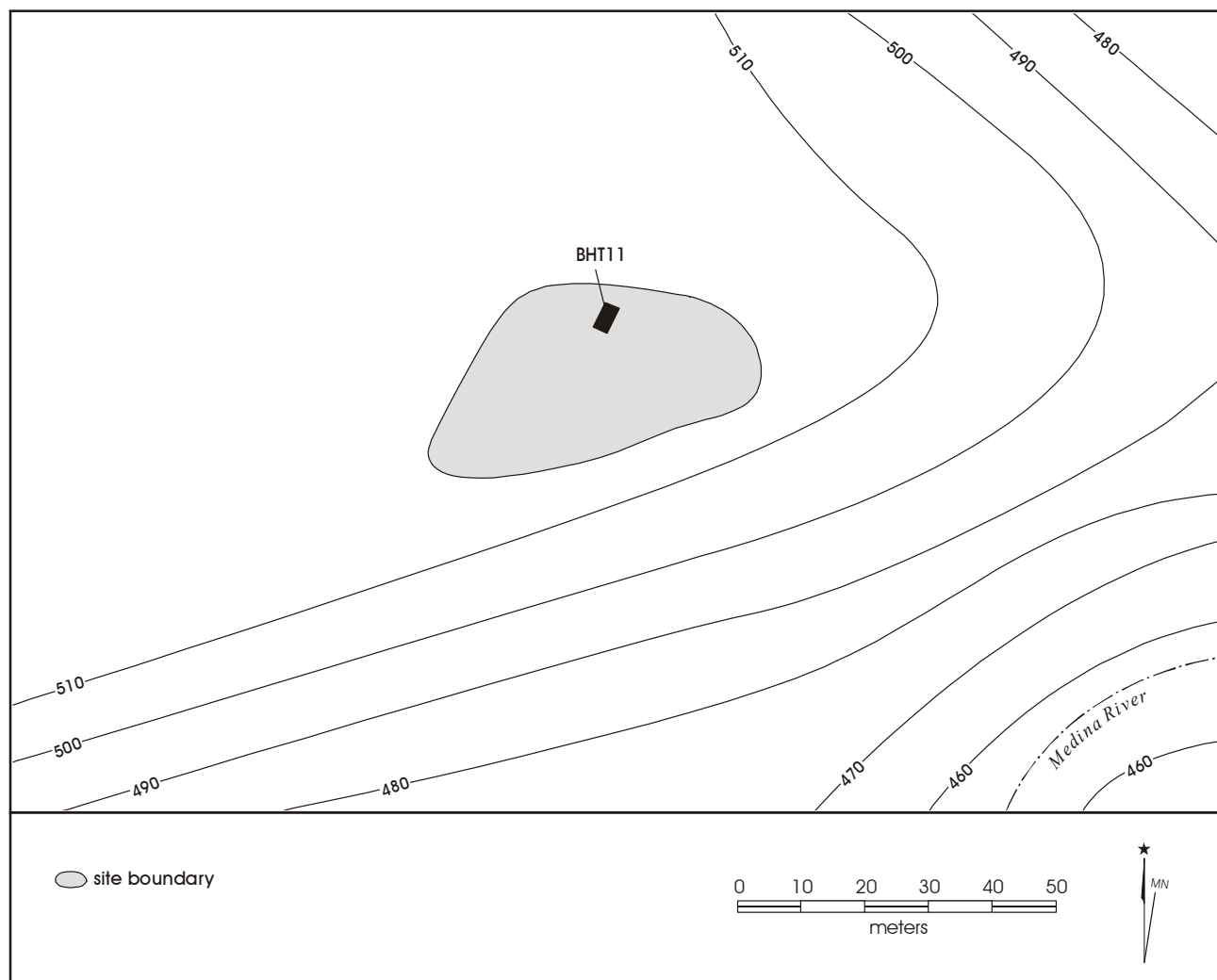


Figure 5-35. Site boundary of 41BX1573 and location of Backhoe Trench 11.

pasture following the boundary of the dense brush along the creek. In the road/trail, surface visibility ranges from 10% to as high as 40%.

No shovel tests were excavated in the site during this phase of work, although BHT 11 was intentionally placed to sample subsurface deposits within the site area indicated by surface materials. A single piece of FCR, one piece of hematite (ochre) and one piece of chert angular debris were recovered from 10–20 cm below the current ground surface. The artifacts were not associated with an unambiguous paleo-surface but were within the A1 and A2 horizons. Three charcoal samples were collected from 100–125 cm below the ground surface. These samples were not associated with

cultural materials. A more detailed description of the geomorphic stratigraphy of the trench is provided in the geoarchaeological investigations section. Additional work was conducted at this site during Phase VIII.

Geoarchaeological Investigations

Geoarchaeological investigations of the 175-acre reconnaissance area occurred between June 12 and June 17, 2003. This phase of work investigated subsurface deposits of the high abandoned terraces adjacent to both drainages and through the center of the terrace adjacent to the confluence of Leon Creek and the Medina River (Figure 5-34). Sixteen backhoe trenches (BHTs 7–22) were excavated and two additional geological sites (i.e., exposed

banks) were inspected. The backhoe trench numbering was continued sequentially with the Gradall trenches employed in Phases IV and V. This effort represents the most systematic examination of a single landform performed during any portion of fieldwork within the project area.

Two trenches, BHTs 9 and 11, encountered archaeological remains. BHT 9 encountered artifacts at approximately 1 m below the modern ground surface. As mentioned previously, BHT 11 was placed on site 41BX1573. No other trenches contained evidence of cultural materials, paleosols, or unambiguous evidence of past stable surfaces. The two trenches with cultural materials are discussed in greater detail first. Findings from the other trenches are discussed as a group.

Backhoe Trench 9

BHT 9 was located along the northern margin of the abandoned high terrace (Figure 5-34). The western wall of this trench was profiled (Figure 5-36) and a complete soil description was recorded (Table 5-5). Four A horizons extended 20–45 cm below the modern ground surface. The A2 and A3 soils were not present in the southern 1.25 m of BHT 9. The A1 unit was recent. All soil horizons were deeper on the northern end of the trench so that the top of the Bk1 horizon was 15 cmbs at the southern end of the trench and 45 cm at the northern end. There were significantly more CaCO₃ filaments in the B and C horizons than encountered in other parts of this landform. The lower boundary of the

Bk2 soil was between 60–110 cmbs, also deeper at the northern end of BHT 9. Three Ck horizons were exposed in the excavations.

A single flake and two pieces of possible FCR were recovered at approximately 1 m below the modern ground surface from the western wall of BHT 9 just below the contact of the Bk2 and Ck2 horizon (Figure 5-36). Two pieces of charcoal were collected just below these artifacts. Three other pieces of charcoal were recovered from 1.25–1.5 m below the modern ground surface in the west wall. Two pieces of charcoal were identified and collected from the eastern wall of BHT 9. One was found in association with a piece of possible FCR at a comparable level to the artifacts in the western profile. The other was also approximately 125 cm below the current ground surface. Although artifacts were identified in BHT 9, because it could not be determined whether these specimens represented isolated specimens or a site, the locality was provisionally identified as Field Site 6.

Backhoe Trench 11

BHT 11 was intentionally excavated in site 41BX1573 prior to shovel test excavations of that location. The location of BHT 11 was chosen to sample an area with surface materials but avoid excessive disturbance of the site from use of the backhoe. 41BX1573 is located at the extreme eastern end of the project area directly adjacent to the confluence of

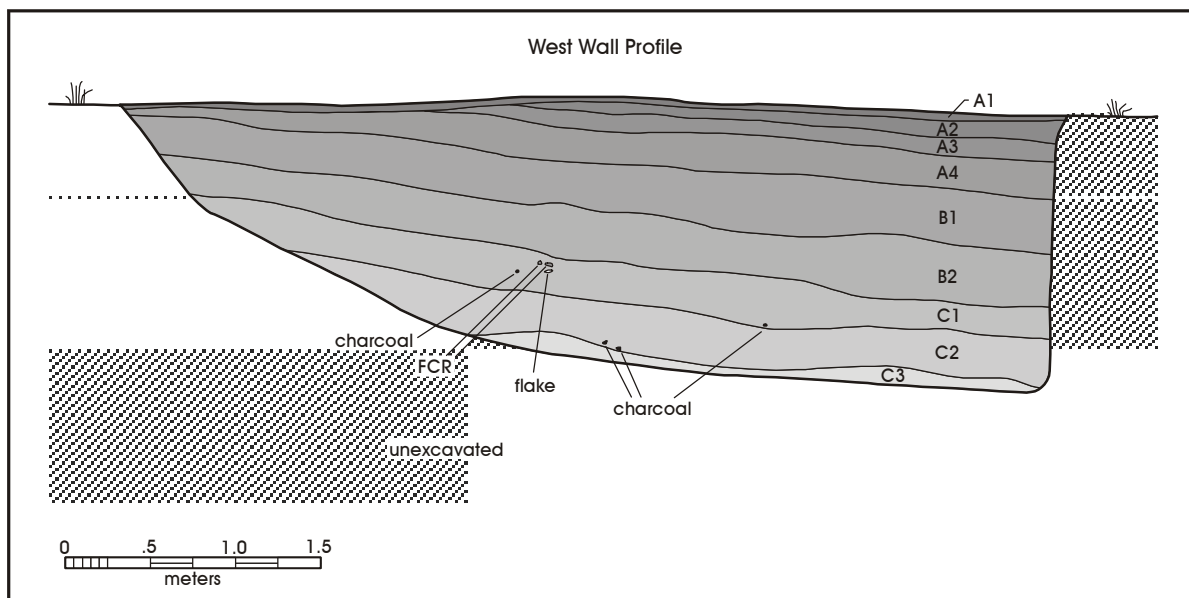


Figure 5-36. Profile of west wall of Backhoe Trench 9, Phase VI.

Table 5-5. Description of Soil Profile of West Wall of Backhoe Trench 9, Phase VI

Horizon	Texture	Consistence Wet/Dry	Clay films	Grain Coatings	Structure	Roots	Pores	CaCO ₃	Boundary	Color Wet/Dry	Comments
A1	fine, well sorted silt loam		0		weak; single grain- fine; subangular blocky	abundant; fine-coarse	0	violent	abrupt; smooth		very recent sediment
A2	fine, well sorted silt loam	W-slightly sticky; slightly plastic; D-loose-soft	0	few silt bridges	weak; fine-med; angular blocky	abundant; fine-coarse	0	violent	abrupt; smooth	W-10YR 3/2 D-10YR 4/3	
A3	fine, well sorted silt loam	W-sticky; plastic; D-soft	0	few silt bridges	weak; medium; subangular blocky	few; fine- med	0	violent	abrupt; smooth	W-10YR 3/2 D-10YR 3/3	
A4	fine, well sorted silt loam	W-sticky; plastic; D-sl hard-hard	few; thin; discontinuous, ped faces	N/A	moderate; coarse; subangular blocky	few; fine- med	many; v fine- fine	violent	clear; smooth	W-10YR 3/2 D-10YR 3/3	few-common fine CaCO ₃ filaments
B1	fine, well sorted silt loam	W-slightly sticky; slightly plastic; D-sl hard	few; thin; discontinuous, ped faces	N/A	moderate; med- coarse; subangular blocky	few; fine	few; v fine	violent	clear; smooth	W-10YR 4/3 D-10YR 4/3	many-abundant fine CaCO ₃ filaments; much insect bioturbation
B2	fine, well sorted silty clay loam	W-slightly sticky; slightly plastic; D-sl hard-hard	few; thin; discontinuous, ped faces	N/A	weak-moderate; fine- med; subangular blocky	v few; fine	few; v fine	violent	clear; smooth	W-10YR 4/3 D-10YR 4/3	abundant fine-med CaCO ₃ filaments
C1	fine, well sorted silty clay loam	W-slightly sticky; slightly plastic; D-soft	few; thin; discontinuous, ped faces	N/A	weak-moderate; med- coarse; subangular blocky	v few; fine	0	violent	clear; smooth	W-10YR 4/3 D-10YR 4/3	many fine CaCO ₃ filaments; cultural horizon
C2	fine, well sorted silty clay loam	W-slightly sticky; slightly plastic; D-soft	0	few silt bridges	weak-moderate; medium; subangular blocky	v few; fine	0	violent	gradual, wavy	W-10YR 4/4 D-10YR 5/4	few-common fine CaCO ₃ filaments; charcoal from base of horizon
C3	fine, well sorted silt loam	W-slightly sticky; slightly plastic; D-soft	0	few silt bridges	weak-moderate; fine; subangular blocky	0	0	violent	unknown	W-10YR 4/3 D-10YR 5/4	v few fine CaCO ₃ filaments

Leon Creek and the Medina River (Figure 5-34). This site was identified from a moderately dense surface scatter of lithics and FCR.

The western wall of BHT 11 was profiled (Figure 5-37) and a complete soil description performed for this trench (Table 5-6). Soils in this unit were typical of this area. Two A horizons extended to a depth of 30–50 cm below the modern ground surface. Cultural artifacts were mapped and collected from the A1 and A2 horizons. Three B horizons extended to a depth of 90 cmbs. Some trenches (especially BHTs 9 and 12) on the eastern end of this area exhibited comparably thicker B horizons than identified in the western area during Phases IV and V. Five pieces of mussel shell were mapped in the B1 and B2 horizons. Three were in the upper portion of the B2 and lowest part of the B1 horizon and the other two were higher in the B1 unit. Underneath the B horizons were two C horizons. Charcoal and mussel shell were noted primarily in the lower part of the C1 horizon.

Artifacts were only identified in the A horizons. These were probably associated with the surface scatter of lithics and FCR at 41BX1573. A single piece of FCR was mapped in the A1 horizon. One piece of chert angular debris and a possible fragment of hematite (ochre) were recovered from the A2 horizon. These materials were approximately 5–16 cm below the current ground surface (Figure 5-37). The artifacts were not associated with any identifiable paleo-surface but were

within the A1 and A2 horizons. All of these artifacts were collected, but eventually discarded. In addition, three charcoal samples were collected from 100–125 cm below the ground surface from the C1 horizon. There was no evidence that these were associated with any cultural materials. The charcoal has been curated for possible dating.

Other Trenches

Soils and sediments in the remaining trenches were generally very similar to those described for Phase IV and V and to BHTs 9 and 11. Upper solum soils were fine, well-sorted silt loams underlain by silty clay loams in the lower B and C horizons. Soils in BHTs 12 and 14 were more strongly developed than in other trenches. The C1 and C2 horizons in BHT 12 showed strong development. There was a noticeably greater amount of sand in the A–B1 horizons in BHT 15, but these were still well-sorted silt loams. A small amount of mussel shell also was present in BHT 15. BHT 16 contained more sand than BHT 15. The Bk horizons in this trench contained the only CaCO₃ nodules in this area. Both of these horizons had very weak structure. The Bk1 soil exhibited fine to medium-sized pedes and was quite disaggregated. It may indicate that these are reworked deposits and that BHTs 15 and 16 sampled an area with a more recent channel meander of the Medina River. A few gravels (4 cm or less in size) were found during the excavation of BHT 17, but none were found *in situ*. This also may indicate that this margin of the terrace has been

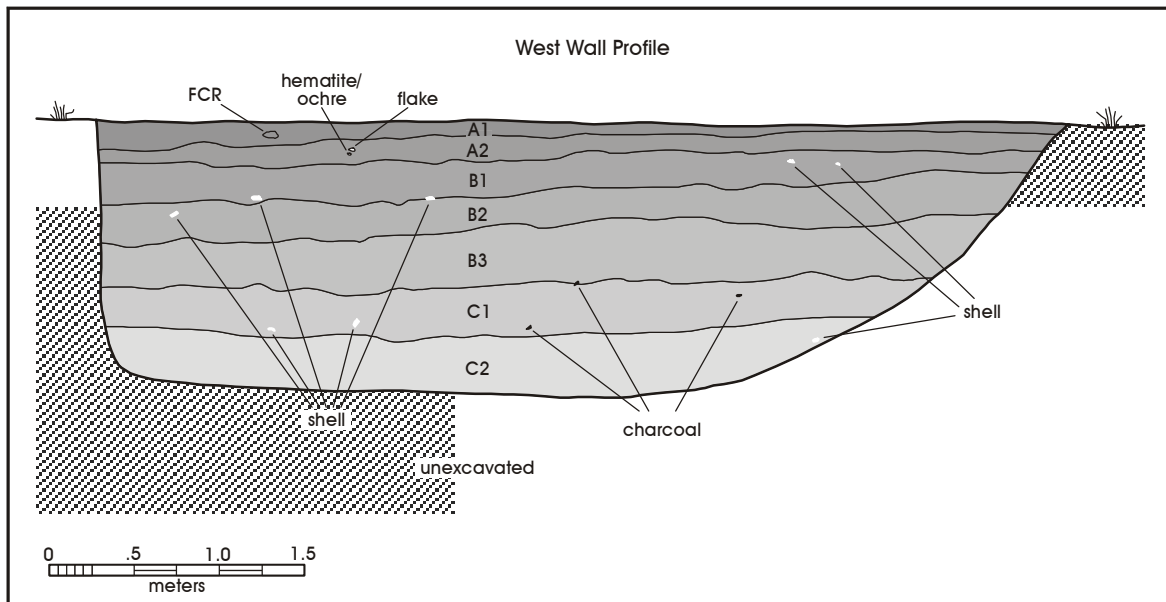


Figure 5-37. Profile of west wall of Backhoe Trench 11, 41BX1573, Phase VI.

Table 5-6. Description of Soil Profile of West Wall of Backhoe Trench 11, Phase VI

Horizon	Texture	Consistence Wet/Dry	Clay films	Grain Coatings	Structure	Roots	Pores	CaCO ₃	Boundary	Color Wet/Dry	Comments
A1	fine, well sorted silt loam	W-slightly sticky; slightly plastic; D-soft-sl hard	0	few silt bridges	weak; fine; subangular blocky	abundant; fine-coarse	0	violent	abrupt; smooth	W-10YR 3/2 D-10YR 5/2	cultural horizon
A2	fine, well sorted silt loam	W-sticky; plastic; D-hard-v hard	few; thin; discontinuous, ped faces	N/A	moderate; fine-med; subangular blocky	many; fine-coarse	few; fine-coarse	violent	abrupt; smooth	W-10YR 4/2 D-10YR 4/3	much insect bioturbation; cultural horizon
B1	fine, well sorted silt loam	W-sticky; plastic; D-hard-v hard	many; thin; continuous, ped faces	N/A	moderate; medium-coarse; angular blocky	many; fine-coarse	many; fine-coarse	violent	clear; smooth	W-10YR 3/2 D-10YR 4/3	much insect bioturbation
B2	fine, well sorted silty clay loam	W-sticky; plastic; D-sl hard-hard	few; thin; discontinuous, ped faces	N/A	moderate; fine-med; angular blocky	many; fine-med	many; fine-coarse	violent	clear; smooth	W-10YR 4/3 D-10YR 5/4	many fine CaCO ₃ filaments; much insect bioturbation
B3	fine, well sorted silty clay loam	W-slightly sticky; slightly plastic; D-hard-v hard	discontinuous, ped faces & interior	N/A	weak-moderate; coarse; subangular blocky	common; fine-med	few; v fine	violent	clear; smooth-wavy	W-10YR 4/3 D-10YR 6/4	many fine CaCO ₃ filaments
C1	fine, well sorted silty clay loam	W-slightly sticky; slightly plastic; D-sl hard	few; thin; discontinuous	N/A	weak; fine; angular blocky	few; fine-med	few; fine	violent	clear; wavy	W-10YR 4/3 D-10YR 5/4	many fine CaCO ₃ filaments; much insect bioturbation
C2	fine, well sorted silty clay loam	W-sticky; plastic; D-soft-sl hard	few; thin; discontinuous, clay bridges	N/A	weak; fine-med; angular blocky	v few; fine-med	0	violent	unknown	W-10YR 4/4 D-10YR 5/4	common fine CaCO ₃ filaments

subject to recent higher-energy dynamics of channel meander as suggested in BHTs 15 and 16. The A2/B1 boundary in BHT 17 was very abrupt and smooth and may be an unconformity indicating that the A1 and A2 epipedons are plow zones (Ap). Soils in BHT 18 appeared to be well developed and suggest greater age than in adjacent BHTs 16–17. BHT 19 was similar to BHT 18 and did not show any differences although it was just west of a visible channel meander. BHT 20 was excavated in a channel meander visible in an aerial photograph (Figure 5-34). Soils in this trench were well developed and not recent. All of the sediments and soils were level and indicate that the paleochannel is deeply buried in this location. In BHT 22, the upper A, B, and C horizons appear to be much younger than the two lowest Ck horizons. These Ck deposits do not appear to be genetically related to the solum and may indicate remnant soils from previous soil formation regime.

Geological Sites 1 and 2

Examination of two locations of exposed banks was performed in response to informal observations that possible paleosols were present in deep contexts. Both of these represent eroding margins of the abandoned terrace settings. One location on the exposed south-descending bank of the deeply incised Leon Creek drainage was designated CAR Geological Site 1 (Figure 5-34). A second exposure, CAR Geological Site 2, on the north-descending bank of the incised Medina River also was inspected (Figure 5-34). Examination of CAR Geological Site 1 included the collection of charcoal samples. Informal observations at this location identified the presence of charcoal and *Rabdotus* shell that indicate a deeply buried paleo-surface. Lithics were observed in colluvial context at this location, but none were observed *in situ* during inspection of the exposed terrace tread. Geological Site 1 does indicate a high probability that very deeply buried archaeological remains are present in this vicinity.

Informal inspection of Geological Site 2 also identified evidence of a buried past geologic surface. A horizontal exposure of *Rabdotus* shells indicates a buried ground surface that is not associated with visible paleosol formation. Two areas with charcoal and adjacent reddened sediments indicate that *in situ* burning, probably of tree roots, also was associated with the same location and approximately the same elevation on the exposed terrace tread. One charcoal sample was collected from this location. A small amount of mussel shell and small sandstone clasts also were associated with the elevations where *Rabdotus* and evidence

for fire were found. The burning demonstrates sufficient past stability for tree growth prior to burning and sedimentation. No archaeological materials were found in this vicinity. Like evidence in GTs 3–6, this does add information about the presence of buried surfaces and offers an opportunity to date the rates of sedimentation in this area.

Surface Elevation Transects

The Phase VI portion of the project area is situated on a series of high, abandoned terraces of Leon Creek and the Medina River. Examination of recent aerial imagery (Figure 5-34) and older photographs (Taylor et al. 1991:Map 78) show meander scars of the Medina River and Leon Creek across this area. It appears that the Medina's channel was north of its current position, Leon Creek may have been slightly south of its modern channel, and their confluence was west of its current position by approximately 760–914 m (2,500–3,000 ft.). Soils data suggest that the youngest deposits are present at the eastern end of the project area near the confluence of Leon Creek and the Medina River and near the southern margin of the abandoned terraces (BHTs 15–17) adjacent to the incised channel of the Medina River.

Two ground surface geomorphic profile transects were mapped using a Sokkia Set 6E total station to compare elevations and help identify terrace sequences and the relative age of different portions of these floodplain deposits. One transect sampled surfaces between 41BX1571 and Geological Site 1 and the other measured surface elevations between an area slightly southwest of Geological Site 1 to site 41BX1573 (Figure 5-34). The latter transect ran from approximately 150 m southwest of Geological Site 1 to between BHT 20 and BHT 21, and then eastwards through BHTs 21, 22, 10, and 11. A profile of ground surface elevations with exaggerated vertical scale was made from these data (see Figure 2-1). This profile allows interpretation of the relationships between some of the terrace surfaces where backhoe trenches are located. The exaggerated vertical scale was necessary to illustrate minor elevational differences that inform about floodplain formation and temporal relationships between portions of the project area that are relatively level.

The upper portion of Figure 2-1 shows the geomorphic profile transect between 41BX1571 and Geological Site 1 that follows an existing cleared transmission line corridor. This profile clearly demonstrates that 41BX1571 is located on a terrace that is higher than the portion of the project area lying to its east. The surface where 41BX1571 is

situated is obviously older and its deposition represents a separate series of events from those responsible for the formation of floodplain deposits east of that location. The bottom half of Figure 2-1 shows the profile between Geological Site 1 and 41BX1573. This profile indicates that three separate surface elevations can be identified. The elevations demonstrate the presence of four successively younger terrace deposits associated with channel changes. From Geological Site 1 to BHT 20, two terrace surfaces appear to be present. Between Geological Site 1 and GT 5, excavated during Phase V, there is a change in elevation that indicates an older terrace near Geological Site 1 and a younger surface northwest of GT 5 that extends southeastward to BHT 20. There is a slight depression southeast of GT 5 that represents a channel meander of Leon Creek visible on aerial imagery (Figure 5-34). Both the northwestern and southeastern sides of that channel meander are at the same elevation and represent equivalent floodplains. GTs 1–6 and BHT 7 all are located on this surface. At BHT 20, the meander scar of a past location of the Medina River is apparent in the exaggerated profile and in aerial imagery. There is a small berm on the eastern side of the channel that may represent a levee deposit from that channel. The elevation is equivalent to the terrace between BHT 20 and GT 5. East of that possible berm, a single surface is apparent between BHT 21 and BHT 22. BHTs 18 and 19 also are associated with this surface and profiles of BHTs 18, 19, and 21 have similar profiles (notably deeper B horizons). East of BHT 22 there is apparent erosion and a single terrace is represented from that erosion to BHT 11. The Ck soils in BHT 22 suggested erosion into an older soil regime prior to deposition of sediments with less well-developed soil formation. Minor surface variations between BHTs 12, 10, and 11 suggest very recent drainage changes and erosion that are related to the change in grade at the terrace margin associated with the pronounced downcutting of the Median River and Leon Creek. BHTs 13, 12, 10, and 11 presented very similar soil profiles. Even with the exaggerated vertical scale, there are minimal elevation differences across all of these surfaces. This indicates that they represent very similar depositional environments and are closely related temporally.

Phase VII

Phase VII consisted of the NRHP/SAL assessment of five previously recorded sites (41BX653, 41BX654, 41BX655, 41BX656 and 41BX676). Fieldwork included surface reconnaissance and shovel testing. This field work was carried out between July 23 and 28, 2003.

Site 41BX653

Located approximately 200 m north of the modern Medina River channel, this multi-component prehistoric site is situated on an old river terrace at 540–550 ft. AMSL. Although the site is located only 75 m north of 41BX652, the two are considered to be spatially discrete from one another based on landform association (McGraw and Hinds 1987:215). Minor erosion is present along ranch roads that dissect the site. Vegetation consists of dense brush and trees with poor (~0%) surface visibility. The only exceptions to surface visibility problems are the ranch roads that have excellent surface visibility (90–100%). The landowner in 1984 stated that the vegetation in this area had never been cleared. This site has been officially designated as a SAL.

During surface inspection, three separate, sparse scatters of debitage exposed in the ranch roads were noted. The first scatter is within the western portion of the site (Figure 5-38), however, the second and third scatters are on the ranch road just beyond the previously delimited eastern boundary of the site. No other cultural material was noted on the site's surface.

Forty shovel tests were excavated at 41BX653 during this phase of the project. Under Phase II, CAR excavated 31 shovel tests to look for buried features and archaeological materials in the northwest extension of this site. None of those shovel tests proved positive for subsurface materials and it was recommended that the northwest extension of the site be removed from the site bounds.

Of the 40 shovel tests excavated during Phase VII, only four (10%) yielded cultural material. Artifact recovery from these four shovel tests was sparse. Only five lithics were recovered, one of these was a core. The majority (60%; n=3) of the lithics were encountered in Level 1 (0–10 cmbs), with the remainder encountered in Levels 3 (20–30 cmbs; n=1) and 4 (30–40 cmbs; n=1). One mussel shell fragment was recovered from Level 4 at 35 cmbs. Table 5-7 presents the recovery of artifacts by provenience.

The second and third surface scatters, combined with the four positive shovel tests define an artifact concentration on the east side of 41BX653, noted on the site map (Figure 5-38) as artifact concentration A. The surface scatter in the western portion of the site was defined as artifact concentration B. Shovel tests placed in the vicinity of concentration B failed to encounter any subsurface cultural material.

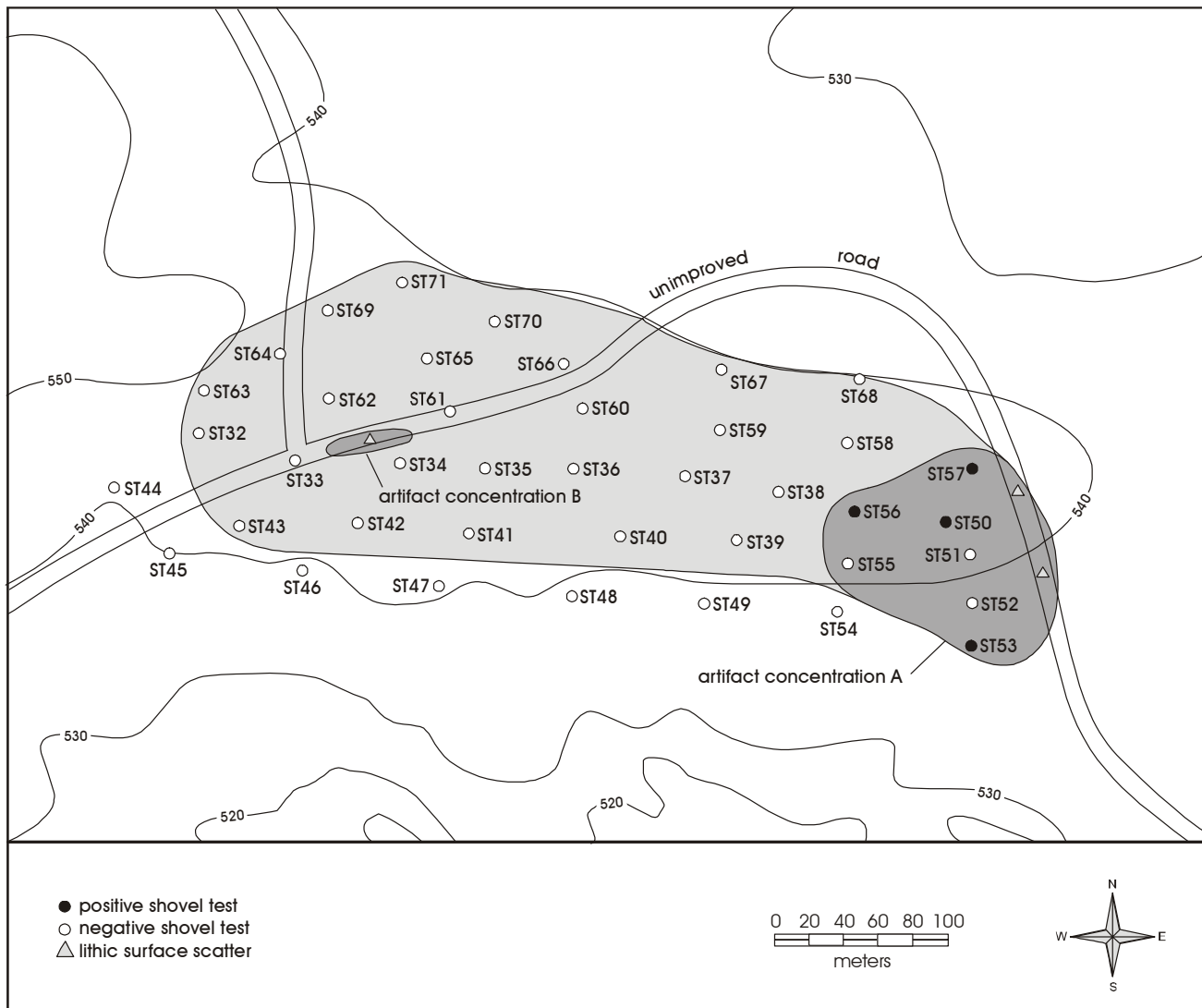


Figure 5-38. Site plan and location of artifact concentrations and shovel tests on 41BX653.

Site 41BX654

This prehistoric site was first identified in 1984 during a survey in the immediate area of the proposed Applewhite Reservoir dam. A light scatter of lithic debris was noted on surface but no diagnostics were encountered. The location appeared to be heavily eroded and it was concluded that much of the materials were deflated. It was not recommended as eligible for designation as a SAL or nomination to the NRHP (McGraw and Hides 1987:216).

The site is situated in an upland dominated by thorn brush, tall grasses, oak, persimmon, and mesquite. The Medina River flows northeasterly approximately 200 m southeast of 41BX654. Grasses, when present, are thick so surface visibility is poor (0–5%). A ranch road cutting through the site does provide a small area of excellent surface visibility. The road has been maintained by the addition of limestone gravels, including some machine-crushed chert. Judging from the secondary growth, from the ranch road east, the area seems to have been cleared in the past and is heavily

Table 5-7. Artifacts Recovered from 41BX653

Cat. #	Unit	Level	Depth (cmbs)	Class	Count	Description
1-001	ST 50	3	35	mussel	1	umbo
1-002	ST 50	3	35	core	1	
2	ST 53	3	20-30	debitage	1	
3-001	ST 53	1	0-10	snail	1	<i>rabdotus</i>
3-002	ST 53	1	0-10	burned rock	1	
3-003	ST 53	1	0-10	debitage	1	
4	ST 56	1	0-10	debitage	1	
5-001	ST 57	1	0-10	debitage	1	
5-002	ST 57	1	0-10	burned rock	1	

disturbed. These maintenance and clearing activities have resulted in the presence of numerous mechanically crushed chert gravels. West of the ranch road, the site is covered by woodlands vegetation. A more recently cleared area is present northeast of the site and stretches to 41BX655.

Twenty-six shovel tests were excavated at 41BX654 (Figure 5-39). None of the tests produced cultural materials. Similarly, no cultural materials were noted on surface while traversing the transects.

Site 41BX655

This prehistoric site is situated on what is probably an ancient terrace 200 m northwest of the current Medina River channel. At 540 ft. AMSL, the ground slopes to the southeast toward a wide gully approximately 100 m from the site. This gully trends northeasterly, parallel to the modern river, and may be an ancient, abandoned channel of the Medina River. This is a moderate-sized site (100 x 250 m) centered on a northwest-southeast transmission line. Approximately 70% of the site was estimated intact at the time of the original site recording (McGraw and Hinds 1987:218). Although the immediate area of the transmission line is open and covered with low grasses, the western portion of the site is covered with a heavy weave of thorny brush, vines and mesquite trees. The eastern half of the site is covered by woodland vegetation. Surface visibility is extremely poor except in the transmission line clearing where visibility is good. Some time in the recent past, a “road” has been cut through the site westward toward 41BX654 and a large area has been cleared between 41BX654 and 41BX655 (Figure 5-39). This disturbance is so new that no weeds have yet taken root in the cleared area (Figure 5-40).

The road below the transmission line is actively eroding the site and has exposed a moderate scatter of lithics at 41BX655. A unifacial tool was recovered on surface from this eroded context. Twenty-two shovel tests were excavated on site during the revisit. Only one (ST 2) of the 22 shovel tests encountered cultural material. ST 2, located near the spot where the uniface was found, yielded one flake from Level 1 (0–10 cmbs). Flakes were noted on the extreme eastern edge of the recently cleared area and along the narrow tract beyond the boundary of 41BX655. These materials may have been pushed there during original or recent land clearing of the western half of the site. No features or burned rock were noted on the surface in the vicinity of these flakes.

Site 41BX656

This prehistoric site sits on a distinctive upland landform and is bound on three sides by the 530 foot elevation contour (Figure 5-41). The site is located along a ridge that may be part of a former river terrace approximately 275 m northeast of the current Medina River channel. In the northern half of the site, vegetation density is high. Roughly 60–70% of the site was intact at the time of its original recording (McGraw and Hinds 1987:219) and testing was recommended to establish the SAL/NRHP eligibility of the site.

At the time of the revisit, surface visibility was 0% across much of the site, however, it reaches approximately 40% (moderate) in the extreme southern portion of the site. An east-west running ranch road crosses the center of the site. Twenty-eight shovel tests were excavated on site. Only three (10.7%) of the 28 shovel tests were positive for artifacts. These were STs 21, 23 and 27. Two pieces ofdebitage were recovered from ST 21 in Level 1 (0–10 cmbs); ST 23 yielded

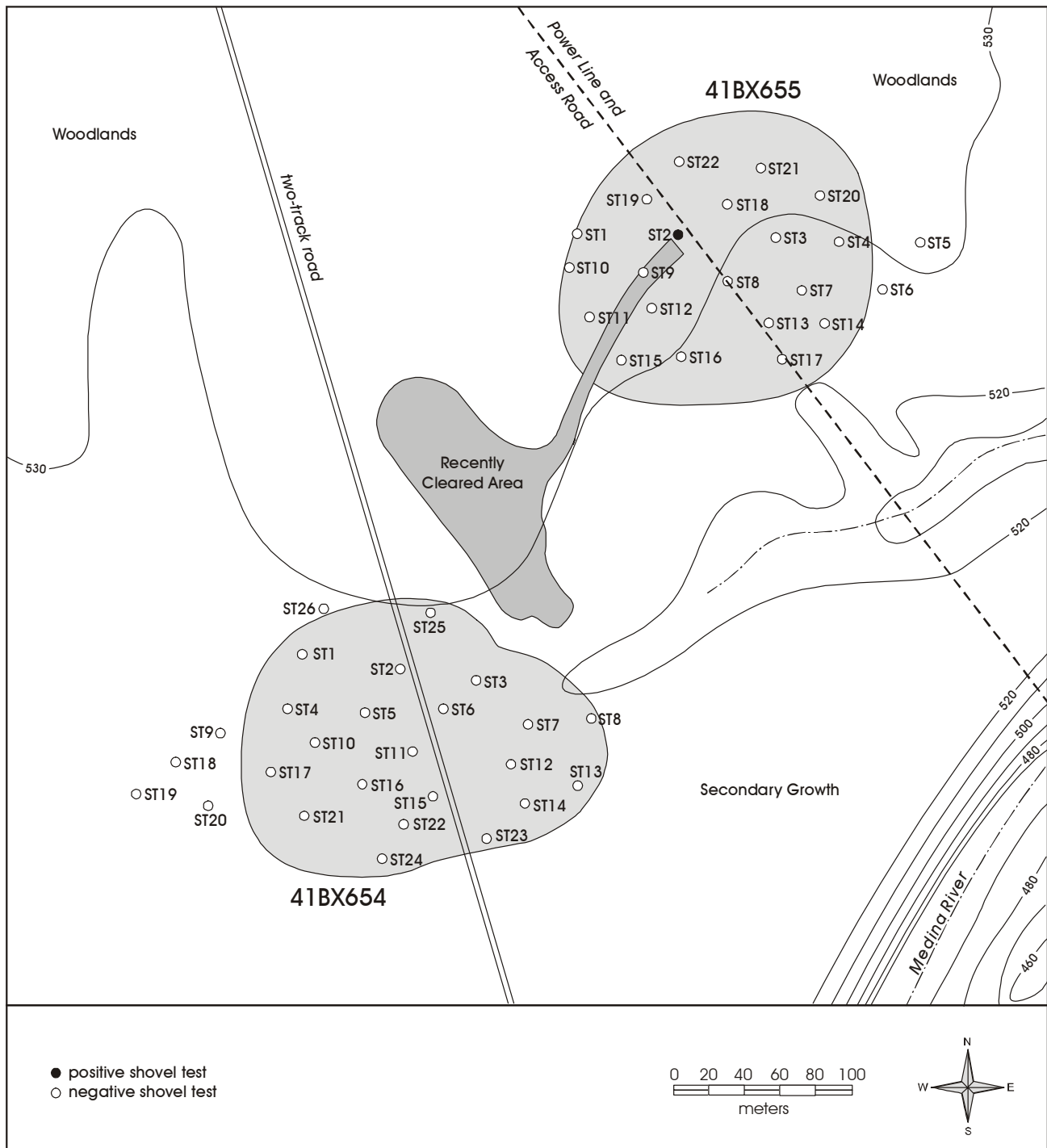


Figure 5-39. Site plans and locations of shovel tests at 41BX654 and 41BX655.



Figure 5-40. View of large cleared area between 41BX654 and 41BX655.

a single piece of debitage from Level 3 (20–30 cmbs); and ST 27 produced one flake each from Levels 3 (30–40 cmbs) and 6 (50–60 cmbs). Shovel testing indicates there is some depth to the cultural deposits at the southern end of the site. The total recovered artifacts from this site consist of five pieces of debitage (Table 5-8).

All positive shovel tests were situated at the southern edge of the site. A moderate scatter of lithics and burned rock was visible in the ranch road and defined as artifact concentration A (Figure 5-41). A second denser surface concentration of lithics was defined in the vicinity of the positive shovel tests at the southern end of the site. It was defined as artifact concentration B.

Site 41BX676

An unknown number of burials were purported to exist in the cemetery identified as historic site 41BX676 (McGraw and Hindes 1987:256). The burials were thought to pertain to a cholera epidemic that affected the San Antonio area in the early 1900s. The interments were believed to be of either ranch hands or tenant farmers who lived nearby at that time.

At the time of the survey, the vegetation was open pasture grassland. Surface visibility was poor (0%), with the exception of narrow and deep (12–18 inches) gullies that crosscut the surface. An intensive pedestrian surface survey was carried out with transects spaced at 10 m apart across the suspected cemetery location. The gullies and their vicinity were carefully inspected for artifacts and any signs of burials. No evidence of headstones, fences or subsidence was identified. No surface manifestations were encountered during the survey to indicate the presence of a cemetery.

Phase VIII

Phase VIII consisted of the NRHP/SAL eligibility assessment of nine previously recorded sites (41BX349, 41BX652, 41BX657, 41BX658, 41BX659, 41BX661, 41BX662, 41BX832, and 41BX1573), the recording of two new historic sites (41BX1574 and 41BX1575) with standing structures, and intensive mechanical auger boring around BHT 9. Cultural materials were identified in BHT 9 during Phase VI. Overall, fieldwork included surface reconnaissance and shovel testing at the previously recorded sites, and mechanical auger boring around BHT 9. The field investigations were carried out between July 29 and August 5, 2004.

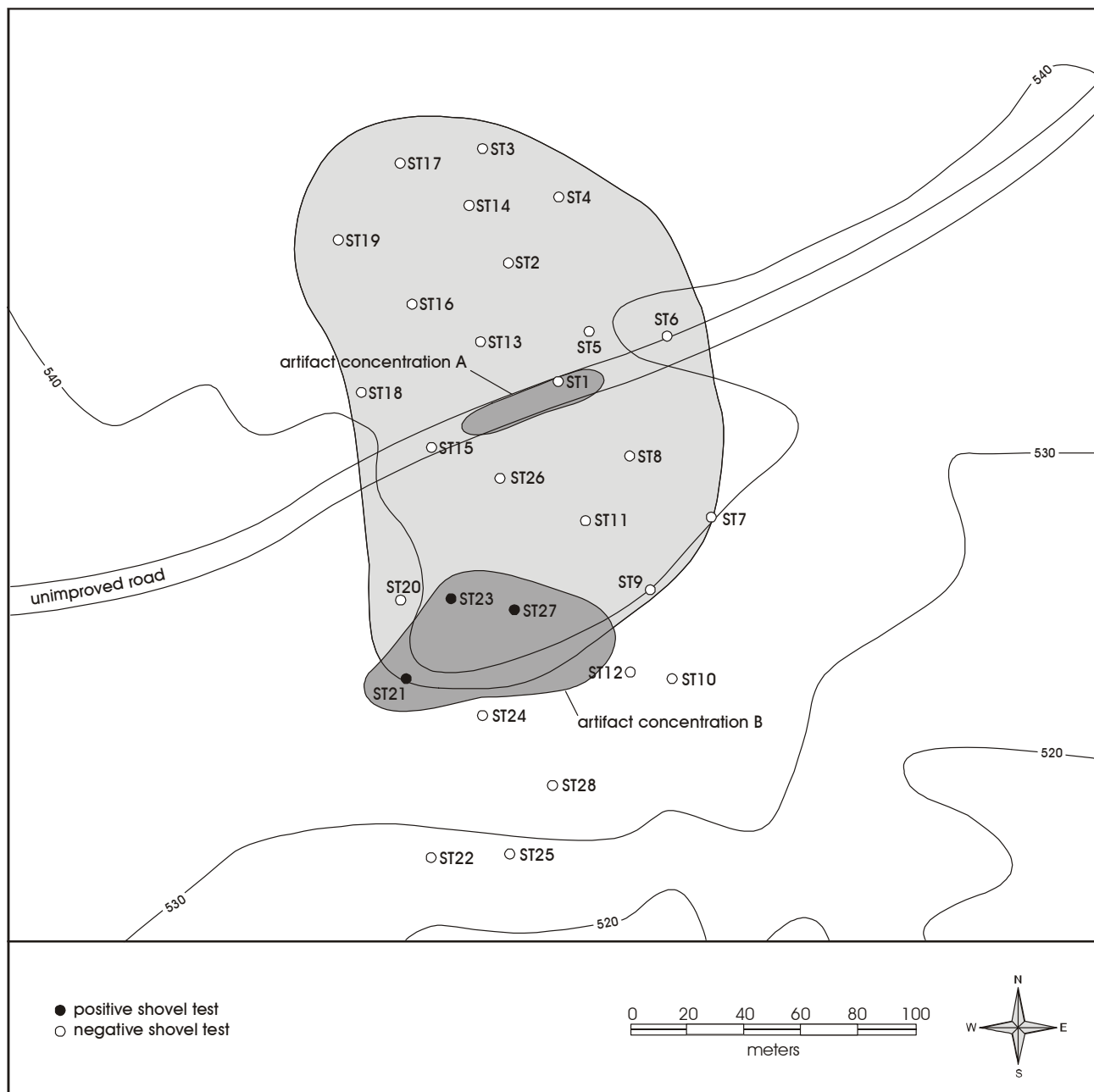


Figure 5-41. Site plan and distribution of shovel tests, 41BX656.

Site 41BX349

This site is located approximately 50 m north of the Medina River separated from it by an arroyo and a slightly higher landform. (Figure 5-42). The elevation of this site is between 530 and 540 ft. AMSL.

Both historic and prehistoric artifacts are present at this site. Originally, 41BX349 was identified through survey and limited excavation. Architectural evidence was said to include an area of chimney fall and several sandstone piers that indicated multiple structures (Thoms 2000:19–20). Historic artifacts identified at the time included decorated

Table 5-8. Artifacts Recovered from 41BX656

Cat. #	Unit	Level	Depth (cmbs)	Class	Count	Description
1	ST 10	2	10-20	other rock	2	bedrock
2	ST 21	1	0-10	debitage	2	
4	ST 23	3	20-30	debitage	1	
6	ST 27	3	20-30	debitage	1	
7	ST 27	6	50-60	debitage	1	

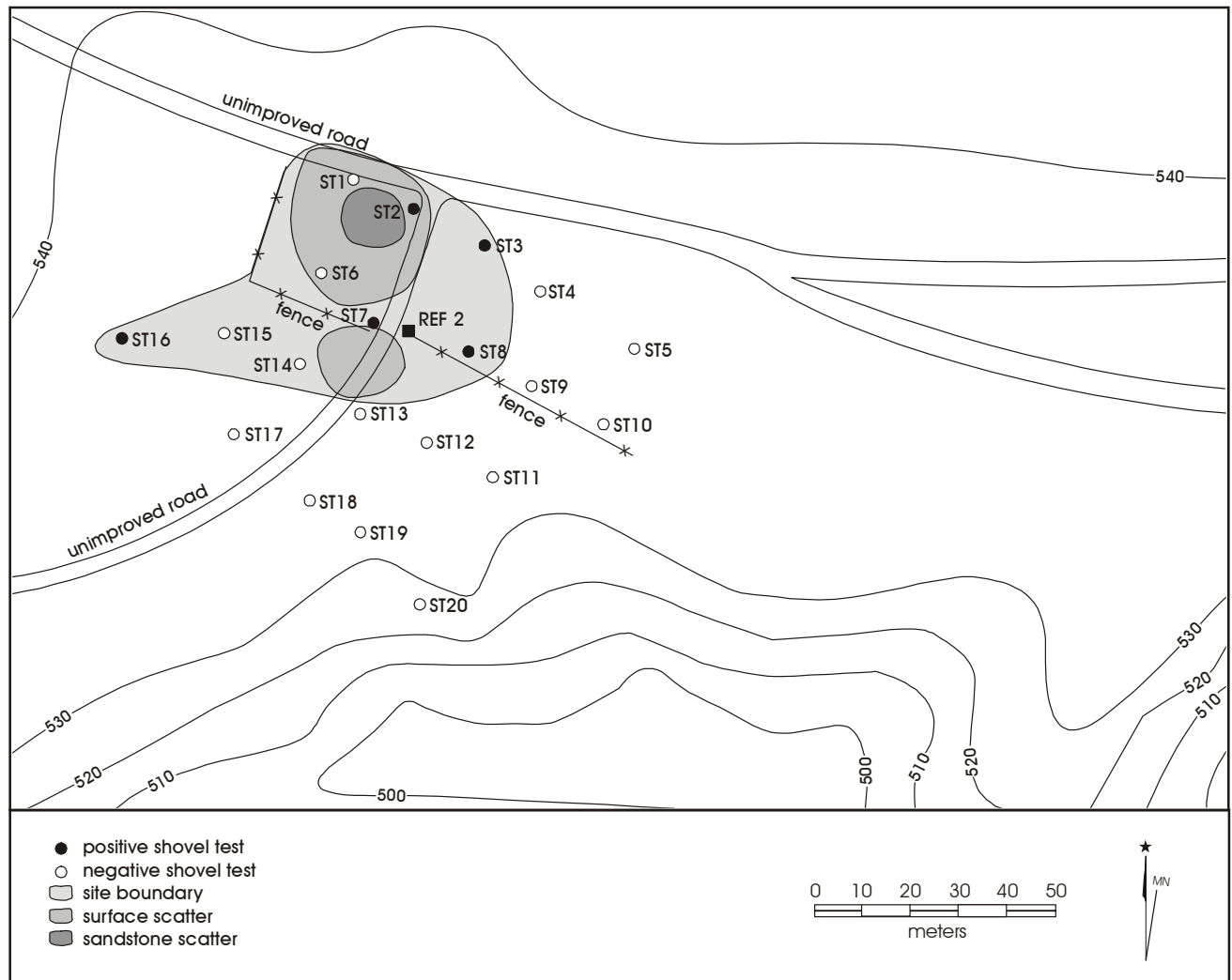


Figure 5-42. Site plan and distribution of shovel tests, 41BX349.

white earthenware ceramics, clear bottle glass, and fragments of unidentified metal. There also was a low-density surface scatter of prehistoric lithics (Thoms 2000:20). The site was identified as an Anglo-Texan farmstead dating to the mid-nineteenth century (1830–1860; Thoms 2000:19-20).

During the current project, the area indicated as the site location on topographic maps from the Texas Archeological Sites Atlas was thoroughly inspected. The mapped location is on a heavily eroded bluff overlooking a 10-m-deep arroyo. Inspection of this area, however, provided no indication of cultural materials. It was concluded that the original site plotting was in error.

A reconnaissance of a larger area revealed a moderate to dense scatter of historic artifacts and a light scatter of lithic debris nearby. No chimney fall or sandstone piers were ever relocated. The surface scatter of artifacts, approximately 35–40 m northwest of the mapped location, was assumed to be 41BX349. This location is marked by two, large, creosote-covered fence posts. The eastern post has been recorded using a GPS and identified as Reference Point No. 2. A ranch road cuts east-west through the northern portion of the site and a more recent ranch road, running north-south,

bisects the site. Artifacts were visible on surface in these roads. The remainder of the site is covered by grasses and brush providing poor (0–30%) surface visibility.

A sample of the glass, ceramics and other historic artifacts was collected from the surface as well as a single flake. A whiskey bottle was recovered 30 m from the main concentration. It dates to the late twentieth century and it is likely a product of the current ranching and lease hunting rather than associated with the earlier site occupation. Historic artifacts include early-twentieth-century transfer wares and pre-Civil War (mid-nineteenth-century) banded-slip wares (Anne Fox, personal communication 2004; Figure 5-43). A single piece of gilded jewelry likely dates to the early twentieth century (Anne Fox, personal communication 2004). Surface collection yielded six historic ceramics, one black glass shard, one glass bottle, and one piece of jewelry.

Also present on the surface was a scatter of rough, but similarly sized sandstone rocks. These are likely the remains of the chimney fall and sandstone piers. The north-south running ranch road may have been created within the past 20 years and possibly destroyed the chimney fall and sandstone piers. The ranch road system changes actively as

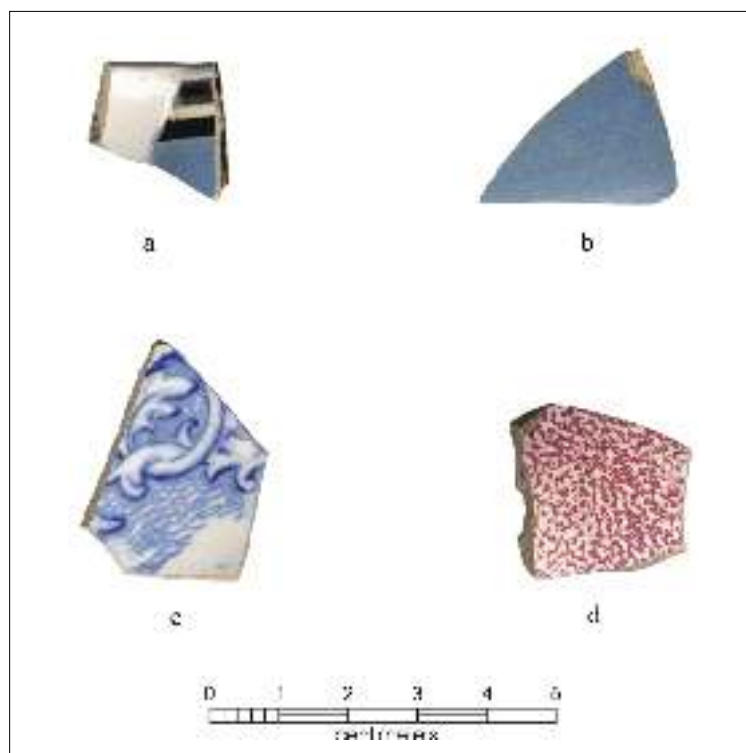


Figure 5-43. *Ceramics from 41BX349. a–b) banded slipware; c) transfer ware; d) spatter ware.*

shown by USGS topographical maps from 1953, 1967/73 and 1992.

Five (25%) of the 20 shovel tests excavated on site recovered subsurface cultural materials (Figure 5-42). ST 2 recovered two fragments of sandstone, possibly remains of the piers or the chimney that was reported to have existed at the site. These were recovered from Level 1 (0–10 cmbs) and Level 2 (10–20 cmbs). ST 7 yielded two transfer ware sherds and two glass shards from Level 1 (0–10 cmbs). ST 8 recovered mussel shell from Level 1 (0–10 cmbs) and ST 16 yielded an animal bone fragment from Level 2 (10–20 cmbs; Table 5-9). The mussel shell and bone may not be cultural in origin.

Site 41BX652

This multi-component prehistoric site is located along an abandoned terrace north of the Medina River on an upland margin. 41BX652 has very little relief on the non-eroded portion of the site, ranging between 540 and 550 ft. AMSL (Figure 5-44). The distance to the modern river channel is

approximately 400 m. The site extends approximately 400 m east-west parallel to the river and 100 m onto the terrace (McGraw and Hinds 1987). The site has been officially designated as a SAL property.

The extensive erosion noted on the margins of the site in 1984 has progressed well into the site in the form of tributary drainages to the main arroyo described earlier. Figure 5-44 shows the branching arroyo structure impacting the site. The erosion has significantly reduced the intact portion of the site.

During the original recording of the site, a Langtry point, Leon Plain ceramics, and Spanish olive jar shards were recovered from the surface (McGraw and Hinds 1987:214). The current survey noted only a light scatter of debitage in one area on the eroding edge of the main arroyo near ST 6 and Reference Point No. 11. Twenty-eight shovel tests were excavated on site to explore for buried deposits. All of the 28 shovel tests were negative (Figure 5-44). No diagnostic material was recovered or noted on the surface and no features were identified.

Table 5-9. Artifacts Recovered from 41BX349

Cat. #	Unit	Level	Depth (cmbs)	Class	Count	Description
1-001		surface	0	ceramics	1	blue transferware
1-002		surface	0	ceramics	1	earthenware
1-003		surface	0	ceramics	1	ironstone
1-004		surface	0	ceramics	1	blue annular
1-005		surface	0	ceramics	1	annular
1-006		surface	0	ceramics	1	spongeware
1-007		surface	0	glass	1	dark olive
1-008		surface	0	mussel	1	fragment
1-009		surface	0	glass	1	clear frag.
1-010		surface	0	jewelry	1	
1-011		surface	0	debitage	1	
2-001	ST 2	1	0-10	other rock	1	stone
2-003	ST 2	1	0-10	glass	2	green
3-001	ST 2	2	10-20	other rock	1	stone
3-002	ST 2	2	10-20	glass	3	light green
3-003	ST 2	2	10-20	glass	1	dark olive
4	ST 2	3	20-30	burned rock	1	sandstone
5-001	ST 3	1	0-10	ceramics	1	earthenware
5-002	ST 3	1	0-10	other rock	1	caliche
7-001	ST 7	1	0-10	ceramics	1	spongeware
7-002	ST 7	1	0-10	ceramics	1	annular
7-003	ST 7	1	0-10	glass	2	olive
8	ST 8	1	0-10	mussel	2	fragment
9	ST 16	2	10-20	bone	1	

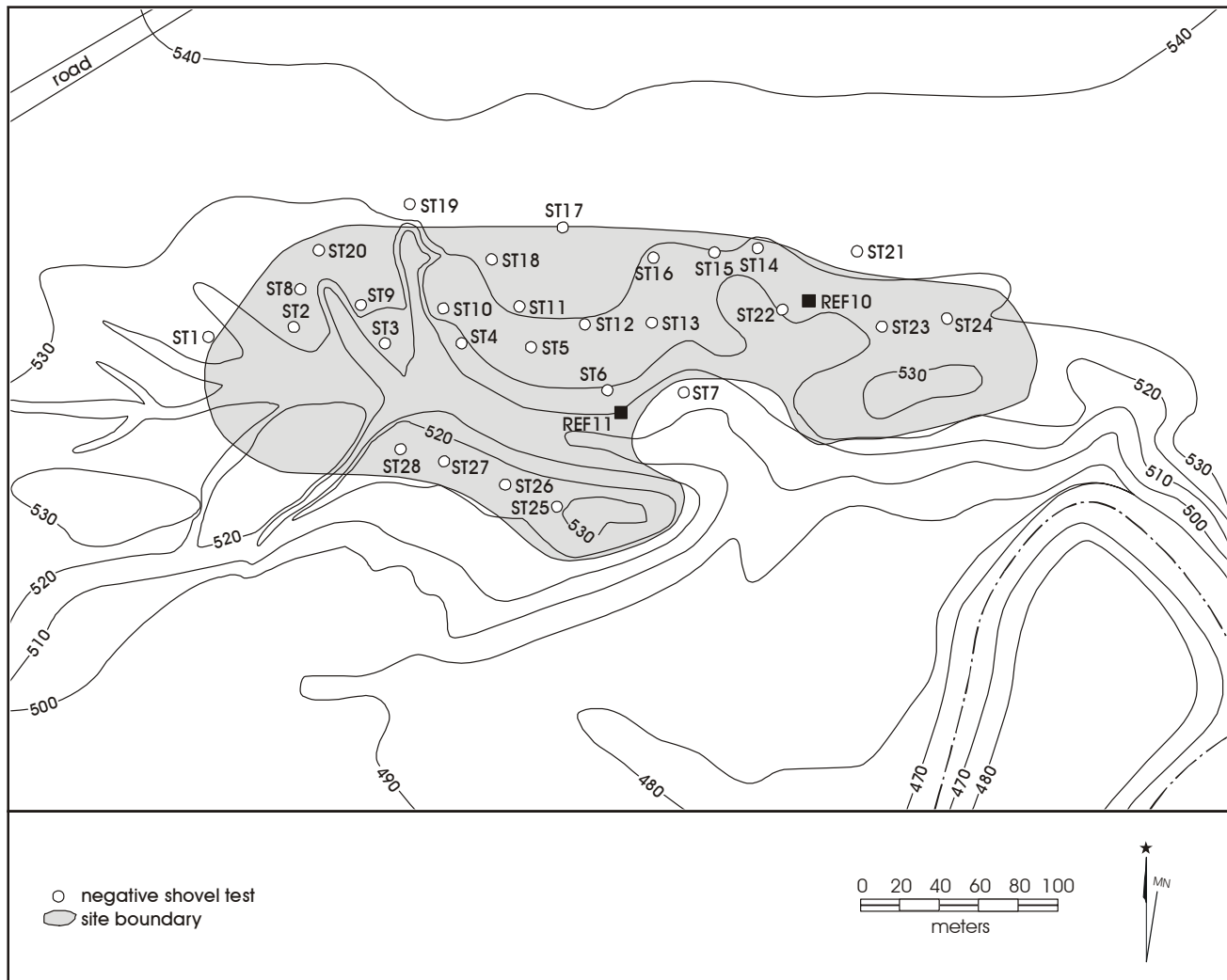


Figure 5-44. Site plan and distribution of shovel tests, 41BX652.

Site 41BX657

This prehistoric site is situated at the southern edge of the upland margin on a high bluff that overlooks the Medina River, approximately 100 m north of the modern river channel (Figure 5-45). Vegetation in the area surrounding the site is dominated by dense stands of thorn brush, whitebrush, persimmon, mesquite and oak interspersed with short grasses. Slope erosion is occurring along the margins of the site while eolian or colluvial deposits were found to cover much of the rest of the site (McGraw and Hinds

1987). A very light scatter of lithic debris was noted on the site during its original recording (McGraw and Hinds 1987:220). The original assessment of this site was that it was heavily eroded and it did not merit NRHP nomination (McGraw and Hinds 1987).

Twenty shovel tests were excavated at the site during Phase VIII—all failed to yield artifacts (Figure 5-45). A bifacially flaked, cortex-backed cobble tool was collected from the surface between ST 1 and ST 7 at the edge of the actively eroding bluff (Figure 5-46).

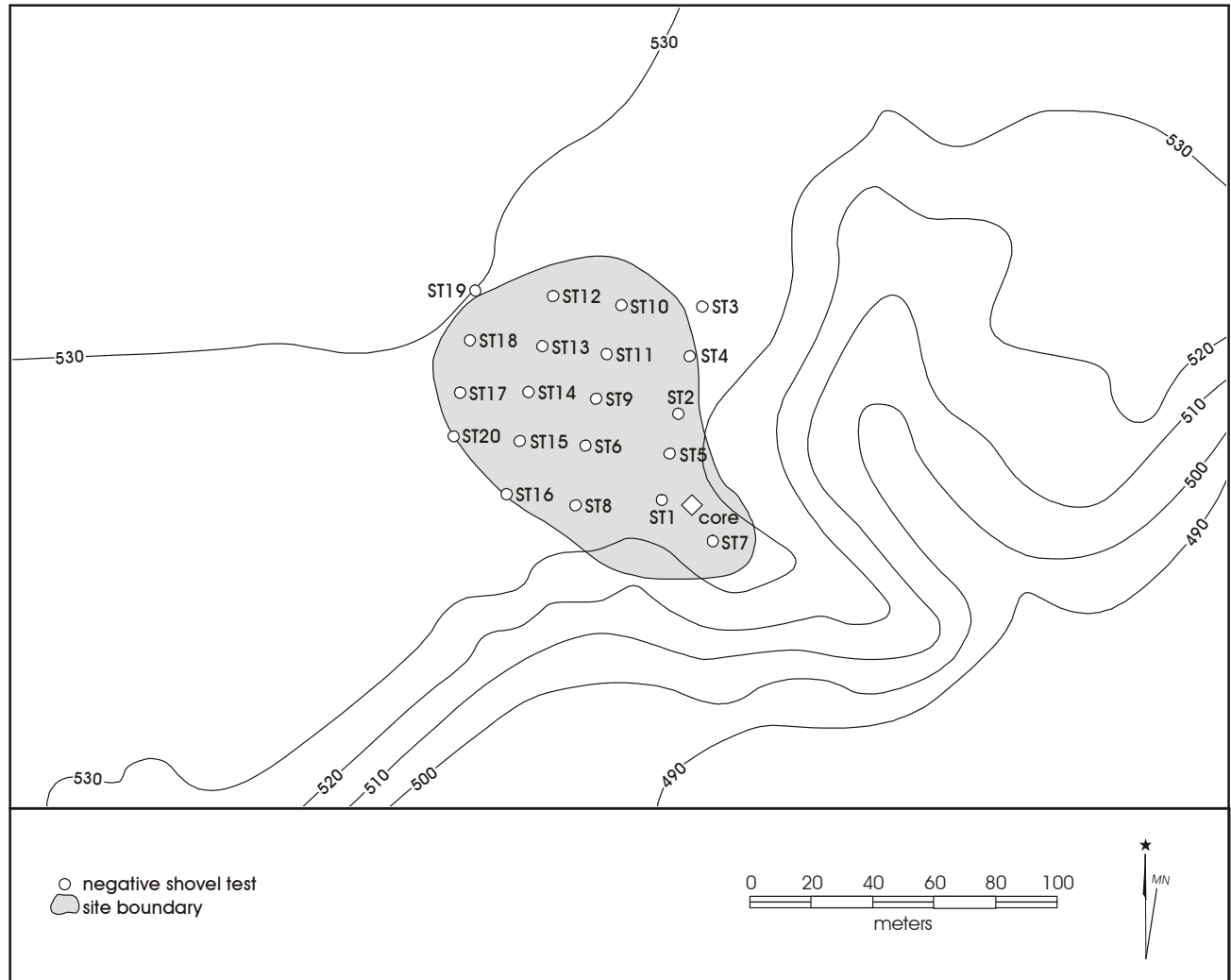


Figure 5-45. Site plan and distribution of shovel tests, 41BX657.

Site 41BX658

Located on an abandoned terrace remnant, this prehistoric site is situated approximately 200 m north of the modern Medina River channel (Figure 5-47). The site is at about 540 ft. AMSL near the edge of the upland margin (McGraw and Hinds 1987). Vegetation at the site is typical of upland flora and includes thorn brush, whitebrush, mesquite, some oak and tall grasses. The soil is a fine-grained eolian or colluvial deposit overlying more compacted clayey alluvial materials. Soil erosion is very pronounced in the area and has seriously impacted the site (McGraw and Hinds 1987).

A light scatter of prehistoric artifacts was noted on the site surface at the time of its original documentation (McGraw and Hinds 1987:221). It was recommended that the site was not eligible for listing as a SAL or nomination to the NRHP (McGraw and Hinds 1987:221).

The site is bisected by an east-west running secondary ranch road. Within this road, one flake was noted on the surface beyond the boundary of the site. For this reason several shovel tests were excavated beyond the site boundaries. Twenty shovel tests were excavated in and around this site—all failed to yield artifacts (Figure 5-47).



Figure 5-46. Cobble tool from 41BX657.

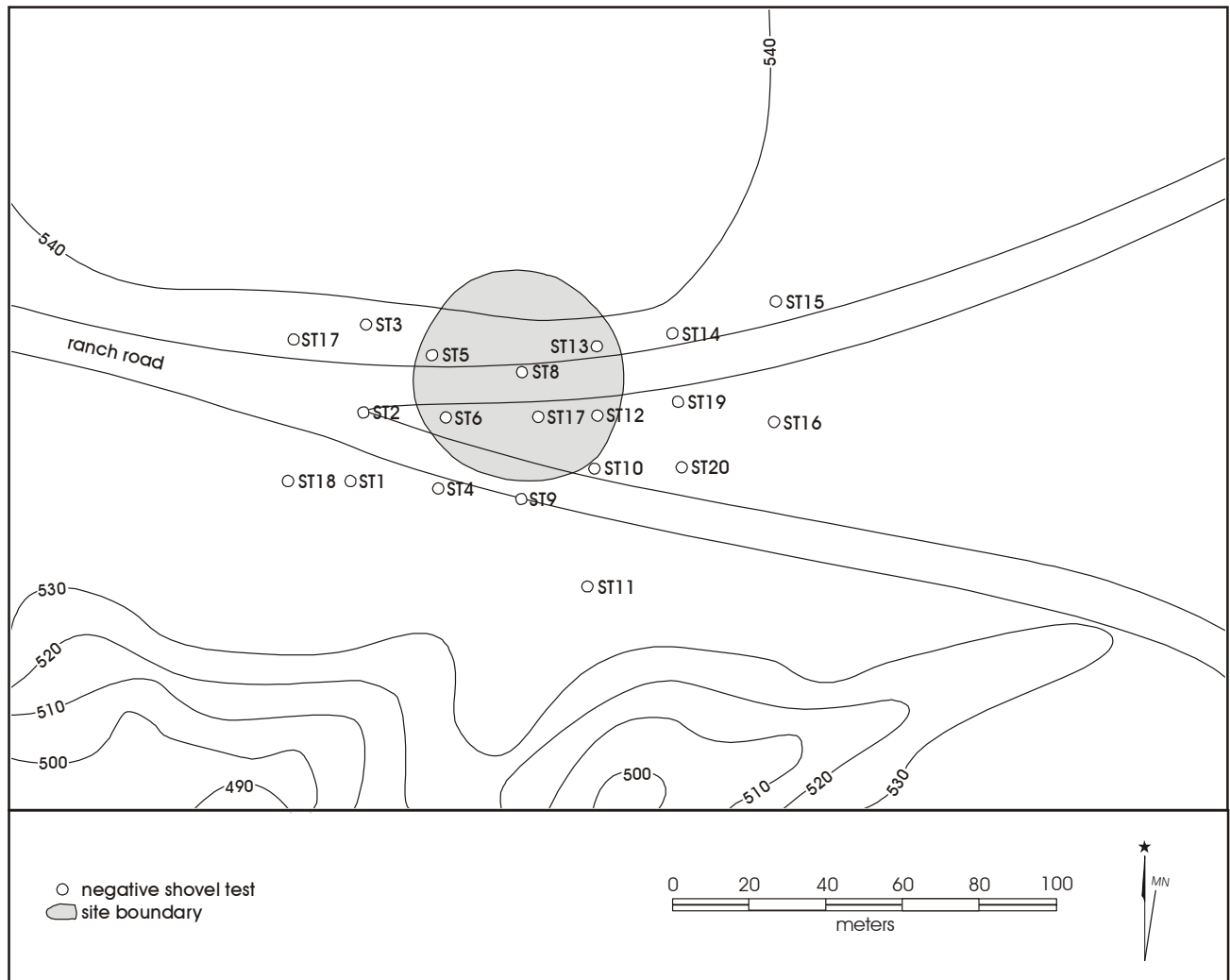


Figure 5-47. Site plan and distribution of shovel tests, 41BX658.

Site 41BX659

This prehistoric site is situated near a large complex of incised drainages immediately north (75 m) of the Medina River (Figure 5-48). The landform has been extensively altered by large-scale erosion. Very little topsoil remains on this former terrace remnant and deep ravines dissect the site. Ranch road construction in the immediate vicinity seems to have aggravated erosion in the area (McGraw and Hinds 1987). During its original documentation, the site was described as heavily impacted by erosion with only 15% of the site remaining intact. It is unclear what artifacts were present on site at the time of its recording. The site was not recommended for designation as a SAL or for listing to the NRHP (McGraw and Hinds 1987:222).

Thorn brush, mesquite, whitebrush, and tall grasses are the dominant vegetation. Since the original survey, thick grasses have moved into the open areas and have reduced surface visibility to zero. Typical of soil conditions at nearby sites in the vicinity, a lens of fine eolian or colluvial sediments overlies compacted clayey alluvial materials.

Eighteen shovel tests were excavated in the site along three transects. None of the shovel tests identified subsurface deposits (Figure 5-48). In addition, no artifacts were noted on the surface. Observations of arroyos around the edges of the site reveal that the sandstone bedrock begins only 1 m below the surface.

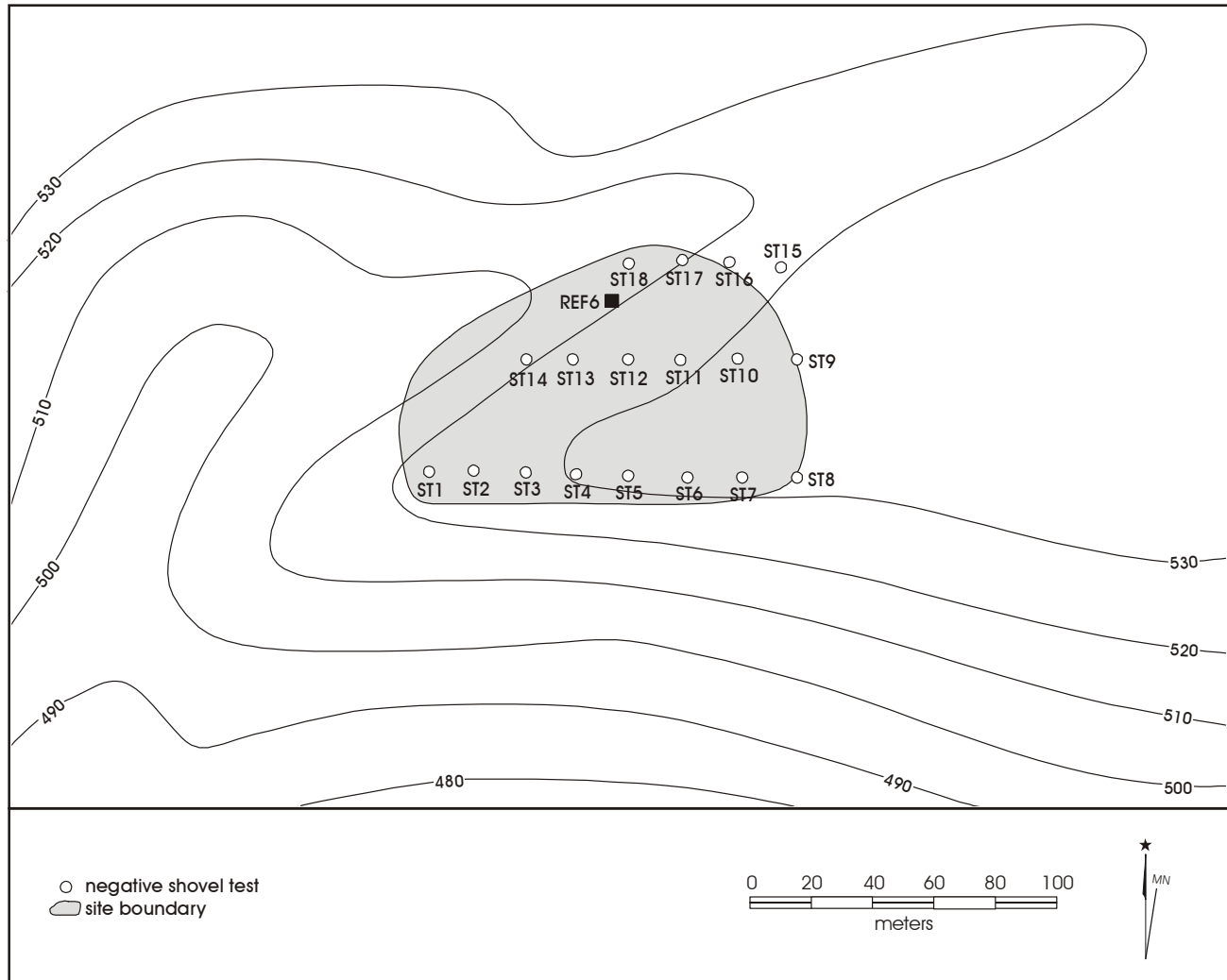


Figure 5-48. Site plan and distribution of shovel tests, 41BX659.

Site 41BX661

Site 41BX661 includes a historic, one-story, three-room tenant farmer house located near the edge of a bluff overlooking the Medina River, located approximately 250–300 m to the south (Figure 5-49; McGraw and Hinds 1987). A moderate scatter of prehistoric materials, displaced by erosion, was also noted on the surface during the original site recording. In 1984/87, the historic component at the site was said to consist of several features. These included an abandoned structure in a deteriorated condition, two refuse dumps, a well or cistern, a wood and brick retaining wall, and evidence of additional structures. At the time of the original recording, it was thought that the historic

component may be eligible for nomination to the NRHP (McGraw and Hinds 1987:225).

The uplands margin in the vicinity of 41BX661 displays a variety of riparian flora including oak, pecan, and cottonwood trees in association with tall grasses. Land clearing and modifications in the area immediately adjacent to the structure have caused moderate to extensive damage through erosion.

CAR personnel visited this site during a rain-day associated with the Phase IV in February of 2003. At that time, the historic component of the site was undisturbed. Since February 2003, all features except the structure have been

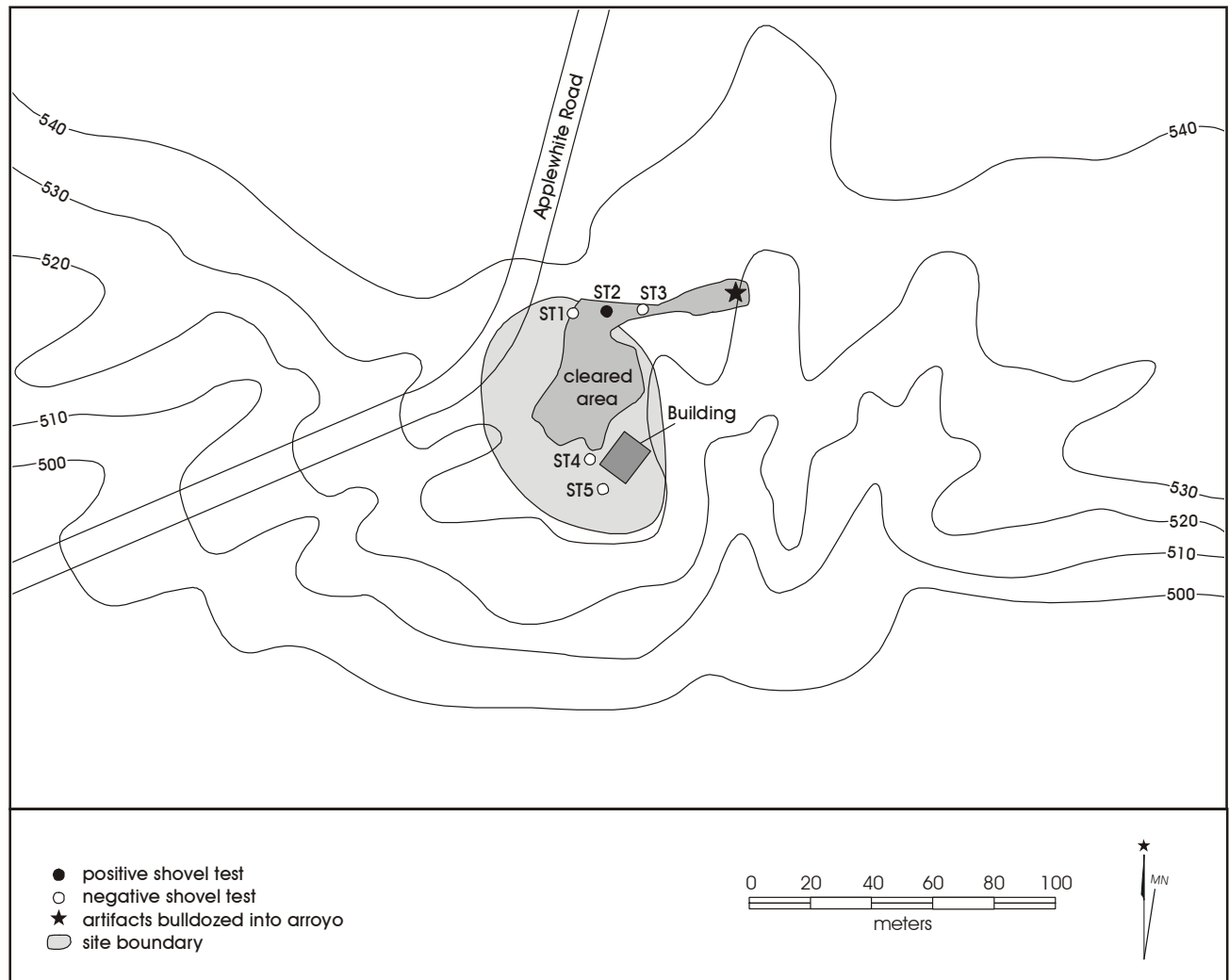


Figure 5-49. Site plan and distribution of shovel tests, 41BX661.

removed by land clearing for the installation of a sign (Figure 5-50). All materials have been pushed into an arroyo by bulldozer. The cleared area is illustrated in Figure 5-49 along with the five shovel tests placed in an attempt to find surviving buried cultural deposits. This attempt was largely a failure, recovering only one, partially machine battered core from the surface of ST 2 (Figure 5-49).

Historic artifacts were collected from the arroyo and confirmed the 1920s–1930s age (Table 5-10). A rotary phone dial would suggest the location had such a service; however, more recent mid- to late-twentieth-century trash suggests use of the site as a dump location.

Existing now without any associated context, the principal structure consists of two rooms built in the 1920s–1930s. The third room to the south that was noted during the original survey has since collapsed (Figure 5-51). The wooden frame appears to be made from flooring material, and the tin used on the roof has probably been recycled from another structure suggesting the possibility of an earlier original construction (McGraw and Hinds 1987).

The structure is empty of artifacts and the northeast corner is sagging, being undermined by animal burrowing and erosion from the arroyo. The natural entropy initiated by weathering will likely not allow the structure to survive



Figure 5-50. Land clearing immediately west of tenant house and east of Applewhite Road, 41BX661.

Table 5-10. Artifacts Recovered from 41BX661

Cat. #	Unit	Level	Depth (cmbs)	Class	Count	Description
1	ST 2	surface	0	debitage	1	
2-001		surface	0	ceramic	2	Mexican flower pot
2-002		surface	0	ceramic	2	blue fragment
2-003		surface	0	glass	1	green
2-004		surface	0	glass	1	blue fragment
2-005		surface	0	glass	6	clear
2-006		surface	0	glass	1	"Helene Curtis" jar white
2-007		surface	0	glass	1	white- deco
2-008		surface	0	glass	1	brown
2-009		surface	0	metal	1	fragment
2-010		surface	0	plastic	1	blue fragment
2-011		surface	0	metal	1	rotary phone dial



Figure 5-51. Collapsed third room of tenant house, 41BX661.

another 20 years. An examination of the USGS topographical map of the site (1958 *Thelma Texas* quadrangle) shows the tenant house to have been the only structure present at the site for 45 years.

Site 41BX662

The site consists of a historic brick kiln situated at the top of the escarpment approximately 225 m north of the Medina River (Figure 5-52). The area is overgrown with dense stands of thorn brush and mesquite making ground visibility poor (0–5%). This portion of upland terrace margin consists of an eroded eolian or colluvial surface overlying more compacted clayey soils. Erosional gullies are located to the northeast of the site. The clayey, compacted subsoil is presumed to have been the source of raw material for bricks made in this kiln.

During the survey of the area in 1984/87, brick fragments were noted strewn across the surface and a mounded concentration of burned clay and brick fragments were observed in the area surrounding the kiln (McGraw and Hinds 1987). This feature was thought to be intact below the ground surface. Kay Hinds mapped the site in 1991 and described the kiln as very weathered at that time (Kay Hinds, personal communication 2003). The site has been designated a SAL.

Based on archival research, oral history, and local observations, bricks from this kiln were probably used to construct portions of several local structures. One of those features is a chimney at the Jacob Linn home (41BX549), located on the south bank of Leon Creek just east of modern Highway 16. This kiln may also have been used to manufacture bricks for construction at 41BX681, the Linn-Walsh family residence, in the 1920s.

During the current project, 20 shovel tests were placed around the historic kiln to help define the extent of the brick scatter away from the main concentration (Figure 5-52). This surface scatter of brick fragments extended almost 6 m north of the kiln, 5 m to the west and 6 m to the east. South of the kiln the bankline slopes steeply. Extending down this slope away from the kiln is a debris field of brick (Figure 5-52). Three shovel tests (STs 4, 5 and 12) excavated within the site limits were positive (Figure 5-52). These shovel tests yielded whole bricks and brick fragments. Because of the abundance of these remains, only a sample of the brick was collected from ST 4.

Site 41BX832

41BX832 is a SAL designated prehistoric site associated with a deeply buried paleosol recognized in an arroyo cut by researchers from the Center for Ecological Archaeology

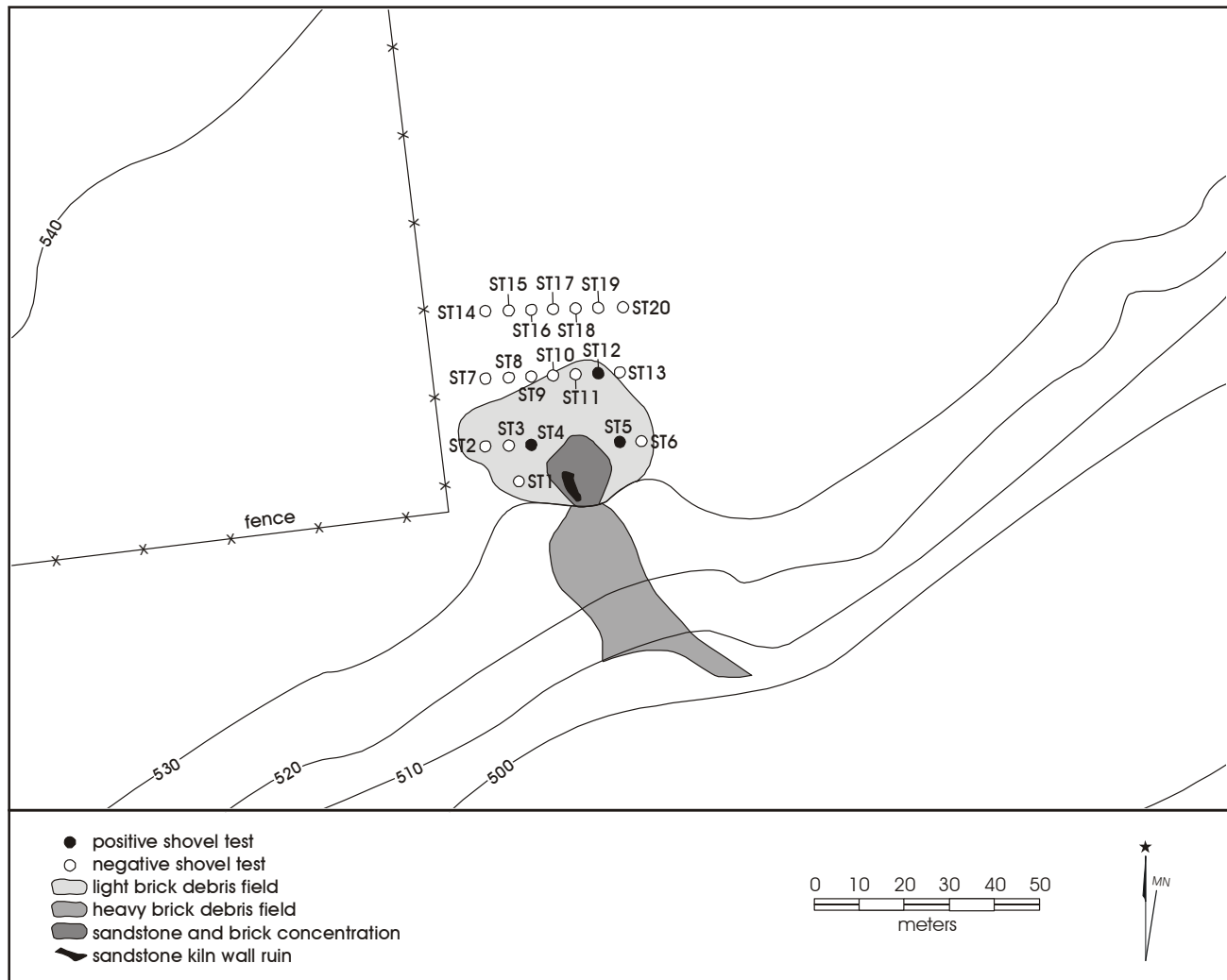


Figure 5-52. Site plan and distribution of shovel tests, 41BX662.

(CEA) at Texas A&M University in 1989 (see Figure 5-1). The site is situated near the edge of a bluff approximately 100 m west of the Medina River. Located in an upland setting, 41BX832 is dominated by mesquite, pricklypear and other brushland species

Initially, CEA identified a paleosol 5.25 m below the modern ground surface which extended for approximately 10 m along the arroyo wall. Upon closer inspection, the buried surface was found to contain two pieces of lithic debitage. Soil, snail, and gravel samples were taken but no artifacts were collected. Additional artifacts were noted in the arroyo as deep as 10 m below the surface where several occupation lenses were found to be separated by sterile sedimentary deposits.

The arroyo heads as a grassy ditch passing through the east side of 41BX654 extending south and following an approximately 300-m-long route to the Medina River. The beginning elevation is between 520 ft. and 530 ft. AMSL. During the CEA investigation, the arroyo was described as having almost vertical walls, this is not the case today. Inspection of the arroyo during the survey showed that the upper 3 m consisted of a vertical face, below which, an 8–10-m colluvial slope rested at a 45° to 50° angle (Figure 5-53). The fact that much of this colluvial slope was barren indicates that it is an actively eroding arroyo.

Careful inspection of both sides of the arroyo revealed no cultural materials, features or soil changes indicative of



Figure 5-53. View of arroyo in the vicinity of 41BX832, from atop east side looking north.

paleosols or archaeological deposits. However, since the original description of the cultural horizon was placed at a depth of 5.25 meters below the surface, it is possible that the archaeological materials may still be buried beneath the colluvial slope at the foot of the arroyo. Therefore, while the exact deposits that were used to define 41BX832 could not be relocated, it cannot be ruled out that the cultural zone remains buried under the colluvial slope running along the base of the arroyo.

Site 41BX1573

This prehistoric site was discovered during Phase VI and was originally identified as Field Site 5 (see Figure 5-35). It is located 200 m directly west of the confluence of the Medina River and Leon Creek. 41BX1573 sits on an abandoned terrace at 510 ft. AMSL, approximately 11 m above the current stream channels. On surface, the site consists of a light scatter of burned rock and debitage. Backhoe Trench 11 examined subsurface deposits on the site during Phase VI, recovering burned rock and debitage from 10–20 cmbs.

During this phase of the investigations, 20 shovel tests were excavated within the site boundaries (Figure 5-54). Only six (30%) of the 20 STs were positive, recovering 12 artifacts (Table 5-11). ST 2 produced one piece of debitage and a

core from Level 3 (20–30 cmbs). ST 5 yielded burned rock from Levels 2 (10–20 cmbs) and 4 (30–40 cmbs) in addition to a flake from Level 3 (20–30 cmbs). ST 8 recovered a piece of burned rock from Level 4 (30–40 cmbs) and ST 11 produced a piece of burned rock from Level 1 (0–10 cmbs). STs 17 and 18 both yielded burned rock from Level 2 (10–20 cmbs) and Level 1 (0–10 cmbs), respectively. ST 20 uncovered some flecks of charcoal between 20–50 cmbs. It is not known whether the charcoal is cultural or natural in origin. From the site surface, a core of Edwards chert was observed 30 cm south of ST 16. The core was 103.5 mm long, 90.6 mm wide and 39.4 mm thick and weighed 411.0 grams. This artifact was not collected.

Site 41BX1574

This historic structure was first noted while the survey crew was relocating sites in the south-central portion of the project area (see Figure 1-2). The site consists of a two-room house sitting on a high terrace (530–540 ft. AMSL) 100 m north of the Medina River (Figure 5-55). The 1953 *Terrell Wells* USGS quadrangle shows three structures on this site, although by 1967, only one structure is depicted on the quadrangle map.

The structure began as a single-room building with clapboard siding holding together 2" x 4" uprights that are now exposed by missing siding (Figures 5-56 and 5-57). The roof is wood

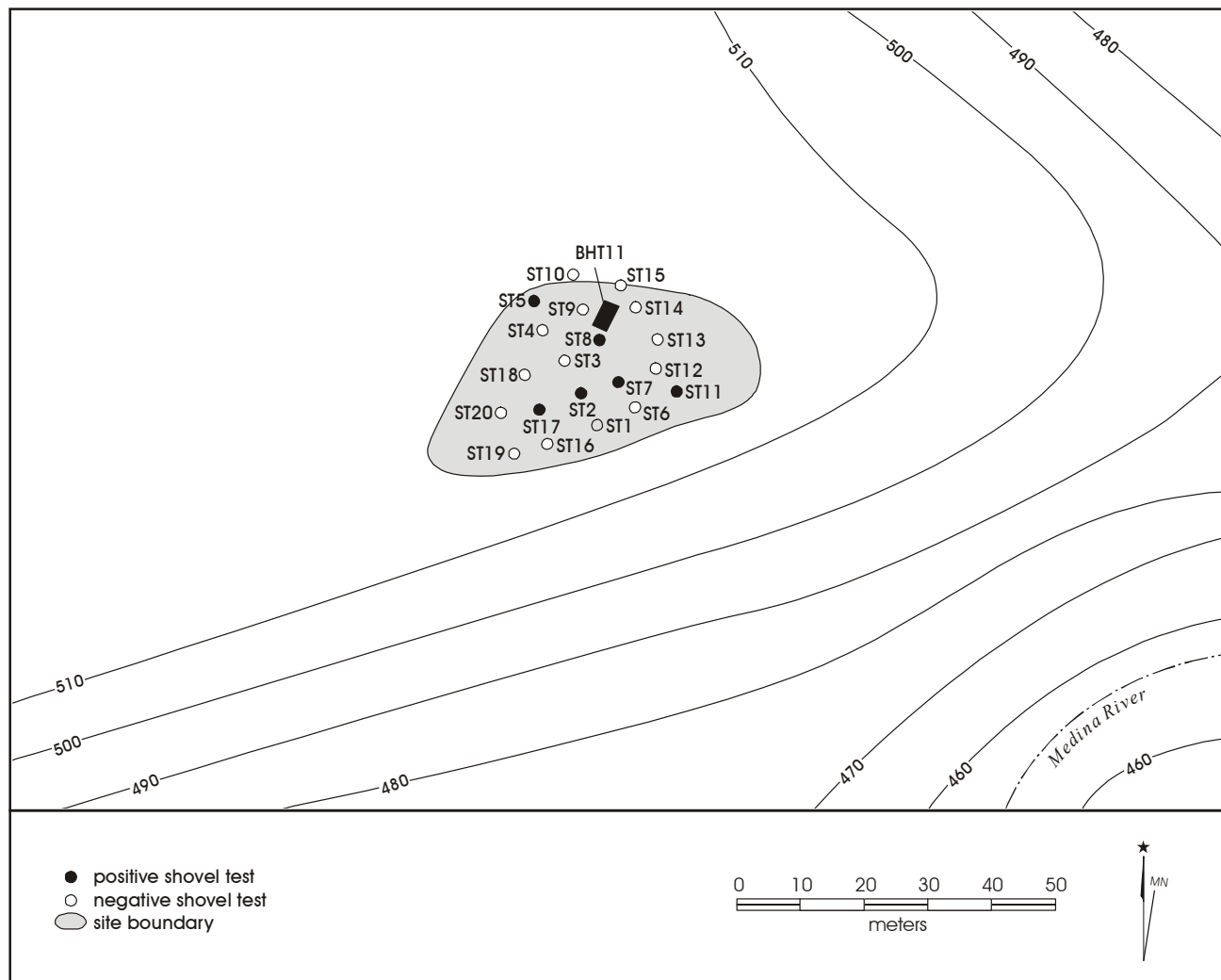


Figure 5-54. Site plan and distribution of shovel tests, 41BX1573.

shingled and the building sits on posts (Figure 5-57). At a later date, a porch was added, then enclosed to provide a second room (Figure 5-56). This new addition is sided and roofed by 1" x 8" nominal lumber.

The dressers inside the structure indicate a 1930s to 1940s date for the house while the chest freezer and refrigerator suggest late 1940s to mid 1950s. Electricity ran to the house fairly recently as a circular florescent light indicates a 1970s to 1980s date. Chicken wire nailed in place inside the building suggests its post-residence use as a chicken coop.

Site 41BX1575

The structures associated with this historic site were originally noted during Phase III at the eastern tip of the 239-acre tract inspected through reconnaissance in early November 2002 (see Figure 1-2). At the time, it was thought that the structures were recent and were not examined in detail. Following the documentation of the structure at 41BX1574, and the inspection of the 1953 *Terrell Wells* USGS quadrangle that showed the structures, the crew returned to the complex for detailed examination.

Table 5-11. Artifacts Recovered from 41BX1573

Cat. #	Unit	Level	Depth (cmbs)	Class	Count	Description
1	ST 1	3	20-30	mussel	2	fragment
2-001	ST 2	3	20-30	debitage	1	
2-002	ST 2	3	20-30	core	1	
3	ST 7	4	30-40	burned rock	2	
4	ST 7	5	40-50	mussel	1	fragment
5	ST 8	4	30-40	burned rock	1	
6	ST 11	1	0-10	burned rock	1	
7	ST 11	2	10-20	mussel	1	
8	ST 11	3	20-30	mussel	1	fragment
9	ST 13	1	0-10	mussel	1	umbo
10	ST 17	2	10-20	burned rock	1	
11	ST 18	1	0-10	burned rock	2	
12	ST 20	5	40-50	mussel	1	fragment
13	ST 3	3	20-30	mussel	1	fragment
14	ST 3	4	30-40	mussel	1	fragment
15	ST 5	2	10-20	burned rock	1	
16	ST 5	3	20-30	debitage	1	
17	ST 5	4	30-40	burned rock	3	
18	south of ST 16	surface	0	core	1	
19	BHT 11	west wall	8	burned rock	1	
20	BHT 11	west wall	18	ochre	1	
21	BHT 11	west wall	16	burned rock	1	
22	BHT 11	west wall	119	charcoal	1	wt in foil
23	BHT 11	west wall	93	charcoal	1	wt in foil
24	BHT 11	west wall	99	charcoal	1	wt in foil



Figure 5-55. West wall of structure, 41BX1574.

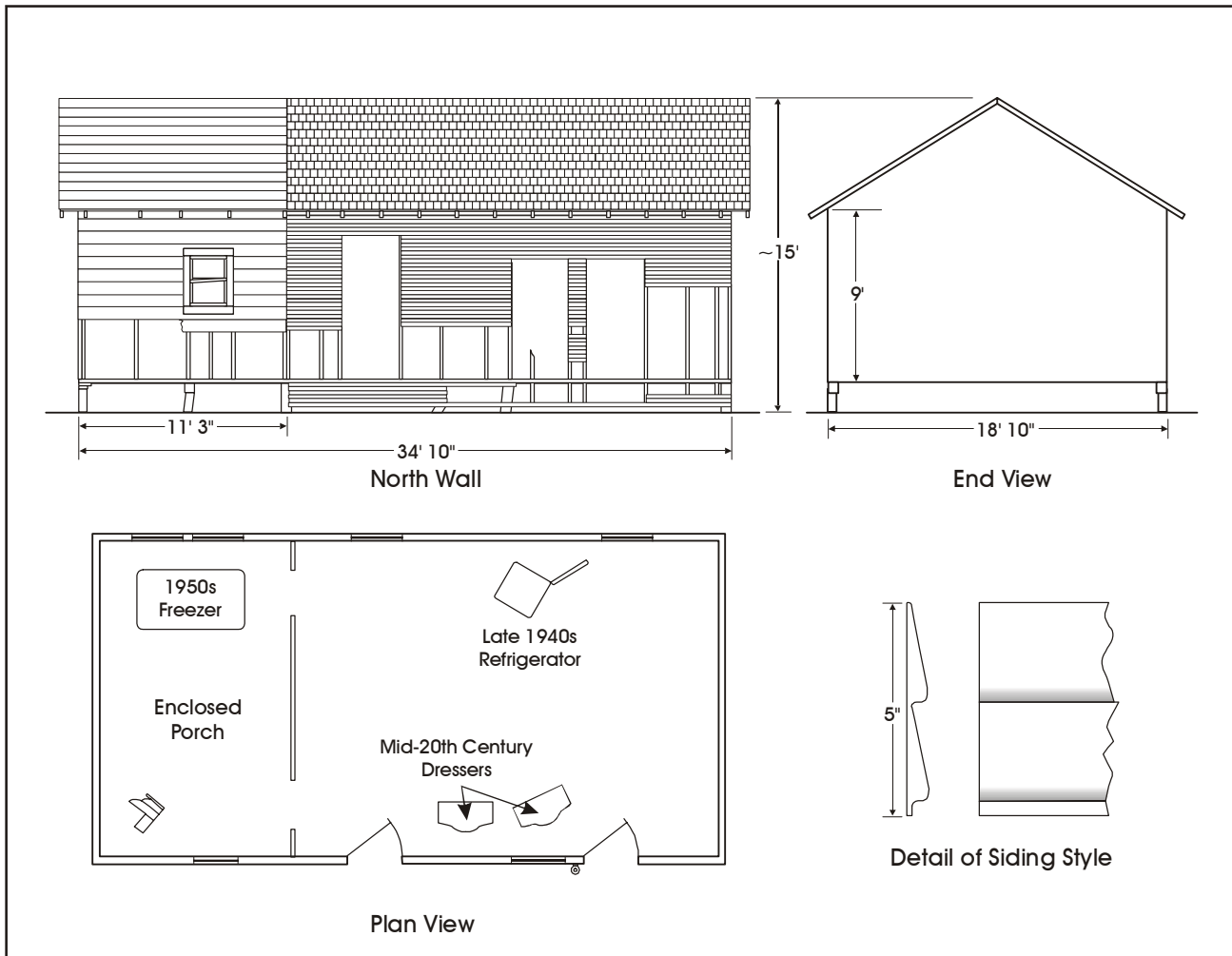


Figure 5-56. Architectural and plan view of structure at 41BX1574.

The complex consists of three buildings. The first structure is a three-walled, tin-sided livestock shed, commonly called a loafing shed. The design is still in use today on many farms. Although this building is at least 50 years old, such common architecture has very minimal archaeological value and little historical research potential.

The second structure is a tin and board-and-batten sided home (Figure 5-58). It has three rooms; two are original to the board-and-batten structure. The third is a tin-sided addition for livestock. While the original section of the structure has a

dirt floor there are signs of its use as a residence. There is a stovepipe hole in the west wall (Figure 5-59) and one of the doors has a white ceramic doorknob of a style used in homes up to the mid-twentieth century. Judging by the conversions made to this building, it was most recently used as a barn.

The third structure is a tall hay shed made of a metal tube frame covered in a tin roof. As with most central and southern plains hay sheds, it has no side walls. This type of shed is still in use today and the building has no archaeological value and little historical value.



Figure 5-57. *North wall of structure, 41BX1574.*

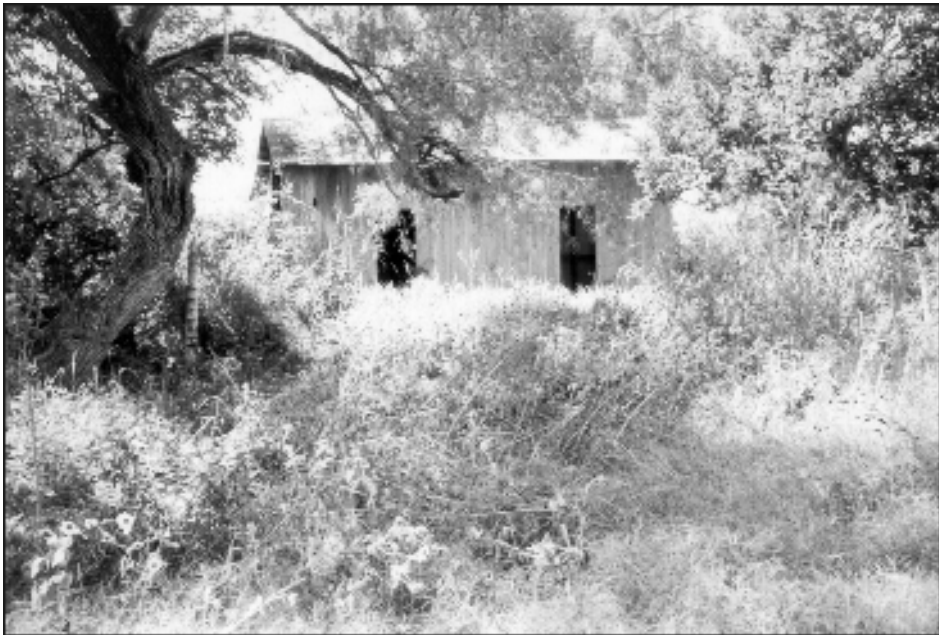


Figure 5-58. *Board-and-batten structure at 41BX1575.*



Figure 5-59. Stove pipe in west wall of structure at 41BX1575.

Inspection of Backhoe Trench 9 (Field Site 6)

Backhoe Trench 9 was located approximately 600 m west-northwest of the confluence between the Medina River and Leon Creek at 520 ft. AMSL on the terrace above Leon Creek (see Figure 5-34). The presence of one flake and two pieces of possible FCR were noted during examination of BHT 9. These were recovered at approximately 1 m below the modern ground surface in the western wall of BHT 9.

Because shovel testing would not reach deposits buried 60–70 cmbs, mechanical auger borings were used to inspect subsurface deposits in the vicinity of BHT 9. Thirty-six auger borings were mechanically excavated on a 20-x-20-m grid around BHT 9. These units were bored to 1.8 m below the surface. While all matrix from the units was screened, none of the units recovered archaeological materials (Figure 5-60).

Phase IX

Investigations undertaken as part of Phase IX of the project included the survey of the proposed railroad spur on the north-descending bank of Leon Creek and the eligibility testing of site 41BX125. In addition, during this phase we also reported on the results of the final attempts to locate 41BX676, the cemetery site that could not be relocated during Phase VII.

Phase IX was performed in November 2003 and January 2004 to examine the proposed railroad spur on the northern bank of Leon Creek. The railroad right-of-way connects with an existing Union Pacific railroad line on the northern portion of the property. This investigation was performed as an adjunct to the Phase IV and Phase V examination of portions of the proposed railroad spur locations on the southern bank of Leon Creek. Unlike the locations examined on the southern bank, the railroad line on the northern bank had been planned and staked prior to CAR's investigations, although plowing and cattle grazing had overturned and dispersed many of the survey stakes at the time of fieldwork. Fortunately, sufficient markers remained that we were able to re-establish the proposed railroad route prior to initiating the subsurface investigations. Mechanical augering and excavation of backhoe trenches was used to identify potential buried archaeological resources and perform a geoarchaeological characterization of this location and its potential to contain additional archaeological resources.

Fieldwork in the railroad spur right-of-way on the north side of Leon Creek began in November of 2003 with the monitoring of a bulldozer cut through the terrace bluff down to the creek floodplain. This cut was made by Union Pacific surveyors requiring a cleared line-of-sight for surveying and staking the railroad centerline. No cultural materials were encountered in the bulldozer cut. The cut itself ranged from 20 cm to 3 m deep and was approximately 50 m long (Figure 5-61).

When CAR staff arrived at the railroad spur project area on January 12, 2004, the first task was to re-establish the railroad spur right-of-way centerline. The centerline was re-established on the basis of engineering maps, aerial photographs, marks on the existing railway line, and the former location of broken survey stakes. Following re-establishment of the right-of-way (Figure 5-62, located in pocket), the pedestrian survey proceeded in combination with mechanical auger testing and backhoe trenching within the project area. The survey was completed on January 14, 2004.

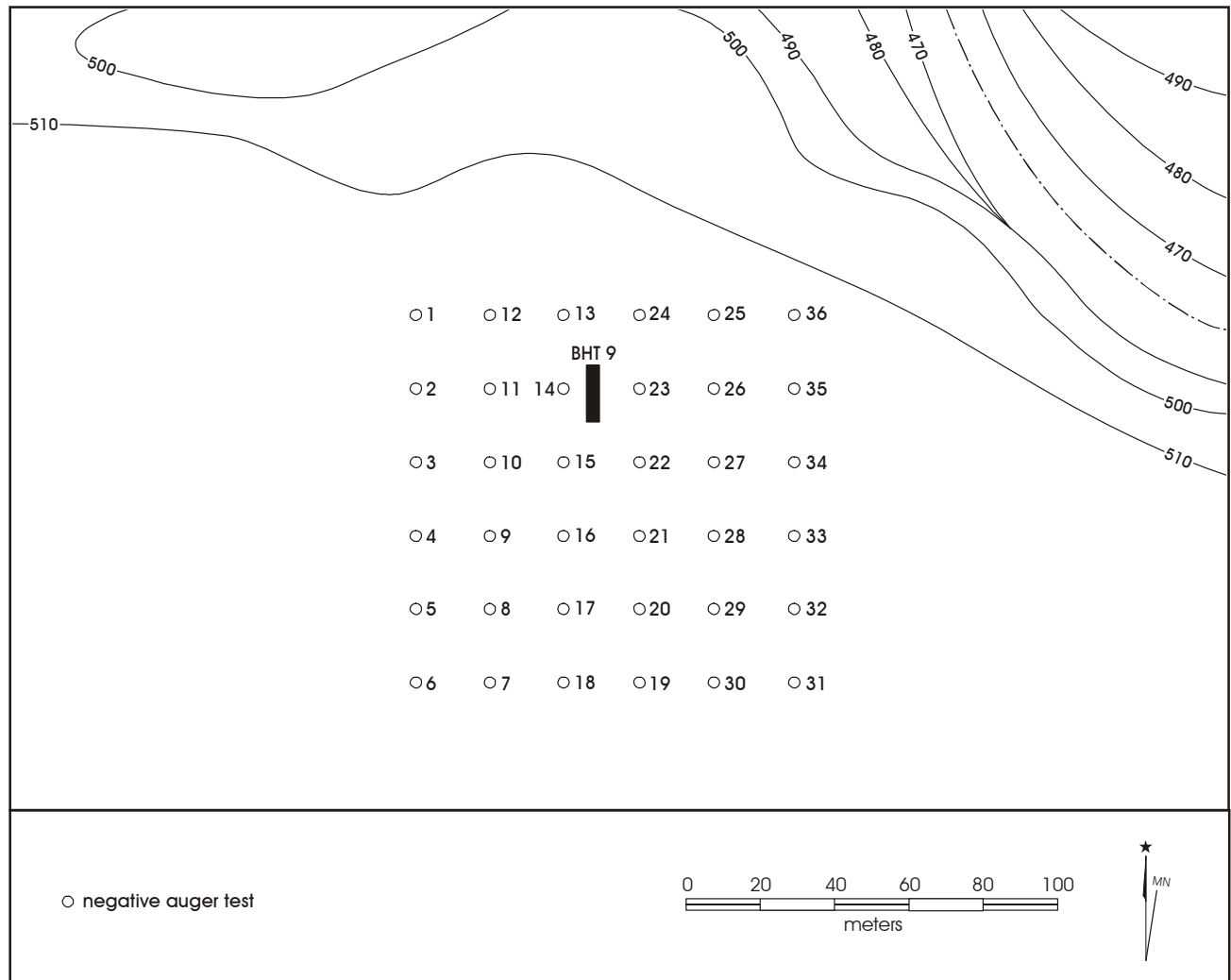


Figure 5-60. Distribution of auger borings around Backhoe Trench 9.

No cultural materials were identified by the pedestrian surface survey. Similarly, none of the 106 auger tests excavated along the right-of-way recovered buried cultural materials.

Nine backhoe trenches were placed along the railroad right-of-way (Figure 5-62). No cultural material was identified in any trench. However, subsurface disturbances were noted in BHT 2 and BHT 5. These disturbances likely derive from land modifications associated with the irrigation of this bottomland. Charcoal samples were recovered from BHTs 5 and 6. The samples were not associated with cultural materials and likely represent charcoal derived from natural burns. The following section details the results of the geomorphological investigations carried out based on the nine backhoe trenches excavated during this survey.

Geoarchaeological Investigations

At the time of the current work, the right-of-way was part of a cultivated cattle pasture. These were level terrace deposits, primarily of Leon Creek. Vegetation consisted exclusively of a mix of grasses and forbs, maintained through grazing and tilling. Trees were restricted to the margins of Leon Creek on the southwestern portion of the area and adjacent to the existing railroad line and roadway at the northeastern periphery of the project location. The lack of clasts and fine texture of the soils (silty loam and silty clay loam) indicates that all deposits within the right-of-way area are low-energy floodplain sediments. Surface gravels were noted only at the eastern margin of this floodplain adjacent to the eroded margin of the high T6 terrace above the deeply incised

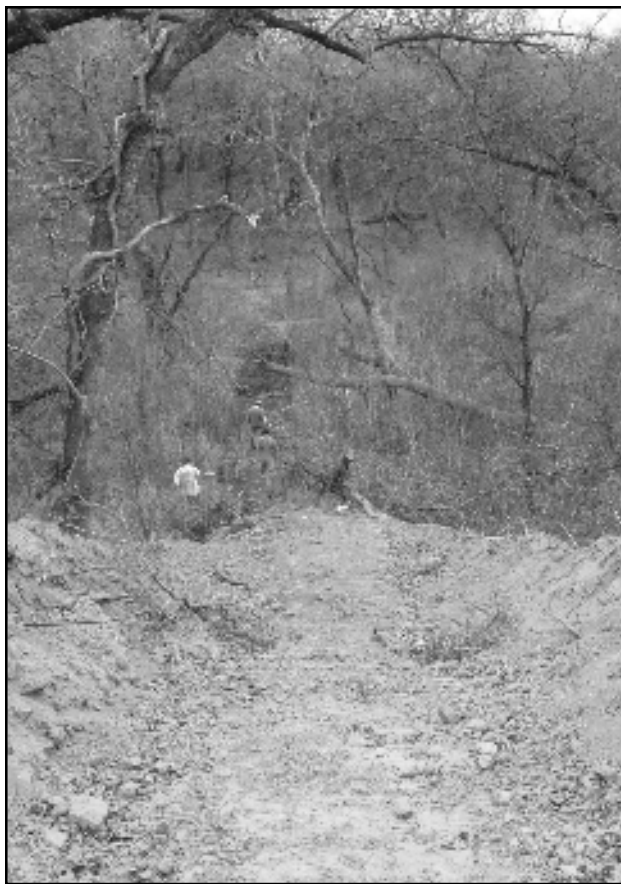


Figure 5-61. View of bulldozer cut looking down toward Leon Creek.

channel and inset modern floodplains of Leon Creek (outside of the project right-of-way).

For Phase IX, backhoe trench numbering began at 1. Except for BHTs 6 and 7, the backhoe trenches (BHTs 1–5, 8–9) were located primarily on the T6 surface of the Leon Creek floodplain. BHT 6 was excavated on the T7 surface of Leon Creek. BHT 7 was placed on a lower terrace surface northeast of T7. This represents floodplain deposits from an ephemeral drainage to the north and east of the project area. The sediments and soils in BHT 7 were nearly identical to those in the other trenches. The terrace sediments seen in BHT 7 are probably derived from similar parent sources to those of the Leon Creek floodplain or may be reworked portions of Leon Creek terraces. Similarity in soil development suggests a comparable age resulting in no pedogenic differences between BHTs 6 and 7 and the backhoe trenches on the T6 surface.

Backhoe Trench 1

BHT 1 was located at the southernmost end of the right-of-way area, nearest to Leon Creek (Figure 5-62). This trench was oriented 51° - 231° from magnetic north. BHT 1 was 9 m long and maximally 164 cm deep. The northeastern wall of this trench was profiled (Figure 5-63). A profile drawing and complete soil description was performed for this trench (Table 5-12). The soil sequence in this trench is very similar to all of the other backhoe trenches excavated during this project. A series of four A horizons (A1–A4) were identified overlying weakly developed B horizons. The A horizons extended to a maximum depth of 50 cm below the modern ground surface. The A1 was a thin (~2–4 cm thick), weakly developed recent epipedon. The A2 and A3 horizons were thicker, strongly developed soils. All of the sediments contained calcium carbonate that effervesced violently to 10% hydrochloric acid. Calcium carbonate development was minimal in the B horizon. The B1 horizon contained few fine filaments (less than 1 mm in diameter). CaCO_3 filaments were common in the Bt but were no larger than those in the B1 soil.

There was no evidence of any buried paleosols in this sequence. The weakly developed B horizons and strong development of the A2 and A3 units indicate relatively rapid sedimentation and, in the backhoe trench exposures, stability associated only with the current surface resulting in strong development of the A horizons. Although this area has been cultivated, there was no clear distinction of a plow zone (Ap horizon) within the upper solum. Recent practices, observed at the time of this investigation, involve only shallow tilling of this field for pasture maintenance.

Backhoe Trench 2

BHT 2 was 8.86 m long, oriented 43° - 225° from magnetic north, and was excavated to a maximum depth of 1.8 m. A profile drawing of the northeastern wall was made (Figure 5-64). Soils in BHT 2 were similar to those described in BHT 1. The A horizons were 30–40 cm thick. The strongly developed A2 and A3 horizons overlie a weakly developed, thin (~15–20 cm thick) B horizon that rested above a Bk horizon with few, fine calcium carbonate filaments. The lowest 85 cm exposed in BHT 2 represents a Btk horizon with few, fine CaCO_3 filaments.

Evidence of two recent ditches was identified during profiling (Figure 5-64). The southern end of the trench exposed the margin of an interruption of all soils in this trench. This feature was present in the southernmost 21–24

cm of BHT 2. The depth and association with a second well-defined ditch in this trench suggests that this also represents an irrigation feature. From approximately 1.8–4 m north of the southern end of the trench, a second ditch was visible in the profile wall. The original excavation of this ditch extended below the maximum depth of BHT 2. Angular quarry gravel (mechanically broken and not exhibiting river gravel cortex) was present in the lowest exposed portions of this ditch (120–180 cmbs). This ditch also was visible on the opposite wall of this backhoe trench. Surface vegetation clearly showed this anomaly and indicates a linear feature across this portion of the pasture.

Backhoe Trench 3

BHT 3 was the northernmost of the three trenches excavated in Segment 1 of the right-of-way (Figure 5-62). This trench was 9.48 m long, oriented 50°-230° from magnetic north, and was maximally 163 cm deep. The northeastern trench wall was profiled (not shown). The profile was nearly identical to BHT 2. The only differences were that an A4 soil was distinguished above the B horizon and the A2–A4 and the B horizons all were strongly developed. The A horizons extended approximately 30–45 cmbs. Carbonate development in the Bk and Btk horizons was the same as noted in BHT 2. Both horizons had few, fine filaments dispersed throughout the soils. The Bk and Btk had approximately the same thickness as those seen in BHT 2.

Backhoe Trench 4

BHT 4 was 10.96 m long, was oriented 50°-230° from magnetic north, and was 174 cm deep in the lowest portion. The northeastern wall of BHT 4 was drawn (not shown). The stratigraphy in BHT 4 was identical to that encountered in BHT 3. The A horizons extended approximately 50–55 cm below the current ground surface.

Backhoe Trench 5

BHT 5 was the northernmost backhoe excavation on the Leon Creek T6 surface (Figure 5-62). This trench was oriented 54°-234° from magnetic north, was 9.92 m long, and its deepest segment was 186 cmbs. The northeastern wall of this trench was profiled (Figure 5-65). Some observations about the soils in BHT 5 were recorded, but a complete description was not performed. Soils in this trench were slightly different than those to the south. There was no A4 soil in BHT 5 and an AB horizon overlies the Bk1 soil. The A horizons (A1–A3) were maximally 40 cm deep. Underneath the Bk2, two Btk horizons were distinguished.

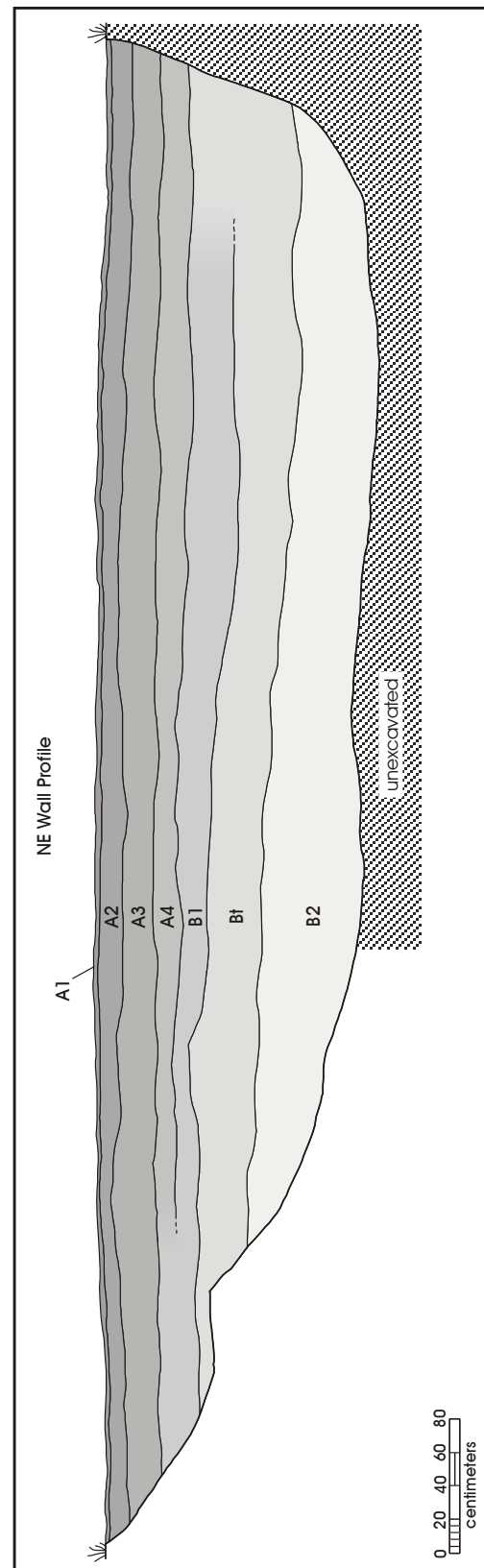


Figure 5-63. Profile of northeast wall of Backhoe Trench 1 in railroad spur right-of-way on north bank of Leon Creek, Phase IX.

Table 5-12. Description of Soil Profile of Northeast Wall of Backhoe Trench 1, Phase IX

Horizon	Texture	Consistence	Clay Films	Grain Coatings	Structure	Roots	Pores	CaCO ₃	Boundary	Color	Comments
A1	fine, well sorted silt loam	slightly sticky; slightly plastic	0	silt	weak; fine; subangular blocky	abundant; fine-coarse	0	violent	abrupt; smooth	10YR 3/2	
A2	fine, well sorted silt loam	slightly sticky; slightly plastic	few; thin; discontinuous, ped faces only	silt	strong; coarse; subangular blocky	abundant; fine-coarse	many; fine-coarse	violent	abrupt; smooth	10YR 3/2	
A3	fine, well sorted silt loam	slightly sticky; slightly plastic	thin; continuous bridges	0	moderate-strong; coarse; subangular blocky	many; fine-coarse	many; fine-coarse	violent	clear; smooth-wavy	10YR 3/2	
A4	fine, well sorted silt loam	slightly sticky; slightly plastic	common; thin; discontinuous bridges	0	weak; med-coarse; subangular blocky	few; fine-medium	few; fine-med	violent	clear; wavy-irregular	10YR 3/3	
B1	fine, well sorted silt loam	slightly sticky; slightly plastic	0	silt	weak; coarse; platy-subangular blocky	few; fine	few; fine	violent	clear; wavy	10YR 4/4	few, fine CaCO ₃ filaments
Bt	fine, well sorted silty clay loam	sticky; plastic	many; thin; discontinuous bridges	silt	weak; coarse; platy	few; fine-coarse	few; coarse	violent	clear; wavy	10YR 4/3	common, fine CaCO ₃ filaments
B2	fine, well sorted silt loam	slightly sticky; slightly plastic	0	silt	moderate-strong; coarse; platy	few; fine	0	violent	unknown	10YR 4/4	

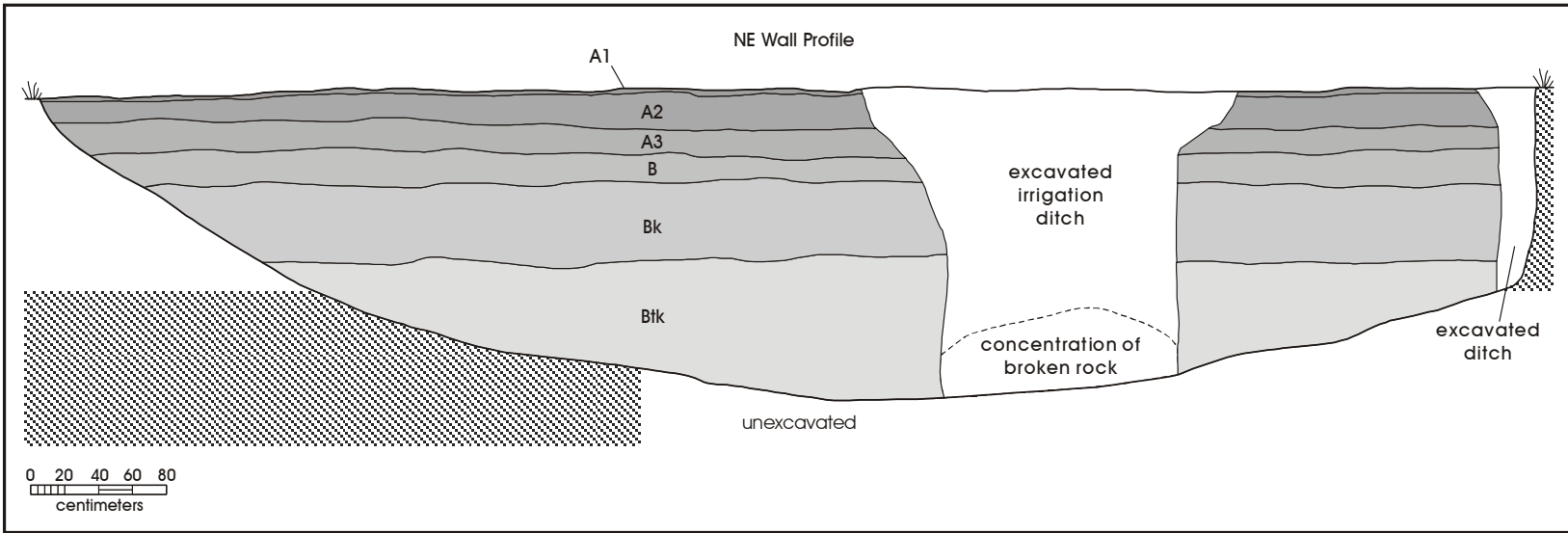


Figure 5-64. Profile of northeast wall of Backhoe Trench 2 in railroad spur right-of-way on north bank of Leon Creek, Phase IX.

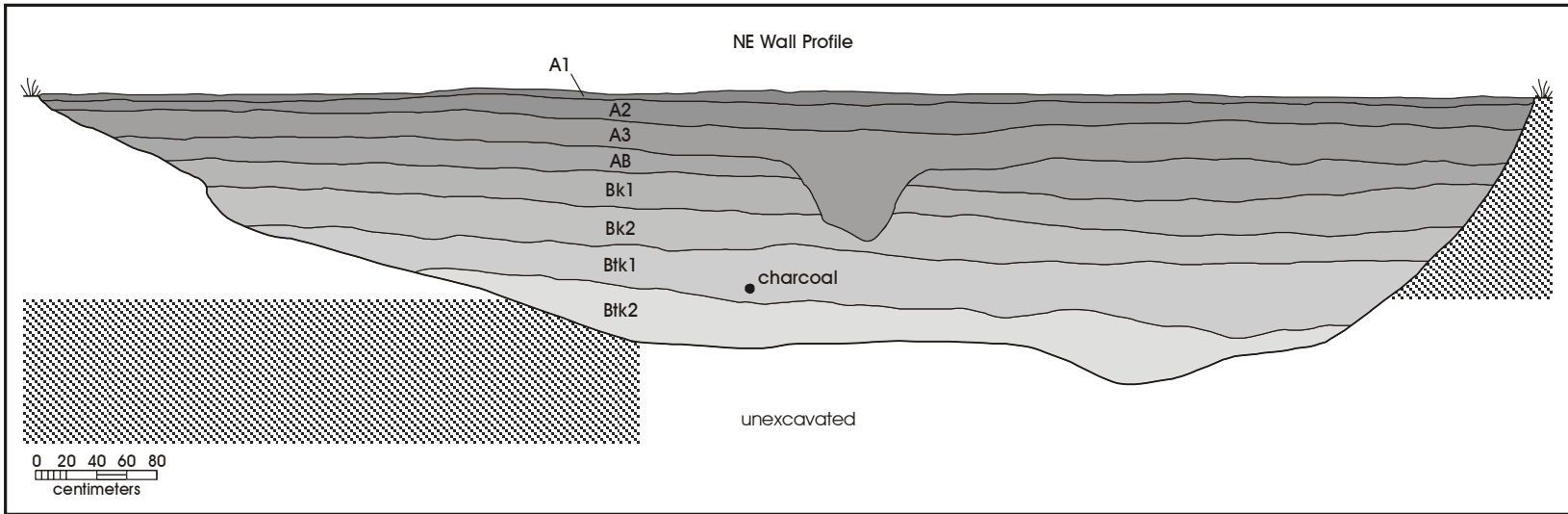


Figure 5-65. Profile of northeast wall of Backhoe Trench 5 in railroad spur right-of-way on north bank of Leon Creek, Phase IX.

Between four and five meters north of the southern end of BHT 5, a small pit was encountered (Figure 5-65). This disturbance appeared to originate in the A3 horizon and extended into the Bk2 soil. The size and morphology suggests it was not a krotovina, but most likely a recent human disturbance. One small piece of charcoal was collected from 127 cmbs in the profile wall within the Btk1 soil. There was no evidence of localized rubification of adjacent sediments that would indicate this was the location of *in situ* burning.

Backhoe Trench 6

This trench was 10.55 m long and oriented 48°-228° from magnetic north. The deepest portion of this trench was 178 cmbs. BHT 6 was excavated on the T7 surface (Figure 5-62) and was the only backhoe trench to sample this terrace. The northeastern wall of this trench was profiled (Figure 5-66) and a complete soil description was recorded for this exposure (Table 5-13). Although older, there were few differences between BHT 6 and other, younger soils exposed in backhoe trenches situated on the T6 surface (BHTs 1–5). The A horizons were comparatively thin, approximately 40 cm thick. The A2–A4 soils showed strong development as did the B horizon. The Bt and Btk horizons exhibited moderate development. Carbonate development in the lowest soil unit (Btk) was no more robust than in the other trenches investigated on T6. This suggests that there was only a short temporal difference separating the T6 and T7 deposits and these two geomorphic units do not indicate any significantly different pedogenesis.

A single small piece of charcoal was identified during profiling. This charcoal was mapped and collected. This piece was recovered at 113 cmbs in the Btk horizon (Figure 5-66). This was a small isolated piece of charcoal. There was no evidence of any associated *in situ* reddening of adjacent sediments.

Backhoe Trench 7

BHT 7 was 10.33 m long, oriented 53°-233° from magnetic north, and was excavated to 170 cmbs in its deepest portion. The northeastern wall of this trench was profiled (not shown). BHT 7 was situated on a lower terrace surface than the adjacent BHT 6. This terrace is probably deposited from the unnamed ephemeral drainage to the north and east of the project area that was dammed to form Mitchell Lake. The former channel of Leon Creek is adjacent to this location (Figure 5-62). This was the only backhoe trench that sampled the soils on this lower terrace setting infilling the former Leon Creek channel. The A horizons in BHT 7 were of

equivalent depth (35–50 cmbs) and were similarly strongly developed to those in the other backhoe trenches. There was a relatively thick B horizon underlying the A4 soil (~40–50 cm thick). Underlying the B soil were two Bg horizons. The gleying apparent in these Bg units may be due to their lower topographic position. During auger testing of this portion of the project area, excavators noted darker organic enrichment of the A horizons than seen on adjacent surfaces. Aerial images and surface appearance of the vegetation adjacent to this channel meander show more luxuriant growth indicating greater water availability. These crop marks, resulting in slightly greater organic content of the A horizons, and the gleying of the B horizons are due to increased localization of vadose water associated with the lower ground surface and buried channel in this location.

Backhoe Trench 8

BHT 8 was excavated midway between BHT 4 and BHT 5 (Figure 5-62). BHT 8 was excavated 10.8 m long and oriented 139°-319° from magnetic north. The deepest portion of the trench was 180 cmbs. The northern wall profile of this trench was drawn (not shown). A complete soil description was performed for this profile (not presented). The soils in this trench were more similar to those in BHT 5 than BHT 4.

Backhoe Trench 9

BHT 9 was excavated 134°-314° from magnetic north and was 10.54 m long. The maximum depth of this trench was 162 cmbs. BHT 9 was placed equidistant from BHT 5 and BHT 6 (Figure 5-62) and was situated on the T6 surface. The southern wall of this trench was profiled (Figure 5-67). The soils in BHT 9 more closely resembled those in BHT 5 than the stratigraphy in BHT 6, on the slightly older T7 unit. There were three A horizon soils (as were noted in BHT 5) extending 25–60 cmbs. The deepest portion of the A horizons were from 6–7.4 m east of the western end of the trench associated with a disturbance that was likely from human activity.

This disturbance was visible from 6.38–7.2 m east of the western end of the trench on the southern profile wall. This anomaly also was apparent on the northern wall, indicating that it probably represents a ditch associated with cultivation of this field. This feature was oriented 95°-275° from magnetic north. No surface expression of this ditch could be seen. The disturbance extended to a depth of 147 cmbs into the Btk horizon. This ditch was completely filled with A horizon sediments. It is possible that the overthickening of the A horizon above this disturbance indicates additional

excavation that is not distinct because of the backfilling with A3 sediments. Underlying the A horizon was a thin (~20 cm thick) AB horizon overlying the Bk and Btk similar to those identified in BHT 5.

Discussion

None of the trenches investigated contained any evidence of archaeological remains. No paleosols or identifiable stable surfaces were noted that would have a high probability to contain prehistoric or historic sites. The nine backhoe trenches all exhibited very similar sediments and pedogenesis. Minor differences among the sediments and soils in these trenches reflect small differences in the ages and setting of these soils. Compared with investigations on the southern bank of Leon Creek, all of the terrace sediments and soils on this portion of the northern bank are nearly homogeneous.

The majority of the trenches (BHTs 1–5, 8–9) were excavated on the T6 surface of Leon Creek. BHT 6 sampled deposits on the T7 surface. BHT 7 was placed on a lower terrace than either T6 or T7, north of those landforms on a deposit probably from an ephemeral stream currently located to the north and east of the project area. Differences in sedimentary and soil formation events between these three settings are insignificant and all nine trenches represent identical formation events.

Soils in these trenches indicate relatively rapid deposition within the depth exposed by the backhoe trenching. The lack of paleosols, identifiable surfaces, and the much stronger development of the recent A horizons compared with the deeper B soils indicates that stability of these terrace settings has occurred only relatively recently. The similarity between the soils exposed in trenches on different portions of T6, on T7, and on the lower terrace north of T7 indicates that no significant time-transgressive events are recorded through soil formation differences. This also supports the interpretation that sedimentary deposition and pedogenesis are closely temporally spaced events. Although no relative or absolute dates are currently available for these soils, they appear much more recent than soils examined on the southern bank of Leon Creek. The stream meander visible in the aerial photograph of the project area (Figure 5-62) suggests that these sediments represent very recent deposits from the changing position of Leon Creek prior to dramatic downcutting events.

The two charcoal samples collected from BHTs 5 and 6 represent small individual pieces. They could represent alluvially redeposited charcoal or fragments from *in situ*

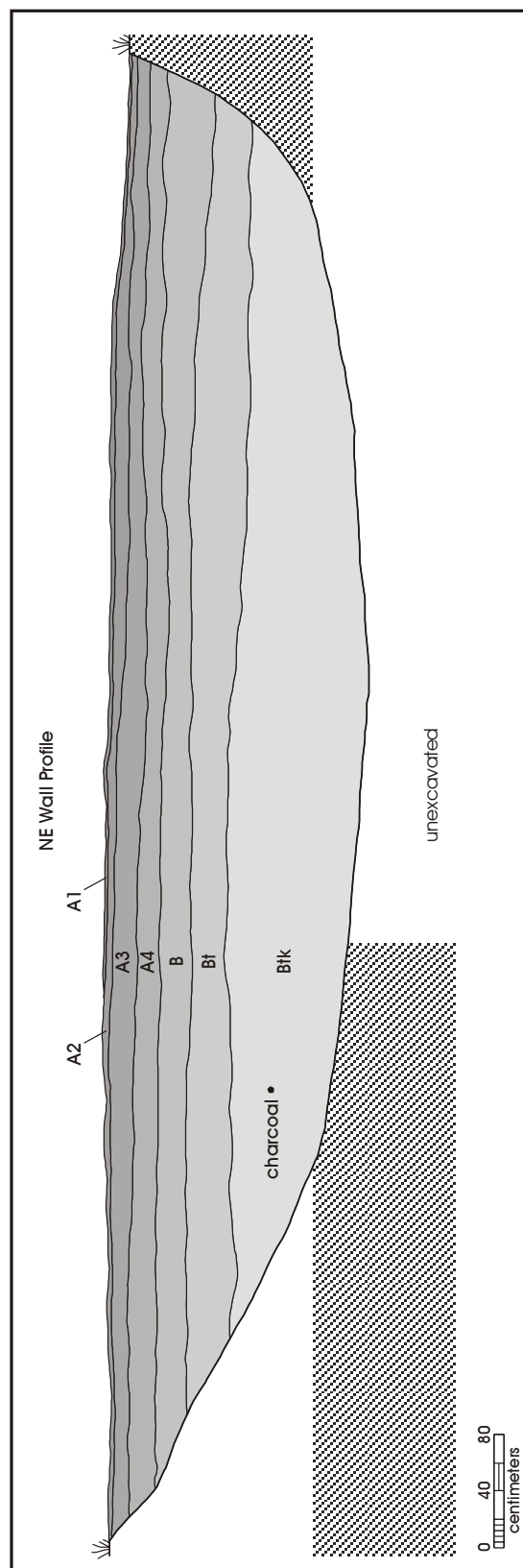


Figure 5-66. Profile of northeast wall of Backhoe Trench 6 in railroad spur right-of-way on north bank of Leon Creek, Phase IX.

Table 5-13. Description of Soil Profile of Northeast Wall of Backhoe Trench 6, Phase IX

Horizon	Texture	Consistence	Clay Films	Grain Coatings	Structure	Roots	Pores	CaCO ₃	Boundary	Color	Comments
A1	fine, well sorted silt loam	slightly sticky; slightly plastic	0	silt	weak; fine; subangular blocky	abundant; fine-coarse	0	violent	abrupt; smooth	10YR 3/2	
A2	fine, well sorted silt loam	slightly sticky; slightly plastic	common; thin; discontinuous bridges	colloidal stains	strong; coarse; subangular blocky	abundant; fine-coarse	few; fine-coarse	violent	abrupt; smooth	10YR 3/1	
A3	fine, well sorted silt loam	slightly sticky; slightly plastic	common; continuous bridges	0	moderate-strong; coarse; subangular blocky	many; fine-coarse	few; fine-coarse	violent	abrupt; smooth	10YR 3/1	
A4	fine, well sorted silt loam	slightly sticky; slightly plastic	common; thin; discontinuous bridges	0	weak; med-coarse; subangular blocky	few; fine-medium	few; fine-coarse	violent	abrupt; wavy	10YR 3/1	
B	fine, well sorted silt loam	sticky; plastic	common; ped faces	colloidal stains	weak; coarse; platy-subangular blocky	few; fine	common; fine-coarse	violent	clear; wavy	10YR 3/3	
Bt	fine, well sorted silty clay loam	sticky; plastic	few; thin; discontinuous; ped faces	0	weak; coarse; platy	few; fine-coarse	many; fine	violent	gradual; wavy	10YR 4/3	
Btk	fine, well sorted silt loam	slightly sticky; slightly plastic	common; thin; discontinuous bridges	0	moderate-strong; coarse; platy	few; fine	many; fine-coarse	violent	unknown	10YR 4/4	few-many; fine CaCO ₃ filaments

burning. Abundant charcoal associated with rubified sediments was encountered in backhoe trench investigations on the southern bank of Leon Creek. The reddened soil unambiguously indicates localized fire. That evidence of burning identified past surfaces within the backhoe profiles that did not exhibit other visible means of determining what portions of the soil profile had been stable long enough for sufficient growth of trees or fuel accumulation. Dating of a set of samples from the southern bank of Leon Creek offers higher utility than the two samples collected from BHTs 5 and 6. The charcoal recovered from the southern bank can be used to confidently date the archaeological remains and provide information about rates of sediment accumulation. The two samples from BHTs 5 and 6 collected during this phase of the investigations are not associated with archaeological remains and are not vertically dispersed enough (127 cmbs in BHT 5 and 113 cmbs in BHT 6) to provide useful chronological indicators of sedimentation events.

Results of the Eligibility Assessment of Site 41BX125

This prehistoric site was originally recorded in 1971 by Paul McGuff. It was noted in a plowed field, and burned rock, mussel shell, and lithic debris was observed on the surface (Texas Archeological Sites Atlas 2004). No subsurface testing was carried out at the time but it was speculated that buried deposits may exist on site. Testing was recommended due to possible good stratigraphy.

A 100% pedestrian survey and the excavation of BHT 15 during the Phase VI work in June of 2003 identified no surface or subsurface cultural material at the recorded location of 41BX125. As systematic shovel testing was not done at that time, the site's eligibility for nomination to the NRHP or official designation as a SAL had not been established during that phase of work. During Phase IX, to complete the assessment process, a second 100% pedestrian survey was conducted and 16 shovel tests were excavated within the site boundaries in two transects spaced 20 m apart (Figure 5-68).

Due to the dense grasses that covered the site, visibility during surface survey was only 5–20% except in the western portion of the site where a feral hog wallow provided upturned soils and 100% surface visibility. A reconnaissance was made of the exposed cutbank 15 m south of 41BX125. The exposure was examined for the presence of any cultural material, paleosols, or features. There were no indications of an archaeological site identified in this cutbank.

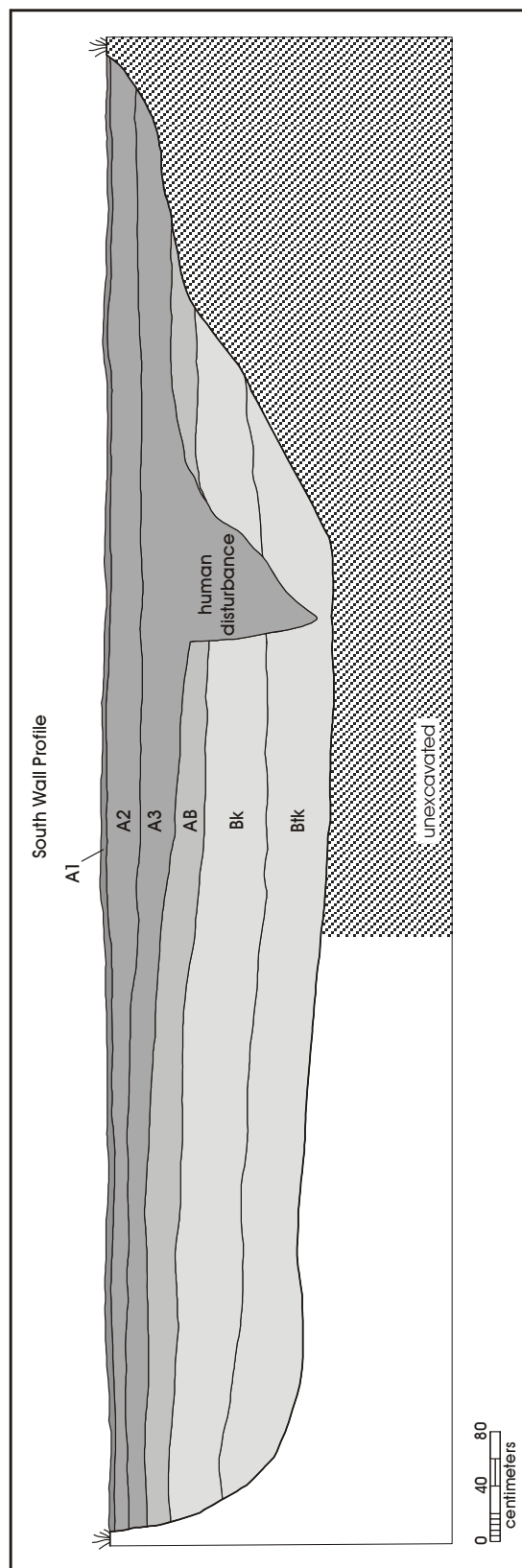


Figure 5-67. Profile of south wall of BHT 9 in railroad spur right-of-way on north bank of Leon Creek.

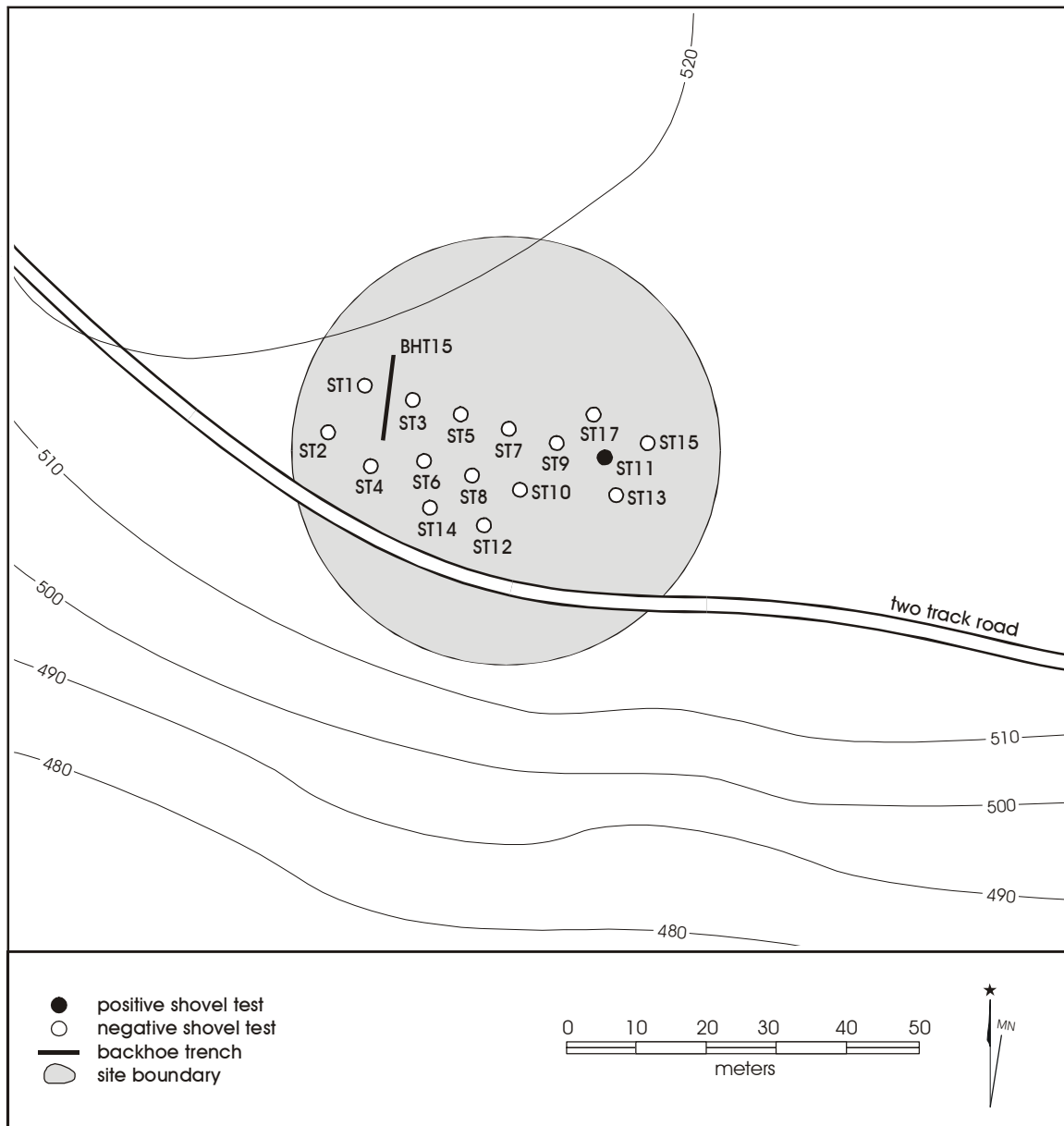


Figure 5-68. Backhoe trench and shovel test locations at 41BX125.

Only one of the 16 shovel tests excavated on site was positive for cultural material. ST 11 recovered a flake from Level 3 (20–30 cmbs). The flake is a tertiary medial fragment. In response to this find, STs 13, 15 and 17 were placed around ST 11 (number 16 was inadvertently skipped). None of these additional shovel tests contained any cultural materials. A single piece of unmodified mussel shell was recovered from

Level 4 (30–40 cmbs) in ST 9. A mussel shell valve was also recovered from ST 17, Level 6 (50–60 cmbs). It is identified as a threeridge (*Amblema plicata*; Howells et al. 2003:246–249; Jennifer Neel-Hartman, personal communication 2004). This type of mussel was/is common in prehistoric and modern settings of Leon Creek and the Medina River.

Relocation of Site 41BX676

Following the unsuccessful relocation of site 41BX676 during the archaeological work associated with Phase VII, CAR consulted with Al McGraw, the archaeologist who originally recorded the site. McGraw indicated that the locality was identified as a cemetery by Mr. Ed Walsh several weeks prior to his accidental death in the early 1980s. At the time of the recording, the site was identified as situated roughly 0.5 km east of Applewhite Road within a small (less than 30 m²) clump of trees surrounded by cleared pasture. No markers were evident on the surface and the number of individuals buried at the site was unknown. However, it was stated by Mr. Walsh that some of those buried at the cemetery were ranch hands that may have died of cholera.

No clump of oak trees existed in the pasture at the time of CAR's investigation of the locality and its vicinity. It appears that the cleared area east of Applewhite Road had been enlarged and the clump of trees had been removed. During Phase IX, CAR identified the possible position based on a site location map showing all sites recorded during the Applewhite Reservoir survey and a field sketch map submitted to the Texas Archeological Research Laboratory with the site form.

When no sign of the site was identified during the survey, McGraw was contacted to identify the approximate location of the site on an aerial photograph of the property and verify that the correct location was surveyed by CAR. McGraw's approximate site location confirmed that the CAR survey covered the correct recorded position, although McGraw encircled an area measuring approximately 35,000 m² surrounding the original site location. During the relocation efforts, this area had been surveyed but no evidence of the cemetery site was encountered.

To further pursue the relocation of 41BX676, the City of San Antonio contracted with Raba-Kistner Consultants, Inc. to conduct a ground penetrating radar (GPR) survey of the probable site location as it was identified by McGraw in discussions with CAR staff. Raba-Kistner conducted a systematic GPR survey of a 220-x-180-m parcel using 15-m transect intervals. The results of the GPR survey (see Appendix A) support the conclusion reached by CAR staff that no cemetery existed within the target area where 41BX676 was mapped. Raba-Kistner determined that the radar signatures represent changes in the physical nature of the subsurface soil and/or variability in soil moisture content.

The reflection zones produced during the survey appear to be laterally continuous across the target area, and closely spaced parabolic reflections that may be characteristic of buried targets such as gravesites are not traceable laterally across adjacent profiles. The radar signature of a transect approximately 170 m (500 ft.) from the surveyed area showed reflection signatures that were not significantly different from those identified within the target area.

In addition to the survey, Raba-Kistner staff conducted a brief interview with Mr. John Small, Jr. who resided on the ranch until recently. Mr. Small indicated that his parents relayed to him that no cemetery existed on the property, and that if a cemetery had existed, it would have continued to be maintained over the years. Mr. Small indicated that the nearest cemetery they were aware of was located south of the Medina River. This information was consistent with that provided by Mr. Small to CAR staff earlier, when CAR was engaged in relocating another purported cholera cemetery during Phase I of the project.

Chapter 6: Summary and Recommendations

From October 2002 through January 2004, the Center for Archaeological Research (CAR) at The University of Texas at San Antonio conducted archaeological and geoarchaeological investigations at the proposed Toyota Motor Manufacture Plant in south-central Bexar County, Texas. These archaeological services were provided in partial fulfillment of cultural resources compliance under the Antiquities Code of Texas (Title 9, Chapter 191 of the Texas Natural Resource Code). The work also fell under the jurisdiction of the National Historic Preservation Act (NHPA) of 1966, and was performed in compliance with the Section 106 and 110 of the NHPA. The archaeological services were provided for the City of San Antonio and for use by Raba-Kistner Consultants, Inc. of San Antonio. The investigations were conducted under Texas Antiquities Permit No. 2982, with Steve A. Tomka, CAR Director, serving as Principal Investigator.

Project Overview

The proposed location of the Toyota plant is on an approximately 2,546-acre (1,030-ha) property bounded by Applewhite Road on the west, Leon Creek on the north, the Medina River on the south, and the confluence of these two streams at the extreme eastern end. A large portion of the project area fell within the proposed but never built Applewhite Reservoir project area. Previous surveys conducted by CAR in the 1980s (McGraw and Hindes 1987) for the proposed Applewhite Reservoir covered the area between Applewhite Road and the footprint of the proposed dam. Other organizations, including the Archaeological Research Program at Southern Methodist University and the Center for Ecological Archaeology at Texas A&M University also conducted archaeological investigations within or in the vicinity of the project area. In combination, these investigations defined and documented 16 prehistoric, historic and multi-component (i.e., prehistoric/historic) archaeological sites. They are: 41BX125, 41BX349, 41BX652, 41BX653, 41BX654, 41BX655, 41BX656, 41BX657, 41BX658, 41BX659, 41BX660, 41BX661, 41BX662, 41BX676, 41BX681, and 41BX832 (Figure 6-1, located in pocket at back of report). Of these, four (41BX652, 41BX653, 41BX662, and 41BX832) are officially designated as State Archeological Landmarks.

Because the portion of the project area between Applewhite Road and the footprint of the proposed Applewhite Dam was previously surveyed, in consultation with the Texas Historical Commission (THC), these areas, amounting to approximately 2,046 acres, were not subject to pedestrian resurvey under the current scope of work. On the other hand, the entire area that fell east of the proposed dam footprint was subject to either pedestrian survey or reconnaissance. Of the total project area acreage, roughly 500 acres (202 ha) were subject to pedestrian reconnaissance and/or survey under the current project.

Included in the original scope of work and subsequent modifications to it were the performance of the following specific archaeological tasks:

- 1) The subsurface inspection of a locality thought to be an undocumented cholera cemetery;
- 2) The relocation and National Register of Historic Places (NRHP) and State Archeological Landmark (SAL) eligibility reassessment of the 16 previously recorded archaeological sites;
- 3) The survey and/or reconnaissance of previously un-surveyed tracts within the project area including the performance of geoarchaeological investigations;
- 4) The documentation and NRHP/SAL eligibility determination of newly documented sites; and
- 5) The survey of a tract of land on the north-descending bank of Leon Creek that will serve as the right-of-way for the railroad spur connecting the project area proper with the nearby Union Pacific Railroad.

The archaeological and geoarchaeological investigations associated with these tasks were conducted in nine individual phases of work over the 14-month project. The following section will summarize the results of the investigations and the proposed recommendations derived from these efforts. The summaries will be divided by project phase to match the detailed presentation of the results found in Chapter 5.

Summary of Results and Recommendations

Phase I

This phase of the project consisted of the investigation of the presumed location of a possible nineteenth-century cholera cemetery and the reassessment of the SAL/NRHP eligibility status of site 41BX660.

Eleven Gradall trenches were excavated in the suspected location of the cholera cemetery. The stratigraphy and deposits within GTs 1–6 were closely inspected. Although GTs 7–11 were inspected in less detail, all examinations are considered adequate to have identified burials in these sediments and soils. There was no evidence of previous subsurface disturbances that would be consistent with excavations associated with a communal interment, a series of individual graves, or any other ambiguous cultural disturbances. Neither human remains nor artifacts consistent with coffin hardware or individual funeraria were encountered. There was no indication of a former cemetery at the location. These findings, in conjunction with informant information from Mr. John Small, current and long-time owner of the historic ranch where the excavations occurred, indicates that the historic cholera cemetery is located outside the project area.

Originally recorded during the 1984 CAR survey, site 41BX660 was described as a sparse, deflated surface scatter of historic artifacts (McGraw and Hinds 1987:222). Oral histories suggested 41BX660 was the former location of a tenant house occupied in the 1920s and 1930s. Site 41BX660 was revisited in order to provide SAL/NRHP eligibility evaluation of the research potential and significance of this site.

Inspection of historic maps of the project area failed to reveal a recorded standing structure in the area defined as 41BX660 or in the vicinity of the site location. Despite relatively good surface visibility (50%), a 100% pedestrian surface inspection of site 41BX660 failed to identify any cultural material at this site location. The site was found to be severely eroded and it is recommended that it is not eligible for listing as a SAL nor for nomination to the NRHP.

Phase II

Phase II consisted of the intensive shovel testing of a previously recorded prehistoric site, 41BX653 (McGraw and Hinds 1987:216). Subsurface testing was warranted at this site due to its proximity (<100 m [<328 ft.]) to the original project area “buffer zone” and the possibility for intact features. Thirty-one shovel tests were excavated within the designated 9.4-acre portion of the site.

No archaeological deposits were identified in any of the shovel tests excavated within or outside of the previously defined site boundaries of the 9.4-acre northwest portion of 41BX653. Surface reconnaissance of the immediate vicinity of the shovel tested portion indicated that the nearest surface artifacts were approximately 90 m from the tested portion of the site, in the vicinity of an intersection of two dirt roads. The results of the shovel testing indicate that even if this portion of 41BX653 once contained archaeological materials, these materials have since been eroded downslope and no archaeological manifestation of the site is present within the area subject to shovel testing. It is therefore recommended that site boundaries be redrawn for the site to exclude this northwest spur. The main portion of 41BX653 was subsequently examined through shovel testing during Phase VII.

Phase III

Phase III included the reconnaissance of a previously unsurveyed 239-acre (97-ha) tract of land, and archival research and photographic documentation of the Frank Walsh (Kiker/Gemler/Walsh) home and ranch property (41BX681). During the 41BX681 site visit, all standing structures including the main building, several outbuildings, and two pigeon coops were photo documented. The main house on 41BX681 was originally built in 1906. More recent architectural elements have been added to the structure since its construction. The family raised pigeons and at least two of the associated buildings on the property are pigeon coops. Several more recent barns and storage structures exist on the property. These are a combination of mid-twentieth-century and later construction materials and styles. The compound of structures was determined eligible for listing on the National Register of Historic Places because it illustrated

the continuous ranching history that began as Rancho Pérez in the late eighteenth century. Subsequent to Level 1 HABS documentation by Speegle and Associates of San Antonio, the most significant of the structures, the two pigeon coops, were relocated to City property (soon to be the property of the Land Heritage Institute) south of the Medina River.

The reconnaissance of the 239-acre tract identified one previously undocumented archaeological site (41BX1571 [Field Site 1]). Because no subsurface testing was to be carried out during the reconnaissance, the boundaries of the site were not defined during this phase. Additional work at the site during Phase V defined the site boundaries and assessed the NRHP/SAL eligibility of the deposits.

Phase IV

Work during Phase IV consisted of a preliminary, unsystematic reconnaissance of a portion of the right-descending bank of Leon Creek in the approximate location of the proposed railroad spur connecting the project area to the Union Pacific Railroad located north of the project area. Because the proposed railroad right-of-way had not been marked at the time of this effort, only two Gradall trenches (GTs 1 and 2) were excavated during this phase. These trenches were placed in the vicinity of surface artifact clusters noted in the area. Both GT 1 and GT 2 contained evidence indicating the presence of a buried archaeological site at approximately 120–160 cm below ground surface. The surface and subsurface materials were used to define site 41BX1572.

Reddening of the sediments adjacent to a charcoal concentration identified as Feature 1 in GT 1 indicate *in situ* burning at approximately 130–138 cmbs. This demonstrates that Feature 1 is an intact feature and identifies the depth of a past soil surface that cannot be identified solely from visual inspection. The elevation of Feature 1 also is associated with the presence of a single unifacial implement and sandstone clasts that may be fire-cracked. The lack of significant organic enrichment associated with the materials of 41BX1572 indicates rapid burial of this site. All of the sediments in these trenches are fine, well-sorted silt loams and clay loams that contain no evidence of high-energy alluvial sediments. Geoarchaeological data and the morphology of Feature 1 all indicate that the archaeological

deposits of 41BX1572 are most likely intact and relatively undisturbed. The lack of a paleosol associated with the buried archaeological materials is likely due to the rapid depositional context of this location where the surface was not stable for long enough to form visible paleosols or accumulate cultural debris for significant amounts of time. 41BX1572 is likely to represent a short-term use of this floodplain setting that was buried very shortly after abandonment. Eligibility testing of 41BX1572 occurred during Phase VI of the project.

Phase V

Phase V entailed additional fieldwork to define the bounds of site 41BX1571 (Field Site 1) found during Phase III and systematic pedestrian survey and mechanical trenching of an approximately 85-acre (34-ha) tract within the project area of the proposed railroad spur on the south-descending bank of Leon Creek.

Twenty-nine shovel tests were excavated within 41BX1571 encountering a sparse, shallowly buried lithic assemblage lacking temporally diagnostic artifacts. No features or diagnostic artifacts were located, and no charcoal or other materials were available for dating. Given this information, it is apparent that the research potential of this site is very low. It is therefore recommended that 41BX1571 is not eligible for designation as a SAL and does not warrant nomination to the NRHP.

Forty-nine shovel tests and four Gradall trenches were excavated in the 85-acre parcel abutting Leon Creek. GTs 3 and 4 contained the disturbed signs of thermal activity at depths of 1.5–2.2 m below the current ground surface. Until further investigation of these localities, they were provisionally defined as Field Sites 3 and 4, respectively. The other two trenches (GT 5 and GT 6) encountered burned features that have a low probability to be of cultural origin, but provide information on the existence of buried soil surfaces that are difficult to identify visually. Because of the potential for the presence of one or more buried archaeological sites within the vicinity of GTs 3 and 4, CAR recommended that systematic mechanical auger borings be carried out to a depth of four feet in an area measuring 18 acres surrounding the Gradall trenches. This work was carried out during the next phase of the project.

Phase VI

Phase VI of the project consisted of the intensive mechanical auger testing of the 18-acre parcel in the area overlapping Field Sites 3 and 4 and 41BX1572. It also included the reconnaissance of 175 acres located at the extreme eastern end of the project area adjacent the confluence of Leon Creek and the Medina River. This reconnaissance completed the inspection of all previously unsurveyed property within the Applewhite Road, Leon Creek, and Medina River-bounded project area.

The 108 auger borings placed in the 18-acre area identified no subsurface artifacts and encountered no cultural features. A light surface scatter of chipped stone artifacts northwest of the originally defined site boundaries led to the northwest extension of the limits of 41BX1572. Although GT 1 originally revealed buried archaeological deposits, no additional signs of buried materials were identified within the mechanical auger borings excavated on site. Shovel tests excavated on site during Phase V also revealed no buried cultural deposits. The site has not yielded any diagnostic tools and no intact or disturbed features were identified on surface. Based on the findings from the auger borings, shovel tests, and Gradall trenching on 41BX1572, it appears that the buried cultural material has no relationship to the light scatter of prehistoric cultural debris on the surface. No additional buried materials were identified through auger borings and the single buried feature remnant has limited research potential. Similarly, the light scatter of surface artifacts lacking temporal diagnostics and the lack of features limits the analytical potential of the surface component. Therefore, it is recommended that 41BX1572 has little research potential and the site does not merit designation as a SAL and does not warrant nomination to the NRHP.

No additional buried cultural remains were identified during auger boring in the vicinity of GTs 3 and 4. Therefore, based on the lack of associated cultural materials it was determined that although the two trenches revealed buried signs of thermal activity, these signs were most likely evidence of natural burns. While their occurrence is probably indicative of a formerly exposed surface, the age of the surface and the rate of deposition of the overlying 120–130 cm of deposits were not determined. It is recommended that Field Sites 3 and 4 be considered as non-cultural localities without formal designation as archaeological sites.

As part of the reconnaissance, 16 backhoe trenches were excavated across the 175-acre tract located at the eastern

end of the project area. Archaeological artifacts were identified in only two of the backhoe trenches (BHTs 9 and 11), between 93 cm and 185 cm below the modern ground surface. Artifacts recovered in BHT 9 are from an area that had not been previously identified before this investigation. A single flake and two pieces of possible fire-cracked rock were recovered at approximately 1 m below the modern ground surface. Two pieces of charcoal were collected just below these artifacts. Three additional pieces of charcoal were recovered from 1.25–1.5 m below the modern ground surface. Two pieces of charcoal were identified and collected from the eastern wall of BHT 9. One piece was found in association with a fragment of possible fire-cracked rock at a comparable level to the artifacts in the western profile. The other was also approximately 125 cm below the current ground surface. Provisionally, this location was designated as Field Site 6, pending further investigation. Additional work was performed at this locality during Phase VIII.

Backhoe Trench 11 was intentionally excavated in a surface scatter of artifacts at the eastern end of the project area near the confluence of the Medina River and Leon Creek. This locality was initially identified as Field Site 5 and later defined as site 41BX1573. The soils and stratigraphy exposed in this trench were typical of this area. Two A horizons extended to a depth of 30–50 cm below the modern ground surface. Cultural artifacts were mapped and collected from the A1 and A2 horizons. A single piece of fire-cracked rock was mapped in the A1 horizon. One piece of chert angular debris and a possible fragment of hematite (ochre) were recovered from the A2 horizon. These are probably associated with the surface scatter of lithics and fire-cracked rock at 41BX1573. These materials were approximately 5–16 cm below the current ground surface. The artifacts were not associated with any identifiable paleo-surface but were within the A1 and A2 horizons. All of these artifacts were collected, but eventually discarded. Three B horizons extended to a depth of 90 cm. Five pieces of mussel shell were mapped in the B1 and B2 horizons. Three were in the upper portion of the B2 and lowest part of the B1 horizon and the other two were higher in the B1 unit. Underneath the B horizons were two C horizons. Charcoal and mussel shell were noted primarily in the lower part of the C1 horizon. Three pieces of charcoal were collected from the C1 horizon at 100–125 cm below the ground surface. There was no evidence that these were associated with any cultural materials. The charcoal has been curated for possible dating.

Due to the poor surface visibility in the area, the only surface artifacts identified during the 175-acre reconnaissance were

in site 41BX1573 near the confluence of the Medina River and Leon Creek. As noted above, BHT 11, excavated on site, indicated that some of these materials may have worked their way down to roughly 10–20 cmbs.

The extent of the cultural deposits at 41BX1573 remained undetermined at the end of Phase VI. Given that no shovel testing or auger borings had been excavated in the vicinity of 41BX1573, very little was known about its size and the range of cultural materials it contained. Therefore, it was recommended that additional archaeological work be conducted at 41BX1573 to determine its boundaries, and the density and depth of cultural deposits. This additional work required shovel testing at 41BX1573 and was performed during Phase VIII.

Phase VII

Archaeological work during Phase VII consisted of the NRHP/SAL eligibility re-evaluation of five previously documented sites: 41BX653, 41BX654, 41BX655, 41BX656, and 41BX676. At four of the five sites, this evaluation consisted of the relocation of the sites and intensive shovel testing.

41BX653

Site 41BX653 is currently designated as a State Archeological Landmark. One possible Montell dart point fragment (McGraw and Hinds 1987:Figure 57) was identified on the ground surface during the CAR survey in the 1980s. Based on temporal affiliation of this single diagnostic, the site may be related to the Late Archaic I period (2200–4200 years BP; Johnson 1995:90).

The site has a very low density of cultural materials clustered in two sparse concentrations (concentrations A and B). These two areas are spatially separated by approximately 200 m. Concentration A is manifested from the surface down to 35 cmbs. Concentration B, in the west-central portion of the site, is confined entirely to the surface. Although it was previously designated as a SAL, after decades of erosion much of the cultural material formerly present on the surface has been displaced and removed from the location. Given that erosion has reduced the density of surface materials and severely compromised the associational integrity of the remaining artifacts and deposits, we estimate that site 41BX653 has minimal to no research potential. Therefore, we recommend that in its current state, site 41BX653 is not eligible for designation as a SAL nor nomination to the NRHP.

41BX654

Site 41BX654 was first identified in 1984 during a survey in the immediate area of the proposed Applewhite Reservoir dam (McGraw and Hinds 1987:216). It was thought to represent a prehistoric lithic workshop and limited occupation site. At the time of its discovery, it was described as a deflated site not eligible for SAL or NRHP nomination.

Twenty-six shovel tests were excavated at 41BX654. Of these, only one (3.8%) shovel test (ST 8) encountered cultural material. A single flake was recovered from Level 1 (0–10 cmbs) from ST 8. ST 3 was placed near two surface flakes exposed in the ranch road, but no cultural material was encountered below the surface.

No temporally diagnostic artifacts were recovered and no features were identified at this site. Surface artifact density was also extremely low. Nearly all of the archaeological materials that may once have been present at this site have apparently eroded away. It is recommended that 41BX654 is ineligible for designation as a SAL, is not recommended for nomination to the NRHP, and requires no further investigation.

41BX655

Site 41BX655 has been heavily impacted in the past by clearing for power lines and the associated maintenance road, and recent land clearing that cut a roadway through the southwestern portion of the site. The subsurface deposits contain very few artifacts. Twenty-two shovel tests were excavated in the site to search for subsurface deposits. A single shovel test, ST 2, yielded one piece of debitage from Level 1 (0–10 cmbs). Shovel testing to a depth of 60 cmbs revealed no significant deposits of artifacts.

Due to the relative sparseness of the surface deposits, the lack of temporally diagnostic artifacts, the absence of buried deposits, and the impact of recent disturbances to the site, we expect that the site has low research potential. Therefore, we recommend that 41BX655 does not merit designation as a SAL nor warrant nomination to the NRHP.

41BX656

Site 41BX656 was thought to be a multi-component prehistoric site. Previous work suggested this was considered one of the more significant sites to be examined in the project area. No diagnostic artifacts were identified and no cultural features were located during the site relocation. At the time of the CAR revisit, a moderate scatter of lithics and burned rock was visible in the ranch road and defined as artifact

concentration A. A second, denser surface concentration of lithics was defined in the vicinity of the positive shovel tests at the southern end of the site. It was defined as artifact concentration B.

The cultural deposits at this site have some depth, but the artifact density is low. Only three (10.7%) of 28 shovel tests were positive for artifacts. These were STs 21, 23 and 27. Two pieces of debitage were recovered from ST 21 in Level 1 (0–10 cmbs); ST 23 yielded a single piece of debitage from Level 3 (20–30 cmbs); and ST 27 produced one flake each from Levels 3 (30–40 cmbs) and 6 (50–60 cmbs). Shovel testing indicates there is some depth to the cultural deposits at the southern end of the site. Total recovered artifacts from this site consist of five pieces of debitage. All positive shovel tests were situated at the southern edge of the site.

Given that no intact features have been identified and no diagnostic artifacts have been recovered, the site has minimal research potential. Therefore, it is recommended that this site is not eligible for designation as a SAL and does not warrant nomination to the NRHP. No further archaeological investigations are recommended for this site.

41BX676

Site 41BX676, a presumed cemetery containing victims of an early-twentieth-century cholera epidemic, could not be relocated during the intensive walk-over of the reported and mapped site location. No headstones, fences or subsidence were identified. No surface manifestations were encountered during the survey to indicate the presence of any cemetery. Therefore, it was recommended that additional methods be pursued to establish the location of this cemetery, including oral interviews with the property owner and a ground penetrating survey to be performed by Raba-Kistner Consultants, Inc. at the request of the City of San Antonio. This work was completed during Phase IX.

Phase VIII

Phase VIII of the project consisted of the re-evaluation of eight additional previously documented sites: 41BX349, 41BX652, 41BX657, 41BX658, 41BX659, 41BX661, 41BX662, and 41BX832. In addition, Field Site 5 (41BX1573) and Field Site 6 were evaluated using intensive mechanical auger borings. Finally, two localities identified as Field Sites 7 and 8 and containing standing structures were revisited and their SAL/NRHP eligibility evaluated.

41BX349

Site 41BX349 was originally identified as an Anglo-Texan farmstead dating to the mid nineteenth century (1830–1860; McGraw and Hinds 1987). A chimney fall and evidence of several piers could be seen on site during its initial recording. At the time of the revisit in 1999, Texas A&M researchers noted a low-density surface scatter of prehistoric lithics at 41BX349 (Thoms 2000:20).

Surface inspection of the site identified the area of chimney fall and some of the piers. While one of the two ranch roads present on site may be associated with the original homestead, the construction of a second road has impacted some of the deposits and architectural features. The moderate-density surface scatter represents evidence of a historic occupation mostly confined to the surface.

Twenty shovel tests were excavated on site. Of these, five (25%) were positive containing historic artifacts and a small number of possible prehistoric materials to a depth of 20 cmbs. No intact features were identified and the historic component is heavily disturbed. Because of the apparent degradation of this site, it is recommended that in its current condition the site is not eligible for designation as a SAL and does not warrant nomination to the NRHP. No further work is recommended at this site.

41BX652

During the original recording of site 41BX652, a Langtry point, Leon Plain ceramics, and Spanish olive jar sherds were recovered from the surface (McGraw and Hinds 1987:214). Erosion of nearby areas was beginning to impact the site even at the time of recording. The site is officially designated as a SAL.

The extensive erosion noted on the margins of the site in 1984 has progressed well into the site. The erosion has significantly reduced the intact portion of the site and seems to have removed nearly all cultural remains from the surface of the site. Twenty-eight shovel tests were excavated on site to check for subsurface deposits. All were negative.

With the exception of a few flakes on the surface of an eroding bank, there are no other indications of archaeological deposits at 41BX652. Although two decades ago the site seemed promising and was designated a SAL with testing recommended to determine NRHP eligibility (McGraw and Hinds 1987), in its current condition, the site no longer justifies this recommendation. Erosion has destroyed much

of the archaeological deposits once present. The remaining sparse archaeological material is disturbed and has minimal research potential. Therefore, it is our recommendation that the site is not eligible for designation as a SAL and does not warrant nomination to the NRHP. No further work is recommended.

41BX657

The original assessment of this prehistoric site was that it was heavily eroded and it did not merit NRHP nomination (McGraw and Hinds 1987). Continued site erosion was visible at the time of the relocation. During the revisit, a single artifact was recovered from this site, a bifacial core. No temporally diagnostic artifacts were noted and no features were seen. None of the 20 shovel tests excavated on the site recovered subsurface cultural materials. Without cultural features or diagnostic artifacts, this site has virtually no research potential. Therefore, site 41BX657 is not recommended for designation as a SAL nor does it warrant nomination to the NRHP.

41BX658

Even at the time of its original recording, soil erosion was very pronounced and had already seriously impacted site 41BX658 (McGraw and Hinds 1987). The two east-west running ranch roads that bisect the site have contributed to the erosion noted in the 1980s. During the revisit, a flake was noted within one of the roads beyond the boundary of the site.

Twenty shovel tests were excavated on the site and just beyond its identified boundary in search of a buried component. No artifacts were recovered from any of the 20 shovel tests. The single flake suggests that the site once contained a prehistoric component, however, the age of this possible component cannot be determined. The site essentially no longer exists and the deposits have minimal to no research potential. Therefore, site 41BX658 is not recommended for designation as a SAL and does not warrant nomination to the NRHP.

41BX659

During its original documentation, site 41BX659 was described as heavily impacted by erosion with only 15% of the site remaining intact (McGraw and Hinds 1987). The little topsoil that was noted on the site during the 1980s has been reduced even more and no archaeological materials were noted on the surface during the revisit.

Eighteen shovel tests were excavated on site. None of them revealed subsurface materials. Based on the level of erosion, it is concluded that this erosion has virtually removed the light artifact assemblage that was noted on site during the 1980s. There was nothing noted during the current project to indicate that an archaeological site exists at the location. A broad sweep of the area revealed no cultural materials within the vicinity of the location. Therefore, it is suggested that no intact deposits of site 41BX659 remain, and it is not recommended for designation as a SAL nor warranting nomination to the NRHP.

41BX661

Site 41BX661 is multi-component, containing a historic occupation and traces of prehistoric materials in the form of an occasional chert flake. At the time of its original recording, and until recently, the historic component consisted of a one-story, three-room tenant farmer house (McGraw and Hinds 1987). Even as recently as early 2003, an abandoned structure in a deteriorated condition, two refuse dumps, a well or cistern, a wood and brick retaining wall, and evidence of additional structures were visible on site. Since February 2003, however, all features except the structure have been removed by land clearing. All materials have been pushed into an arroyo by bulldozing. Historic artifacts were collected from the arroyo and confirmed the 1920s–1930s age of the historic component. Five shovel tests were placed within the scraped portion of the site. A single, mechanically impacted core was recovered from Shovel Test 2.

Due in large part to the recent destruction of the site, the research potential of the historic component has been severely impacted. Only minimal evidence of the prehistoric component, a single flake, was noted on the surface of the site. It is suggested that neither the historic nor the prehistoric components originally described at the site have research potential due in part to the recent land clearing impacts. Therefore, site 41BX661 is not recommended for official designation as a SAL and nor for nomination to the NRHP. It is also believed that the decay of the structure is beyond reversal and it is not possible to preserve it.

41BX662

At the time of site 41BX662's original recording during the 1984/1987 survey, brick fragments were noted strewn across the surface and a mounded concentration of burned clay and brick fragments were observed in the area surrounding a kiln (McGraw and Hinds 1987). This feature was thought

to be intact below the ground surface. Kay Hinds mapped the site in 1991 and described the kiln as very weathered at that time (Kay Hinds, personal communication 2003).

Brick fragments are still visible on the surface of the site and in the ravine nearby. This surface scatter of brick fragments extended almost 6 m to the north of the kiln, 5 m to the west, and 6 m to the east. The kiln location can be identified by the mounded area of brick found near the south-central portion of the site.

Twenty shovel tests were placed around the kiln to help define the subsurface extent of the brick scatter away from the main concentration. Of these, three shovel tests were positive, STs 4, 5 and 12. These shovel tests yielded shallowly buried bricks and brick fragments to a depth of 10 cmbs. While the exposed surface of the remaining kiln wall is heavily weathered, an examination of the photograph from 1984/1987 shows that it does not appear to have suffered much degradation since the original survey.

The subsurface of the kiln still promises to be intact and may shed light on the overall size of the kiln which may allow inferences regarding its production capacity. This could provide information about the extent of its use and its importance to the local community and the economic base of the kiln's operator.

This site is a single-function, single-component locality. Owing to the local historic importance of the kiln, the restricted identifiable function, and potential for a largely intact subsurface component related to the kiln, this site is considered to be significant. The site is currently listed as a SAL. It is recommended that, if feasible, the site not be disturbed. However, if development of the locality is necessary, it is recommended that the site be tested using 1-x-1-m units to determine if it warrants nomination to the NRHP. It is further recommended that the grasses and brush within approximately 70 m of the site not be cleared since this vegetation stabilizes the bank in the area of the kiln and also provides some cover to obscure the location.

41BX832

Site 41BX832 is a prehistoric site associated with a deeply buried paleosol recognized in an arroyo cut by Texas A&M researchers in 1989. The paleosol was identified 5.25 m below the modern ground surface and extended approximately 10 m along the wall of the arroyo. A small number of prehistoric artifacts were identified in the paleosol upon

closer examination. Additional artifacts were noted in the arroyo as deep as 10 m below the surface where several occupation lenses were found to be separated by sterile sedimentary deposits.

Because of the reported depth of the paleosol, the locality of 41BX832 was not shovel tested. Since neither shovel testing nor backhoe trenching would be effective methods to sample such deeply buried deposits, examination of the arroyo walls was the only effective means to identify whether the buried site is still present in these exposures.

No indications of a paleosol or artifacts were encountered during these investigations. Erosion of the vertical arroyo walls has buried the side walls from 3 m below the surface to its bottom at 14 m deep. This massive erosion has either buried the deposits or removed them altogether. The site is designated as a SAL. Although it could not be relocated during the survey, the potential existence of buried deposits associated with the paleosol recorded in 1989 would represent a significant resource with great research potential. Therefore, although it could not be relocated, and its NRHP eligibility cannot be determined, continued protection of this locality is recommended.

41BX1573

Site 41BX1573 was defined during Phase VI of the current project on the basis of a surface scatter of prehistoric artifacts noted during reconnaissance of the area in the vicinity of the Leon Creek and Medina River confluence. A single backhoe trench excavated in the site in search of deeply buried deposits indicated that the cultural materials did not extend more than 20 cmbs. However, no systematic shovel testing was done during the initial reconnaissance effort.

During Phase VIII, CAR systematically surveyed the surface of the site along pedestrian transects spaced 10 m apart and excavated 20 shovel tests to define the site boundaries and establish the depth and nature of the deposits. Six (30%) of the 20 shovel tests excavated on site were positive. They produced 12 non-diagnostic artifacts and demonstrated that the prehistoric component is buried to a depth of approximately 40 cmbs.

Site 41BX1573 produced no diagnostic artifacts and the fieldwork identified no cultural features. It is a prehistoric site of unknown age with a light deposit of debitage and burned rock. This deposit extends from the surface to a maximum depth of 40 cmbs. This depth suggests the

possibility of intact buried deposits. Given this possibility, it is recommended that the area adjacent to 41BX1573 be left undisturbed. If development in the area is necessary, it is recommended that testing of this site determine its SAL and NRHP eligibility be performed. Site 41BX1573 may offer the opportunity to obtain additional samples (in combination with samples from GTs 1–5), from what are likely the most recent portions of these floodplain deposits, to address landscape formation and potential dating of cultural resources in this area. While the site does not appear to merit designation as a SAL nor nomination to the NRHP, the research potential of this site is unclear in the absence of controlled test excavations.

41BX1574

In 1953 this location contained three structures but by 1967 only the house remained (USGS *Terrell Wells* quadrant map 1953, 1967/1973). The house began as a single-room building with clapboard siding holding together 2-x-4-inch uprights that are now exposed. The roof is wood shingled and the building sits on posts. At a later date a porch was added, then enclosed to provide a second room. The dressers inside the structure indicate a 1930s to 1940s date for the house while the chest freezer and refrigerator suggest late 1940s to mid 1950s. More recently, the building was reused as a chicken coop.

The structure is slowly collapsing due to disuse and disrepair. The site and the structure probably represent a tenant farmer's house. The structure was likely present during the original survey of the Applewhite Reservoir but it may not have been judged sufficiently old to be considered a historic property at the time.

The site represents one of many historic tenant occupations of the outlier ranches surrounding San Antonio. Given that such examples are common and the site has already been impacted by the loss of two structures, it is our recommendation that in its present state, 41BX1574 has low research potential. Therefore, 41BX1574 is not recommended as eligible for SAL designation or for nomination to the NRHP and no further work is proposed at the site.

41BX1575

This tenant complex appears on the 1953 *Terrell Wells* USGS quadrangle sheet and is at least 50 years old. As in the case of 41BX1574, the site was likely present during the original survey of the Applewhite Reservoir but it may not have been

judged sufficiently old to be considered a historic property at the time.

The complex consists of three buildings. The first structure is a three-walled, tin-sided livestock loafing shed. Although this building is at least 50 years old, such common architecture has very minimal archaeological value and little historical research potential. The second structure is a tin and board-and-batten sided three-room home. Two of the rooms are original board-and-batten construction, the third is a tin-sided addition most recently used as a barn. The third structure is a hay shed made of a metal tube frame covered in a tin roof. It has no side walls. This type of shed is still in use today and the building has no archaeological value and little historical value.

Given that this site is likely to be barely 50 years old, and such properties are still common in the region, it is suggested that this historic tenant complex has minimal to no research potential. Therefore, it is recommended that the site is not eligible for official designation as a SAL and does not warrant NRHP nomination. No additional work is recommended at 41BX1575.

Inspection of Field Site 6 (BHT 9)

One flake and two pieces of possible FCR were noted during examination of BHT 9. These were recovered at approximately 1 m below the modern ground surface in the western wall of the trench. Mechanical auger borings were used to inspect subsurface deposits in the vicinity of BHT 9. Thirty-six auger borings were mechanically excavated on a 20-x-20-m grid to a depth of 1.8 m below the surface. All matrix from the units was screened but the efforts yielded no archaeological materials.

Based on the lack of any cultural material recovered from auger testing and on the artifacts present in BHT 9, it is recommended that the locality not be identified as an archaeological site. The single flake should be considered an isolated find given that the additional specimens may not be of cultural origin. No further work is recommended at this locality.

Phase IX

Phase IX of the project consisted of the re-evaluation of site 41BX125, an intensive ground penetrating radar survey in search of 41BX676—the second supposed cholera

cemetery—and the survey of the railroad spur right-of-way on the north bank of Leon Creek.

41BX125

Site 41BX125 was originally recorded in 1971 as a surface scatter of lithic artifacts. The pedestrian reconnaissance and the excavation of BHT 15 during the Phase VI work in June of 2003 identified no surface or subsurface cultural material at the recorded location of 41BX125. Sixteen shovel tests were excavated in two transects spaced 20 m apart within the site locality during Phase IX. In addition, a reconnaissance was made of the exposed cutbank 15 m south of 41BX125. The exposure was examined for the presence of any cultural material, paleosols, or features.

One shovel test (ST 11) recovered an unmodified mussel shell fragment and a flake from Level 3 (20–30 cmbs). Unmodified mussel shell fragments were also found in STs 9 (Level 4, 30–40 cmbs) and 17 (Level 6, 50–60 cmbs). With the exception of the unmodified flake, no other clearly cultural materials were recovered during the shovel testing. In addition, there were no indications of any archaeological deposits in the cutbank in the vicinity of the site.

Intensive shovel testing of 41BX125 identified only one prehistoric artifact, a flake. It is our assessment that the sparse surface manifestation originally noted on site has been impacted by erosion. In its present condition, the site has no research potential; therefore, it is not recommended for designation as a SAL nor for NRHP nomination. No further work is recommended at the site.

Relocation of 41BX676

Following the unsuccessful relocation of site 41BX676 during the archaeological work associated with Phase VII, the City of San Antonio contracted with Raba-Kistner Consultants, Inc. to conduct a ground penetrating radar (GPR) survey of the probable site location as identified by Al McGraw, of TxDOT, in discussions with CAR staff.

Raba-Kistner conducted a systematic GPR survey of a 220-x-180-m parcel using 15-m transect intervals. The results of the GPR survey support the conclusion reached by CAR staff that no cemetery existed within the target area where 41BX676 was mapped. This matches information provided by Mr. John Small, Jr. who resided on the ranch until recently. According to Mr. Small, no cemetery existed on the property. The nearest known cemetery is located south of the Medina River. Therefore, in the absence of signs of a cemetery based

on archaeological and GPR surveys, and based on oral information, it is concluded no historic cholera cemetery existed in the locality previously mapped as 41BX676. It is recommended that the site be removed from official records.

Railroad Spur Investigations

The proposed railroad spur on the northern bank of Leon Creek connects the project area with an existing Union Pacific railroad line north of the project property. Pedestrian survey, mechanical augering and backhoe trenching were used to search for potential buried archaeological resources along the right-of-way.

No cultural materials were identified by the pedestrian surface survey. Similarly, none of the 106 auger tests excavated along the right-of-way recovered buried cultural materials. Nine backhoe trenches were placed along the railroad right-of-way. No cultural materials were identified in any of the trenches. The subsurface disturbances noted in some of the backhoe trenches (i.e., BHT 2 and BHT 5) represent disturbances likely derived from land modifications associated with the irrigation of this bottomland. It is our assessment that the construction of the railroad spur on the north bank of Leon Creek will not impact cultural resources. Therefore, we recommend that the construction of the railroad spur proceed as planned.

In summary, the Toyota Motor Manufacturing Plant Project consisted of archaeological services associated with the construction of the proposed Toyota plant within a portion of the former Applewhite Reservoir project area. The proposed location of the plant is on an approximately 2,546-acre (1,030-ha) property. Of this, approximately 2,046 acres had been previously surveyed and were not subject to pedestrian resurvey under the current scope of work. The remaining 500 acres were inspected either through reconnaissance or systematic survey.

A total of 16 previously documented archaeological sites were present on the previously surveyed portion of the project area (Table 6-1). Four of these, 41BX652, 41BX653, 41BX662, and 41BX832, are officially designated as State Archeological Landmarks. Five archaeological sites, 41BX1571, 41BX1572, 41BX1573, 41BX1574, and 41BX1575, were discovered and documented within the newly inspected 500-acre portion of the property (Figure 6-1). Fourteen of the sixteen previously documented sites were successfully relocated and their SAL/NRHP eligibility determined. The SAL/NRHP eligibility of the five newly documented sites was also determined.

One of the previously documented sites, 41BX662 (the brick kiln), is eligible for official designation as a SAL and for nomination to the NRHP. Site 41BX681, the Frank Walsh (Kiker/Gempler/Walsh) home and ranch complex was also determined eligible for NRHP listing. The most significant of the structures that still possess a great deal of their architectural and historic integrity, the two pigeon coops, were relocated to City property (soon to be acquired by the Land Heritage Institute) located south of the Medina River. Prior to relocation, Level 1 HABS documentation of the property was completed. The remaining structures were demolished.

Site 41BX832 could not be relocated during the present project and therefore its SAL/NRHP status remains unknown. The eligibility status of one newly documented site, 41BX1573, remains unknown. It is recommended that all three of these sites remain protected. If future developments were to impact sites 41BX662 and 41BX1573, full-scale testing of these sites is recommended. Intermittent inspection of the arroyo in the vicinity of 41BX832 may be

warranted to determine whether the buried archaeological deposits originally observed in the area have been entirely destroyed through erosion.

Finally, one of the somewhat surprising findings of this project has been the intensity and degree to which erosion has impacted the previously recorded archaeological sites in the project area. No doubt, the erosion of the landform will continue and while it may have adversely affected sites and deposits exposed on surface, it may in the future expose hitherto buried components. Geoarchaeological investigations of the area suggest that the terrace located between 500 m and 525 m AMSL along the north-descending bank of the Medina River may contain buried archaeological components. If this is the case, long-term erosion could eventually expose some very significant archaeological deposits along this terrace. These deposits may in turn provide significant information to the prehistory of south-central and south Texas. Therefore, long-term monitoring of this terrace zone may be a desirable management strategy.

Table 6-1. List of Previously Documented and Newly Discovered Archaeological Sites and Their Previous and Current SAL/NRHP Recommendations

Site	Year Documented	Component(s)	Original SAL/NRHP Status	SAL/NRHP Eligibility Recommendation
41BX125	1971	unknown prehistoric	unknown	not eligible
41BX349	2000	prehistoric/historic	unknown	not eligible
41BX652	1984-1987	multi-component prehistoric	designated SAL	not eligible
41BX653	1984-1987	multi-component prehistoric	designated SAL	not eligible
41BX654	1984-1987	unknown prehistoric	not eligible	not eligible
41BX655	1984-1987	multi-component prehistoric	unknown	not eligible
41BX656	1984-1987	multi-component prehistoric	unknown	not eligible
41BX657	1984-1987	unknown prehistoric	not eligible	not eligible
41BX658	1984-1987	unknown prehistoric	not eligible	not eligible
41BX659	1984-1987	unknown prehistoric	not eligible	not eligible
41BX660	1984-1987	historic	not eligible	not eligible
41BX661	1984-1987	prehistoric/historic	potentially eligible	not eligible
41BX662	1984-1987	historic	designated SAL	eligible
41BX676	1984-1987	historic	unknown	site does not exist; site number should be deleted
41BX681	1984-1987	historic	potentially eligible	eligible to NRHP*
41BX832	1989	unknown prehistoric	designated SAL	unknown
41BX1571	2003	unknown prehistoric	not applicable	not eligible
41BX1572	2003	unknown prehistoric	not applicable	not eligible
41BX1573	2003	unknown prehistoric	not applicable	unknown
41BX1574	2003	historic	not applicable	not eligible
41BX1575	2003	historic	not applicable	not eligible

* Two pigeon coops were relocated to City of San Antonio property to be acquired by the Land Heritage Institute.

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Appendix A
Ground Penetrating Radar Survey

Raba-Kistner Consultants, Inc.

Engineering • Testing • Environmental • Facilities • Infrastructure



Raba-Kistner Consultants, Inc.
 12521 W. Collier Lane
 P.O. Box 600267 San Antonio, TX 78269-0267
 ☎ 214-590-9190 • FAX 214-590-6426
 www.rki.com

Project No. ASF03-414-03
 October 7, 2003

Mr. David E. Newman, Environmental Manager
 City of San Antonio
 Environmental Services Department
 Environmental Management Division
 1940 Grandstand
 P.O. Box 839988
 San Antonio, Texas 78283-3988

Re: Preliminary Ground-Penetrating Radar Survey
 Walsh Ranch – Planned Toyota Manufacturing Facility
 Bexar County, Texas

Dear Mr. Newman:

This correspondence was prepared on behalf of the City of San Antonio (CLIENT) to document the results of the preliminary Ground-Penetrating Radar (GPR) survey conducted at the referenced property (SITE). The GPR survey was conducted by Raba-Kistner Consultants, Inc. (R-K) to evaluate the presence of a reported cemetery located within a portion of the former Walsh Ranch, approximately 500 meters east of Applewhite Road.

PROJECT APPROACH AND CONSIDERATIONS

Three factors were considered in the determination of the possible presence of an old cemetery located within the area of interest discussed herein. These factors included: 1) discussions with the John Small family, 2) field observations of the study area, and 3) performance of a GPR survey over the entire extent of the area in question.

In accordance with the authorized scope of work, R-K conducted a preliminary GPR survey on September 5, 2003. As depicted on the attached Site Location Map (**Attachment 1**), oral communications provided to the Texas Historical Commission indicate that an ancient cemetery may be located at the SITE within an area historically utilized for agricultural purposes. In order to evaluate the shallow subsurface for signs of localized disturbance indicative of cemetery plots, R-K acquired GPR data along thirteen discrete transects within the area of interest.

In order to systematically assess the shallow subsurface for signs of disturbance, R-K established a survey grid with point of origin (i.e., survey reference point) located at the southwest corner of the area of interest. Geographic coordinates were collected during the survey utilizing a hand-held global positioning system (GPS) with reported horizontal accuracy on the order of $\pm 3-4$ meters. Position data were collected in meters utilizing the Universal Transverse Mercator (UTM) coordinate system and the standard 1927 North American (NAD27) map datum. As depicted on **Attachment 2**, geographic coordinates for the point of

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North • Broward Co • El Paso • Houston • Jacksonville • Mexico • San Antonio

Project No. ASF03-414-03
 October 7, 2003

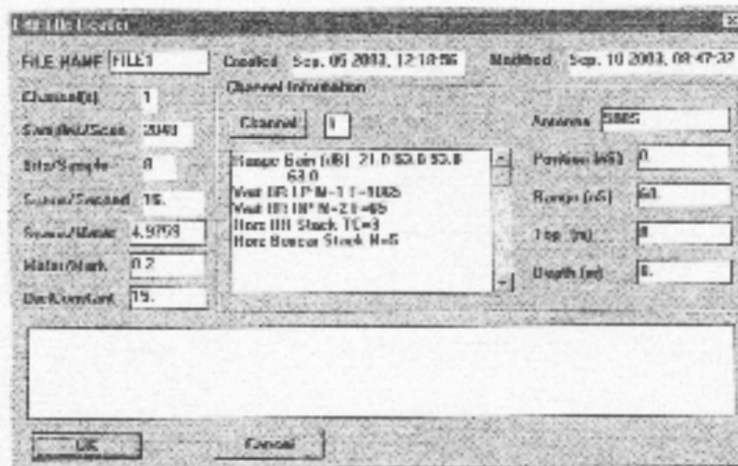
2

origin are 544238 Easting, 3235732 Northing, respectively. In order to establish the reference grid, survey tapes were extended north from the point of origin for a distance of 180 meters to form a baseline. In all instances, GPR transects originated along this baseline and extended to the east, across the area of interest, terminating at the east survey boundary. GPR transects were placed at a 15-meter spacing from the point of origin and designated in the field as "File 1" through "File 12", respectively. Due to the presence of a drainage feature near the east survey boundary, an additional GPR transect was performed across the northeast corner of the survey area and designated as "File 13".

GPR data were collected utilizing a Subsurface Interface Radar (SIR) System-2000 manufactured by Geophysical Survey Systems, Inc. and a corresponding 500 MHz antenna. In accordance with manufacturer recommendations, the 500 MHz antenna was selected to provide maximum resolution within the targeted 2-3 meter depth range of interest. In order to accurately track the position of GPR data collection and avoid stacking of redundant radar signal at times when the antenna was not in motion, the antenna was connected to a properly calibrated survey wheel set to measure distance (in meters) along respective GPR transects. In order to expedite data collection throughout the approximately 12-acre survey area, the GPR antenna and survey wheel were towed by vehicle along transects at an average speed of 1-1.5 miles per hour. The survey method was designed to facilitate detection of lateral subsurface ground disturbances on the order of 5-10 meters that may be indicative of a cemetery and may not allow for resolution of isolated gravesites, should they be present. The survey was hindered by the presence of dense scrub vegetation (e.g., mesquite trees) within the east portion of the survey area. Due to intermittent poor coupling of the antenna with the ground surface, reflected signal strength is somewhat variable along transects.

GPR DATA REDUCTION

Subsequent to collection, GPR data were processed utilizing custom radar signal processing software included as part of the SIR-2000 system in order to generate laterally continuous images (i.e., profiles) of the shallow subsurface. In order to optimize output images for the type of survey conducted, specific post-processing parameters were set in accordance with values presented in the following table.



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Project No. ASF03-414-03
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GPR SURVEY RESULTS

Numbered GPR profiles (pseudo-sections depicting subsurface conditions beneath transects) are provided as *Attachment 3*. As depicted on individual profiles, distance marks are recorded along the top of profiles at 5-meter intervals. In order to emphasize the layered nature of alluvial sediments that characterize subsurface geology at the SITE, radar data were assigned a red-green-blue (RGB) color scheme during post-processing. Strong radar reflections likely correlating to changes in lithology and/or soil moisture content with depth are indicated by red and yellow colors. Blue and green colors indicate a weaker reflected signal response. Reflected radar energy is typically dissipated below zones (i.e. depth horizons or interfaces) exhibiting strong reflection. Due to intermittent poor coupling of the antenna with the ground surface due to dense scrub growth throughout the survey area, reflected radar signal strength (uniform colored layers) do not appear very smooth or uniform along transects (i.e., profiles generally exhibit a rough or jagged appearance).

CONCLUSIONS

In accordance with the objectives of the survey, GPR profiles were interpreted to determine whether areas of lateral subsurface ground disturbance are present within the area of interest. Interpretation of the GPR profiles supports the determination that an ancient cemetery is not present within the survey area. The following observations support this determination:

- In general, zones corresponding to strong radar reflection occur at uniform depth intervals between respective survey transects and are likely indicative of changes in the physical nature of the subsurface materials (e.g., lithologic change) and/or changes in soil moisture content. Strongest reflections appear to be present at approximately 0.7-0.9 meter and 1.5-2 meter depth intervals, respectively.
- Strong reflection zones appear laterally continuous along the majority of GPR transects. At isolated locations where zones appear to be truncated by vertical discontinuities, there are no indications of closely spaced parabolic reflections which are characteristic of buried targets (e.g., multiple gravesites). Vertical discontinuities that appear in select profiles are not traceable laterally across adjacent profiles and are therefore not considered to be indicative of a cemetery.
- In order to further evaluate GPR data collected within the area of interest, an additional transect designated as "File 14" was collected approximately 500 ft west of the survey area at a location where historical disturbance of subsurface soils was considered unlikely. Comparison of the File 14 profile with profiles generated for GPR transects within the survey area does not indicate significant differences.

R-K emphasizes that these are tentative interpretations of subsurface conditions based upon the limited geophysical survey conducted. While it is considered unlikely that an ancient cemetery exists within the area of interest, the methodology employed for this survey does not support detection of single or (i.e., individual) grave sites that may be present in this area.

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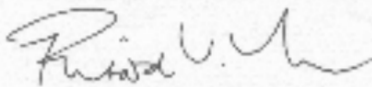
In addition to the GPR data, R-K conducted an interview with John Small, Jr. The Small family still resides on the ranch. Mr. Small indicated that his parents relayed to him that there has never been a cemetery on the ranch. If one had existed, it would have been maintained by the family. They believe the nearest cemetery to their property lies somewhere just south of the Medina River. Additionally, the area along the east edge of the area of interest is highly eroded to depths of 5 to 6 feet below grade. This area was examined and no indications of buried items or other activity were noted.

CLOSING

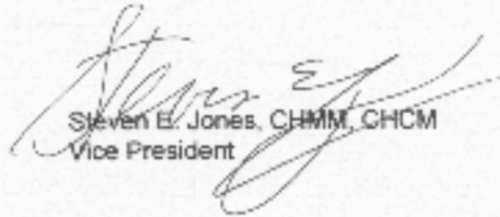
We appreciate the opportunity to have been of service to you on this important project. If you have any questions regarding information provided herein, or would like to further discuss this project, please do not hesitate to call either of the undersigned at 609-9090.

Very truly yours,

RABA-KISTNER CONSULTANTS, INC.



Richard V. Klar, P.G.
Environmental Geologist



Steven E. Jones, CHMM, GHCM
Vice President

RVK/SEJ/srw

Copies Submitted: Above (4)

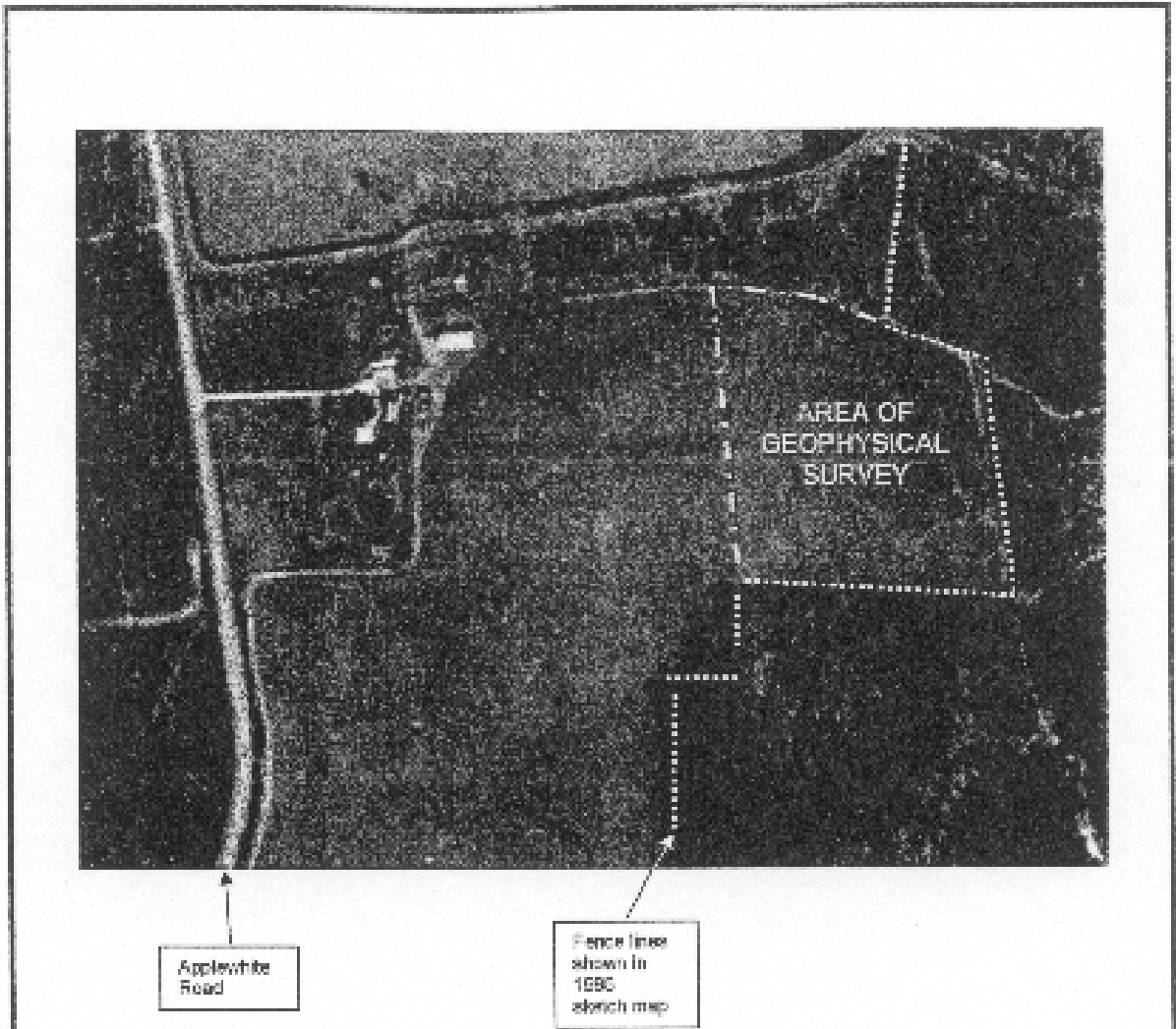
Attachments

Raba-Kistner

ATTACHMENT 1


**Site Location Map Depicting Area of Interest for
Ground-Penetrating Radar Survey**

Raba-Kistner



Estimated locale of reported cemetery, 41BX676 about 500m east of Applewhite Road. See also 1985 archeological survey report sketch map (AJMc, 1985) and report in *Chipped Stone and Adobe*.

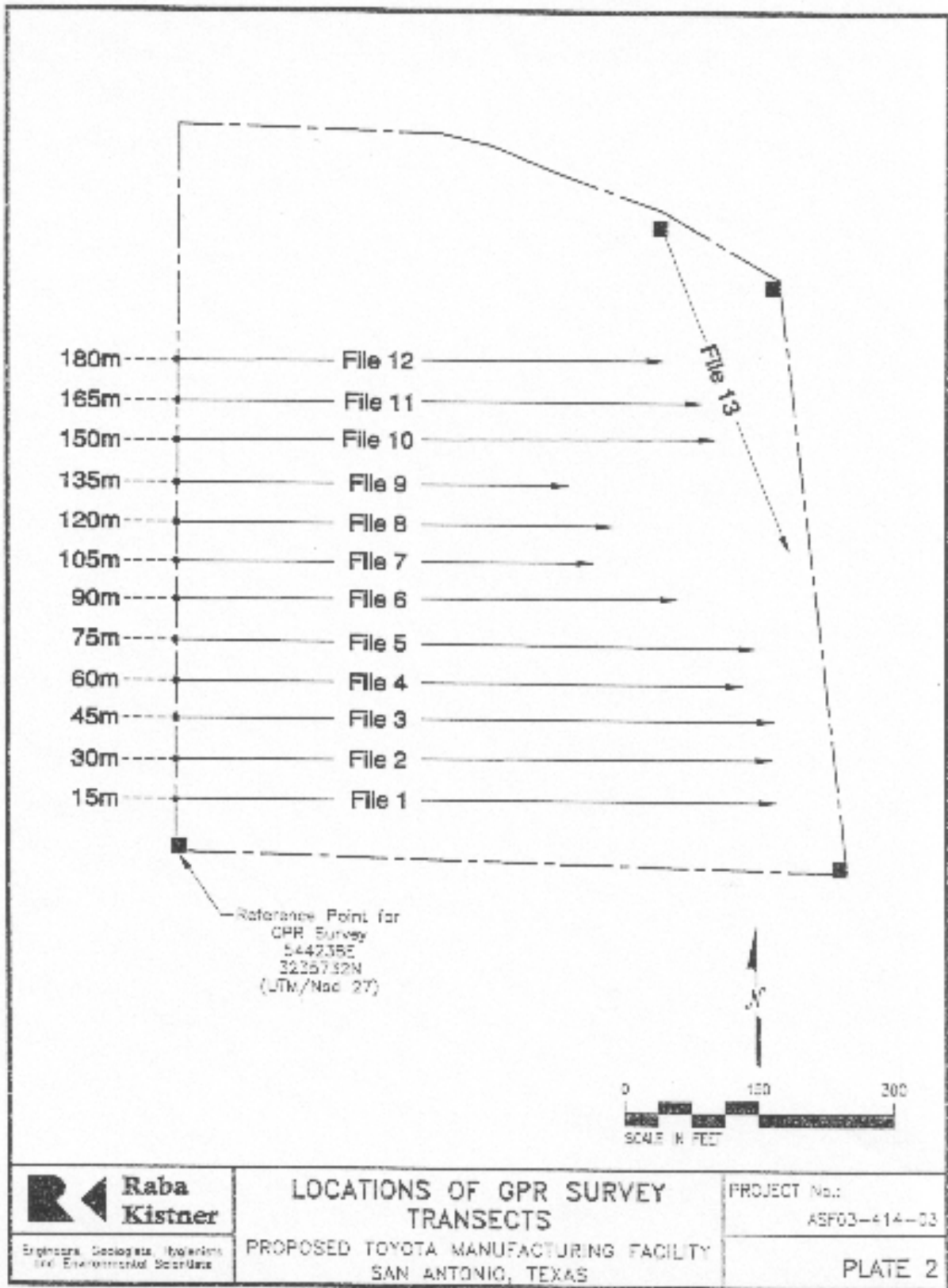
AJMc. 8/26/03. Base map from TNRS data download, Terrell Wells Quad.

 <p>Raba Kistner Engineers, Geologists, Hydrologists and Environmental Scientists</p>	<p>SITE LOCATION MAP</p> <p>Proposed Toyota Manufacturing Facility Geophysical Receiver Survey San Antonio, Texas</p>	PROJECT No.
		ASF03-414-03
September 2002		PLATE 1

ATTACHMENT 2

Locations of Ground-Penetrating Radar Survey Transects

Ruba-Kistner



ATTACHMENT 3

Ground-Penetrating Radar Survey Profiles

Raba-Kistner

