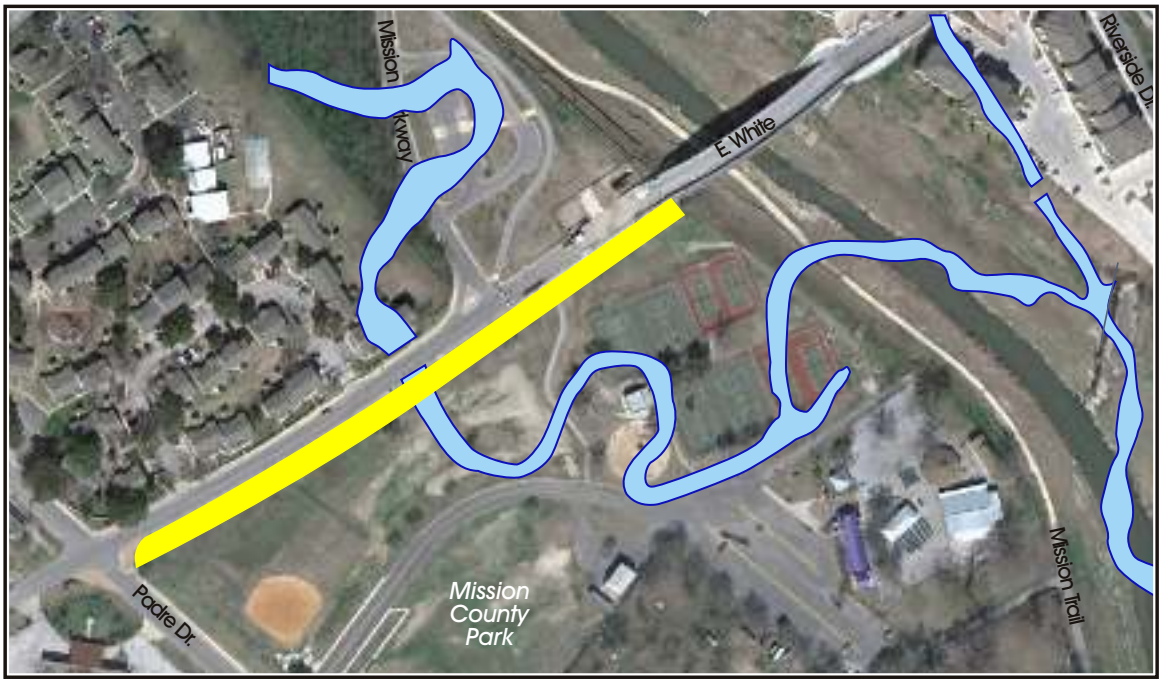
Intensive Archaeological Pedestrian Survey and Construction Monitoring of the VFW Boulevard Drainage Improvements Project, Segment I, San Antonio, Bexar County, Texas

by

Steven W. Ahr, Kristi Miller Ulrich, and Cynthia M. Dickey



San Antonio River Improvements Series: Volume 1

Texas Antiquities Committee Permit No. 5957

Restricted

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San Antonio, Texas 78283-9980

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Archaeological Report, No. 422

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Steve A. Tomka
Principal Investigator

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Management Summary:

The Center for Archaeological Research (CAR) at The University of Texas at San Antonio (UTSA) conducted an intensive archaeological survey of a proposed easement that parallels VFW Boulevard in advance of planned drainage improvements between Padre Drive and the San Antonio River. Subsequent to the survey, CAR staff also monitored the installation of drainage piles within the project area. The Area of Potential Effect extends along the northern edge of Mission County Park in south-central Bexar County, Texas. Fieldwork was performed under Texas Antiquities Permit No. 5957, and consisted of the excavation and detailed recording of six backhoe trenches, along with a geoarchaeological and geomorphological assessment followed by construction monitoring at the time of the trenching for pipe installation. One previously recorded site, 41BX1917, which consists of a sparse scatter of small fire-cracked rock (FCR), a few pieces of lithic debitage, and a small burned clay concentration observed in profile at a depth of 70-80 cm below surface (cmbs; 27.6-31.5 in.), was found to extend to within the APE. These findings are consistent with previous investigations by CAR at the southeastern portion of Mission County Park, at site 41BX1920, wherein extensive burned daub concentrations and burned rock features were identified at the same approximate depth and were dated to 3450-3360 and 4230-3990 BP (Middle to Late Archaic Period).

Geoarchaeological investigations documented three alluvial-stratigraphic units underlying a single alluvial terrace (T-1) in the study area. From oldest to youngest, these were designated as Units I through III. The uppermost part of Unit I was observed in backhoe trenches (BHTs) 3, 5, and 6. This unit consists of a friable and massive zone of caliche, which is suggested to be Pleistocene in age. As such, this unit does not exhibit potential to contain archaeological materials in good context. Unit II was identified in BHTs 3-6 and represents an early- to middle-Holocene unit consisting of low-energy, fine-grained silty clay loams and clay loams that were deposited on the terrace surface during episodic overbank flooding. Erosion appears to have scoured and truncated the upper part of Unit II, including the original A horizon and portions of the Bk horizon. This event is estimated to have occurred around 4,000 BP based on ^{14}C dates at nearby 41BX1920 and previously documented periods of channel incision and erosion in other nearby areas of the river. Unit III was subsequently deposited on the terrace surface sometime after 3,500 BP and is the correct age to potentially contain Late Archaic through Late Prehistoric cultural materials.

Cultural materials were observed within BHTs 4 and 6 and represent an extension of the site 41BX1917 boundaries into the project APE. In BHT 4, a few pieces of FCR less <5 cm (2 in.) diameter were observed within the uppermost portion of alluvial stratigraphic Unit III. In BHT 6, a couple of lithic flakes and a burned clay concentration were identified within the top portion of alluvial stratigraphic Unit II. Of these, the clay concentration in BHT 6 was potentially the most significant discovery. Burnt clay with impressions of structural elements, posts, was recovered from nearby site 41BX1920. However, the burned clay from 41BX1917 did not retain any impressions of vegetal matter suggesting that it may have simply been associated with a thermal feature, such as a hearth. Both finds are situated within geomorphologically and pedologically similar deposits and, based on radiocarbon ages, date to the Middle Archaic/Late Archaic Periods. Previous CAR investigations recommended site 41BX1917 as not eligible for nomination to the National Register of Historic Places and for formal listing as a State Archeological Landmark. At this time there is insufficient data to alter this recommendation. However, based on the presence of burned clay within the proposed APE, CAR recommended that an archaeologist monitor the excavations associated with the pipe installations along the VFW Boulevard APE. The area of interest for monitoring was to be limited to the boundaries of site 41BX1917. If additional, burned daub rather than burnt clay features, artifact concentrations, or evidence of the *acequia* were to be found during this construction monitoring, CAR recommended that construction activities in the immediate area of the finds cease until the find is fully evaluated in consultation with the City Office of Historic Preservation (COSAOHP) and the Texas Historical Commission (THC).

The COSAOHP and THC reviewers concurred with this recommendation and CAR staff conducted construction monitoring of a 130 m (426.5 ft.) long segment of the project easement. While scattered burned rock, a few small pieces of burnt clay, and low densities of lithic debitage were noted within the boundaries of 41BX1917, they were within a disturbed deposit. These finds did not alter the original eligibility recommendation that the site is not eligible for listing on the National Register and formal designation as a State Archaeological Landmark.

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Chapter 1: Introduction

The Center for Archaeological Research (CAR) at The University of Texas at San Antonio (UTSA) contracted with the San Antonio River Authority (SARA) to provide archaeological services associated with planned drainage improvements within an easement that parallels VFW Boulevard, between Padre Drive and the San Antonio River, located in south-central Bexar County (Figure 1-1). The proposed drainage easement is located within Mission County Park, which is situated on the west bank of the San Antonio River. It is bound on the north by Ed White Boulevard and South Padre Drive on the west. It fronts the San Antonio River, and the privately held El Ranchito property forms its southern limit.

Area of Potential Effect

The Area of Potential Effect (APE) is considered to be the construction footprint of the proposed drainage easement and is located on the Southton 7.5-minute USGS quadrangle map (Figure 1-2). The APE was defined on the basis of construction schematics/plans available at the time of the permit application and survey. The project easement will cross a former meander of the San Antonio River that was located to the west of the current VFW Boulevard Bridge (Figure 1-3). The APE begins at Padre Drive and extends east for approximately 320 m (1,050 ft.) to an existing drainage outfall on the west bank of the San Antonio River.

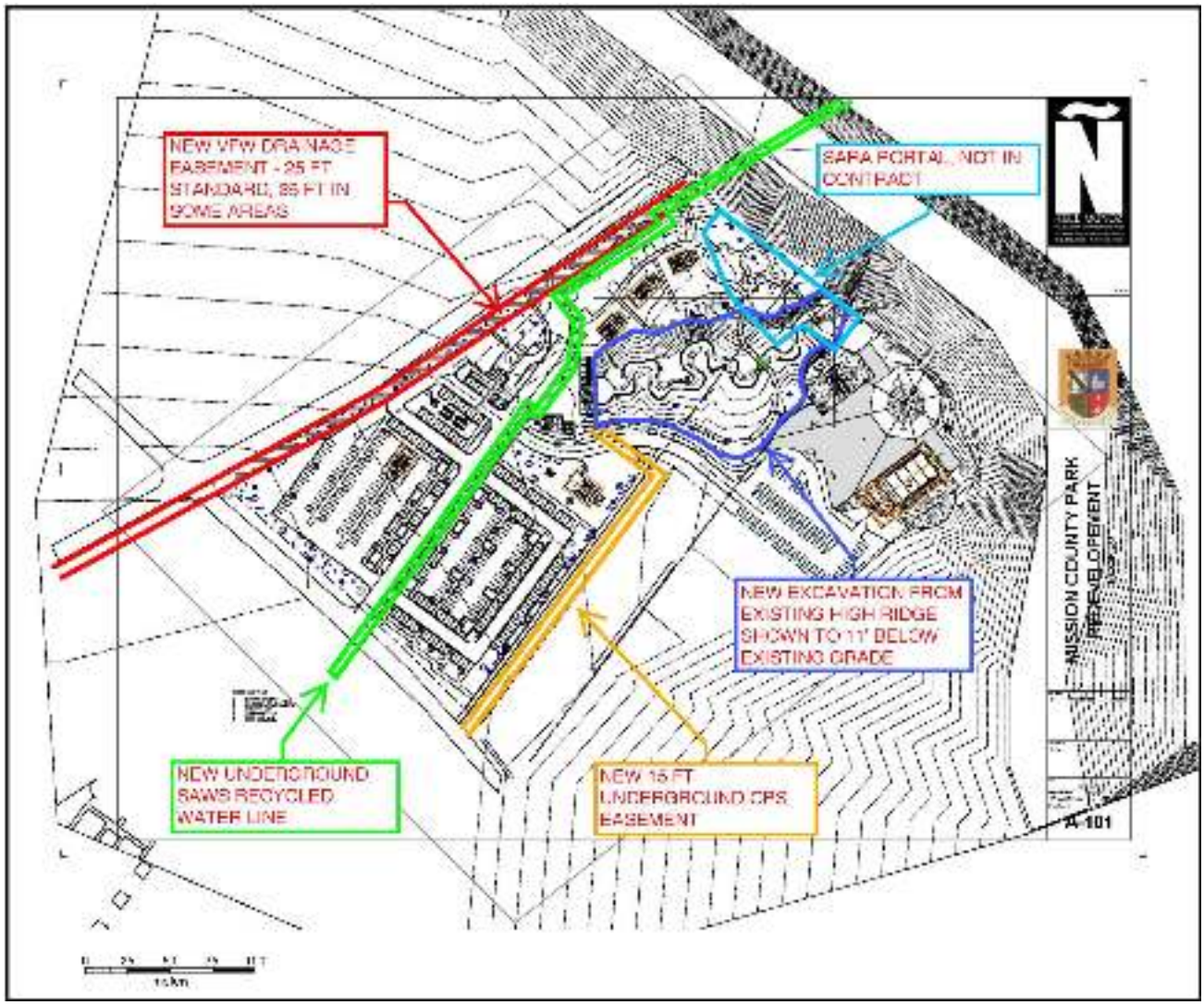

Figure 1-1. *Proposed improvements to be carried out at Mission County Park. Note that the CPS easement has subsequently been moved to the northern portion of the park (in red).*

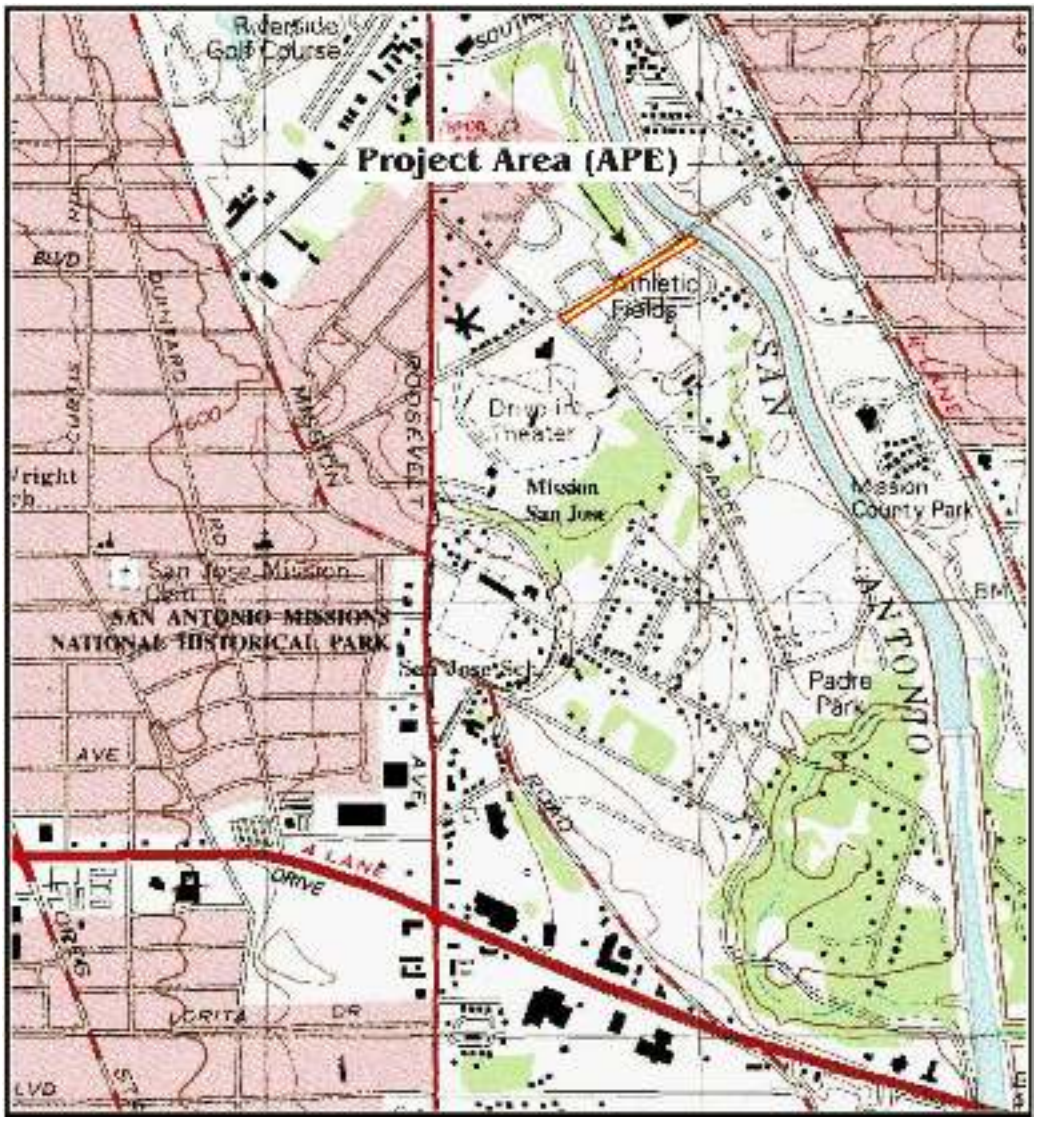

Figure 1-2. *Location of VFW Boulevard APE (in red-yellow) on the Southton USGS 7.5-minute quadrangle map.*

As part of the project, a box-section storm drain measuring approximately 3-x-2.4 m (10-x-8 ft.) will be installed 2.7 m (9 ft.) south and parallel to The APE varies in width from 27.4-36.6 m (0-120 ft.). The project is part of a much larger project that involves a variety of improvements within and in the vicinity of Mission County Park. The APE encompasses approximately 0.6 acres. The anticipated depth of impacts within this easement will be approximately 1.5 m (4.9 ft.).

Regulatory Framework

The land being impacted by these improvements is owned by the City of San Antonio and Bexar County. Furthermore, Mission County Park is part of the Mission Parkway National Historical District. Because the project is located on lands owned or controlled by the City of San Antonio, it falls under the purview of the Antiquities Code of Texas. The Antiquities Code requires the THC to review any action that has the potential to disturb prehistoric or historic sites within the public domain of the State of Texas. THC issues Antiquities Permits that stipulate conditions under which survey, discovery, excavation, demolition, restoration, or scientific investigations can occur. Regulations pertaining to the code can be found within Title 13 Part 2, Chapter 26 Practice and Procedure of the Texas Administrative Code. Dr. Steve A. Tomka served as Principal Investigator, and Steve Ahr was the Project Archaeologist. Intensive survey, as defined in 13 TAC 26.5(35) and 13 TAC 26.20(2), was carried out within the APE between February 24 and 27, 2012, under THC permit No. 5957 issued to Dr. Steve A. Tomka for the San Antonio River Improvements Mission Reach Construction Monitoring Project.

Figure 1-3. *Location of proposed easement (APE) and the former alignment of San Antonio River within Mission County Park boundaries.*

Since the terminus of the improvements is the drainage outfall into the San Antonio River, the associated activities also are part of the San Antonio River Authority's San Antonio River Improvements-Mission Reach Project. Therefore, project coordination has occurred not only through the Texas Historical Commission (THC), but also U.S. Army Corps of Engineers (USACE), the City of San Antonio Office of Historic Preservation (COSAOHP), and the San Antonio Missions National Historical Park (SAMNHP). The drainage installation activities impact only subsurface deposits and a sidewalk will be installed on top of the trenched area. Therefore, the project has minimal visual impact above ground level.

All field investigations were conducted in accordance with Council of Texas Archeologists (CTA) archeological survey standards for Texas (CTA 2001). The survey included pedestrian walkover, backhoe trenching, and site documentation. The purpose of the archeological investigation was to identify and evaluate archeological properties that may be eligible for inclusion in the National Register of Historic Places (NRHP) or that merit designation as State Archeological Landmarks (SAL). Fieldwork required approximately 56 person hours in the field. No difficulties were encountered in completion of this project. No artifacts were collected during this project. The following report conforms to CTA Guidelines for Cultural Resources Management Reports as defined in 13 TAC 26.24.

Chapter 2: Environmental Setting

Physiographic Setting

Bexar County sits at the southeastern edge of the Edward's Plateau on the Balcones Escarpment, which encompasses parts of the Gulf Coastal Plain, the Hill Country, and the Edwards Plateau, thereby offering a suite of wildlife and natural resources that were exploited by inhabitants of the area throughout the region's human history (Figure 2-1).

The escarpment is a line of hills and cliffs that extend through Central Texas and serve as a dividing line between the ecological zones of the Edwards Plateau and the Blackland Prairie. It is the surface expression of the Balcones fault zone, which is a series of faults running from Del Rio to Waco, dividing limestones on the west from claystones, chalks, and marls on the east. Numerous caves and springs exist along the fault zone, which feed rivers and provide the fresh water sources that encouraged human settlement of the area. These spring-fed rivers offer fresh, alkaline, and very hard water from the percolation of rainwater through Edwards limestone into the Edwards Aquifer. The landscape changes dramatically east to west across the escarpment. The Edwards Plateau to the west is rugged with thin, stony soils supporting a juniper-live oak savannah best suited for ranchlands. To the east, the Blackland Prairie features rolling hills, broad rivers, and fertile clays that

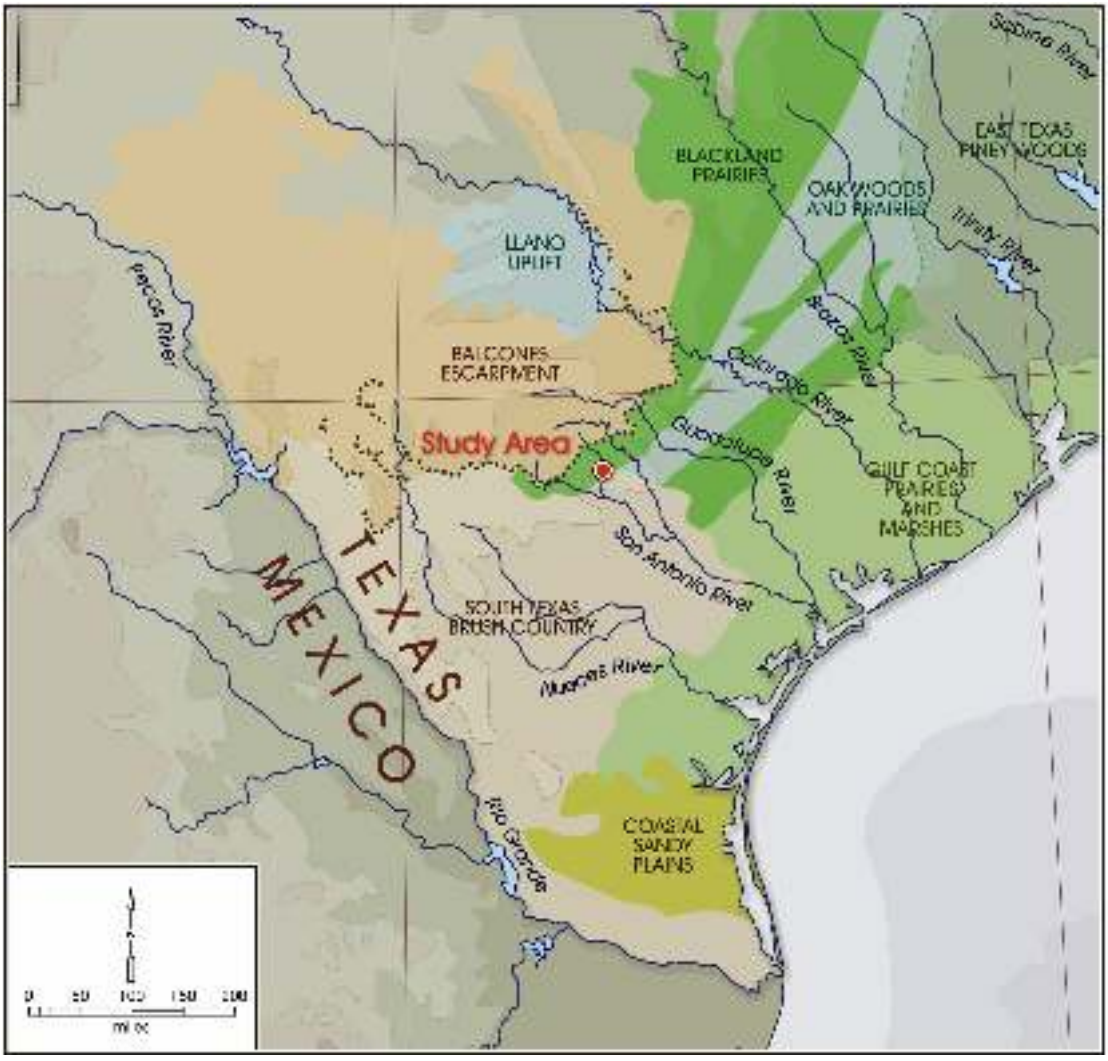

Figure 2-1. *Geologic map of Central Texas showing the Edwards Plateau, Blackland Prairie, the Balcones Escarpment, and major rivers.*

support native prairie grasslands and modern agricultural land use (Woodruff and Abbott 1986).

The San Antonio River crosses through the project area. Numerous springs rising from the Edwards Aquifer feed the river within the Olmos Creek catchment basin to the north. The greater San Antonio River Basin drains 6,727 sq. km (4,180 sq. mi.) of land into the San Antonio River, which flows into the Guadalupe River and finally into San Antonio Bay. The San Antonio River is 290 km (180 mi.) long stretching from downtown San Antonio to Tivoli where it empties into the Guadalupe River. The Medina River and Cibolo Creek are its two major tributaries.

Geology

The San Antonio River begins in northwest Bexar County where it drains primarily shales, siltstones, and limestones of the Upper Cretaceous Eagle Ford Group (Kef), chalk and chalky marl from the Pecan Gap Chalk (Kpg), and marl, clay, sandstone, and siltstone from the undivided Upper Cretaceous Navarro Group and Marlbrook Marl (Kknm) (Barnes 1974). In the upper stream reach, Quaternary terrace deposits flank the modern stream channel, which is narrowly confined by resistant limestone bedrock valley walls. Within the study area, which occurs downstream, Quaternary terrace deposits are widely mapped along both sides of larger stream valleys. The terraces are described on *Geologic Atlas of Texas* maps as occurring mostly above flood levels, along entrenched streams. Fluvial morphological features such as point bars, oxbows, and abandoned channels segments are often preserved in these deposits (Barnes 1974). In the study area, these terrace deposits unconformably overlie erodible fluvial-deltaic deposits of the Eocene-age Wilcox and Midway Groups. The Wilcox Group (Ewi) consists mostly of mudstone with varying amounts of sandstone, while the Midway Group (Emi) is comprised of light gray to dark gray clay, sand, sandy silt, and mudstone (Barnes 1974).

Soils

Along the San Antonio River in the study area, Venus clay loam (VcA), 0-1 percent slopes, occupies the smooth terraces that rise between 6 and 12 m (20 and 40 ft.) above the floodplains of the San Antonio and Medina Rivers and tributaries (Taylor et al. 1962). These soils are nearly level and gently sloping, deep, well-drained, and moderately dark colored. The surface layer is dark grayish brown, loam and clay loam, about 36 cm (14 in.) thick. The subsurface is brown loam or clay loam about 38 cm (15 in.) thick. Underlying material is light yellowish-brown or very pale brown loam, sandy clay loam, or clay loam. Parent materials for these soils are Holocene age clayey alluvium (Taylor et al. 1963), and as such, they are presumed to have high geoarchaeological potential. Within the study area, Frio soils (Fr), occasionally flooded, are found within the San Antonio River floodplains and low terraces. These soils are described as uneven and partially dissected, moderately deep, grayish brown or dark grayish brown. The surface layer is grayish brown or dark grayish brown clay loam and is approximately 50 cm (20 in.) thick. The subsurface layer is light brownish-gray and about 12 cm (4.7 in.) thick. Parent material for these soils is Holocene-age clayey alluvium (Taylor et al. 1963). Background research has indicated that the San Antonio River alignment has been significantly altered during the twentieth century, bearing little resemblance to the original channel morphology. Based on historical photographic reconstructions, the pre-alignment channel would have flowed east to west through the center of the park.

Biota

A high percentage of animals found in Texas inhabit the Balconian biotic zone (Blair 1950), and a large proportion of them are found along the Balcones Escarpment. Many of these animals are constricted geographically and live either east or west of escarpment but not both. Common mammals include white-tailed deer, opossum, raccoon, nine-banded armadillo (which is a relatively new migrant), and the black-tailed jackrabbit. Large mammals that once were commonly found in the area include bison, now only found in captivity, mountain lion, and black bear, both driven westward to mountainous regions of Texas (Davis and Schmidley 1997).

Over 80 species of fish live in the San Antonio River Basin. Fish species recorded in the San Antonio River include bluegill (*Lepomis macrochirus*), channel catfish (*Ictalurus punctatus*), red shiner (*Cyprinella lutrensis*), yellow bullhead (*Ameiurus natalis*), largemouth bass (*Micropterus salmoides*), green sunfish (*Lepomis cyanellus*), Texas shiner (*Notropis amabilis*), gizzard shad (*Dorosoma cepedianum*), spotted gar (*Lepisosteus oculatus*), and central stoneroller (*Campostoma anomalum*) Common migratory birds in the park are the belted kingfisher (*Megaceryle alcyon*), great blue heron (*Ardea herodias*), night heron (*Nycticorax nycticorax*), white-winged dove (*Zenaida asiatica*), and turkey vultures (*Cathartes aura*). Birdwatchers frequent the specific project area and have recorded red-shouldered hawk (*Buteo lineatus*), golden-fronted (*Melanerpes*

aurifrons) and ladder-backed woodpecker (*Picoides scalaris*), wood duck (*Aix sponsa*), green heron (*Butorides virescens*), and many other riparian and open field birds (San Antonio Audubon Society 2012).

Native trees common along the river corridor are black willow (*Salix nigra*), cedar elm (*Ulmus crassifolia*), hackberry (*Celtis* spp.), pecan (*Carya illinoinensis*), and sycamore (*Platanus occidentalis*). Shrubs and vines include Baccharis, bluewood vondalia (*Condalia* sp.), buttonbush, mustang grape (*Vitis mustangensis*), and roughleaf dogwood (*Cornus drummondii*). Common forbs are arrowhead bush (*Sagittaria* sp.), sunflower (*Helianthus annuus*), frogfruit (*Phyla* sp.), pickerelweed (*Pontederia*), and water primrose (*Lugwigia*). Grasses and sedges along the river are bushy bluestem (*Andropogon glomeratus*), eastern gamagrass (*Tripsacum dactyloides*), Inland Sea Oats (Chasmanthium latifolium), switchgrass (*Panicum virgatum*), and wild rye. The uplands to the west support Ashe juniper woodlands and shrubs. Common species include Texas persimmon (*Diospyros texana*), agarita (*Mahonia trifoliolata*), and prickly pear (*Opuntia* spp.). Vegetation in the Blackland Prairie to the east includes hickory (*Carya* spp.), red oaks (*Quercus* spp.), and hackberry (*Celtis* sp.) trees (Gould 1975).

Chapter 3: Cultural History and Previous Investigations

Cultural History

Bexar County is located in the Central Texas archaeological region. The culture chronology is divided into five culture periods: Paleoindian, Archaic, Late Prehistoric, Protohistoric, and Historic. This section provides a brief overview of each period.

Paleoindian Period (11,500-8800 BP)

This period, associated with the earliest documented presence of humans in Texas, is typically divided into early and late segments. Populations at this time consisted of mobile groups that hunted large, highly mobile megafauna coupled with the exploitation of a variety of small game. Evidence from the Wilson-Leonard site also suggests the exploitation of riparian forest and grass species (Bousman et al. 2004). The early segment of the Paleoindian Period is represented by Clovis and Folsom adaptations. Meltzer and Bever (1995) have documented 406 Clovis sites in Texas. Clovis-age sites usually consist of kill localities, quarry/workshops, residential camps, and burial caches that are indicative of repeated return to the same locations (Collins 2004). The earliest documented Paleoindian site in Texas is the Aubrey site in Denton County, with radiocarbon assays of 11542 ± 111BP and 11590 ± 93 BP (Bousman et al. 2004: 48). In the later portion of the period, there were stylistic changes in projectile point technology seen in Dalton, Scottsbluff, and Golondrina traditions. While widespread in geographic range, these types occurred in high densities in the High Plains and Central Texas (Meltzer and Bever 1995). As the climate warmed at the end of the Pleistocene, megafauna gradually died off, and subsistence patterns shifted.

Archaic Period (8800-1200 BP)

This period is subdivided into the Early, Middle, and Late subperiods. The subperiods are distinguished by differences in climate conditions, resource availability, subsistence practices, and diagnostic projectile points (Collins 2004). Plant gathering appears to have become an important part of subsistence strategies during this time and was probably even more important during xeric periods. This may explain the appearance of burned rock earth ovens. They were used to cook a variety of plant foods that were otherwise inedible, such as roots of sotol (*Dasylirion* spp.) and yucca (*Yucca* sp.) (Collins 2004).

Early Archaic (8800-6000 BP)

In the Early Archaic, spanning from 8800 through 6000 BP, there was a shift in subsistence from large game hunting to plant foods and medium and small species of game (Collins 2004). Projectile point styles include Angostura and Early Split Stemmed forms. Task-specific tools include Clear Fork gouges and Guadalupe and Nueces bifaces (Turner and Hester 1993:246-256). Early Archaic sites were located along the eastern and southern portions of the Edwards Plateau in areas with reliable water sources (McKinney 1981). Population densities were relatively low during this subperiod and consisted of small highly mobile bands (Story 1985).

Middle Archaic (6000-4000 BP)

The Middle Archaic spans from 6000 to 4000 BP (Collins 2004). Diagnostic projectile points from this period include Bell, Andice, Taylor, Nolan, and Travis. According to Collins (2004), during the Middle Archaic there was a focus on the hunting of bison. However, recent studies suggest an absence of bison during the Middle Archaic (Mauldin and Kemp 2005). Climate was gradually drying as the onset of the Altithermal drought began. Demographic and cultural change likely occurred in response to these hotter and drier conditions.

Late Archaic (4000-1200 BP)

The last subperiod is the Late Archaic, which spans 4000 to 1200 BP (Collins 2004). Dart point diagnostics of the Late Archaic are triangular points with corner notches that include Ensor and Ellis (Turner and Hester 1993:114-122). Other Late Archaic projectile points are Bulverde, Pedernales, Marshall, and Marcos types (Collins 2004). Evidence from the Thunder Valley sinkhole cemetery suggests that territoriality may have been established during the Late Archaic, possibly as a result of population increase (Bement 1989). Some researchers state that the accumulation of burned rock middens ceased at this time though current research has challenged this notion (Black et al. 1997; Mauldin et al. 2003).

Late Prehistoric Period (1200-350 BP)

Austin Phase

The Late Prehistoric Period is divided into the Austin and Toyah phases. During the Austin Phase, the bow and arrow was introduced. Nickels and Mauldin (2001) suggest that at the beginning of this period environmental conditions were warm and dry. More mesic conditions appear to accelerate after 1000 BP. Subsistence practices remained relatively unchanged, especially during the Austin Phase. The Austin Phase may represent the most intensive use of the burned rock middens (Black et al. 1997) and includes diagnostic point types Scallorn and Edwards (Collins 2004; Turner and Hester 1993).

Toyah Phase

The presence of bone tempered ceramics (Leon Plain) during the Toyah Phase suggests interaction between Central Texas and ceramic production traditions in East and North Texas (Perttula et al. 1995). Ceramics were in common use in East Texas by 2450 BP, but the first Central Texas wares did not appear until ca. 650-700 BP (Perttula et al. 1995). Other technological traits of this phase include the diagnostic Perdiz point and beveled bifaces. These specialized processing kits are thought to be an adaptation to flourishing bison populations by some (Ricklis 1992) and a sign of intensification the exploitation of declining bison populations by others (Mauldin and Kemp 2005).

Protohistoric Period (ca. 1528-1700)

The Protohistoric Period is a term typically used to describe the transition between the Late Prehistoric and the Colonial Period. This period is not well documented archaeologically in Texas. Some researchers (Wade 2003) argue that the Protohistoric Period may coincide with the end of the Late Prehistoric Toyah interval, spanning the period of AD 1250/1300 to AD 1600/1650 (Hester 1995). For the purposes of this report, the period is defined as beginning with the Early Spanish explorations in Texas (ca. 1528) and ending with the establishment of a strong Spanish presence in the region in the late 1600s and early 1700s.

During this period, there was intermittent contact between the native groups and Spanish explorers. It was a time before the Spanish significantly impacted the indigenous groups in the area, with the possible exception of the spread of disease. A number of encounters between indigenous communities and Europeans were recorded during this period, including those of Cabeza de Vaca (1528-1536) and the French settlement established by Rene Robert Cavelier, Sieur de La Salle (1685-1689). The Spanish government sent General Alfonso de Leon into the area in 1689, and in 1691, the area of present-day San Antonio was first visited by Domingo de Teran.

Archaeologically, the time period is poorly documented but has been identified at several sites in south Texas counties (e. g. Hall et al. 1986; Inman et al. 1998; Mauldin 2004). There is not a clear material culture associated with the period. Sites that have been deemed as "Protohistoric" may have Late Prehistoric and/or Historic artifacts associated with them, and in several cases radiocarbon dates confirm their Protohistoric designation (Mauldin 2004).

Historic Period

The Historic Period is characterized by systematic European contact with indigenous cultures in the Americas. While the Spanish explorers had established their presence in Texas since the 1500s, European settlements, the Spanish in particular, became part of the Texas landscape beginning in the late 1600s. Mission settlements began to be established in Bexar County in 1718 with Mission San Antonio de Valero (Chapa 1997).

German immigrants began to arrive in Texas about 1830, and by 1850, five percent of the population of Texas consisted of German immigrants (Jordan 1977). Between 1844 and 1847, 7,000 German immigrants reached Texas, including the San Antonio area.

Previous Investigations

Within 0.8 km (0.5 mi.) of the APE, there are four previously recorded sites: 41BX3, 41BX237, 41BX270, and 41BX1774. Site 41BX3 is the third and current location of Mission San Jose y San Miguel de Aguayo.

Site 41BX237 is the historic Hot Wells Hotel. In 1892, the Southwestern Lunatic Asylum, which is now known as the San Antonio State Hospital is still located on the east side of South Presa l, dug an artesian well to bring potable water to the people housed there. The well was dug to a depth of 533 m (1,750 ft.) and produced 180,000 gallons of water a day at an extremely warm temperature of 103 degrees. The water smelled very strongly of sulphur, and it was hoped that the water quality would eventually improve. Unfortunately, this was not the case and the water rights were leased out to

Charles Scheuermeyer from 1892 to May of 1893 (Fox and Highley 1985:4).

In May of 1893, McClellan Shacklett won the bid of $500 dollars per year for the water rights, thus replacing Scheuermeyer. Shacklett was obligated to construct a bathhouse and sanitarium on the property as part of the deal. The resort was named Natural Hot Sulphur Wells and was modeled after the Hot Springs resort in Arkansas and consisted of parlors, private baths and even a billiards room. It was opened on February 28, 1894, with an extravagant ball. Also, the nearby pecan grove in the front of the property was transformed into an elaborate carriage drive leading to the main building. As the popularity of the resort grew, streetcars ran from the resort to the City of San Antonio regularly, and an artificial lake and fountain were completed in July of that year. In August of that year, the first of many exotic animals, including a bear and a mountain lion, arrived at the resort (Fox and Highley 1985:4-8).

On December 23, 1894, the bathhouse caught fire and was completely burned in less than an hour. Shacklett immediately made plans to rebuild the resort on an even grander scale, and in February of 1895, a temporary bathhouse was completed. Unfortunately, his plans to rebuild were never realized, and in November of 1899 local and northern investors won a 25 year lease on the waters (Fox and Highley 1985:9-10).

In January of 1900, the Texas Hot Sulphur Water Sanitarium Company purchased two tracts of land from McClellan. By September of that year, three swimming pools were completed, and a power plant that provided electricity to the grounds was constructed. In early 1901, a third tract of land was purchased, and in May of that same year, a hotel and two additions to the bathhouse were constructed. The hotel was described as being three-stories tall and containing 80 rooms, which offered extravagant furnishings and modern day comforts like electric lights, telephones, and hot and cold water. The bathhouse contained 45 bathrooms with elaborate furnishings and, due to the corrosive effects of the sulphur water, solid porcelain tubs (Fox and Highley 1985:10-11).

In early 1908, a $100,000 addition to the hotel was constructed, adding 90 rooms. At that time the hotel contained 190 rooms. Over the next few years the resort included concerts, dancing, boating, sports events, horseback riding, and many other forms of entertainment Also a foot bridge crossed the San Antonio River for easy access to the ruins of Mission San Jose. During this time, the resort became a high-class resort for the elite and wealthy (Fox and Highley 1985: 14-15).

In 1911, the Star Film Company was headquartered at the Hot Wells Bath House. Gambling was also a main attraction at the resort and it included gambling rooms and a full time bookie as well as ostrich races on Sunday afternoons starting in 1914. At the height of its popularity, many rich and powerful people visited the resort including E.H. Harriman, Cecil B. Demille, Teddy Roosevelt, Will Rogers, Mrs. J. P. Morgan, and Rudolph Valentino, to name a few. Starting in 1915, due to the effects of Prohibition and World War I, the popularity of the resort eventually began to diminish (Fox and Highley 1985:15-16).

In September of 1923 the property was sold and turned into a parochial school called the El Dorado School. During this time the hotel was used as a dormitory. On January 17, 1925, the hotel burned completely, and after that only the bathhouse remained. The hotel property changed hands many times in the years following the fire, and starting in 1927, the property was named The Hot Wells Tourist Court and consisted of a tourist camp and cottages (Fox and Highley 1985:16-17).

The property continued to operate as a tourist court until 1942, when the property was purchased by Ralph and Cleo Jones, who converted it into a trailer park and motel. In 1944, the lobby of the bathhouse was reopened as The Flame Room bar and grill and operated as such until 1977. In that same year, the remaining items in the bathhouse were auctioned off. In late 1979, Kathryn Scheer purchased the property with hopes of turning it into a wellness center and making it a stop on the Mission Parkway tour, but she had no success finding investors for the project (Fox and Highley 1985:17-19).

In 1988, a lightning strike burned portions of the property, and in 1994, Scheer lost the property to the county due to unpaid back taxes. Arson was suspected when the bathhouse burned once again on October 20, 1997, and in March of 1999, the property was bought at auction by James Lifshutz of Liberty Properties for $161,000. It was hoped that the property could be revitalized and made available to the public, but in 2000, San Antonio voters turned down Proposition 4, which would have set aside $1.5 million in funds for the redevelopment of the site. In 2003, meetings were held by the community-based non-profit Hot Wells Institute to plan future improvements to the property. In 2004, the property was cleaned, and some of the walls of the bathhouse were stabilized. On August 31, 2004, a community event took place on the

property allowing citizens to view the property and swim in the pool. The site has had little improvement in recent years, and portions of the property burned once again on April 27, 2011. Arson was also suspected in these fires, as they had multiple points of origin. More recently, the property is in disrepair, and the damage from the fire is still evident (Edwards Aquifer 2011).

Site 41BX270 was recorded in 1975 during the Mission Parkway survey conducted by Ivey, while 41BX1774 is a historic residence at Mission Drive Inn.

Recent CAR Investigations at Mission County Park

Mission San José y San Miguel de Aguayo is located roughly 0.6 km (0.4 mi.) southwest of the park, and the San José *acequia* flows just west of the park along Padre Drive and actually enters the park near its southwest corner. However, it is known that Mission San José had been relocated twice before it was permanently established at its current location. The first location would have been occupied from its founding until sometime between 1724 and 1727. At some point during this three-year time span, it was relocated to the west bank of the river where it remained until 1739 (Habig 1990:161). This location was close to the river at a low-lying spot. It is assumed that the mission was moved to higher ground because of the 1739 smallpox epidemic that was attributed to the flooding. Based on information from Father Alto Hoermann, who lived at San José between 1859 and 1864, Habig (1990:161) states that the ruins of the stone church that had been built at the second site were visible as late as 1860. This second location would have been about 7.6 m (25 ft.) higher and approximately 0.8 km (0.5 mi) from its third and current location (Habig 1968:45). It is expected that the archaeological visibility of a mission site occupied for roughly 12-15 years should be pretty high, especially given the fact that more permanent structures and facilities had already been built on the site prior to its abandonment.

Recently completed CAR intensive pedestrian survey efforts within Mission County Park (DiVito and Oksanen 2012) have identified the San José *acequia* near the southwest corner of the park (Figure 3-1). Projections of the course of the *acequia* based on historic maps suggest that the ditch continued northward along Padre Drive and crosses VFW Boulevard either just east of the intersection of the two roads or just west of this intersection.

Figure 3-1. *Photograph of edge of* acequia *(dark, in-filled zone), located during previous CAR investigations at 41BX1920 in Mission County Park (DiVito and Oksanen 2012).*

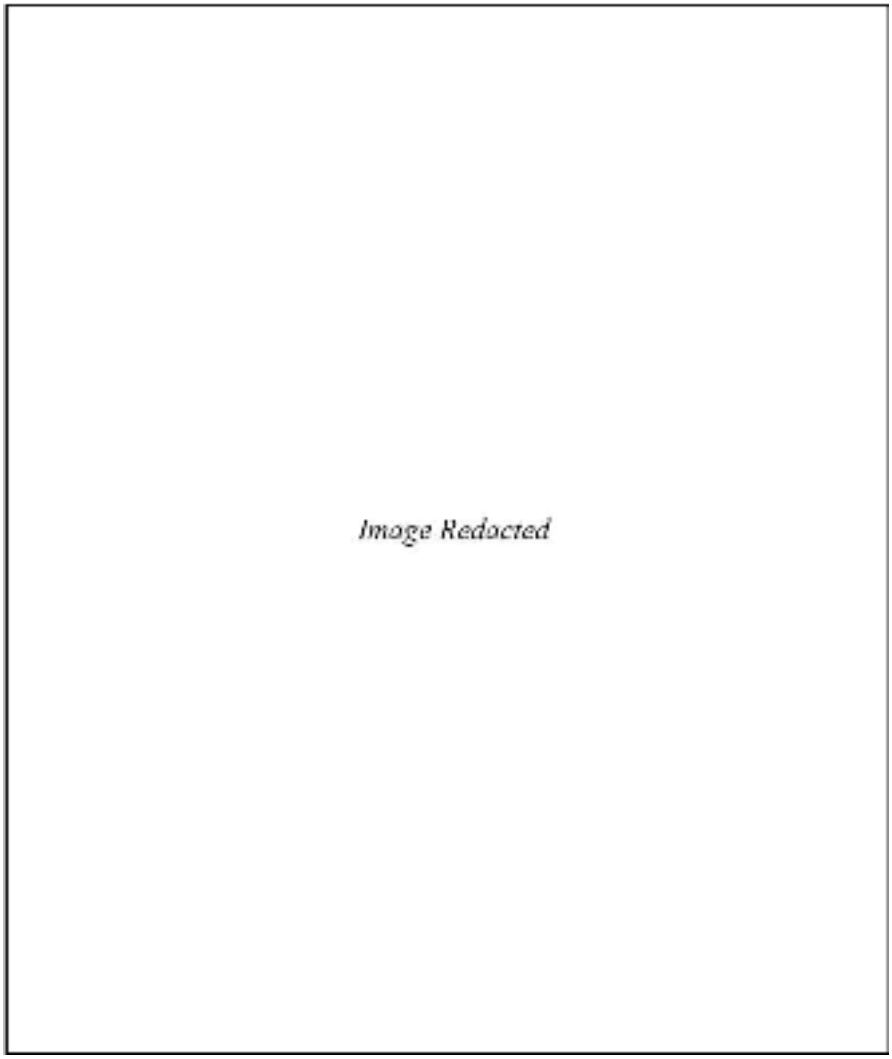

Figure 3-2. *Location of APE and current trenches in relation to previous auger borings, backhoe trenches, and previously recorded sites within Mission County Park boundaries.*

The aforementioned intensive survey also has identified an extensive archaeological site, 41BX1917, located in the vicinity of the northern baseball field in Mission County Park (Figure 3-2). Three other multi-component (unknown prehistoric and historic/modern periods) archaeological sites 41BX1918, 41BX1919, and 41BX1920 have been identified in the remainder of the park (DiVito and Oksanen 2012). Site 41BX1917 encompasses 10 positive auger bores and two backhoe trenches (BHTs 9 and 10) with fire-cracked rock. The site measures approximately 120-x-70 m (394-x-230 ft.) and encompasses roughly 8,400 sq. m (90,620 sq. ft.). It is a multi-component site consisting of an undated prehistoric component and a historic component likely dating to the late nineteenth or early twentieth century. Seven of the units (ABs 31, 41, 43, 51, 61, 65, and 68) contained only historic/modern artifacts. Two (ABs 63 and 64) had a mix of prehistoric and historic/modern artifacts, although the flake recovered from AB 64 appeared to have been mechanically created by the auger boring equipment. Only one auger bore (AB 66) contained prehistoric artifacts alone (i.e., a single flake). In addition, sparse fire-cracked rock was noted in the walls of both backhoe trenches excavated on site (BHTs 9 and 10). A single piece of fire-cracked rock was noted at 35 cmbs (13.78 in.) and several pieces at 80 cmbs (31.5 in.) in BHT 9, and a cluster of burnt rock was present at 45 cmbs (17.72 in.) in BHT 10. The encounter of modern materials mixed with lithics in ABs 63 in combination with the recovery of modern and/or historic materials in seven of the positive auger bores is indicative of the degree of disturbance of the cultural deposits that constitute this field site. CAR staff suggested that site 41BX1917 and its deposits are not eligible for listing on the NRHP and recommended that the site does not merit designation as a SAL (DiVito and Oksanen 2012).

Historic Aerial Photograph Documentation

While some historic photographs were obtained and studied by CAR staff prior to the inception of the project, Jeremy Hanzlik of AECOM generously shared a full set of historic photographs of the APE with the Center after the completion of initial pedestrian survey. These images covered the years 2004, 1996, 1985, 1977, 1966, 1959, and 1938. These images show that the two baseball fields found within the park were established sometime between 1966 and 1977 (Figures 3-3 and 3-4). The images also indicate that, while the parcels of land that make up the park were relatively free of impacts up to September 1966, sometime thereafter but before April 1977 a substantial degree of impact occurred on the tract including the establishment of an entrance road, the two baseball fields, the tennis and basketball courts, and large parking lots. In addition, the April 1977 photo shows a substantial amount of activity and impact to the southeastern portion of the southern half of the park in the vicinity of the current maintenance shed employed by park personnel.

The August 1966 photo shows none of these improvements, but it does show that the San Antonio River has been channelized. The channelized river appears on the 1959 photo as well (Figure 3-5), along with a significant amount of ground disturbances between the original channel alignment and the realignment, which was verified by the presence of thick gravelly fill material found in BHTs 1 and 2. The 1938 photo shows the original meanders of the channel that existed in the vicinity of the APE prior to channel modification (Figure 3-6). The APE at this time consisted of two fields in production separated by a property fence that is located roughly where the later entrance to the park was built.

Geotechnical investigations conducted by Raba-Kistner Consultants Inc. (RKCI) in preparation for the planned improvements have been helpful in evaluating the nature of the soils present within the APE and degree of disturbances that it may have undergone (Raba-Kistner 2011). RKCI drilled 25 borings throughout the APE, and dense to very dense hard clay was present immediately below the surface in eight borings that did not hit fill. A

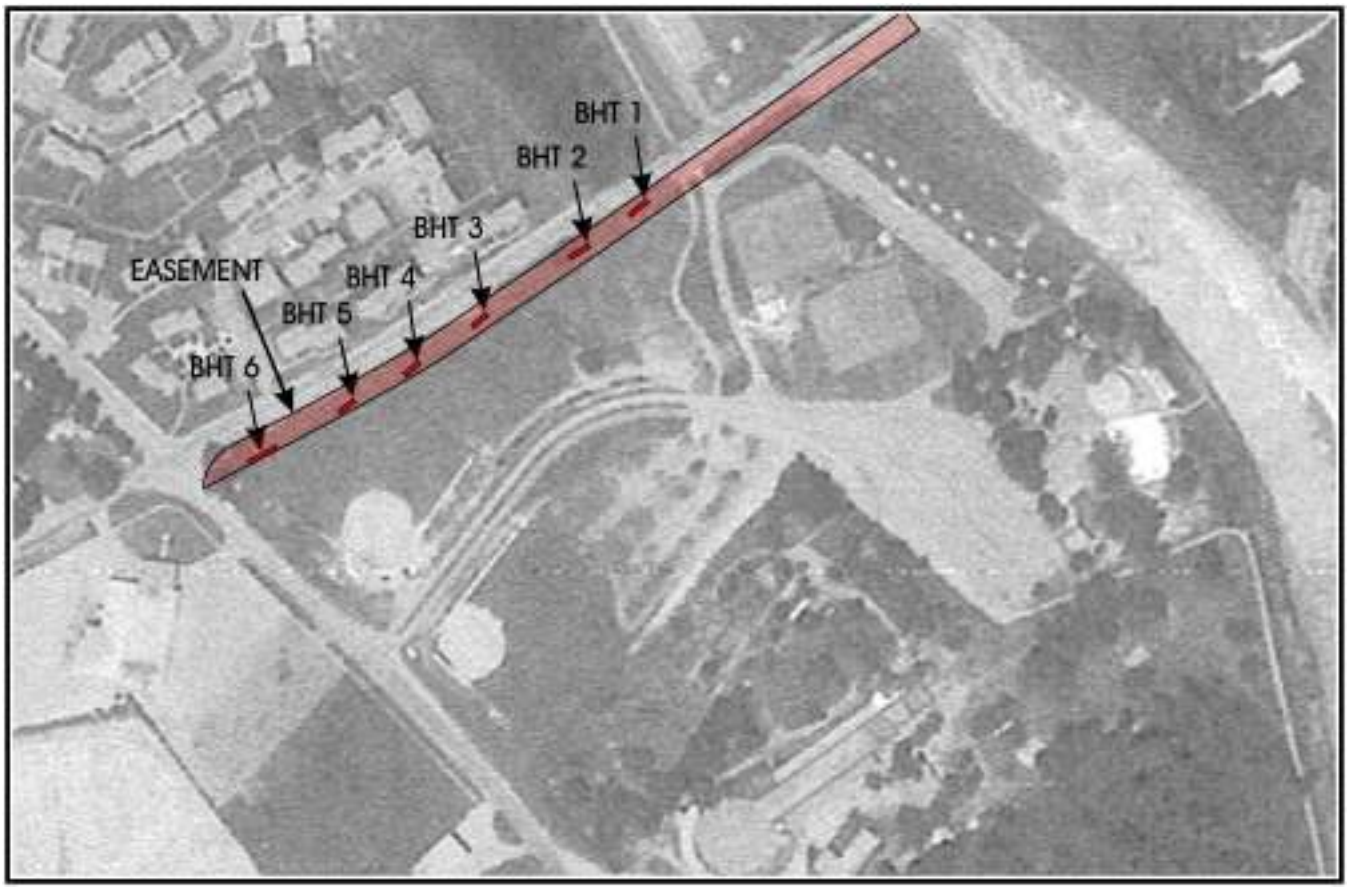

Figure 3-3. *April 1977 aerial photograph showing APE. Note disturbances in the center of the image.*

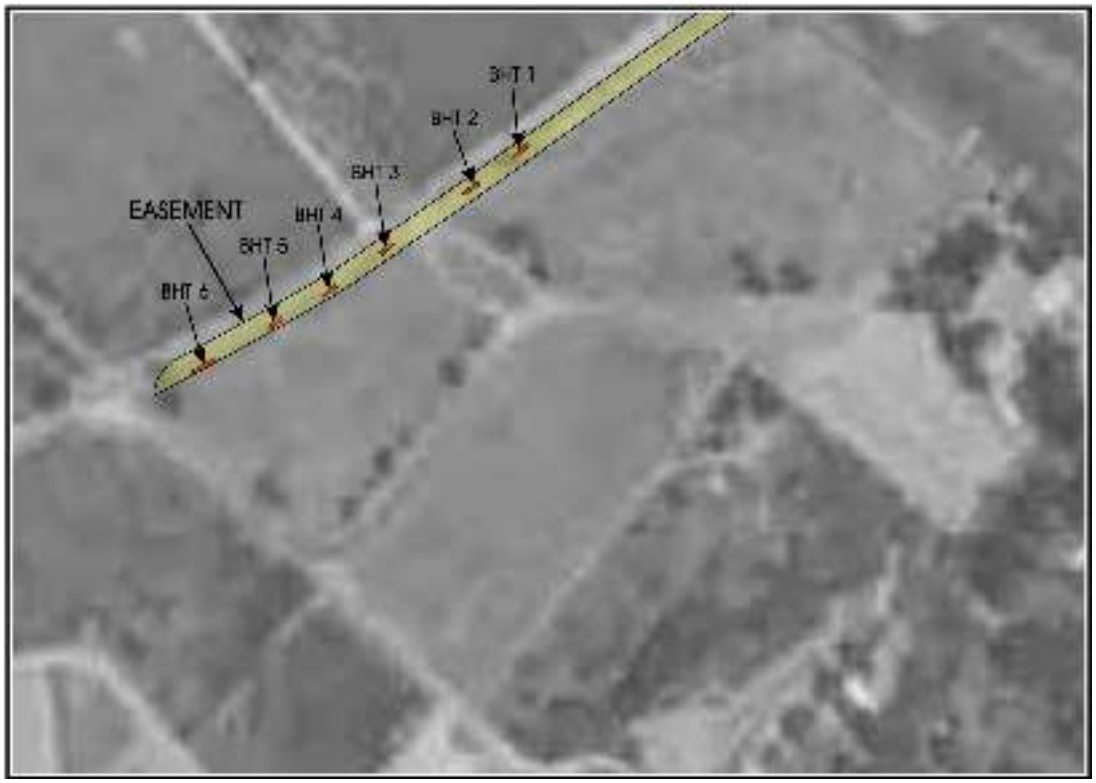

Figure 3-4. *August 1966 aerial photograph showing APE.*

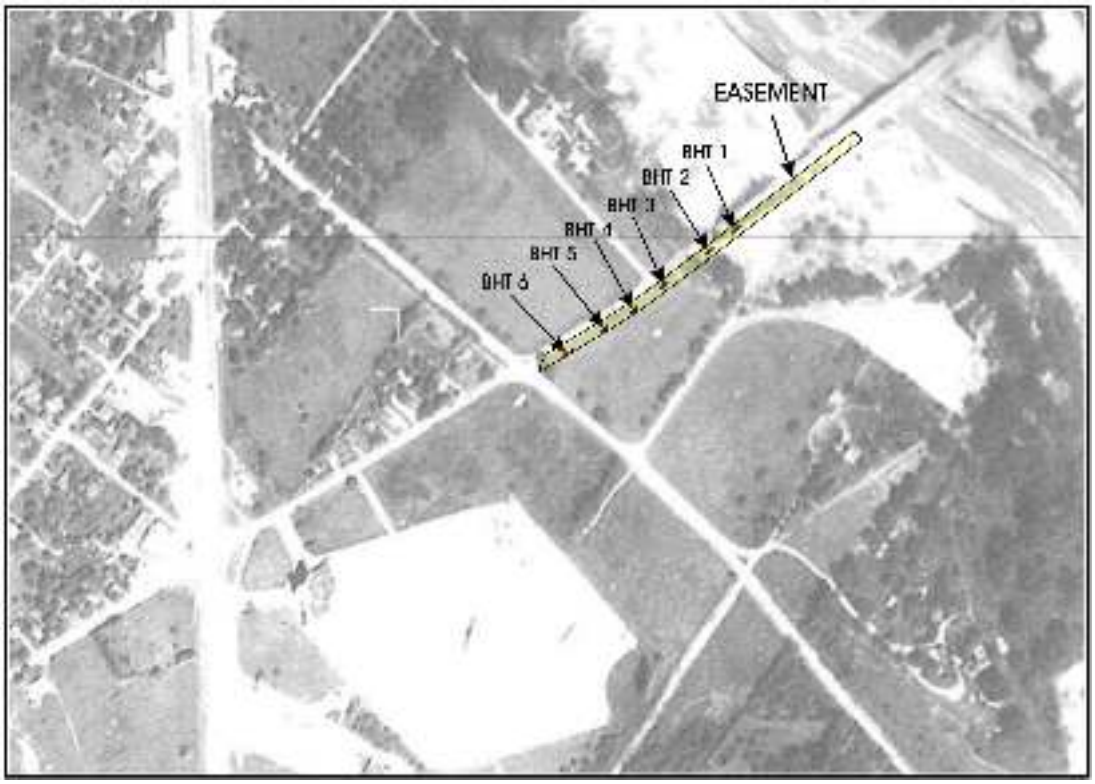

Figure 3-5. *1959 aerial photograph showing APE. Note the presence of extensive ground disturbance between original channel alignment and realignment.*

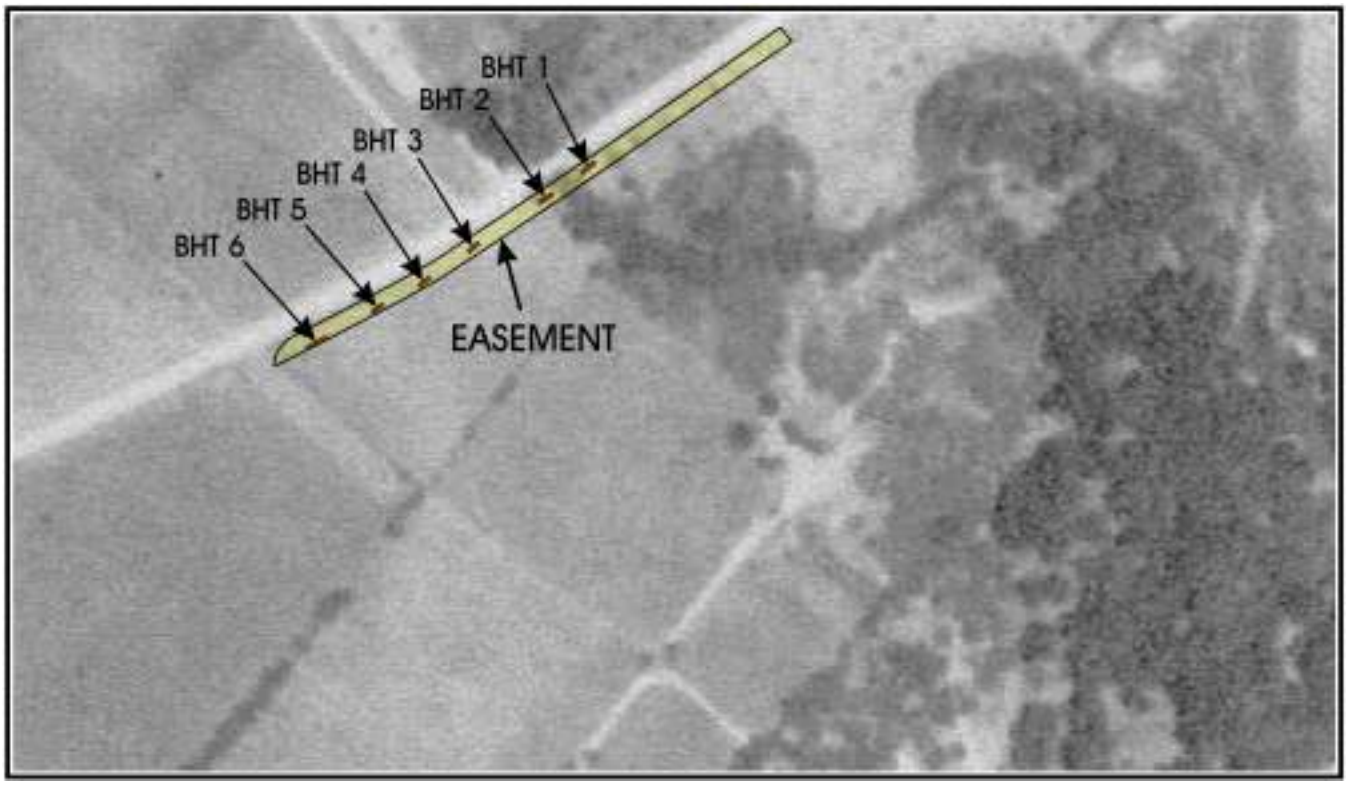

Figure 3-6. *October 1938 aerial photograph showing APE. Tree-line in upper center of photo marks San Antonio River channel.*

depth of 0.3-1.8 m (1-6 ft.) of fill is present in eight of the borings that seem to be situated in the vicinity of the old channel. This is the material that was likely introduced to fill in the old meander channel. Asphalt and base underlain by dark clay was present in the remaining borings.

It is highly possible that the west bank of the former meander that ran through the park also may have been occupied prehistorically. The banks of permanent streams, such as the San Antonio River, have often been the locations of seasonal occupations during prehistoric times. They would have been particularly important during the mid-Holocene drought that may have reduced the exploitation of the drier south Texas brush country as hunter-gatherers concentrated in the more riverine settings off the edge of the Edwards Plateau (McKinney 1981). Equally as important is the fact that such seasonal occupations are often sealed under flood deposits allowing archaeologists the opportunity to examine sequences of relatively undisturbed cultural deposits which have accumulated over thousands of years.

Chapter 4: Field and Laboratory Methods

Field Methods

The objectives of the survey were to identify archaeological sites in the APE and to evaluate the potential for any such sites to exhibit sufficient integrity to be eligible to the NRHP or merit designation as a SAL. Field methods reported herein comply with THC/CTA standards, as referenced in 13 TAC 26.20, for both survey and site definition within the overall project area (e.g., shovel test minima, trenching), as well as THC/CTA requirements for assessing historic archaeological sites and identifying historic cemeteries. .

From February 24-27, 2012, CAR conducted an intensive pedestrian survey of the drainage easement APE within the 9.1 m (30 ft.) wide limits of Mission County Park in San Antonio, Texas. All exposed ground surface was examined for evidence of archeological sites. The objective of the survey was to determine the presence of archeological deposits within the APE, evaluate the potential for any such sites to contain intact deposits, and to determine if any located sites exhibit sufficient integrity potential to warrant additional investigations to determine SAL eligibility. Field investigations were carried out under Antiquities Permit No. 5957 between February 24 and 27, 2012. Archaeological survey was conducted in accordance with CTA archeological survey standards for Texas and standards outlined in 13 TAC 26.5(35), 13 TAC 26.20(1), and 13 TAC 26.20(2).

Prior to the inception of subsurface investigations, the CAR staff conducted a walk-over of the project area in search of surface-exposed artifacts and to determine if any areas of the APE exhibited obvious signs of disturbances and/or modern features (e.g., old roads, parking lots, etc). In order to search for deeply buried deposits and to expose and penetrate the original ground surface that was present during the eighteenth century prior to the establishment of Mission County Park, six backhoe trenches (BHTs) were excavated in the easement APE along the northwest park boundary within Mission County Park. Trenches ranged from 5-11 m (16-36 ft.) in length, 1.3 m (4.3 ft.) wide, and from 1.5-2.2 m (4.9-7.2 ft.) in depth. Trench walls were shovel scraped and closely inspected for cultural materials. Artifacts exposed in the wall were drawn in, and any temporally diagnostic were collected and returned to the CAR laboratory for analysis. A standardized backhoe trench recording form and trench profile drawing was completed for each trench indicating the length, width, and terminal depth of the trench, its orientation, the characteristics of the soil strata observed, and the presence/absence of cultural materials and features revealed by the excavation. Photographs and samples taken from the trench were noted on the form.

One wall in each trench was selected for detailed soil descriptions and was photographed. A representative profile section within each trench was hand-cleared and plucked out, and standard field morphological attributes were recorded. The soil column was subdivided into genetic soil horizons based on observable variations in soil properties. Each horizon was described following the Natural Resources Conservation Service (NRCS) standards for soil profile descriptions (Schoenberger et al. 2002). These descriptions included horizon, color, texture, roots, structure, consistence, percentage of coarse fragments, carbonate abundance, type, and morphology (e.g., stage), the presence/absence of redoximorphic features, and any other salient pedogenic features. Detailed pedologic descriptions for each profile are provided in Appendix A. Universal Transverse Mercator (UTM) coordinates were obtained for each backhoe trench. Each profile was photographed, and all trenches were backfilled after field descriptions were completed. During trenching, a 5-gallon bucket of backdirt excavated from each 0.8 m (2.5 ft.) thick provenience within each trench was screened through ¼-inch hardware cloth. All materials recovered during the screening were recovered for laboratory processing, analysis, and curation.

Monitoring took place between June 14 and July 17, 2012. During monitoring, one CAR staff member was present during the trench excavations. Due to its depth, the CAR staff was not permitted to enter into the trench to observe or document the stratigraphy in detail. Observations were made from the current ground surface next to the trench along with close inspection of the backdirt derived from the trench. Photo documentation of portions of the trench walls were taken between the process of moving the wall-shoring unit and the placement of pipe segments.

Laboratory Methods

All cultural material collected during the survey was prepared in accordance with federal regulation 36 CFR

part 79 and in accordance with current CAR guidelines. Artifacts were processed in the CAR laboratory, where they were washed, air-dried, and stored in archival-quality bags.

Field notes, forms, and hard copies of photographs were placed in labeled archival folders. All field forms were completed in pencil on acid-free paper. Any field forms that were soiled during use were placed in archival-quality page protectors. A copy of this report in Adobe Acrobat® format and all digital material pertaining to the project, including all photographs, was burned onto a CD and permanently curated with the field notes and other documents at the CAR. No artifacts recovered were found on public property.

Chapter 5: Survey Results

The survey consisted of 100 percent pedestrian survey that was augmented by the excavation of six backhoe trenches within the APE. Elements of one previously recorded prehistoric site, 41BX1917, were found to extend within the APE and were identified in BHTs 4 and 6 (Figure 5-1).

BHT 1 (550817E, 3248957N, UTM:NAD83) was 6 m (19.7 ft.) in length and located at the northeast end of the proposed easement, approximately 165 m (541 ft.) southwest of the current San Antonio River alignment. Based on pre-channelization aerial photographs (see Figure 3-6), this trench would have been situated on the east bank of the original river channel inside a meander loop. This trench revealed three distinct layers of construction fill material to an excavated depth of 200 cm (78.7 in.; Figures 5-2 and 5-3). No cultural materials were found in BHT 1. Given the depth of fill material and 1959 aerial photographs showing extensive construction impacts and re-contouring of the area, excavation of BHT 1 was terminated since the probability of locating intact archaeological deposits was considered very low.

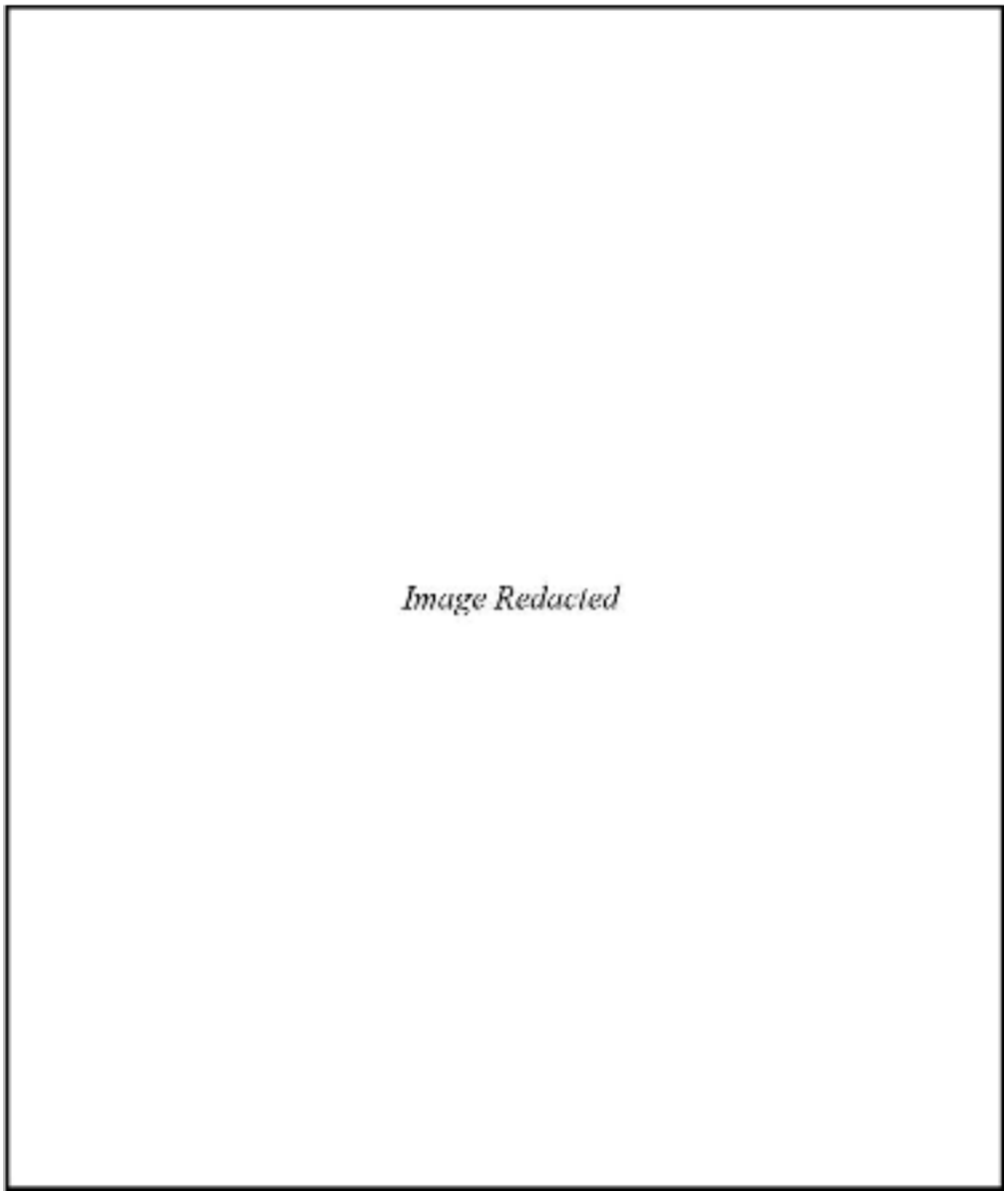

Figure 5-1. *APE and backhoe trenches excavated during VFW Boulevard survey project, in relation to previous auger borings, backhoe trenches, and previously recorded sites within Mission County Park boundaries.*

Figure 5-2. *BHT 1 trench profile. Note multiple artificial fill layers.*

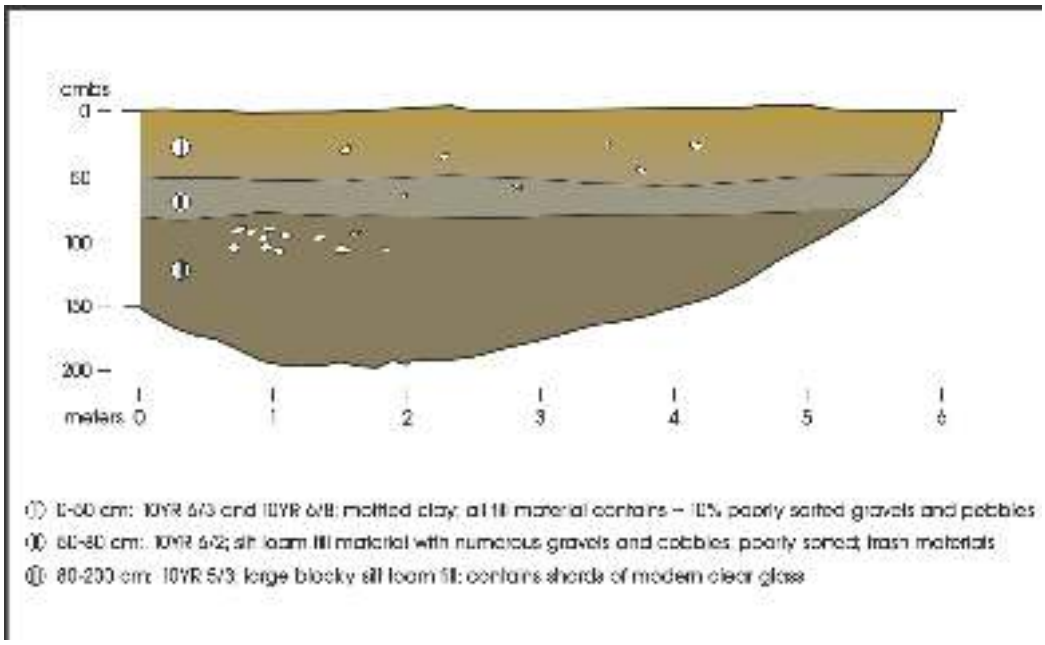

Figure 5-3. *Profile drawing of BHT 1, southeast wall. Each zone indicates a separate layer of artificial construction fill.*

BHT 2 (550793E, 3248941N, UTM:NAD83) was 5.5 m (18 ft.) in length and located approximately 200 m (656 ft.) southwest of the current San Antonio River alignment and 35 m (114.8 ft.) from BHT 1. This trench would have also been situated on the east bank of the original river channel inside a meander loop. Similar to BHT 1, BHT 2 revealed four distinct layers of construction fill material to an excavated depth of 170 cm (67 in.; Figures 5-4 and 5-5). No cultural materials were found in BHT 2. Given the depth of fill material and 1959 aerial photographs showing extensive construction impacts and re-contouring of the area, excavation of BHT 2 was terminated since the probability of locating intact archaeological deposits was considered very low.

Figure 5-4. *BHT 2 trench profile.*

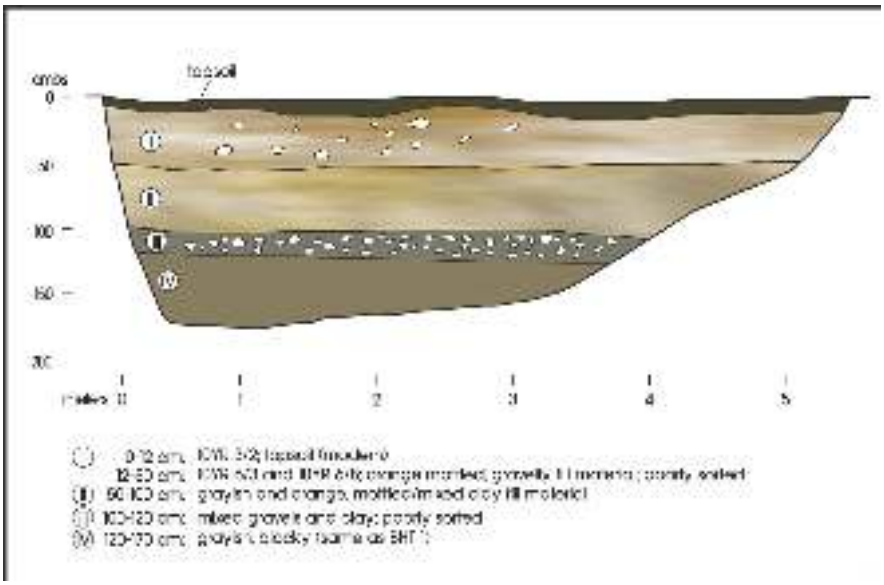

Figure 5-5. *Profile drawing of BHT 2, southeast wall. Each zone indicates a separate layer of artificial construction fill.*

BHT 3 (550754E, 3248914N, UTM:NAD83) was 5 m (16.4 ft.) in length and located 245 m (803.8 ft.) southwest of the current San Antonio River alignment and 45 m (147.6 ft.) from BHT 2. BHT 3 revealed an Ap-Bw1-Bw2-Bk-Ck horizon sequence to an excavated depth of 220 cm (86.6 in.; Figures 5-6 and 5-7). Soil texture ranged from silty clay loam in the Ap horizon to silt loam in the lower horizons. Very fine, faint threads of secondary (pedogenic) calcium carbonate filaments were observed throughout the Bk horizon, and the Ck horizon exhibited massive structure and appears to consist entirely of extremely friable and powdery calcareous silt, which has not been cemented. No cultural materials were found in BHT 3.

Figure 5-6. *BHT 3 soil profile. An erosional unconformity exists between the Bw2 and 2Bk horizons.*

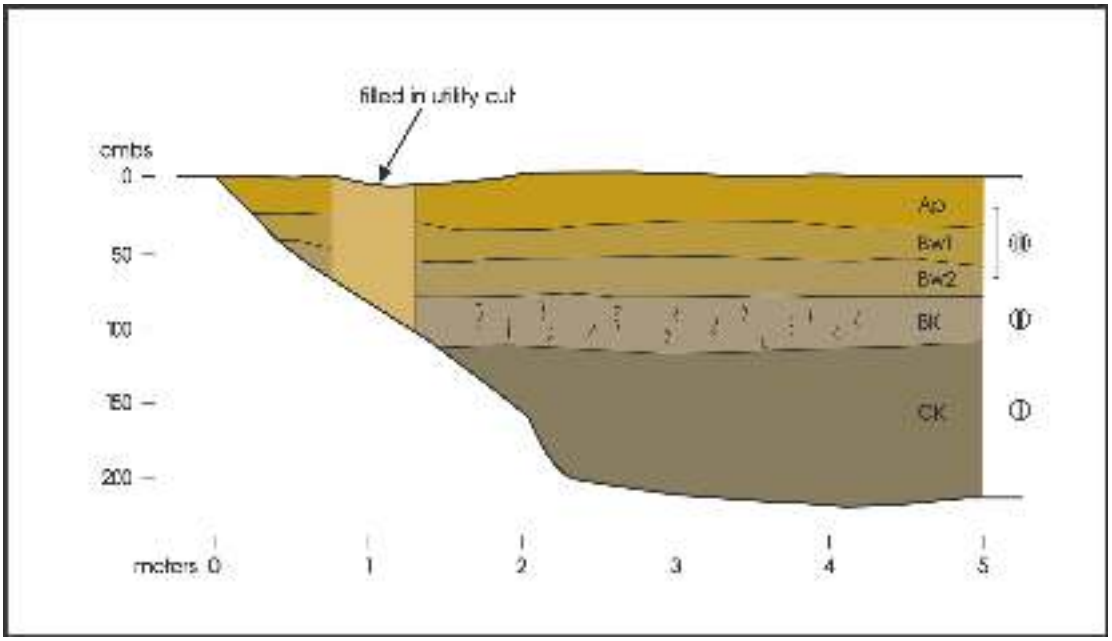

Figure 5-7. *Profile drawing of BHT 3, northwest wall.*

BHT 4 (550728E, 3248895N, UTM:NAD83) was 5.5 m (18 ft.) in length and was located 275 m (902.2 ft.) southwest of the current San Antonio River alignment and 30 m (98.4 ft.) from BHT 3. BHT 4 revealed an A-Bw-2Bk-2Btk horizon sequence to a depth of 150 cmbs (59 in.; Figures 5-8 and 5-9). Soil texture ranged from silty clay loam to silt loam, with weak fine granular and weak moderate subangular blocky ped structure in the A and Bw horizons, which grade to moderate coarse angular blocky structure in the Bt and Btk horizons. *Rabdotus* snails and fragments are present throughout all B horizons, and a few pieces of fire-cracked rock (FCR) less than 5 cm (2 in.) in diameter are present within the uppermost portion of the Bw horizon. The lower boundary of the A horizon is abrupt and wavy, which suggests perhaps the upper solum is a more recent addition of deposits, following erosion and truncation of a portion of the Bw horizon.

Figure 5-8. *Overview of BHT 4, facing northeast.*

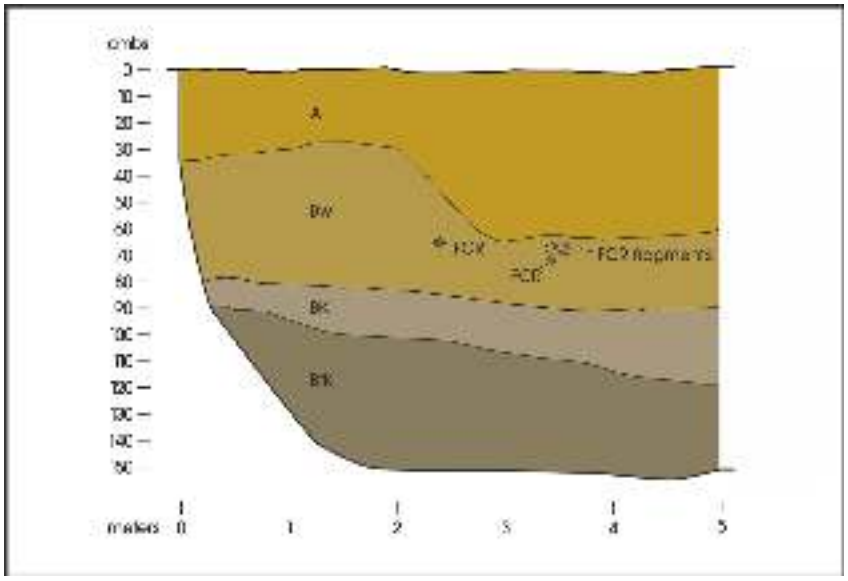

Figure 5-9. *Profile drawing of BHT 4, southeast wall.*

BHT 5 (550703E, 3248881N, UTM:NAD83) was 6 m (19.7 ft.) in length and was located 300 m (984 ft.) southwest of the current San Antonio River channel and 25 m (82 ft.) from BHT 4. BHT 5 exhibits an A-Bw1-Bw2-Bk-Ckk horizon sequence to an investigated depth of 150 cmbs (59.1 in.; Figures 5-10 and 5-11). Soil texture included clay loam in the upper A and Bw horizons, transitioning into silty clay loam in the lower Bk and Ckk horizons. Very few faint secondary carbonate filaments were observed within the Bk horizon, potentially indicating a moderate amount of leaching through the soil. The Bk horizon also contains a modest amount of *Rabdotus* snails and snail shell fragments. In the southwest part of the trench, a good portion of the Bk horizon appears to have been eroded/scoured, resulting in the strongly undulating horizon boundaries observed in previous investigations. Below 120 cmbs (47.2 in.), a grayish-white silty loam deposit was encountered (Ckk horizon), which consists of approximately 75 caliche, in which 75 percent of the soil fabric is plugged with fine grained pedogenic carbonate, equivalent to stage III carbonate morphogenetic stages (Gile et al., 1966). No cultural materials were observed within BHT 5.

Figure 5-10. *BHT 5 soil profile. Heavy dashed line indicates lithologic break, while thin dashed line indicates soil horizon boundary.*

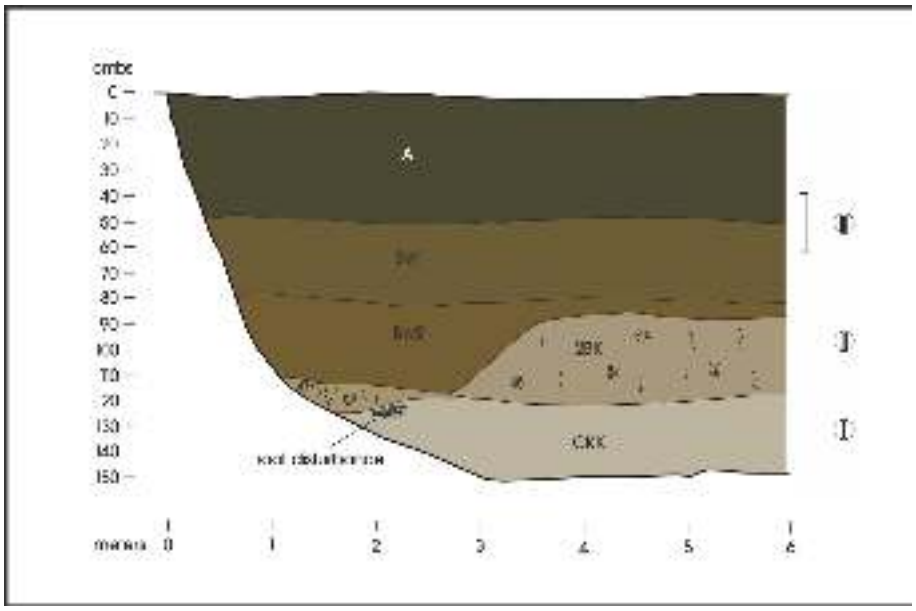

Figure 5-11. Profile drawing of BHT 5, northwest wall.

BHT 6 (550669E, 3248862N, UTM:NAD83) was 11 m (36 ft.) in length and was located approximately 345 m (1,132 ft.) southwest of the current channel alignment and 45 m (147.6 ft.) from BHT 5. BHT 6 exhibits an A-Bw-Bk-Ckk soil horizon sequence to an investigated depth of 150 cmbs (59 in.; Figures 5-12 and 5-13). The 60 cm (23.6 in.) thick A horizon consists of 10YR 3/2 clay loam and grades gradually into a 60 cm (23.6 in.) thick Bw horizon, which appears to unconformably overlie a Ckk horizon beginning at 120 cmbs (47.2 in.). At the northwest part of BHT 6, the lower boundary of the A horizon is abrupt and wavy, and it appears to be a distinct deposit that is unconformably resting upon a much older, scoured and eroded Bk horizon. A couple of lithic flakes were identified in situ within the top portion within the Bk horizon, as well as a burned clay (daub) feature (Figure 5-14).

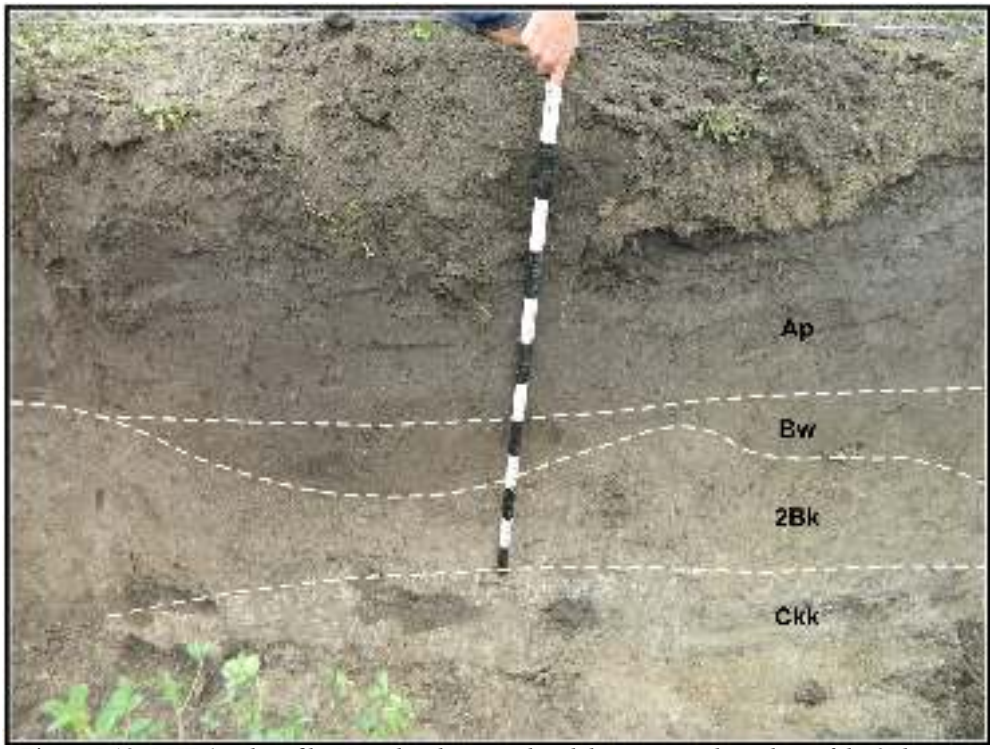

Figure 5-12. *BHT 6 soil profile. Note the abrupt and undulating upper boundary of the 2Bk horizon, indicative of scouring. The upper Ap and Bw horizons were deposited sometime after this erosional event. Heavy dashed line indicates lithologic break, while thin dashed line indicates soil horizon boundary.*

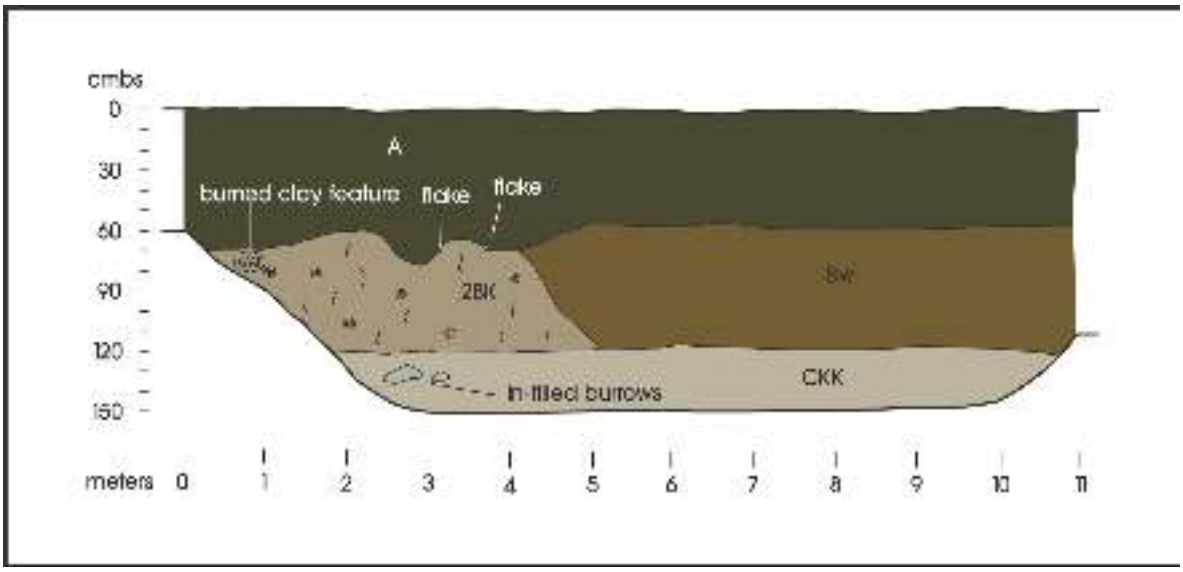

Figure 5-13. *Profile drawing of BHT 6, southeast wall.*

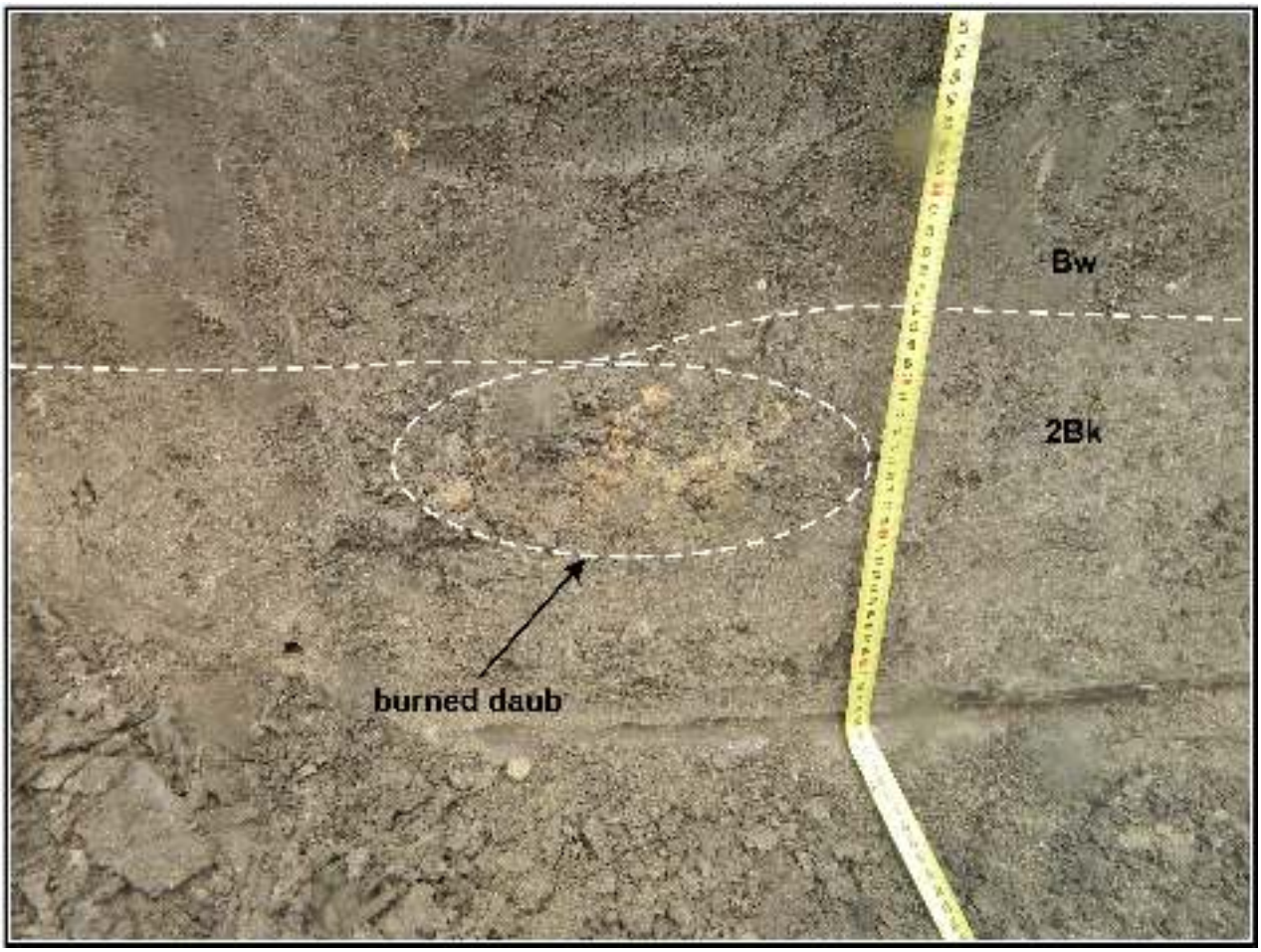

Figure 5-14. *Burned daub concentration identified in BHT 6, between 70-80 cmbs (27.6-31.5 in.), within 2Bk horizon of alluvial-stratigraphic Unit II.*

The burned daub feature was located between 70 and 80 cmbs (27.6 and 31.5 in.) and measured approximately 20 cm (7.9 in.) in diameter. It is located within the upper 10 cm (3.9 in) of the Bk horizon, which is located at the northeast portion of BHT 6. The uppermost part and the southwestern portion of the Bk horizon appear to have been truncated by erosion, scour, or mechanical impacts.

Discussion

The cultural materials identified in BHTs 4 and 6 are likely associated with 41BX1917, which was recorded during an earlier phase of archaeological survey by CAR at Mission County Park (DiVito and Oksanen 2012). Site 41BX917 was recorded in the northwest portion of the project area examined and consisted of three positive auger bores (AB). Auger Bore 66 contained a single flake, while the other two contained both modern materials and lithic debitage. The single piece of debitage noted in AB 64 appears to have been mechanically created by the action of the auger bit. The encounter of modern materials mixed with lithics in ABs 63 and 64, in combination with the recovery of modern materials from three other nearby auger bores (AB 61, 65, and 68), is indicative of the degree of disturbance of the cultural deposits that constitute this field site. Figure 5-1 illustrates the proposed expanded boundary of site 41BX1917.

It is interesting to note that the small concentration of burned, reddish-orange daub identified in BHT 6 at 41BX1917 appears to be the same as that previously documented at site 41BX1920, which was associated with clusters of charred plant materials and charcoal. A piece of charcoal associated with the fragment of daub exposed in a trench wall at 41BX1920 returned a 2σ date range of cal BP 3450-3360, which would date to the early part of the Late Archaic Period (DiVito and Oksanen 2012). Another piece of charcoal from a basin-shaped pit feature containing burnt daub at 41BX1920 yielded a 2σ date range of cal BP 4230-3990 (DiVito and Oksanen 2012).

Chapter 6: Alluvial Stratigraphy and Geoarchaeology

Geoarchaeological studies were conducted concurrently with the backhoe trench archaeological survey for the VFW Boulevard project at Mission County Park. The purpose of these investigations was to provide a stratigraphic and pedologic framework for evaluating archaeological site visibility and preservation potential by examining field soil morphology and alluvial stratigraphy within backhoe trenches. Based on the current level of trenching along with the results of previous backhoe trench investigations in Mission County Park (DiVito and Oksanen 2012), one constructional alluvial landform consisting of an alluvial terrace (T-1) was documented within the study area.

The APE is situated entirely within the T-1 terrace on the west bank of the current river channel. This terrace is represented on *Geologic Atlas of Texas* maps as fluviatile terrace deposits of late Pleistocene age that occur mostly above flood levels along entrenched streams. This T-1 terrace lies stratigraphically below and post-dates the extensively distributed Uvalde gravel deposits (e.g., Pliocene) located to the east of the study area. Based on previous investigations of other areas of the San Antonio River Improvements Project (SARIP), the T-1 terrace deposits rest unconformably upon Eocene-age Wilcox and Midway Group deposits. The depth of this lower contact below the terrace tread has previously been measured to 7 m (23 ft.) in other investigated areas along the Mission Reach project (DiVito and Oksanen 2012). The T-1 terrace is underlain by three lithologically distinct alluvial fills, designated from oldest to youngest as Units I through III (Figure 6-1).

Alluvial Stratigraphy

Unit I

Unit I comprises the lower portions of the terrace fill and is presumed to be Pleistocene in age. The lower part of Unit I was not directly observed during the current project, but during previous investigations and construction monitoring in several other nearby portions of the San Antonio River, thick, laterally and vertically accreted gravelly beds were observed, along with thick, coarse sandy interbeds. The coarse bedload deposits fine upward into vertical accretion facies of sands, silts, and loams. The uppermost part of Unit I is comprised of extremely friable and powdery Ckk horizon exhibiting massive structure, which appears to consist entirely of calcareous silt. This upper chalky portion of Unit I was identified in BHTs 3, 5, and 6 during the current study (Figure 6-2).

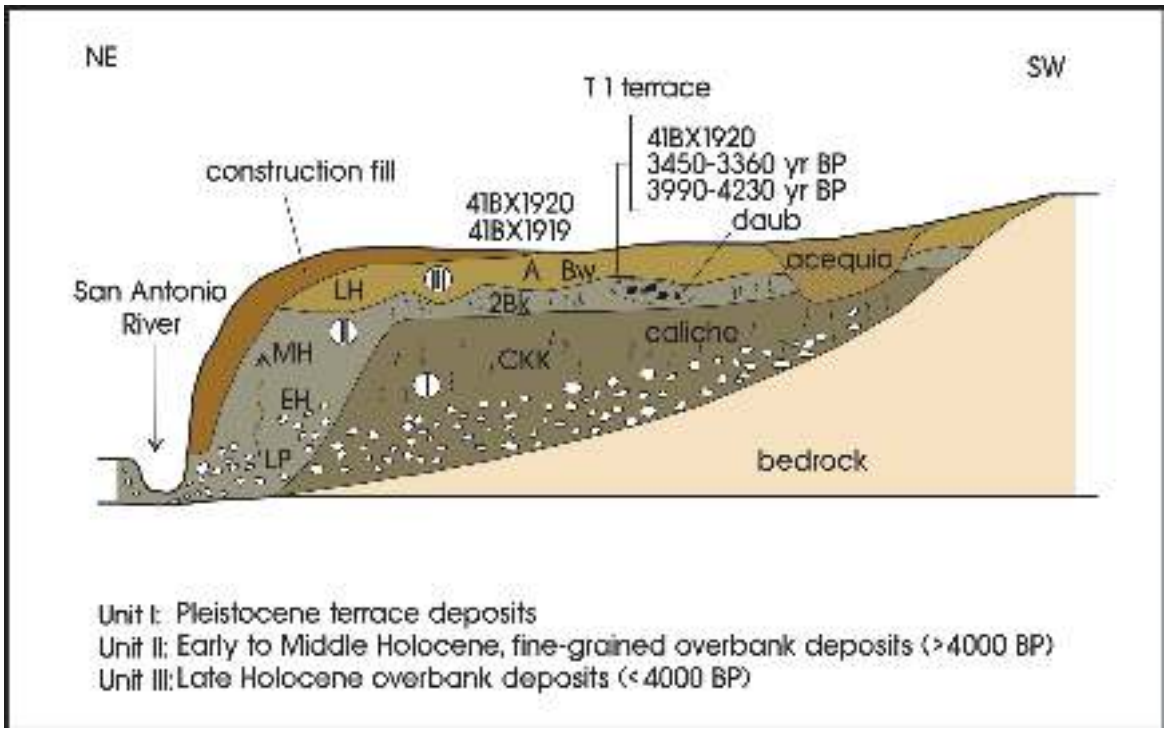

Figure 6-1. *Generalized alluvial-stratigraphic cross-section for Mission County Park, Bexar County, Texas, illustrating major alluvial units. LP=Late Pleistocene; EH=Early Holocene; MH=Middle Holocene; LH=Late Holocene.*

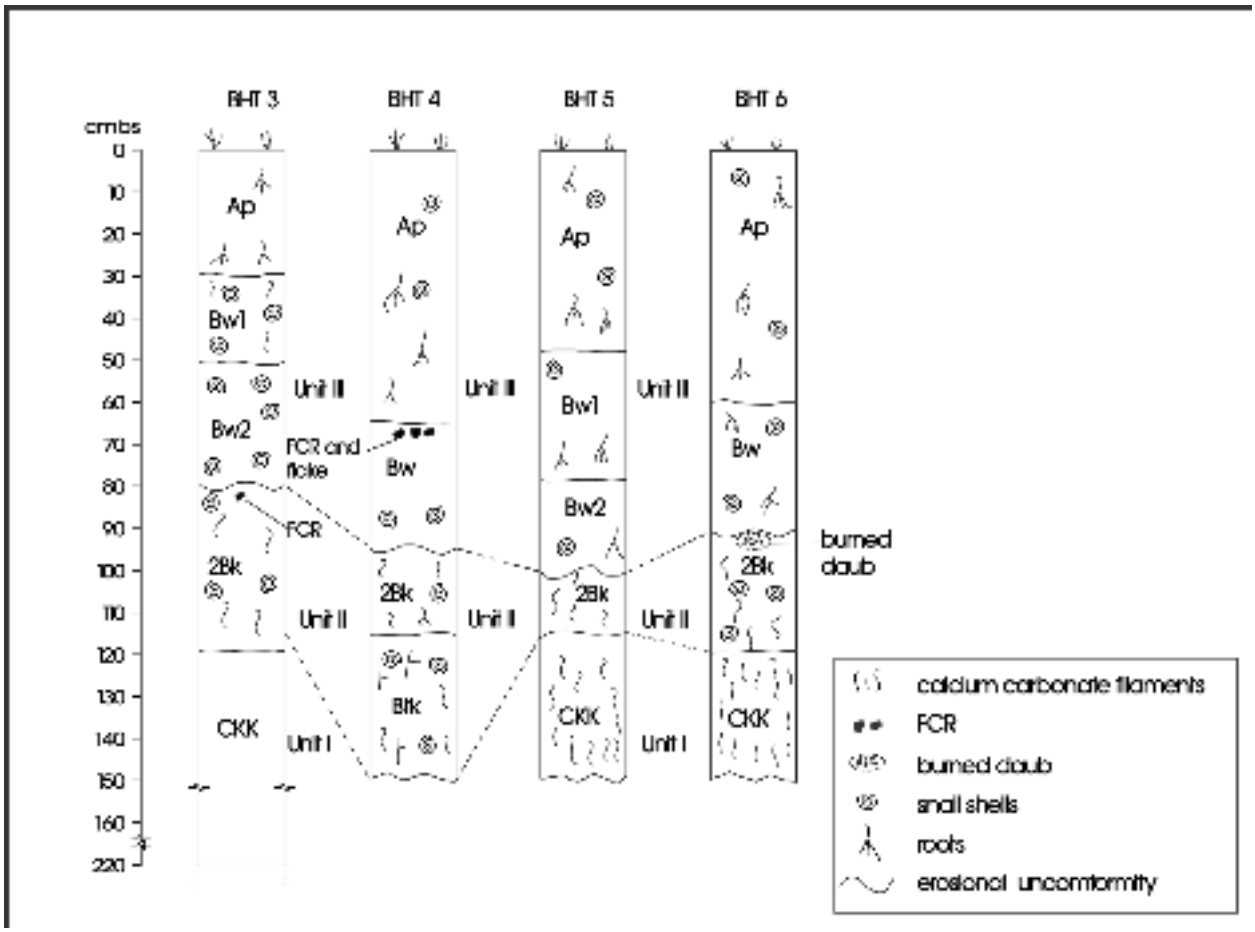

Figure 6-2. *Soil-stratigraphic columns for BHTs 3 through 6. BHTs 1 and 2 are comprised entirely of fill material and are not illustrated.*

Unit II

The lower deposits associated with Unit II would have occurred along the channel and channel margin, and were most likely comprised early Holocene floodplain channel gravels and coarse bedload deposits that would have been deposited below the terrace surface following a period of channel incision at the end of the Pleistocene. Such deposits have almost certainly been removed or otherwise impacted during the extensive channelization and modifications to the San Antonio River channel during historic times. The upper part of Unit II consists of fine-grained overbank flood deposits. Those overlying the channel gravel deposits adjacent to the original channel alignment have, more than likely, been removed during channel realignment. However, some preserved remnants of fine-grained Unit II deposits that overtopped the older, truncated Pleistocene terrace surface appear to be present within the Mission County Park and are represented by calcareous 2Bk horizons containing between 2-15 percent fine secondary pedogenic carbonate filaments that increase in abundance at depth. Small (<2 mm; <0.08 in.) carbonate nodules were occasionally observed in some of these horizons, though it is unclear whether their origin is pedogenic or detrital. The 2Bk horizons also contain abundant *Rabdotus* sp. snail shells throughout.

As observed in BHTs 5 and 6 during the current investigations, the upper boundary of this unit and horizon is abrupt, wavy, and highly undulating. Given the nature of the upper horizon boundary over such a widespread area, it appears that the original A horizon, and much of the 2Bk horizon, was removed during a period of extensive erosion/scour of the terrace surface. Some preserved archaeological materials below the scour zone are present and are confined to the uppermost parts of 2Bk horizon. These cultural materials, including sparse FCR fragments, were observed within BHTs 4 and 6. A small, burned daub feature was also recorded in BHT 6 in the upper part of the 2Bk horizon, at a depth of 70-80 cmbs (27.6-31.5 in.).

A similar deposition/erosion pattern was also observed at site 41BX1920, which is located approximately 180 m (591 ft.) to the southeast of the current study area. There, a 45 m (147.6 ft.) long trench revealed the top boundary of the 2Bk horizon to be abrupt (i.e., < 2 cm; 0.8 in.) and wavy, indicative of an erosional unconformity. Preserved cultural materials, including a burned daub feature, were located in the upper boundary between the silty clay 2Bk horizon and the dark grayish clay loam A horizon. As previously indicated, dates obtained from this cultural zone range from 3360-3450 and 3990-4230 yr. BP. Based on radiocarbon ages obtained from features within the un-eroded uppermost portions of the 2Bk horizon in Unit II, erosion and truncation of the original A and the 2Bk horizon within the upper part of the alluvial terrace occurred sometime around 4000 BP. Such an event is consistent with previous investigations at 41BX254 and 41BX256, which are located approximately 3.5 km (2.2 mi.) downstream from the study area. At these two sites, it was reported that a phase of channel entrenchment and erosion occurred sometime between 4000 and 3600 BP, after which a new phase of floodplain construction resumed (Frederick 2012).

Unit III

Following an episode of surface erosion/scour, which truncated the original A horizon and portions of the underlying Bk horizons of Unit II, overbank deposition on the terrace surface resumed with the emplacement of Unit III alluvium.

Unit III consists of fine-grained overbank sediments that overtopped the terrace surface during periodic floods. Pedogenic weathering of this deposit has created a new A horizon welding onto the pre-existing, undulating (2) Bk horizons (2=discontinuity). This new A horizon is as much as 60 cm (23.6 in.) thick in places, possibly due to regular additions of recent sediments (e.g., cumulic profiles). Soil colors in the A horizon range from 10YR 3/2 to 10YR 3/4 and consist of clay loam and silty clay loam. Common fine and very fine roots are present throughout the upper soil horizons, and moist consistence is mainly friable with medium subangular blocky ped structure.

The A-2Bk boundary, as documented in other areas around the study area, is often abrupt and wavy. In areas where the undulations extend deeper into the profile, weakly developed Bw horizons have formed where more recent overbank sediments have filled in the areas where the Bk horizons were truncated. Soils colors within these Bw horizons range from 10YR 3/2 to 10YR 4/6, and soil structure is generally weak fine subangular blocky. Few to common fine and very fine roots are present in these horizons, while secondary pedogenic carbonate development, such as filaments, nodules, etc., were not observed. Snail shells and snail shell fragments range from 1-5 percent in abundance within the Bw horizons, while small pebbles and other coarse fragments are generally less than 1 percent.

The depositional age of Unit III is not known exactly, but based on radiocarbon ages obtained from the 2Bk horizon directly below it at 41BX1920, Unit III would likely have aggraded sometime after 3500 BP. Thus, it is possible that cultural materials could be found within this unit. Although backhoe trenches at 41BX1920 revealed the presence of a few flakes and small FCR fragments in the overlying A and Bw horizons, these finds were generally sparse, and no discrete occupation zones or features were found. No cultural materials were observed within the Unit III deposits that were exposed during backhoe trenching for the current VFW Boulevard easement study.

Floodplain

Aerial photographs taken prior to the channelization of the river illustrate various channel and floodplain morphological features (e.g., abandoned channel segments, meander necks, tributary channels) below the T-1 terrace tread. Based on these photographs, a portion of the northeast end of the project area extends into the floodplain as it existed as late as 1938. Upstream from the project area, the river channel appears to have been fairly incised and confined to a narrow channel alignment without any significant Holocene floodplain construction. Nearer the project area, the channel widens considerably, possibly due to lateral channel migration and erosion. The timing of and magnitude of such events is unknown; however, the excellent visibility of these features on early aerial photographs prior to channelization suggests that they are relatively recent (e.g., historic era) phenomena. It is possible that these features may have been created by increased runoff and erosion as a result of historic-era land clearing and agriculture.

Geoarchaeological Interpretations

Of the two geomorphic landforms (T-1 and T-0) in the project vicinity, the APE only occupies the T-1 terrace. This terrace comprises alluvial stratigraphic Units I-III. The uppermost part of Unit I is comprised of extremely friable and powdery Ckk horizon exhibiting massive structure and which appears to consist of partially indurated calcareous silt (e.g., caliche). Given their stratigraphic position and morphology, Unit I

deposits are likely Pleistocene in age, and consequently, exhibit no potential to contain archaeological materials in good context.

Because much of the river channel in the study area has been severely altered, it is unknown if construction of the T-1 terrace was continuous over the Pleistocene-Holocene transition or if it was punctuated by one or more episodes of channel down-cutting. Regardless, it appears that low-energy,fine-grained silty clay loams designated as Unit II were deposited on the top of the late Pleistocene terrace surface during periodic overbank flooding. The presence of dated archeological materials within Unit II, as observed in the current study and during previous investigations at 41BX1920, indicate that alluvial deposition on the Pleistocene terrace surface may have occurred as early as 4230 yr. BP, though it may have possibly occurred earlier. This landscape surface would have been stable long enough so that very fine, filamentous secondary calcium carbonates began to develop along ped surfaces within incipient Bk horizons.

Following a brief period of terrace stability and soil formation, one or more major episodes of erosion appears to have scoured and truncated the upper part of the terrace containing Unit II alluvium, which stripped away the original A horizon and variably thick portions of the Bk horizon. Field morphological evidence of this is indicated in the abrupt, wavy, and highly undulating upper boundary of the Bk horizon that was observed within BHTs 5, 6, and during earlier CAR investigations at 41BX1920. The timing of such an event(s) is estimated to have occurred around 4000 yr. BP, based on the preserved cultural resource remnants within the un-eroded parts of the Bk horizon. This age is also consistent with a period of widespread channel incision and downcutting that was observed during investigations at 41BX254 and 41BX256, both located a short distance downstream from this site (Frederick 2012). Following this erosional period, deposition on the terrace surface resumed, sometime after 3500 BP, with the deposition of alluvial Unit III. Given the age of Unit III, it is possible that intact/stratified cultural materials post-dating 3500 BP could be found within it. However, no cultural materials were observed within the Unit III deposits exposed during backhoe trenching for the current VFW Boulevard easement study. Furthermore, while trenches at 41BX1920 revealed the presence of a few flakes and small FCR fragments in the overlying A and Bw horizons, these finds were generally sparse, and no discrete occupation zones or features were found.

The artificially constructed floodplain is situated to the east/northeast of the study area and was not directly investigated during the survey. Examination of aerial photographs taken prior to channel modifications indicates that various channel features once existed within a relatively narrow stream valley below the level of the T-1 terrace. While the stream valley widens near the study area, possibly due to erosion and lateral channel migration, floodplain construction nonetheless appears to have been minimal. The observation of clear channel and floodplain features on aerial photographs pre-dating the channel realignment indicates that such features may be of historic age, having developed rapidly as a result of increased runoff and erosion during historic-era land clearing and agriculture. Considering the modern channel disturbances that have occurred, it is unlikely any remnants of the pre-modification channel or floodplain features are preserved beneath the artificial fill. Thus, this area exhibits very low potential to contain archaeological materials in good context.

Chapter 7: Results of Construction Monitoring

Following the geomorphological assessment of the project easement, the CAR staff recommended monitoring a portion of utility trench excavation along VFW Boulevard that stretched within the boundaries of site 41BX1917 located just east of the VFW Boulevard and the Willow Way Drive intersection. (Figure 7-1) The THC and Office of Historic Preservation (COSAOPH) had reviewed an earlier draft of this report and concurred with this recommendation.

Since the backhoe trenching conducted by CAR personnel prior to the construction did not extend all the way to the San Antonio River, CAR personnel took the opportunity to observe the stratigraphy of the APE in this area by beginning the construction monitoring approximately 100 m (328 ft.) east of the old meander of the river.

The trench measured approximately 4.4 m (14.5 ft.) in width, and ranged from 9 m (29.5 ft.) in depth at the east end of the project APE to 4.4 m (14.5 ft.) deep at the western terminus at the intersection of VFW Boulevard and Willow Way Street.

The trenching and pipe installation was conducted by Zachry Construction Contractors using a 345D CAT Excavator which removed soil to an average depth of 4.6 m (15 ft.). The trench was 4.4 m (14.5 ft.) wide. Along an approximate 6.1 m (20 ft.) section of the trench paralleling VFW Boulevard, bucket-loads of matrix were removed from the western edge of the trench and placed on the ground next to the trench. After the monitor's inspection of the backdirt, a bulldozer was used to scoop up the matrix and deposit it into a larger pile which was also situated to the south on the Mission County Park grounds. The Excavator was then repositioned and the steel-plated wall-shoring unit was moved into place (Figure 7-2). Following these procedures, a commercial-grade crane lowered each 2.7-x-3.4 m (9-x-11 ft.) cement drainage pipe section into the trench while workers connected each section

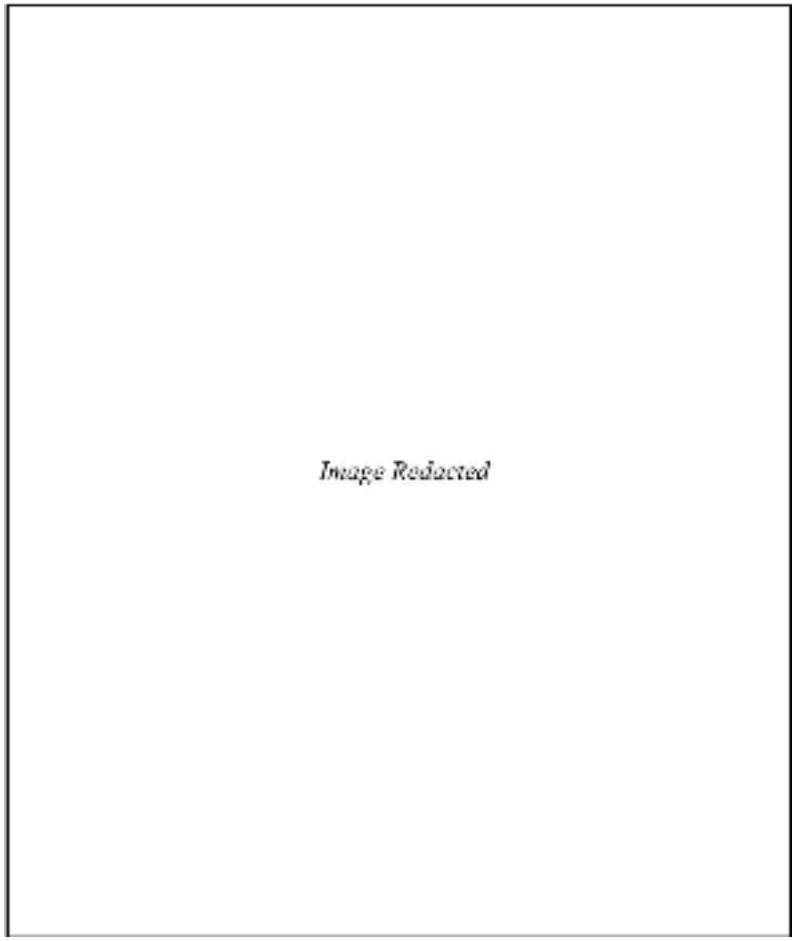

Figure 7-1. *Project area and monitoring activity within the APE.*

Figure 7-2. *North wall profile exposed before moving the shoring unit.*

to previously laid segments (Figure 7-3 and 7-4). A large gravel bucket was next filled and lowered into the trench and its contents poured around the newly laid pipe. Finally, the temporarily stored top soil was used to top-off the trench to the original ground surface.

When trenching progressed to within the boundaries of 41BX1917, samples of matrix were removed from the upper six feet of deposits and retained for ¼-inch screening. The samples consisted of one Excavator bucket of dirt, removed from the upper three feet, and placed near the far west corner of the APE. A second bucketful was then taken from the lower 0.9 m (0.9-1.8 m; 3-6 ft.) below the surface. The sample piles were later screened.

During actual monitoring of the trench from east of the old riverbed meander going approximately 130 m (426.5 ft.)to the west, much evidence of soil disturbance was noted. Observation of small portions of the north wall of the trench revealed areas of fill-gravels and evidence of changing riverbed locations which contained some historic artifacts. Pieces of old construction materials, bottle glass, white earthenware, rusted metal, sewer pipe fragments, mussel shell, and animal bone were retrieved from the Excavator bucket and backdirt.

As the trenching progressed westward, at approximately 60 m (197 ft.) from the starting point and past an area where a previous water pipe was encountered and removed, an increase of river gravel was noted in the north wall profile (Figure 7-5).

A lithic core covered in calcium carbonate was retrieved along with a black bottle glass fragment from approximately 10 m (32.8 ft.) west of the old San Antonio River channel. However, because these artifacts appeared to have been river transported to this location, they are not considered as part of 41BX1917. The next day, trench excavations advanced to within the site boundary. Several pieces of debitage and fire-cracked rock were collected along with burned rock and small fragments of burned clay. However, inspection of the north trench wall revealed no evidence of a burned rock or burned clay feature. Matrix samples 1 (0-0.9 m; 0-3-ft.) below the surface and 2 (0.9-1.8 m: 3-6-ft.) below the surface were then extracted from the trench and deposited near the western terminus of the APE for later screening. The screening of the deposits from Sample 1 revealed fire-cracked rock and 17 pieces of debitage. Sample 2 was also screened but it was devoid of artifacts. Tables 7-1 and 7-2 summarize the historic and prehistoric artifacts, respectively, recovered during trench monitoring and matrix screening from the upper three feet of deposits from within the 41BX1917 site boundary.

Figure 7-3. *Excavator moving the exterior drainage pipe shoring unit.*

Figure 7-4. *Final placement of drainage pipe.*

Figure 7-5. *Increase of river gravels noted within 5-8 m (16.4-26.2 ft.) east of 41BX1917.*

Table 7-1. Historic artifacts recovered from monitoring

Date	Provenience	General Location	Field Sack	Glass	Metal	Ceramic	Animal Bone	Personal Items	Misc.
6/14/2012	328' W. of Bridge	east of the Old channel	**FS 1**	**4**				**1-White Metal Button**	**1-Bottle Stopper**
6/15/2012	Across from N. River Road	east of the Old channel	**FS 2**		**1/6.9 g**				
6/22/2012	Across VFW Blvd. from 1st Apt. Bldg. going W.	east of the Old channel	**FS 3**	**1**			**1/207.1g**		
6/28/2012	15-20' E. of 1st Apt. Circular Driveway Entrance to the W.	west of the Old channel	**FS 4**	**1**					
6/29/2012	Across VFW Blvd. from 1st Apt. Entrance	west of the Old channel	**FS 5**	**14**		**1-White Earthen-ware**			**1-Sewerpipe**
7/2/2012	15' E. of Sidewalk 1 off of Apt. Bldg. 2	west of the Old channel	**FS 6**	**1**					
7/3/2012	From Sidewalk 1 of Apt. Bldg. 2, West-ward 10-15'	within 41BX1917 site boundary	**FS 7**						
7/5/2012	20' W. Sidewalk 1, Apt. Bldg. 2	within 41BX1917 site boundary	**FS 8**						
7/6/2012	10' E. of Sidewalk 2, Apt. Bldg. 2	within 41BX1917 site boundary	**FS 9**						
8/24 & 8/28, 2012	Test Pile 1 Surface down to 3'	within 41BX1917 site boundary	**FS 10**						
	TOTAL			**21**	**1**	**1**	**1**	**1**	**2**

Table 7-2. Prehistoric artifacts recovered from monitoring

Date	Provenience	General Location	Field Sack	Debitage	Core	Other Lithic	Burned Clay No/Wt	Fire-cracked/ Burned Rock No/Wt	Mussel Shell No/Wt
6/14/2012	328' W. of Bridge	east of the Old channel	**FS 1**			**2 (bifaces)**			
6/15/2012	Across from N. River Road	east of the Old channel	**FS 2**						**11/63.6g**
6/22/2012	Across VFW Blvd. from 1st Apt. Bldg. going W.	east of the Old channel	**FS 3**						**1/4.4g**
6/28/2012	15-20' E. of 1st Apt. Circular Driveway Entrance to the W.	west of the Old channel	**FS 4**						**3/1.4g**
6/29/2012	Across VFW Blvd. from 1st Apt. Entrance	west of the Old channel	**FS 5**	**2**					**16/234.6g**
7/2/2012	15' E. of Sidewalk 1 off of Apt. Bldg. 2	west of the Old channel	**FS 6**		**1**				**7/9.1g**
7/3/2012	From Sidewalk 1 of Apt. Bldg. 2, West-ward 10-15'	within 41BX1917 site boundary	**FS 7**	**3**			**3/601.4g Unburned 15/95.9g Burned**	**11/1,102.3g**	
7/5/2012	20' W. Sidewalk 1, Apt. Bldg. 2	within 41BX1917 site boundary	**FS 8**	**3 (1 river-transport)**	**1**			**4/65.1g**	
7/6/2012	10' E. of Sidewalk 2, Apt. Bldg. 2	within 41BX1917 site boundary	**FS 9**	**1**				**1/9.2g**	
8/24 & 8/28/2012	Test Pile 1 Surface down to 3'	within 41BX1917 site boundary	**FS 10**	**17**				**27/407.2g**	
TOTAL				**27**	**2**	**2**	**18/697.3g**	**35/1,395.7g**	**38/323.1g**

Chapter 8: Summary and Recommendations

A pedestrian survey was performed and six backhoe trenches were excavated within the APE. BHTs 1 and 2, which were located on what was previously the east bank of the pre-construction San Antonio River alignment, revealed extensive deposits of construction fill material. This fill material was clearly associated with the realignment of the San Antonio River and is further confirmed by geotechnical borings across the Mission County Park area (Raba-Kistner 2011). Given these observations, the proposed easement in the vicinity of BHTs 1 and 2, extending to the modern channel alignment, would not likely exhibit the necessary context to contain intact archaeological deposits with the appropriate integrity for NRHP or SAL eligibility. No further investigations are recommended in this area.

Natural soils were observed in the remaining trenches (BHTs 3-6). Geomorphological investigations show that APE is situated entirely within the T-1 terrace on the west bank of the current river channel and that the terrace is underlain by three lithologically distinct alluvial fills, designated from oldest to youngest as Units I through III. Unit I, which was encountered at depths ranging from 115-120 cmbs (45.3-47.2 in.), is presumed to be Pleistocene in age on the basis of field morphological attributes and the degree of soil development. Thus, no intact archaeological deposits are expected to be present within this unit. In BHTs 3-6, Unit II was found to overlie Unit I and is suggested to range from early to middle Holocene in age (>4,000 yrs). Field investigations revealed that the upper soil horizons of Unit II have been sharply eroded and truncated, resulting in a highly undulating surface. Based on radiocarbon ages obtained during recent CAR investigations at 41BX1920, located 180 m (590 ft.) from the APE, this erosive event appears to have taken place around 4000 ^{14}C yr BP. This period of channel erosion/incision has been documented in other recently investigated archaeological sites along the Mission Reach project and appears to be widespread. Nonetheless, recent CAR investigations at 41BX1920 reveal that some intact/buried Late Archaic cultural deposits have been preserved in the upper portions of Unit II that were not impacted by this event. Subsequent deposition of Unit III over the scoured/truncated surface of Unit II occurred sometime during the late Holocene (<4000 BP), potentially burying Late Archaic through Prehistoric materials.

Of the six backhoe trenches excavated during the survey, cultural materials were observed within BHTs 4 and 6, representing an extension of the site 41BX1917 boundaries into the project APE. In BHT 4, a few pieces of FCR <5 cm (2 in.) in diameter were observed within the uppermost portion of alluvial stratigraphic Unit III. In BHT 6, a couple of lithic flakes and a burned clay (daub) feature were identified within the top portion of alluvial stratigraphic Unit II. Of these, the feature in BHT 6 is the most significant discovery, as the small concentration of burned, reddish-orange daub appears to be consistent with similar daub deposits recently recorded at nearby site 41BX1920, which are consistent with wattle and daub prehistoric structures. Both finds are situated within geomorphologically and pedologically similar deposits, and based on radiocarbon ages, date to the early part of the Late Archaic Period.

During the archaeological survey at Mission County Park, site 41BX1917 was defined but it was recommended as not eligible for nomination to the National Register of Historic Places and did not warrant formal designation as a State Archeological Landmark (DiVito and Oksanen 2012). Based on the results of the geomorphological investigations, there was insufficient data to alter this recommendation. However, because of the presence of burned clay within the APE and the previously demonstrated association of burned daub with possible Late Archaic Period structures at 41BX1920, CAR recommended that an archaeologist monitor the planned construction excavations within the APE. The area of interest for monitoring was to be limited to the boundaries of archaeological site 41BX1917, as seen in Figure 5-1.

The subsequent construction monitoring of a 130 m (426.5 ft.) long portion of the APE identified cultural deposits in secondary flood deposits near the buried old channel of the San Antonio River and within the boundaries of 41BX1917. The monitoring and screening of a sample of the matrix revealed sparse quantities of burned rock (small fragments), a few pieces of lithic debitage, and small fragments of burned clay. These materials were in disturbed matrix and no intact features were identified by the monitoring. Therefore, even following the construction monitoring, CAR does not recommend a change in the eligibility status of 41BX1917. Our recommendation remains that the site does not warrant listing on the National Register or formal designation as a State Archeological Landmark due to the overall lack of research potential of the deposits hitherto investigated.

References Cited:

Barnes, V.E.,
1974 *Geologic Atlas of Texas*. San Antonio Sheet. Bureau of Economic Geology, University of Texas. Austin.

Bement, L.C.
1989 *Excavations at 41BP19: The Kennedy Bluffs Site, Bastrop County, Texas*. Contract Reports in Archeology, Report No. 5, Highway Design Division, Texas State Department of Highways and Public Transportation, Austin. Texas Archeological Research Laboratory, The University of Texas at Austin.

Black, S.L., L.W. Ellis, D.G. Creel, and G.T. Goode
1997 *Hot Rock Cooking on the Greater Edwards Plateau: Four Burned Rock Midden Sites in West Central Texas*. Studies in Archaeology, No. 22. 2 vols. Texas Archaeological Research Laboratory, The University of Texas at Austin.

Blair, W.F.
1950 The Biotic Provinces of Texas. *Texas Journal of Science* 2(1):93-117.

Bousman, C.B., B.W. Baker, and A.C. Kerr
2004 Paleoindian Archaeology Change in Central Texas: The Palynological Evidence. *Plains Anthropologist* 23(164):201-219.

Chapa, J.B.
1997 Historia del Nuevó Reino de León. In *Texas and Northeastern Mexico, 1630-1690*, edited by W.C. Foster, translated by N.F. Brierly, pp. 25-27. University of Texas Press, Austin.

Collins, M.B.
2004 Archeology in Central Texas. In *The Prehistory of Texas*, edited by T.K. Perttula, pp. 205-265. Texas A&M University Press, College Station.

Council of Texas Archeologists (CTA)
2001 Revised Archeological Survey Standards for Texas. *CTA Newsletter* 25(2).

Davis, W.B., and D.J. Schmidly
1997 The Mammals of Texas. Electronic document, http://www.nsrl.ttu.edu/tmot1/Default.htm, accessed December 2010.

DiVito, N., and E. Oksanen
2012 *Intensive Pedestrian Survey of Mission County Park, San Antonio, Bexar County, Texas*. Archaeological Report No. 421. Center for Archaeological Research, The University of Texas at San Antonio.

Edwards Aquifer Website
2011 Hot Wells Hotel and Spa. http://www.edwardsaquifer.net/hotwells.html. Accessed September 5, 2011.

Frederick, C.D.
2012 Geoarchaeological Investigations. In *Archaeological Data Recovery on Three Sites Along the San Antonio River, Bexar County, Texas*, by A.E. Padilla and D.L. Nickels, pp. 449-462. Ecological Communications Corporation, Austin.

Fox, A.A., and C.L. Highley
1985 *History and Archaeology of the Hot Wells Hotel Site, 41BX237*. Archaeological Survey Report, No. 152. Center for Archaeological Research, The University of Texas at San Antonio.

Gile, L.H., F.F. Peterson, and R.B. Grossman
1966 Morphological and genetic sequence of carbonate accumulation in desert soils. *Soil Science* 101:347-360.

Gould, F.W.
1975 *Texas Plants: A Checklist and Ecological Summary*. Texas A&M University System, Texas Agricultural Experiment Station, College Station.

Habig, M.A. Fr.
1968 *San Antonio's Mission San José*. The Naylor Company, San Antonio.

1990 *Spanish Texas Pilgrimage the Old Franciscan Mission and Other Spanish Settlements of Texas 1632-1821*. Franciscan Herald Press, Chicago.

Hall, G.D., T.R. Hester, and S.L. Black
1986 *The Prehistoric Sites at Choke Canyon Reservoir, Southern Texas: Results of Phase II Archaeological Investigations*. Choke Canyon Series No. 10. Center for Archaeological Research, The University of Texas at San Antonio.

Hester, T.R.
1995 The Prehistory of South Texas. *Bulletin of the Texas Archeological Society* 66:427-459.

Inman, B.J., T.C. Hill, and T.R. Hester
1998 Archaeological at the Tortugas Flat Site, 41ZV155, Southern Texas. *Bulletin of the Texas Archeological Society* 69:11-33.

Jordan, T.G.
1977 German Element in Texas: An Overview. *Rice University Studies* Vol. 63.

Mauldin, R., and L. Kemp
2005 *Late Archaic and Late prehistoric Bison Remains from South and Central Texas. In Archeological Testing and Data Recovery at 41ZV202, Zavala County, Texas*, by R.P. Mauldin, R.D. Greaves, J.L. Thompson, C.M. Munoz, L. Kemp, B.A. Meissner, B.K. Moses, and S.A. Tomka, pp. 203211. Archaeological Report, No. 409. Center for Archaeological Research, The University of Texas at San Antonio.

Mauldin, R.P.
2004 *Archeological Survey and Testing of Selected Prehistoric Sites along FM 481, Zavala County, Texas*. Archaeological Survey Report No. 352. Center for Archaeological Research, The University of Texas at San Antonio.

Mauldin, R.P., D.L. Nickels, C.J. Broehm, and C.B. Bousman
2003 *Archaeological Testing to Determine the National Register Eligibility Status of 18 Prehistoric Sites on Camp Bowie, Brown County, Texas*. Archaeological Survey Report No. 334 Vol.1. Center for Archaeological Research, The University of Texas at San Antonio.

McKinney, W.W.
1981 Early Holocene Adaptations in Central and Southern Texas: The Problem of the Paleo-Indian-Archaic Transition. *Bulletin of the Texas Archeological Society* 52:92-120.

Meltzer, D.J., and M.R. Bever
1995 Paleoindians of Texas: An Update on the Texas Clovis Fluted Point Survey. *Bulletin of the Texas Archeological Society* 66:47-81.

Nickels, D.L., and R.P. Mauldin
2001 *Twin Buttes Archaeological Report*. Special Report No. 28. Center for Archaeological Research, The University of Texas at San Antonio.

Perttula, T.K., G.H. Miller, R.A. Ricklis, D.J. Prikryl, and C. Lintz
1995 Prehistoric and Historic Aboriginal Ceramics in Texas. *Bulletin of the Texas Archeological Society* 66:175-235.

Ricklis, R.A.
1992 Aboriginal Karankawan Adaptation and Colonial Period Acculturation: Archeological and Ethnohistorical Evidence. *Bulletin of the Texas Archeological Society* 63:211-243.

San Antonio Audubon Society
2012 San Antonio Audubon Society, http://www.saaudubon.org, accessed March 10, 2012.

Schoenberger, P.J., D.A. Wysocki, E.C. Benham, and W.D. Broderson (editors)
2002 *Field Book for Describing and Sampling Soils, Version 2.0*. Natural Resources Conservation Service, National Soil Survey Center, Lincoln, Nebraska.

Story, D.A.
1985 Adaptive Strategies of Archaic Cultures of the West Gulf Coastal Plain. In *Prehistoric Food Production in North America*, edited by R.I. Ford, pp. 19-56. Anthropological Papers No. 75, Museum of Anthropology, University of Michigan, Ann Arbor.

Taylor, F.B., R.B. Hailey, and D.L. Richmond
1962 *Soil Survey of Bexar County, Texas*. United States Department of Agriculture, Soil Conservation Service, in Cooperation with the Texas Agricultural Experiment Station.

Turner, E.S., and T.R. Hester
1993 *A Field Guide to Stone Artifacts of Texas Indians*. 2nd ed. Gulf Publishing, Houston.

Wade, M.F.
2003 *The Native Americans of the Texas Edwards Plateau, 1582-1799*. 1st ed. Texas Archaeology and Ethnohistory Series. University of Texas Press, Austin.

Woodruff, C.M., Jr., and P.L. Abbott
1986 *The Balcones Escarpment Preface. In The Balcones Escarpment: Geology, Hydrology, Ecology and Social Development in Central Texas*, edited by C.M Woodruff and P.L. Abbott, pp. 77-90. Geological Society of America Annual Meeting, San Antonio.

Appendix A:
Detailed Backhoe Trench Descriptions

Steven W. Ahr

Appendix A

Detailed Backhoe Trench Descriptions

Steven W. Ahr

BHT 1

Horizon	Depth (cm)	Description	Stratigraphic Context
Zone 1	0-50	10YR 6/3 and 10YR 6/8; mottled clay; all fill material; contains ~10% poorly sorted gravels and pebbles	Construction fill material
Zone 2	50-80	10YR 6/2 silt loam fill material with numerous gravels and cobbles; poorly sorted; trash materials.	
Zone 3	80-200	10YR 5/3; large blocky silt loam fill material; contains shards of modern clear glass	

BHT 2

Horizon	Depth (cm)	Description	Stratigraphic Context
Zone 1	0-50	10YR 6/3 and 10YR 6/8; mottled clay; gravelly fill material; poorly sorted	Construction fill material
Zone 2	50-100	Gray and orange, mottled and mixed clay fill material	
Zone 3	100-120	Mixed gravels and clay fill material; poorly sorted	
Zone 4	120-170	Grayish large blocky silt loam fill material; contains shards of modern clear glass	

BHT 3

Horizon	Depth (cm)	Description	Stratigraphic Context
Ap	0-30	10YR 3/2 silty clay loam; weak fine granular; very friable; common fine and common very fine and few medium roots; pieces of modern glass/trash in fill disturbance; abrupt wavy boundary	Unit III
Bw1	30-53	10YR 3/4 silt loam; moderate medium subangular blocky; very friable; few fine and few very fine roots; very faint $CaCO_3$ threads, <5%; few snail shell fragments; clear smooth boundary	
Bw2	53-80	10YR 5/2 silt loam; weak fine subangular blocky; very friable; few fine and few very fine roots; 10% snail shell fragments; clear smooth boundary	
2Bk	80-120	10YR6/3 silt loam; weak fine subangular blocky; very friable; few fine and few very fine roots; 10% faint secondary carbonate filaments; small (<5 cm) piece of FCR at 90 cmbs; common insect/ant burrows; clear smooth boundary	Unit II
3Ckk	120-220	10YR 5/4 and 10YR 7/2 very fine silt; weak fine granular parting to massive; no roots; chalky consistence	Unit I

BHT 4

Horizon	Depth (cm)	Description	Stratigraphic Context
Ap	0-65	10YR 2/2 silty clay loam; weak fine granular parting to massive; friable consistence; common fine and common very fine roots; abrupt wavy boundary	Unit III
Bw	65-95	10YR 3/2 silt loam; weak medium subangular blocky; firm; few fine and few very fine roots; common snail fragments; clear smooth boundary	
2Bk	95-116	10YR 4/4 silt loam; moderate coarse angular blocky; firm; few fine and few very fine roots; faint $CaCO_3$ filaments; few pieces of FCR at upper horizon boundary/contact; clear smooth boundary	Unit II
2Btk	116-150	10YR 5/4 silt loam; medium coarse angular blocky; hard and very firm consistence; few fine and few very fine roots; 3% nodules and soft masses of $CaCO_3$ 1-2 mm diameter; common snails and fragments; few minor pressure faces; e.g., slickensides	

BHT 5

Horizon	Depth (cm)	Description	Stratigraphic Context
A	0-48	10YR 3/2 clay loam; weak fine granular; common fine and common very fine roots; sticky (wet) consistence; gradual smooth boundary	Unit III
Bw1	48-79	10YR 3/4 clay loam; weak medium subangular blocky; common fine and common very fine roots; sticky (wet) consistence; gradual smooth boundary	
*Bw2	79-115	10YR 4/4 clay loam; weak medium subangular blocky; few fine and few very fine roots; sticky (wet) consistence; clear wavy boundary	
*2Bk	85-115	10YR 5/4 silty clay loam; moderate medium subangular blocky; few fine and few very fine roots; friable (moist) consistence; few faint $CaCO_3$ filaments; abrupt wavy boundary	Unit II
3Ckk	115-150	10YR 5/4 and 10YR 7/2 very fine silt; weak fine granular parting to massive; no roots; chalky consistence	Unit I

*The Bw horizon is incised into and below the depth of the upper boundary of parts of the 2Bk horizon; thus, the depth ranges overlap

BHT 6

Horizon	Depth (cm)	Description	Stratigraphic Context
A	0-60	10YR 3/2 clay loam; weak fine granular; firm consistence; abrupt wavy boundary.	Unit III
*Bw	60-120	10YR 4/4 silty clay loam; weak fine subangular blocky; friable (moist) consistence; abrupt wavy to irregular boundary	
*2Bk	60-120	10YR 6/3 silt loam; moderate medium subangular blocky; firm consistence; 5% faint filaments of calcium carbonate; 5% snail shells and fragments; hummocky horizon; burned clay daub concentration at 70 cmbs at northeast end of trench	Unit II
3Ckk	120-150	10YR 7/2 silt; massive; extremely friable; horizon is comprised of >50% pedogenic calcium carbonate;	Unit I

*The Bw horizon is incised into and below the depth of the upper boundary of parts of the 2Bk horizon; thus, the depth ranges overlap