Intensive Pedestrian Survey of Mission County Park in San Antonio, Bexar County, Texas

by

Nathaniel DiVito and Eric Oksanen

Texas Antiquities Committee Permit No. 6063

Non-Restricted

Prepared for:
Bexar County Infrastructure Services
233 N. Pecos, Suite 420
San Antonio, Texas 78207

Prepared by:
Center for Archaeological Research
The University of Texas at San Antonio
One UTSA Circle
San Antonio, Texas, 78249
Archaeological Report, No. 421

Intensive Pedestrian Survey of Mission County Park in San Antonio, Bexar County, Texas

by

Nathaniel DiVito and Eric Oksanen

Texas Antiquities Committee Permit No. 6063

Non-Restricted

Principal Investigator
Steve A. Tomka

Prepared for:
Bexar County Infrastructure Services
233 N. Pecos, Suite 420
San Antonio, Texas 78207

Prepared by:
Center for Archaeological Research
The University of Texas at San Antonio
One UTSA Circle
San Antonio, Texas 78249
Archaeological Report, No. 421

Management Summary:

The Center for Archaeological Research (CAR) at The University of Texas at San Antonio (UTSA) has been contracted by Bexar County Infrastructure Services to performed archaeological services in association with planned improvements within Mission County Park in San Antonio, Bexar County, Texas. The Area of Potential Effect (APE) falls within the Mission Parkway National Register District. The archaeological services consisted of an intensive pedestrian survey of Mission County Park prior to the inception of ground disturbing activities and the subsequent monitoring of the demolition of selected structures and facilities within the park and the construction of new facilities. The ground-disturbing activities are part of improvements to the park related to the beautification of the San Antonio River and its watershed corridor. The planned improvements involve the installation of a Hike and Bike Trail, City Public Service (CPS), and San Antonio Water System (SAWS) utilities, and the construction of a portal overlooking the San Antonio River. While the trail and utilities installations are sponsored by Bexar County, the construction of the portal is a San Antonio River Authority (SARA) project. Both the intensive pedestrian survey and the subsequent monitoring activities were carried out under Texas Antiquities Permit No. 6063 with Dr. Steve Tomka serving as Principal Investigator and Nathaniel DiVito and Eric Oksanen serving as Project Archaeologists. The project area consisted of the entirety of Mission County Park. The intensive pedestrian survey focused on portions of the APE not covered by asphalt at the time of the field work while ground disturbing activities were monitored across the entire APE.

The intensive pedestrian survey consisted of mechanical auger boring, backhoe trenching, and the hand-excavation of 1-x-1-m (3.28-x-3.28-ft.) test units to explore features identified in trenching. A total of 65 mechanical auger bores were excavated to a depth of 1.2 m (4 ft.) below the surface. In addition, seven backhoe trenches were excavated in search of deeply buried deposits and suspected Spanish Colonial Period cultural features. Finally, upon the encounter of buried cultural features, three 1-x-1-m (3.28-x-3.28-ft.) units were excavated to expose the features and determine their function and relationship to each other.

The intensive pedestrian survey resulted in the definition of four multi-component archaeological sites, 41BX1917, 41BX1918, 41BX1919, and 41BX1920. Given the mixture of prehistoric, historic, and modern artifacts and their disturbed depositional context, three of these sites have minimal to no research value and are therefore recommended as not warranting listing to the National Register of Historic Places (NRHP) or formal designation as State Archaeological Landmarks (SAL). The fourth site, 41BX1920, is a multi-component site consisting of a Spanish Colonial *acequia*, a hearth, and a pit feature in an apparent association with burnt daub dating to ca. 4230-3990 BP (2280-2040 BC) during the early portion of the Late Archaic Period. The daub is diagnostic of wattle and daub construction, and it appears to represent the remnants of a prehistoric structure. Given the research value of the features and deposits, it is suggested that 41BX1920 is eligible to be listed in the NRHP and formally designated as a SAL. While originally planned impacts to the park were to disturb the deposits of this site, the archaeological findings have resulted in alterations to the original project design and the relocation of immediate impacts to the northern half of the park. The only planned disturbance to occur within the boundaries of the site is a planned hike and bike sidewalk that will cross the site along its southern perimeter adjacent to the El Chariot fence line. The construction of the sidewalk will have minimal impacts to the San José *Acequia* that has been documented during the current project. The new project design has been presented to the Texas Historical Commission (THC) by representatives of Bexar County Infrastructure Services and has been approved by the THC representatives.

Several facilities existed within the APE prior to the inception of improvement activities. They included existing buildings housing support facilities and offices, baseball and basketball courts, playground, parking lots, and restrooms. While Mission County Park is found within the Mission Parkway National Register District, the district's significance period extends from 1700-1874, well short of the construction of the Park and of these facilities. With the exception of one of the currently existing structures present within the park, all facilities were built in the late 1960s and early 1970s. The City of San Antonio Historic Design and Review Commission has approved the demolition of these structures. An additional structure that was built in 1951, a pavilion, also has been approved for demolition although the County has chosen to restore this structure. This structure is not a contributing element to the Mission Parkway National Register District. Coordination with regard to this structure has occurred during the project, and the structure has been left in place during and following the demolition of all other facilities. An additional structure, the principal administrative building, will be re-used and has not been demolished. The demolition activities have been monitored by CAR staff. No buried cultural deposits were disturbed during the demolition efforts.

Table of Contents:

List of Figures:

List of Tables:

Acknowledgements:

The portion of the pedestrian survey completed to date could have not been accomplished without the field crew that included Justin Blomquist, Steven Cummins, Lynn Wack, Antonio Figueroa, Alexandria Wadley, Tyrone Tatum, and Lindy Martinez. Thanks also to Mr. Frank Salinas, Park Foreman, and Mr. Jose R. Torralva, Facilities Operations Manager, for allowing us access to the park and coordinating our activities. Our appreciation also is extended to Mr. Oscar Cervantes for his interest in the project and its timely completion, as well as Miss Betty Bueche for facilitating the project and her interest in the findings. Dr. Steve A. Tomka served as the Principal Investigator for the project and provided comments on the report draft. The geomorphological investigations were conducted by Steven Ahr of the CAR. Drafting of report figures was performed by Richard Young, and editing of the draft report was completed by Kelly Harris.

Chapter 1: Introduction

The Area of Potential Effect

During the fall of 2011, the Center for Archaeological Research (CAR) at The University of Texas at San Antonio (UTSA) was contracted by Bexar County Infrastructure Services to provide archaeological services associated with the planned improvements to be made at Mission County Park in south-central Bexar County (Figure 1-1). The Area of Potential Effect (APE) falls within the Mission Parkway National Register District with a significance period stretching from 1700-1874. The intensive pedestrian survey of the western portion of the park was conducted under Texas Historical Commission (THC) Permit No. 6063 with Dr. Steve A. Tomka serving as Principal Investigator and Nathaniel DiVito and Eric Oksanen serving as Project Archaeologists.

The project area is located in south-central Bexar County on the west bank of the San Antonio River. It is bound on the north by Ed White Boulevard, and Padre Drive forms its western boundary. It fronts the San Antonio River, and the privately held El Ranchito property forms its southern limit. The Area of Potential Effect (APE) is located on the Southton (2998-132) USGS 7.5 Minute Series Quadrangle Map (Figure 1-2).

Planned Improvements

The improvements will be undertaken and sponsored by two distinct entities. Bexar County Infrastructure Services (BCIS) is sponsoring improvements within the western portion of the park. The originally planned improvements sponsored by

Figure 1-1. *Aerial view of Mission County Park. Note tennis courts at east end and baseball fields at west end of park and asphalted parking lot and miscellaneous facilities within the park.*

Figure 1-2. *Location of Mission County Park (yellow) and nearby known archaeological sites shown on the Southton USGS 7.5 Minute Quadrangle Map. The APE is part of the Mission Parkway National Register District.*

the BCIS consisted of the re-excavation of the old meander channel that once crossed the APE near the current channel of the river and San Antonio Water System (SAWS) and City Public Service (CPS) utilities installations (Figure 1-3). These utilities easements were to cut through much of the park and, therefore, would have impacted deposits to a depth of 1.8-2.4 m (5.9-7.9 ft.) below the surface.

As part of the archeological services provided to Bexar County to date, CAR has carried out an intensive pedestrian survey of the portion of the project area that is not covered by asphalt or concrete (e.g., roads, parking lots, etc.). The results of these investigations are summarized below.

The original impacts and their locations have been recently modified due to the encounter of prehistoric and historic archaeological deposits and features in portions of the project area. These finds are outlined in a later half of this report.

The second set of improvements is sponsored by the San Antonio River Authority (SARA). These improvements

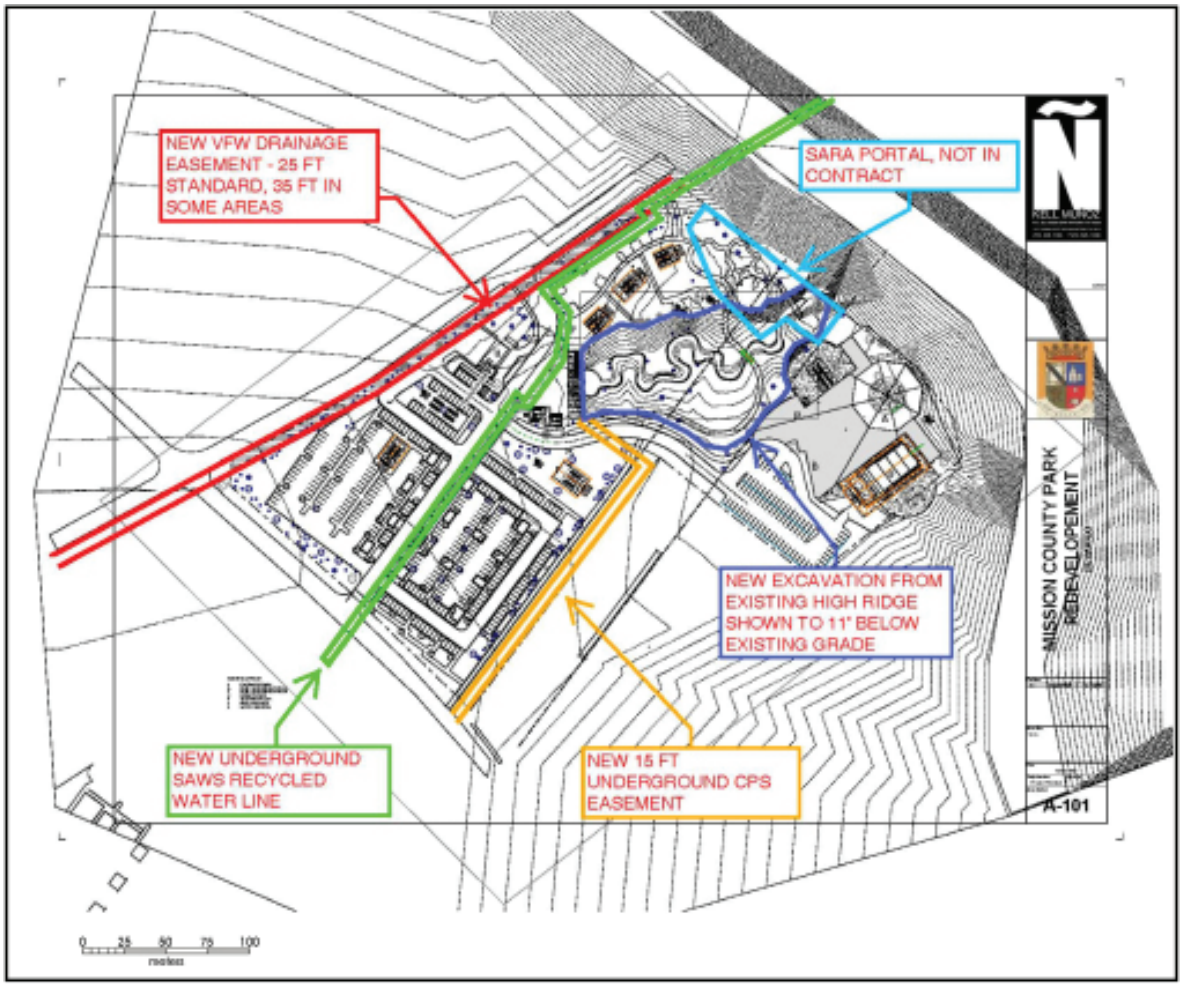


Figure 1-3. *Originally proposed improvements to be carried out at Mission County Park. These plans have now been revised based on recent archaeological finds.*

will consist of the construction of a portal that will provide a look-out over the improved San Antonio River channel and also westward to Mission San José. This portal will be situated on the west bank of the river and the eastern margin of Mission County Park. These construction activities will include the excavation of a small segment of the former meander but will primarily focus on the grading of the location, the excavations for the foundation of the structure, and the construction of walking paths leading to the portal. The demolition of the existing tennis courts will precede the inception of these improvements.

This report summarizes the results of investigations associated with the Bexar County Infrastructure portion of the project area. The work associated with the construction of the portal has not commenced at the time of the writing of this report.

Chapter 2: Project Background

In this chapter, the background of the project area is summarized, including the environment, a brief culture history of Central and South Texas, and archaeological sites within 0.8 km (0.5 mi.) of the project area. This section begins with a brief summary of cultural history of the project area.

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 that 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 11,542 ± 111BP and 11,590 ± 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). In the Early Archaic (8800-6000 BP), there was a shift in subsistence from large game hunting to plant foods and medium and small game species (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 sub-period and consisted of small, highly mobile bands (Story 1985).

The Middle Archaic spans from 6000-4000 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.

The last subperiod of the Archaic is the Late Archaic, which spans 4000-1200 BP (Collins 2004). Dart point diagnostics of the Late Archaic are triangular points with corner notches, such as 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 sinkhole cemetery suggests that territoriality may have been established during the Late Archaic, possibly as a result of population increase (Bement 1994). 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)

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 burned rock middens (Black et al. 1997) and includes Scallorn and Edwards diagnostic point types (Collins 2004; Turner and Hester 1993).

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 et al. 2004). There is not a clear material culture associated with the period. Sites that have been deemed as "Protohistoric" may have Late Prehistoric or Historic artifacts associated with them, and in several cases, radiocarbon dates confirm their Protohistoric designation (Mauldin et al. 2004).

Historic Period

The Historic Period is characterized by systematic European contact with cultures of native groups 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 had reached Texas, including the San Antonio area.

Previous Archaeological Investigations in the Vicinity of the APE

No previous archaeological investigations have taken place inside the APE. Within 0.8 km (0.5 mi.) of the APE, there are four previously recorded sites: 41BX3, 41BX237, 41BX270, and 41BX1774. Mission San José y San Miguel de Aguayo, 41BX3, is the third and current location of the mission. It has seen several seasons of archaeological investigations by CAR, and summaries of these projects are found in several recent reports (Fox 1970; Fox and Cox 1991; Tomka and Fox 1998, 1999).

Site 41BX237 is the historic Hot Wells Hotel. In 1892, the Southwestern Lunatic Asylum, which is still located on the east side of South Presa but is now known as San Antonio State Hospital, dug an artesian well to bring potable water to the people housed there. The well was dug to a depth of 533.4 m (1,750 ft.) and produced 180,000 gallons of water a day at an extremely warm temperature of 103°. 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 per year for the water rights, taking the place of 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 it opened on February 28, 1894, with an extravagant ball. Modeled after the Hot Springs resort in Arkansas, it consisted of parlors, private baths, and even a billiards room. 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 regularly ran from the resort to the city of San Antonio. An artificial lake and fountain were completed in July 1894, and August of the same year marked the arrival of the first of many exotic animals, including a bear and a mountain lion, 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 by February of 1895, a temporary bathhouse was completed. However, 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 Shacklett. 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, 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 1985:5, 10-11).

In early 1908, a $100,000 addition to the hotel was constructed, increasing the total number of rooms to 190. Over the next few years the resort offered various forms of entertainment, such as concerts, dancing, boating, sports events, and horseback riding, and it became a high class resort for the elite and wealthy. For those who were interested in visiting the Mission San José, a foot bridge crossing the San Antonio River was constructed to provide easy access to the ruins (Fox and Highley 1985:14-15).

In 1911, the Star Film Company was headquartered at the Hot Wells Bath House. At this time, gambling was a main attraction at the resort, which included gambling rooms and a full time bookie as well as ostrich races on Sunday afternoons starting in 1914. During 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 diminished (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 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, and they converted it into a trailer park and motel. In 1944, the lobby of the bathhouse was reopened as The Flame Room, a bar and grill, and operated as such until 1977. In that same year, the remaining items in the bathhouse were auctioned off. Kathryn Scheer purchased the property in late 1979 with hopes of revitalizing 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. During 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 not been improved much in recent years, and portions of the property burned once again on April 27, 2011. Arson was also suspected in these fires because they had multiple points of origin. More recently the property is in disrepair, and the damage from the fire is still evident (Eckhardt 2011).

Site 41BX270 was recorded during the Mission Parkway survey conducted in 1976 by Scurlock and Fox (1977), and 41BX1774 is a historic residence at Mission Drive Inn.

Historical Aerial Photography and Geotechnical Investigations within the APE

While some historical 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 CAR after the completion of initial pedestrian survey. Covering 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 (see Figures 2-1 and 2-2). The images also indicate that, while the parcels of land that make up the park were relatively free of impacts up to October 1938. Furthermore, between 1938 and October 1959, an entrance road and a parking lot were constructed, and at least one structure, a pavilion, had been erected within the park limits. Recent information provided by BCIS indicates that the pavilion was constructed in 1951. Current plans are to restore the pavilion. Sometime between September 1966 and April 1977, a substantial degree of impact occurred on the tract including the construction of two baseball fields, tennis and basketball courts, and large parking lots. The April 1977 photo also 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 utilized 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, and the October 1938 photo shows the original meanders of the channel that existed in the vicinity of the APE (Figure 2-3). The APE at this time consisted of two fields separated by a property fence that is located roughly where the entrance to the park was later 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 the degree of disturbances that it may have undergone (Raba Kistner 2011). RKCI drilled 25 borings throughout the APE (Figure 2-4), and dense to very dense hard clay was present immediately below the surface in eight borings that did not hit fill. Approximately, 0.3-1.8 m (1-6 ft.) of

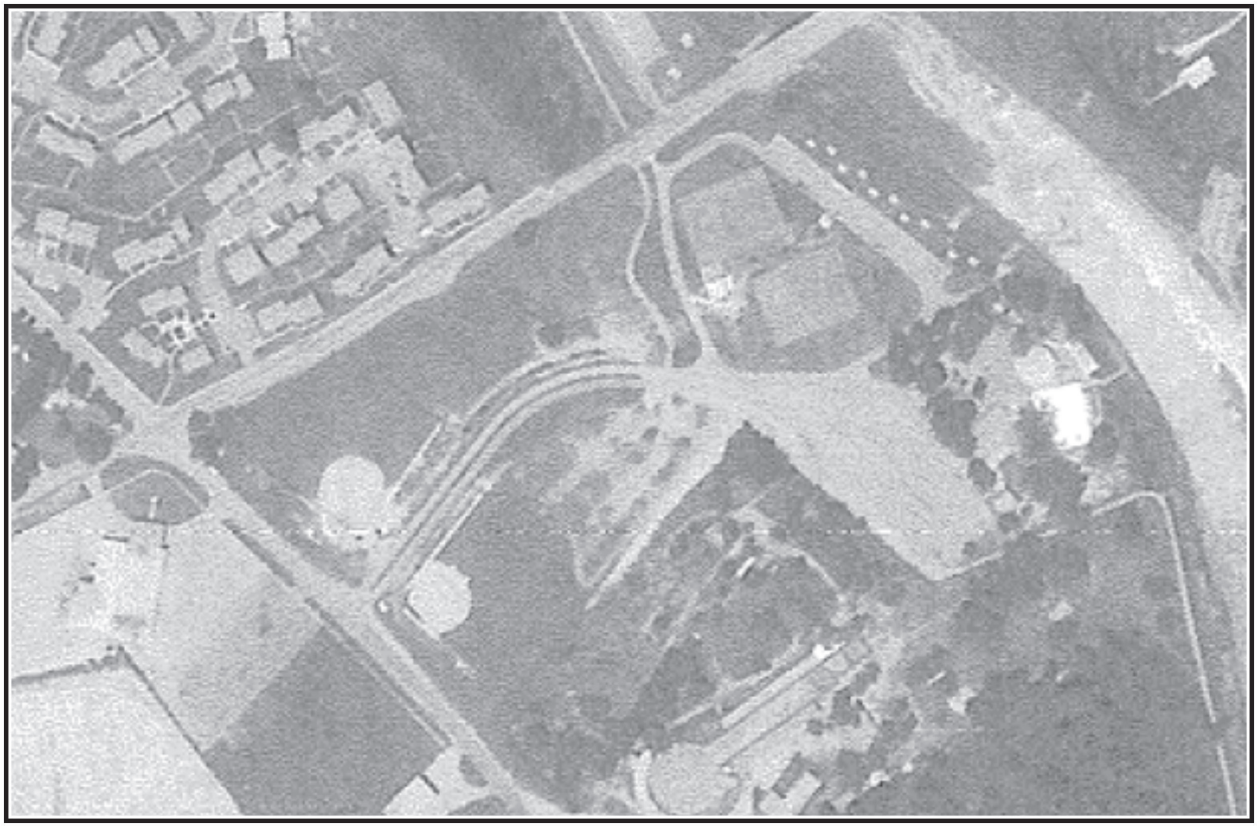


Figure 2-1. *April 1977 aerial photo showing APE. Note disturbances in the center of the image.*

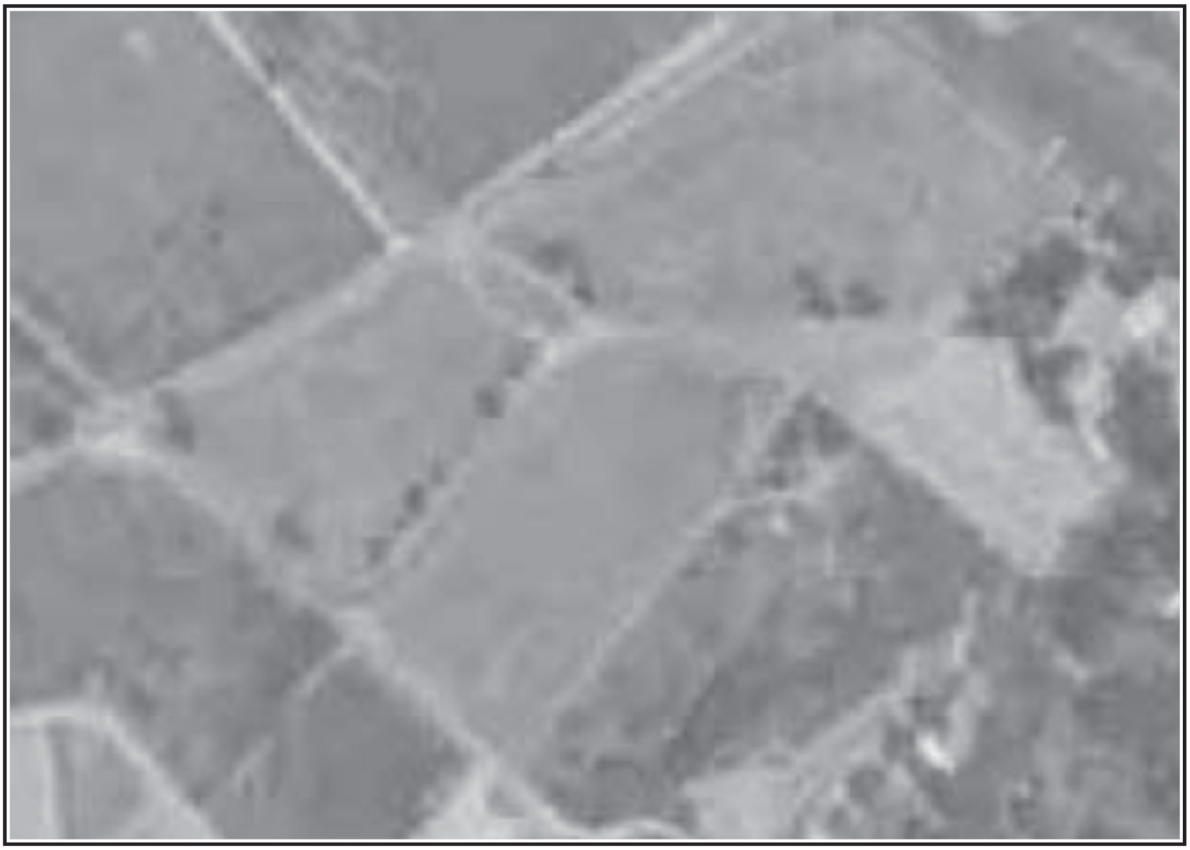


Figure 2-2. *August 1966 aerial photo showing APE.*

Figure 2-3. *October 1938 aerial photo showing APE. Tree line in upper center of photo marks San Antonio River channel.*

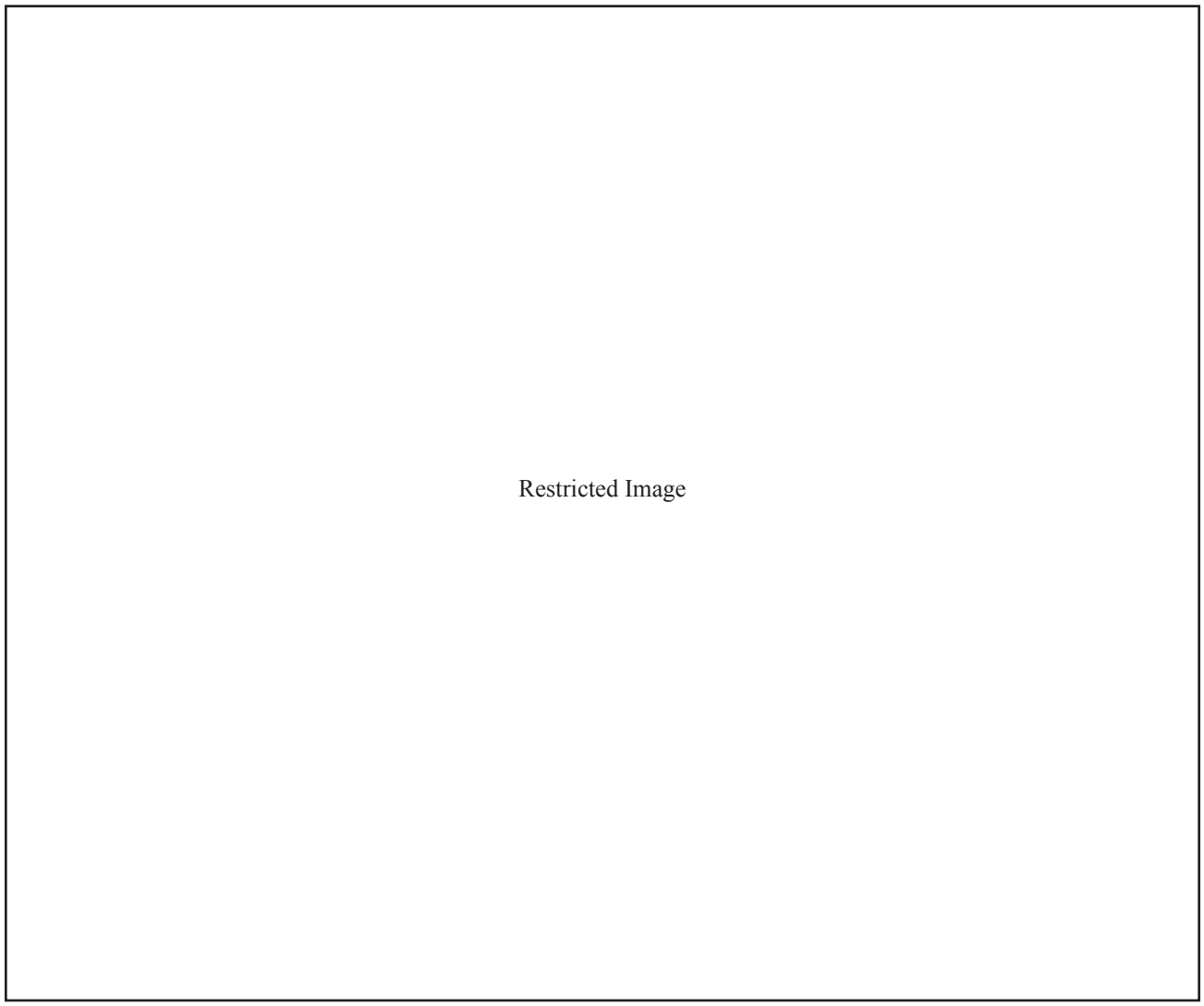


Figure 2-4. *Location of geotechnical borings excavated by Raba Kistner Consultants, Inc. within the APE. Borings containing 1.8 m (6 ft.) or more of fill shown in red; those containing less fill are shown in yellow.*

fill is present in eight of the borings that are situated in the vicinity of the old meander. This is the material that was likely introduced to fill in the old meander channel. Asphalt and base underlain by dark clay were present in the remaining borings.

Potential for Archaeological Resources within the APE

Mission San José y San Miguel de Aguayo is located roughly 0.6 km (0.4 mi.) southwest of the APE, and the San José *Acequia* flows just west of the park along Padre Drive and enters the park near its southwest corner. The San José *Acequia* was completed in 1730 and functioned until just after the Civil War. 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, which falls within the project area (Figure 2-5), would have been about 7.62 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.

In addition to the Spanish mission, it is 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 frequently sealed under flood deposits allowing archaeologists the opportunity to examine sequences of relatively undisturbed cultural deposits often accumulated over thousands of years.

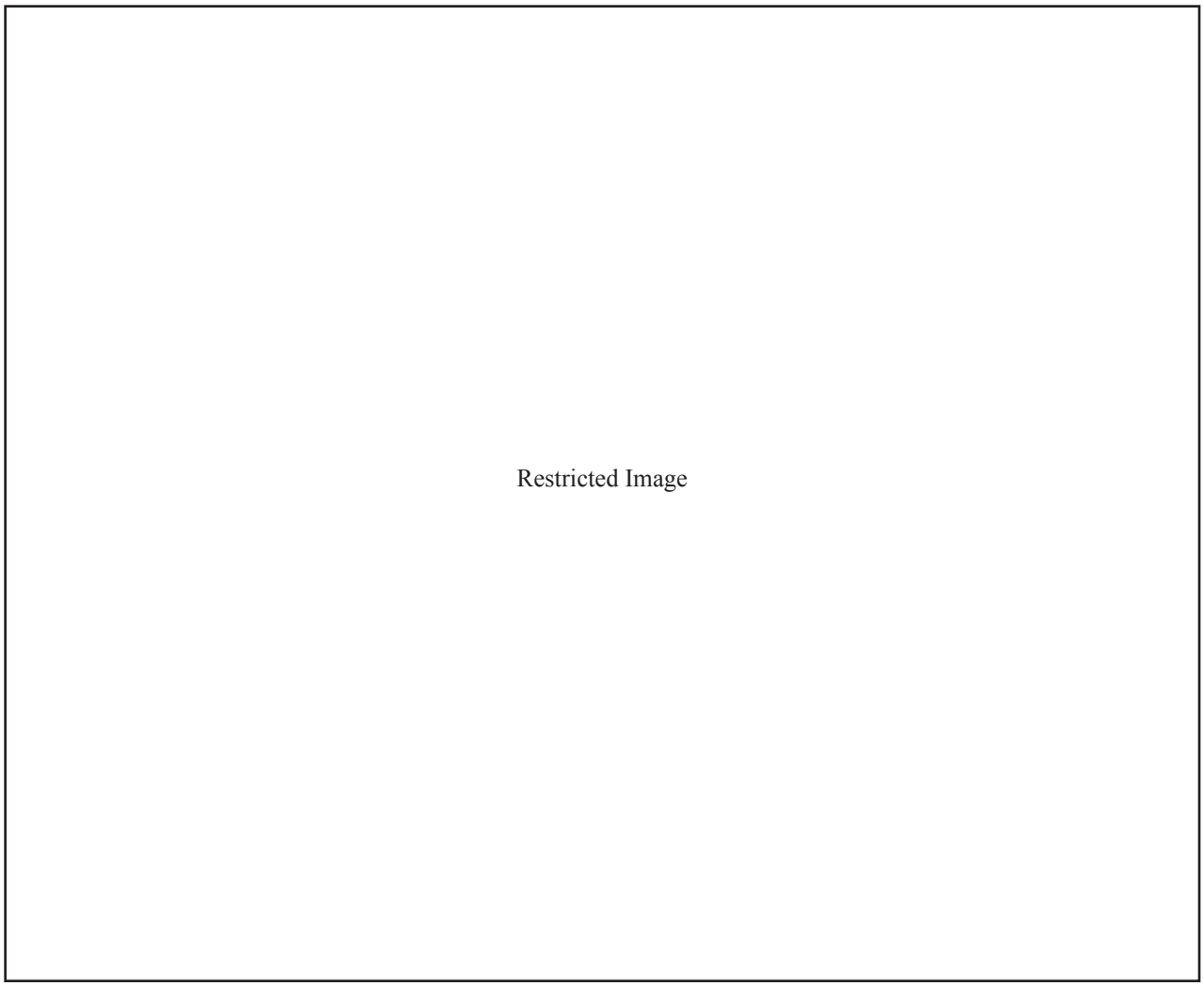


Figure 2-5. *Aerial view of Mission County Park showing the potential known or suspected historical resources present within its boundaries.*

Chapter 3: Field and Laboratory Methods

Field Methods

During November and December 2011, CAR conducted an intensive pedestrian survey of a portion of Mission County Park in San Antonio, Texas (Figures 1-1 and 1-2). Specifically, the area surveyed consisted of the western half of the park that included areas that did not contain asphalted or concrete-covered roads and parking lots and park facilities (i.e., restrooms, playground, maintenance building, and parking lot). In addition, the infield areas of the two baseball fields that are located in the western half of the park, north and south of the park entrance road, were not investigated since they were still being utilized at the time of the survey. The portion of the APE that extended east to the restroom facilities and the tennis and basketball courts was not investigated. These investigations will occur at a later date following the demolition of the existing facilities.

Prior to the inception of subsurface investigations, the CAR crew conducted a walk-over of the project area to search for 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.). Several recently disturbed areas were noted, and one surface concentration of artifacts was identified and collected (see Chapter 4). Based on the results of the geotechnical investigations conducted by RKCI and the pedestrian walk-over, it was determined and verified that the soils in the project area consisted primarily of dark gray clay loam.

Because of the difficulty of excavating shovel tests through the clay loam and to ensure intensive coverage of the park area in the most efficient manner, the CAR staff used a Bobcat-mounted mechanical auger to explore the subsurface deposits to a depth of 1.2 m (4 ft.). Using the mechanical auger with a 12-inch bit, the staff excavated a total of 65 auger bores to a depth of 1.2 m (4 ft.) below the surface (Figure 3-1). The entire content was excavated as a single unit, and therefore, vertical control of cultural materials derived from the bores is limited to a 1.2 m (4 ft.) thick zone. The principal goal of the auger units was to provide information on artifact presence/absence and potential age (e.g., modern, historic, prehistoric).

An auger bore form was completed for every excavated unit. Data collected from each unit included the final excavation depth, a tally of all materials recovered from the unit, and a brief soil description (texture, consistence, Munsell color, inclusions). The matrix removed from each auger bore was screened through ¼-inch hardware cloth. All encountered artifacts were recovered with provenience assigned to the respective auger bore number. The location of every auger bore was recorded with a Trimble Geo XT GPS unit (Figure 3-1).

Based on the aforementioned geotechnical borings, it became apparent that recent fill deposits appeared to increase from the western edge of the APE to the east as one approached the old meander of the San Antonio River. Because the fill in some areas appeared to approach 1.2 m (4 ft.) in thickness, CAR also excavated ten backhoe trenches (BHTs) extending to a depth below the fill. The backhoe trenches were distributed throughout the park in search of deeply buried archaeological deposits as well as the San José *Acequia* that was known to have crossed the southeastern corner of the park. Five of these trenches (BHTs 1-5) adjoined each other and were situated near the southwest corner of the park in the expected location of the *acequia*. These four trenches formed a roughly 45 m (147.6 ft.) long exposure. The other five trenches were excavated in the eastern portion of the park, one near the current maintenance shed (BHT 6), two near the former meander of the San Antonio River (BHTs 7 and 8), and the final two in the vicinity of the northern baseball field (BHTs 9 and 10).

In the case of each trench, the walls of the trench were closely examined for cultural materials and features, and a portion of one wall was profiled and photo documented. Any artifacts visible in the wall were drawn onto the profile.

Following the discovery of cultural deposits in the form of burnt daub and in consultation with Bexar County representatives and members of the THC, an area measuring roughly 10-x-10-m (32.8-x-32.8-ft.) in size was stripped to a depth of approximately 65 cm below the surface (cmbs; 27.6 in.) adjacent to BHTs 1 and 2. The mechanical stripping stopped just above a zone of cultural materials consisting of pockets of burnt daub and fire-cracked rock. An additional 5 cm (2 in.) of deposit was shovel skimmed to reach the top of the daub and fire-cracked rocks, and thereafter, three 1-x-1-m (3.28-x-3.28-ft.) test units (TUs 1, 2, and 3) were excavated through one of the rock and daub concentrations. These hand-excavations began at a depth of 70 cmbs (27.6 in.) and continued for four levels. All matrix excavated was screened through ¼-inch hardware cloth, and all cultural materials recovered from each level were bagged with the appropriate provenience information. Artifacts recovered from the features were bagged by feature provenience.

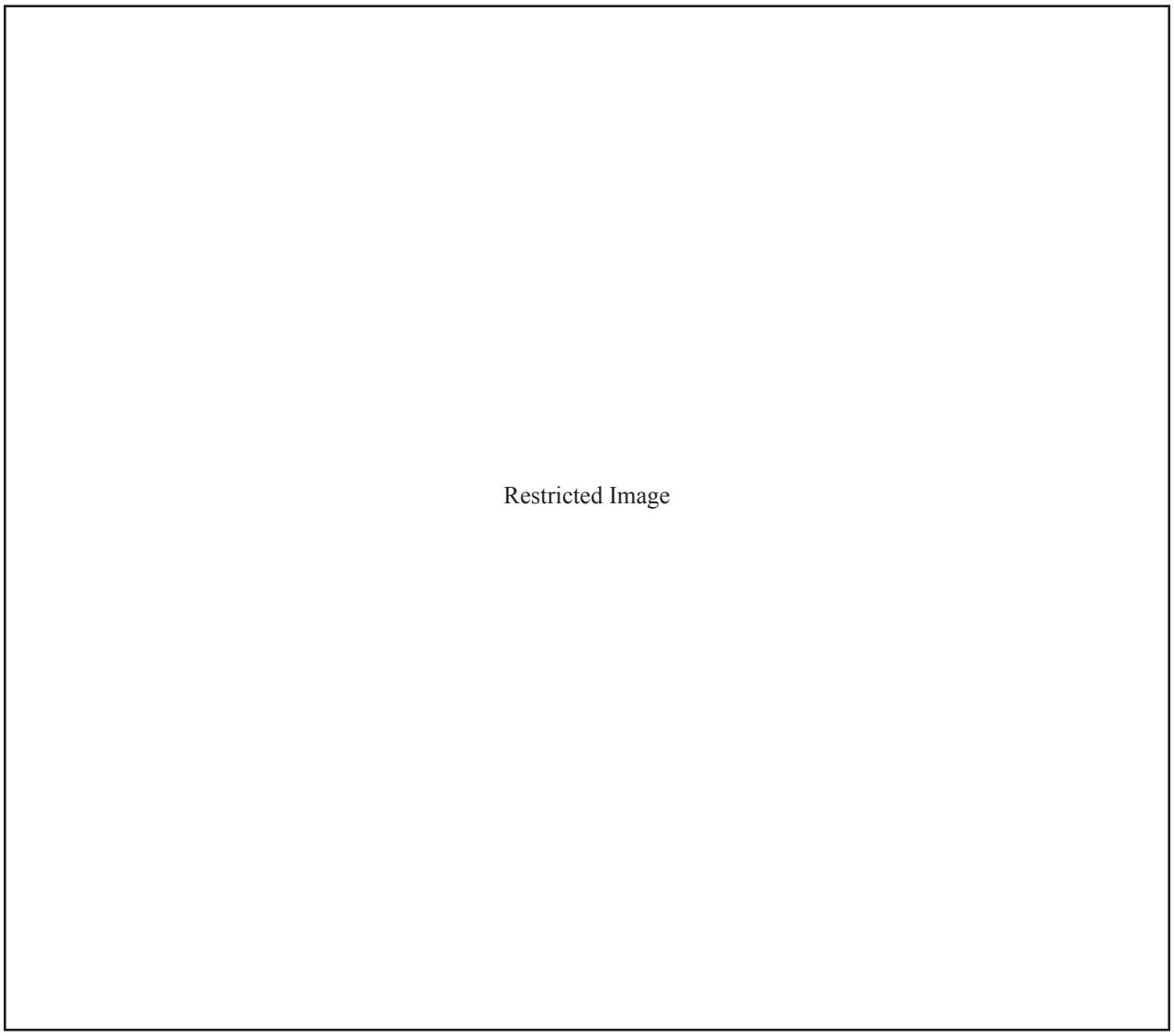


Figure 3-1. *Location of mechanical auger bores (circles), backhoe trenches, and scraped block and hand-excavations at Mission County Park. Two possible locations of the San Antonio River channel are shown. One (light blue) is based on Raba Kistner Consultants, Inc. geotech data, and the other (dark blue) is based on CAR backhoe trenching.*

For the purposes of this survey, an archaeological site was defined when any of the following criteria were met:

1) five or more surface artifacts within a 15-m (ca. 706.9 m^2) radius;
2) a single cultural feature, such as a hearth, observed on surface or exposed in the auger bore or test unit;
3) a positive auger bore containing at least five total artifacts;
4) two positive auger bores located within 30 m of each other; or
5) structures or historic features greater than 50 years old are present.

Historic features or artifacts less than 50 years old were not considered significant for this project.

The monitoring of ground disturbing activities occurred between January and May of 2012 and consisted of observing the demolition of selected structures and facilities within the park. As part of the monitoring activities, the structures slated for demolition were photo documented. In addition, the demolition of the structures, playgrounds, and sports courts was observed, and the construction of the SARA Portal was monitored during period when associated activities resulted in subsurface impacts.

Laboratory Methods

All cultural material collected during the survey was prepared in accordance with federal regulation 36 CFR part 79 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, will be burned onto a CD and permanently curated with the field notes and other documents at CAR.

Chapter 4: Results of Archaeological Investigations

This chapter summarizes the results of the distinct activities conducted during the intensive pedestrian survey of the APE. First the results of the pedestrian walk-over are summarized, followed by the findings of the mechanical auger borings and backhoe trenching. The final section of the chapter reviews the findings of the hand-excavations and summarizes the characteristics of the newly defined sites and their suggested eligibility status.

Results of the Pedestrian Walk-Over

The pedestrian walk-over that was completed prior to the excavation of the auger bores identified a cluster of artifacts in the southeastern corner of the area surveyed in the general vicinity of the existing maintenance shed. The artifacts were exposed on surface in an area devoid of grass and, therefore, were somewhat eroded and deflated. The distribution of artifacts covered an area measuring roughly 10 m (32.8 ft.) in diameter. The materials recovered during the walk-over consisted primarily of a variety of metal artifacts, although a small number of ceramic and glass fragments also were noted (Table 4-1). The ceramics were for the most part fragments of wares that extend into the modern era although manufacturing dates extend back into the historic period (prior to 1950). As a result, the most recent of the archaeological components mentioned in the remainder of this report is referred to as historic/modern in age. The oldest of the ceramic fragments was a Flow Blue pattern with a beginning manufacture date of around 1820. One of the fragments of barbed wire that was recovered appears to be a piece of Ellwood Junior Two Point, which is a Glidden type wire with a half-round barb, that was manufactured in 1882 (Thurgood 1972:10). The large number of cut nails also confirms the likelihood that the occupation date associated with these artifacts may have been as early as the late nineteenth century. However, the presence of large numbers of round or wire nails and more recent metal artifacts and ceramics suggests that the occupation that is responsible for these materials extended into the early to mid-twentieth century.

Table 4-1. Artifacts Recovered from Surface during Pedestrian Walk-Over

Artifact Type	Count
Ceramics	porcelain (n=7; [1 flow blue; 5 undecorated white earthenware; 1 Hotel ware); lead-glazed (n=1); yellow-ware (n=1)
Glass	brown (n=1); purple (n=1); aqua (n=1)
Construction Material	tile (n=1)
Metal	Barbed wire (n=3 [2 two strand; 1 one strand]); cut nails (n=10); wire nails (n=5); cast iron (n=2); metal fastener (n=2); hook (n=1); fencing staple (n=1); tin cup frags (n=9); unidentified aluminum (n=1); unidentified metal (n=1)

Other artifacts noted during the walk-over of the remainder of the park consisted of modern items, including brown glass fragments, soda can tabs, nails, and personal items. These materials were distributed at random across the outfields of the two baseball fields and in areas noted to have been used for parking vehicles during games held at the fields.

Results of Auger Borings and Backhoe Trenching

Auger Bores

Of the 65 auger bores (ABs), fourteen (8, 21, 23, 28, 29, 31, 41, 43, 47, 48, 51, 61, 65, and 68; Table 4-2) contained only modern and/or historic materials, and additional six (9, 45, 46, 49, 63, and 64) contained both prehistoric and modern materials. All but one of these six (AB 9) were located in the portion of the project area north of the entrance road to the park. Four ABs (1, 13, 22, and 66) contained only prehistoric artifacts, and three of these units (ABs 1, 13, and 22) were located south of the entrance road. In addition, buried cultural materials were recovered from four of the five interconnected backhoe trenches excavated in search of the San José *Acequia* and from BHT 6 in the southeast corner of the park.

Four classes of cultural material were recovered in the auger bores. They consisted of metal, ceramics, glass, and lithic artifacts. The metal artifacts were fragments of wire, fasteners, such as screws and bolts, and unidentified metal fragments. The ceramics covered the range exemplified by the surface finds and suggest a late nineteenth or early twentieth century affiliation with a mix of modern specimens. One of the oldest ceramic fragments is an 1870s transferware with a partial makers mark "…Y PENSE…." Glass fragments consisted primarily of bottle glass; however, a small number of window glass fragments also were found. The lithic artifacts were mainly of unmodified lithic debitage, although

Table 4-2. Artifacts Recovered from Subsurface at Mission County Park, Listed by Auger Bore and Backhoe Trench

Auger Bore No.	Debitage	Core	Other	Metal	Ceramic	Glass
1	1					
8						1 brown; 1 green bottle glass
9	1			1 fastener		
13			1 burnt daub			
21						1 brown
22	1					
23						2 brown
28						1 brown; 2 green
29						1 clear
31						1 clear window glass
41						1 brown
43					1 stoneware	
45	1 (poss. mechanical)	1	3 FCR		1 semi-porcelain	1 clear bottle
46	2 (poss. mechanical)			1 washer; 1 unknown metal; 1 screw; 1 wire		1 clear window
47			1 tile frag		1 yellow-ware	
48						1 green; 1 milk glass
49	1 (over-shot flake)					1 brown; 1 green
51				2 wire frags		
61					3 annular ware	
63	1		1 brick frag			
64	1 (poss. mechanical)			1 wire frag		
65				1 handle		
66	1					
68					1 stoneware	
BHT 1	1	1	1 biface; frags of daub; 1 FCR		1 modern lead glazed	
BHT 2	2 (one poss. mechanical)		frags of daub			
BHT 4	2					
BHT 5	2		6 FCR		1 transferware (“…Y PENSE…”)	2 brown
BHT 6	2					
BHT 7	1		1 utilized flake			
BHT 9			4 FCR			
BHT 10			5 FCR			

at least four of the flakes may have been freshly created by the mechanical auger bore. A small number of fire-cracked rock fragments (FCR) were recovered as were pieces of burnt daub found in AB 13.

Backhoe Trenches

Eight of the ten backhoe trenches excavated during the intensive survey yielded cultural materials either in the backdirt or in the walls of the trenches. Of these eight trenches positive for cultural materials, four were part of the lengthy contiguous trenches placed near the southwest corner of the park (BHTs 1-5). Four additional backhoe trenches were positive for cultural material. One, BHT 6, was located in the vicinity of the cluster of surface artifacts near the maintenance building at the southeastern corner of the area surveyed. Two pieces of unmodified lithic debitage were recovered from the backdirt of the trench. The second was BHT 7 in the vicinity of the buried San Antonio River channel meander. Two pieces of debitage were noted in the wall of the trench. One of these flakes, recovered from 80 cmbs (31.5 in.), was a large secondary flake with use-wear along one edge. The second flake was a small unmodified tertiary flake. The third and fourth positive backhoe trenches were located in the northwest portion of the APE. A single piece of fire-cracked rock was noted at 35 cmbs (13.78 in.), several pieces of fire-cracked rock were 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 examination of the backdirt excavated from BHTs 1 through 4 resulted in the recovery of a small number of lithic artifacts, several fragments of burnt daub (Figure 4-1), and pieces of fire-cracked rock. Lithic debitage, flakes derived from stone tool manufacture, was found in the backdirt from BHTs 1 and 2, and several artifacts were noted in the walls of these trenches during profiling (Table 4-1).

At least two clusters of daub were noted in the north wall of BHT 1. The daub noted in the backhoe trench wall was distributed within a 20-25 cm (7.9-9.8 in.) thick zone from approximately 40-65 cm (15.7-25.6 in.) below the surface. The deepest daub fragments noted in the profile were sitting just above a soil transition from an upper dark gray clay loam to a lighter brown more silty zone (Figure 4-2). Underlying

Figure 4-1. *Cluster of burnt daub in north wall of BHT 1.*

Figure 4-2. *General stratigraphy of deposits noted in BHT 1. Note position of daub near the top of the transition zone.*

this light brown zone is a light yellowish tan deposit that appears to be the underlying parent materials CAR staff has identified as caliche (see Figure 4-2).

In addition, in its south wall profile BHT 1 revealed the cross section of the San José *Acequia*, Feature 1 (Figure 4-3). A complete description of the *acequia* feature is provided in the section describing the general characteristics of the field site within which the feature is incorporated.

Based on the distribution of positive auger bores and backhoe trenches, four clusters of cultural materials have been defined. These clusters are, in turn, considered individual archaeological field sites as is outlined below. The four field sites are shown in Figure 4-4. Three of the four field sites are defined based on a mix of historic/modern and prehistoric materials recovered from auger bores. The fourth (41BX1920) consists of prehistoric cultural materials and a Spanish Colonial feature, the San José *Acequia*.

41BX1917

41BX1917 is located in the northwest portion of the project area and encompasses ten positive auger bores and two backhoe trenches (BHTs 9 and 10) with fire-cracked rock (Figure 4-4). 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/modern 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 (see Table 4-3). 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

Figure 4-3. *The San José* Acequia*, Feature 1, exposed in the south wall of BHT 1.*

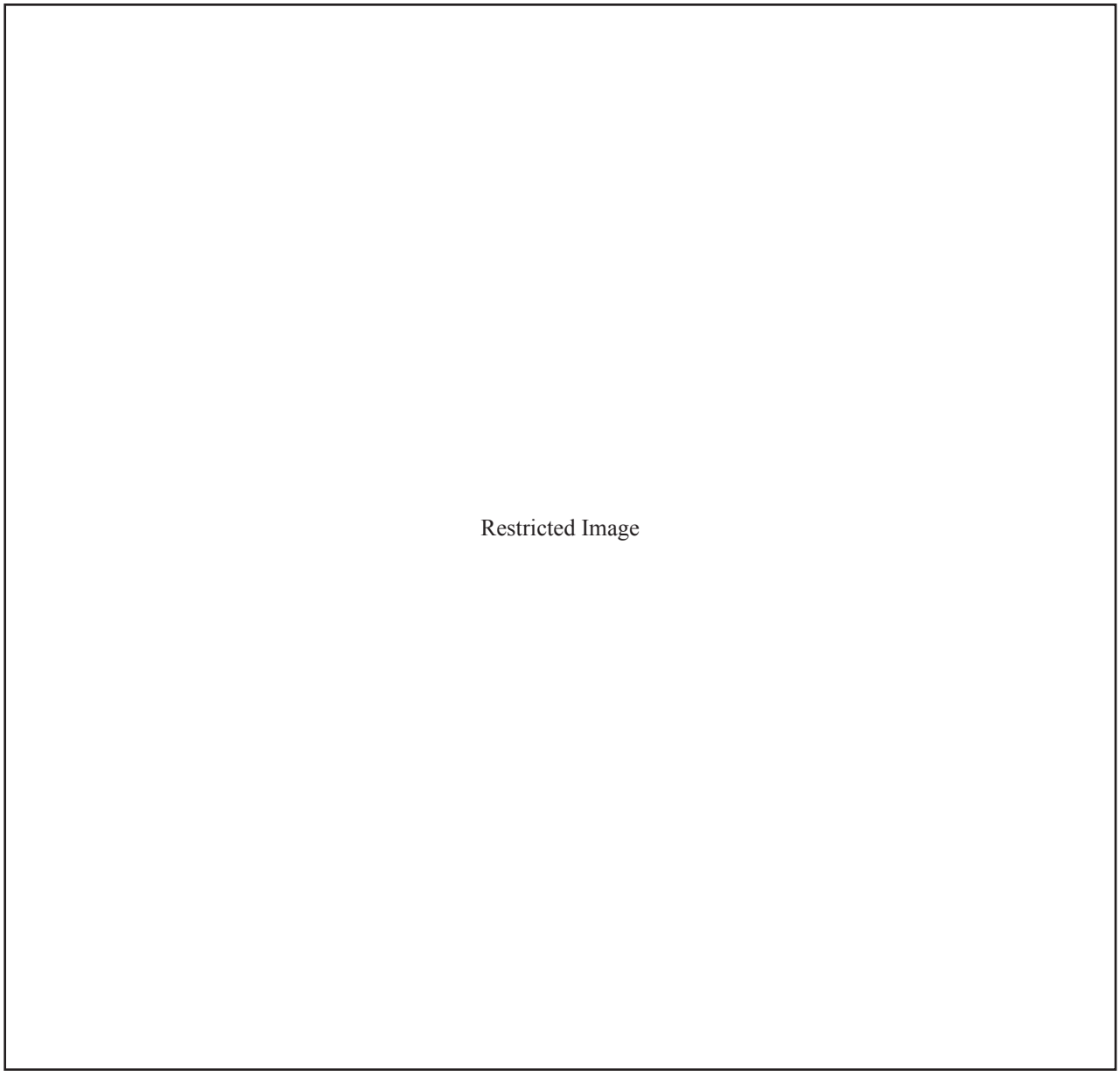


Figure 4-4. *Boundaries of 41BX1917, 41BX1918, 41BX1919, and 41BX1920 at Mission County Park.*

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.), several pieces of fire-cracked rock were 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. None of the rocks were collected.

The encounter of modern materials mixed with lithics in AB 63 in combination with the recovery of historic/modern materials in seven of the positive auger bores is indicative of the degree of disturbance of the cultural deposits that constitute this field site.

41BX1918

41BX1918 (Figure 4-4) consists of five positive ABs (45, 46, 47, 48, and 49) and a positive backhoe trench (BHT 7) located in the northeastern portion of the project area near the old meander of the San Antonio River. The site measures approximately 55-x-30-m (180-x-98-ft.) and encompasses roughly 1,650 sq. m (17,640 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. BHT 7 contained a piece of

Table 4-3. 41BX1917, Artifacts Recovered Listed by Auger Bore

Auger Bore No.	Debitage	Core	Other	Metal	Ceramic	Glass
31						1 clear window glass
41						1 brown
43					1 stoneware	
51				2 wire frags		
61					3 annular ware	
63	1		1 brick frag			
64	1 (mechanical)			1 wire frag		
65				1 handle		
66	1					
68					1 stoneware	
BHT 9			4 FCR			
BHT 10			5 FCR			

unmodified lithic debitage at approximately 70 cmbs (27.6 in.) and a utilized flake at 80 cmbs (31.5 in.). Three of the units (ABs 45, 46, and 49) contain a mix of prehistoric and historic/modern artifacts (Table 4-4), although the flakes found in ABs 45 and 46 are mechanically derived rather than prehistoric artifacts.

Although the exact location of the filled-in original channel of the San Antonio River is unknown, all five of these positive auger bores are located in the vicinity of the old meander (Figure 4-4). The profiles of BHTs 7 and 8 located in this area clearly show extensive secondary fill. This suggests that the cultural materials found in these auger bores are the product of either mechanical activities associated with infilling of the channel or have been redeposited within the thick zone of fill seen in the backhoe trench profiles and Raba Kistner geotech borings.

41BX1919

41BX1919 is located in the southeastern corner of the area investigated during this intensive pedestrian survey. It encompasses seven positive auger bores (ABs 8, 9, 21, 22, 23, 28, and 29) and one positive backhoe trench (BHT 6; Table 4-5). The site measures approximately 70-x-50-m (230-x-164-ft.) and encompasses roughly 3,500 sq. m (37,720 sq. ft.). As in the case of the previous two sites, it also is a multi-component site consisting of an undated prehistoric component and a historic/modern component likely dating to the late nineteenth or early twentieth century. A single piece of unmodified lithic debitage was recovered from two ABs (9 and 22) in addition to modern materials found in the matrix derived from AB 9. BHT 6, located in the vicinity of these positive auger bores, also yielded prehistoric materials in the form of two flakes.

The co-occcurrence of modern and prehistoric materials and the number of historic metal artifacts, such as square nails, found on the surface (see Table 4-1) in this area suggests that the materials that constitute this site are disturbed.

41BX1920

41BX1920 is located in the southwest corner of the project area and encompasses two positive auger bores and BHTs 1-5 (Figure 4-4). The site measures approximately 50-x-25-m (164-x-82-ft.) and encompasses roughly 1,250 sq. m (13,448 sq. ft.). It is a multi-component site consisting of Late Archaic prehistoric component and a Spanish Colonial Period historic component. The following section summarizes the work that has been conducted to date at the site. 41BX1920 was initially identified based on two positive auger bores (ABs 1 and 13) and the presence of cultural materials in the profiles of BHTs 1, 2, and 4 (Table 4-6).

Following the discovery of burnt daub in the trench profile and backdirt, CAR staff extracted a sample of charcoal in physical contact with the burnt daub (see Figure 4-1). Shortly thereafter, this sample was submitted to Beta Analytic Inc. to obtain a radiocarbon assay. In the meantime, CAR discussed with representatives of the Sponsor (Bexar County Infrastructure Services) and the THC the need to collect

Table 4-4. 41BX1918, Artifacts Recovered Listed by Auger Bore

Auger Bore No.	Debitage	Core	Other	Metal	Ceramic	Glass
45	1 (mech.)	1	3 FCR		1 semi-porcelain	1 clear bottle
46	2 (mech.)			1 washer; 1 unknown metal; 1 screw; 1 wire		1 clear window
47			1 tile frag		1 yellow-ware	
48						1 green; 1 milk glass
49	1 (over-shot flake)					1 brown; 1 green
BHT 7	1		1 utilized flake			

Table 4-5. 41BX1919, Artifacts Recovered Listed by Auger Bore

Auger Bore No.	Debitage	Core	Other	Metal	Ceramic	Glass
8						1 brown; 1 green bottle glass
9	1			1 fastener		
21						1 brown
22	1					
23						2 brown
28						1 brown; 2 green
29						1 clear
BHT 6	2					

Table 4-6. 41BX1920, Artifacts Recovered Listed by Auger Bore

Auger Bore No.	Debitage	Core	Other	Ceramic
1	1			
13			1 burnt daub	
BHT 1	1	1	1 biface; frags of daub; 1 FCR	1 modern lead glazed*
BHT 2	2 (one mechanical)		frags of daub	
BHT 4	2			

*Provenience of this artifact is uncertain; it was noted in a mixed pile of back dirt derived from several trenches.

more information on the age, amount, and distribution of daub. A brief amendment to the original Scope of Work (SOW) was provided to and approved by the THC allowing for the scraping of a roughly 10-x-10-m (32.8-x32.8-ft.) area down to 45 cmbs (17.72 in.) to inspect the zone containing the daub and to excavate three 1-x-1-m (3.28-x-3.28-ft.) units within the zone containing the daub. The amendment called for the excavation of two additional backhoe trenches (BHTs 9 and 10) near the northern baseball field. Upon approval of this amendment, CAR staff returned to the site, completed the excavation of BHTs 9 and 10, and mechanically scraped off approximately 55 cm (21.65 in.) of upper deposit in a 6-x-12-m (20-x-40-ft.) area adjacent to BHTs 1 and 2 (Figures 4-5 and 4-6). An additional 5-10 cm (2-4 in.) of material was shovel skimmed following the mechanical scraping to arrive to the surface with a multitude of burnt daub pieces and fire-cracked rock. At this point, three 1-x-1-m (3.28-x-3.28-ft.) test units (TUs) were laid out within this scraped area. Two adjoining units (TUs 2 and 3) were centered on one of the daub concentrations (Figures 4-6 and 4-7), and the third unit (TU 1) was situated on top of a concentration of fire-cracked rock (Figures 4-6 and 4-8) identified at a slightly higher elevation during scraping (55 cmbs; 21.65 in.).

Four 10-cm (4-in.) levels were excavated in both TU 1 and 3, and three 10-cm (4-in.) levels were dug in TU 2. The artifacts recovered are listed in Table 4-7.

TUs 2 and 3 were begun at roughly 70 cmbs (27.5 in.) at surface exposed by the mechanical stripping and was excavated to a depth of 100 and 110 cmbs (39.4 and 43.3 in.), respectively. TU 1 was excavated from a slightly higher surface (55 cmbs; 21.65 in.) and was excavated to a depth of 95 cmbs (37.4 in.).

It is evident from the vertical distribution of materials within the three test units that the top three levels contained the bulk of the cultural materials and that both lithic debitage as well as burnt rock densities drop significantly in Level 4 with the exception of TU 3, where debitage and fire-cracked rock counts remain high as do daub amounts. The pattern in fire-cracked rock and daub suggests that the fire event responsible for the daub may have occurred either on the surface where excavation of the units began or just below it.

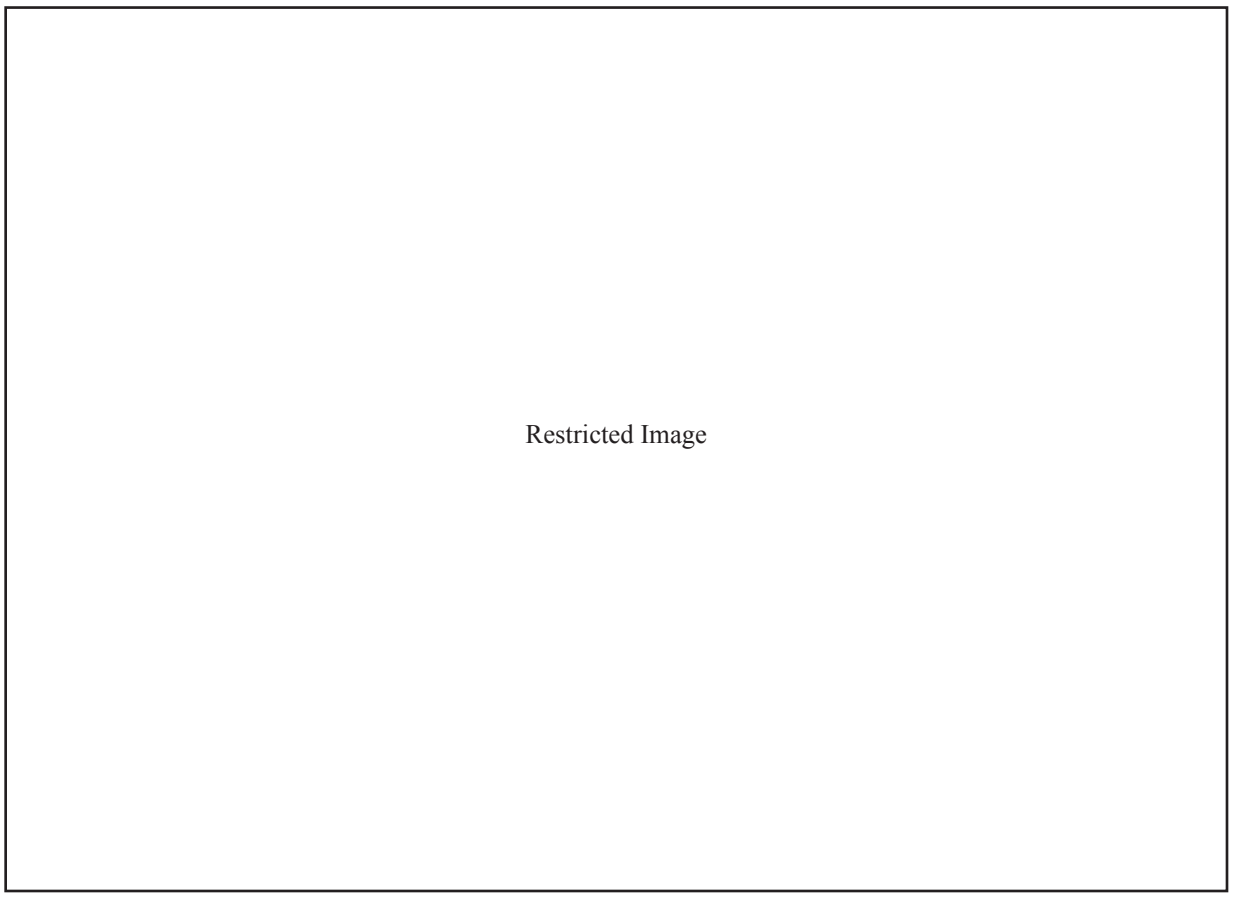


Figure 4-5. *Scraped area and hand-excavated test units adjacent to BHT 1. TU 1 at upper edge of photo and TUs 2 and 3 in foreground.*

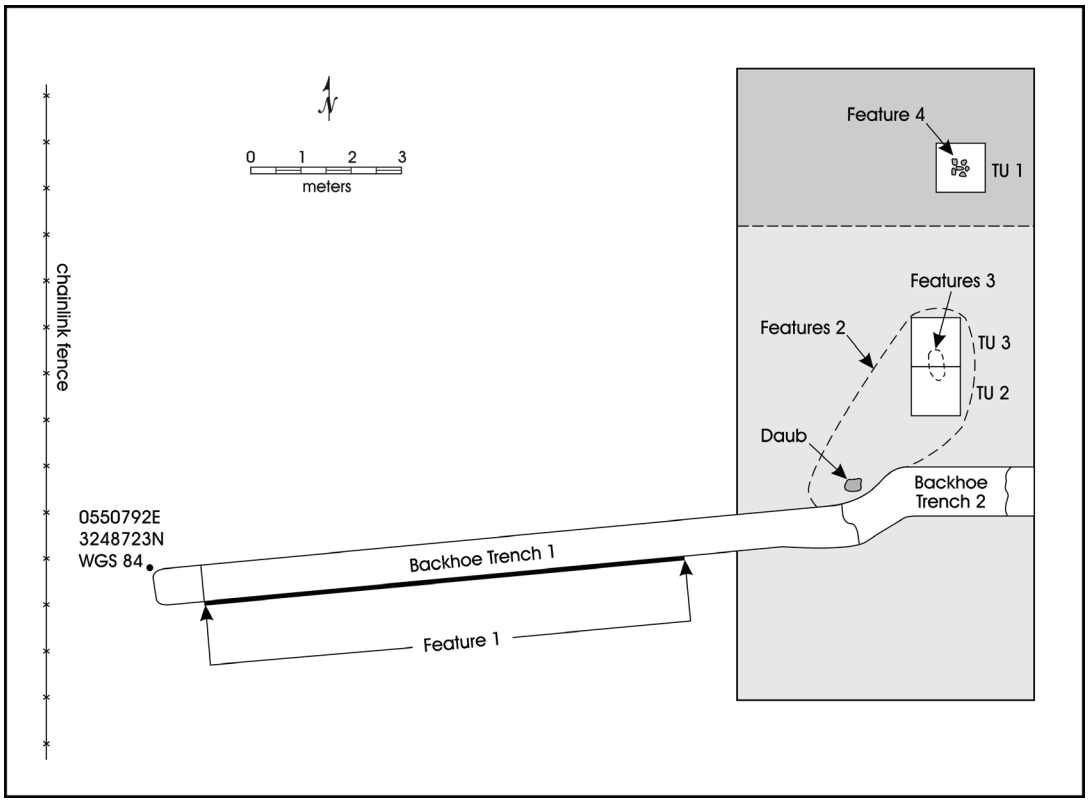


Figure 4-6. *Plan view of backhoe trenches, scraped area, and test units at 41BX1920.*

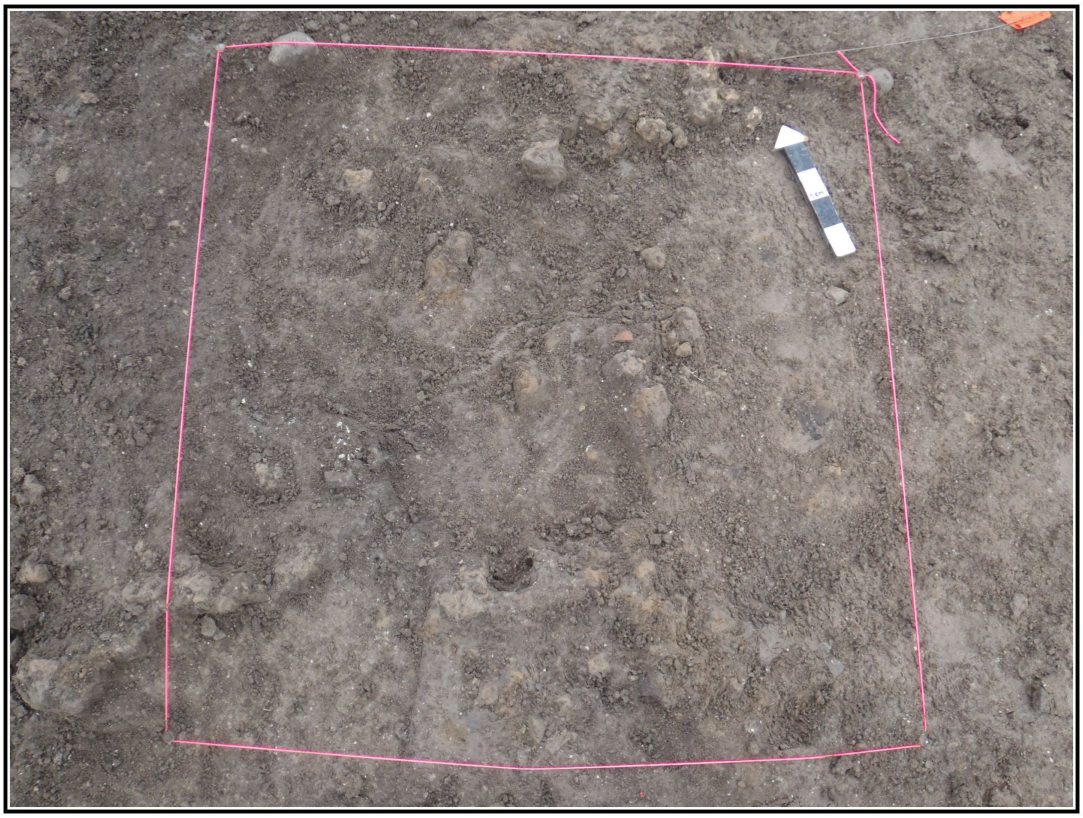


Figure 4-7. *Test Unit 2 centered on daub concentration, Feature 2. TU 3 was situated immediately to the north.*

Figure 4-8. *Test Unit 1 centered on fire-cracked rock concentration, Feature 4, prior to excavation.*

Table 4-7. Artifacts Recovered by Unit and Level from Test Units, 41BX1920

Test Unit	Debitage	Core	Other Lithics	Daub(No/Weight)	Fire Cracked Rock	Mussel Shell
Test Unit 1						
Lev 1	15		1 biface	2/4.1 g	22	
Lev 2	10				31	
Lev 3	15				29	8.5 g
Lev 4	2				8	
Total	42		1	2/4.1 g	80	8.5 g
Test Unit 2						
Lev 1	3			147/3,944.6 g	18	
Lev 2	6		1 biface	50/642.0 g	35	0.3 g
Lev 3						
Total	9			197/4,586.6	53	0.3 g
Test Unit 3						
Lev 1	0			22/1,202 g	19	
Lev 2	3			30/176.6 g	20	
Lev 3	5			1/0.8 g	39	
Lev 4	9			6/5.9 g	26	0.3 g
Total	17			59/1,385.3 g	104	0.3

In addition to the artifacts listed in Table 4-7, four features also were defined at the site. Their characteristics are summarized below.

Feature 1 is the San José *Acequia* found in the south wall profile of BHT 1 adjacent to the chain link property fence that runs parallel to Padre Drive at the southeast corner of the project area (Figures 4-3 and 4-9). The *acequia* measures 7.5 m (24.6 ft.) in width and has a slightly undulating bottom that was buried about 95-112 cm (37.4-44.1 in.) below the current surface. The base of the *acequia* was dug into the light gray caliche substrate, and the fill consisted of dark gray clay with lenses of caliche and sand. The upper edge of the trench extended to the surface (Figure 4-9) and did not have the expected berm that is the product of repeated cleaning of the ditch and the piling of the silt on the edge of the ditch. The lack of this berm suggests that the surface from which the *acequia* was dug may have been bladed during modern times, thereby removing the original ground surface and truncating the berm on the lip of the *acequia*.

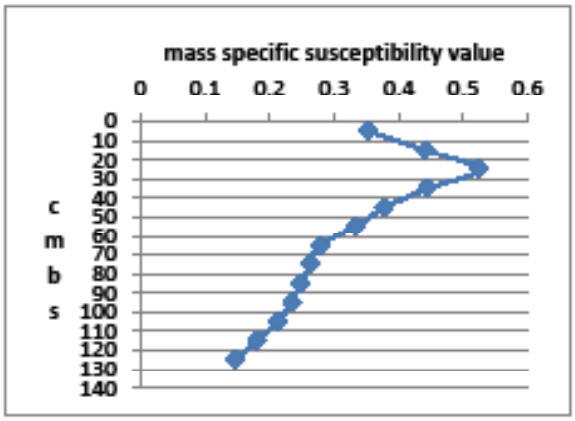
To investigate the possibility that buried occupation surfaces were present on site, CAR staff retrieved three soil column samples drawn from surface to the base of the *acequia* in 10-cm (3.9-in.) increments. Two of the columns came from the two banks of the *acequia* and as a contrast to these undisturbed locations, a soil column from the approximate middle of the irrigation ditch was also extracted. The soil samples from the three columns were examined for magnetic susceptibility to detect potential buried surfaces. Sediments with higher organic content tend to have higher magnetic susceptibility (MS) values, probably as a result of the production of maghemite, an iron oxide, during organic decay (Reynolds and King 1995).

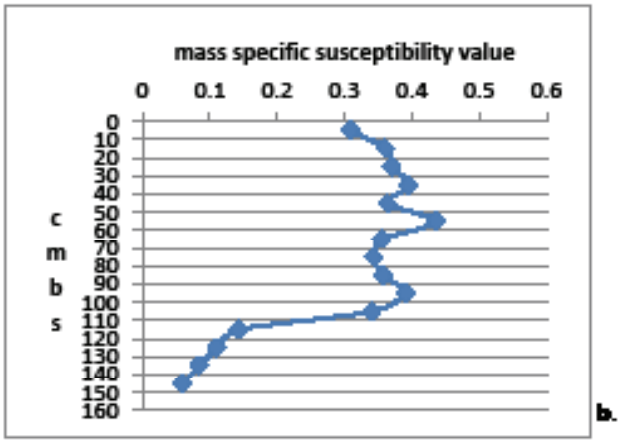
A number of processes can increase the magnetic susceptibility values in a sediment sample. Of these processes, those that are of principal concern here are related to an increase in the organic constituents of sediments in a given sample (McClean and Kean 1993; Singer and Fine 1989). Cultural processes, such as the concentration of ash, charcoal, and refuse, can produce higher MS readings. A measure of the magnetic susceptibility of a sediment sample, then, may provide information on both the presence of surfaces, as well as a measure of the concentration of cultural activity upon those surfaces. Pedogenic processes, such as soil formation and weathering, also can result in the concentration of organic material, as well as alterations in the mineralogy of a given sediment zone.

All analysis was conducted at the CAR using a Bartington MS2B Dual Frequency Sensor in conjunction with a Bartington Magnetic Susceptibility Meter. A complete description of the instrumentation can be found in Dearing (1999). The analysis, which essentially measures the magnetic potential of a given sample, requires only small quantities of soil (ca.15 grams) and yields quantified results that are highly replicable (Dearing 1999). The values presented here use the SI (standard international) scale. The values, referred to as the mass specific susceptibility values (X), were calculated by dividing the volume specific susceptibility values, recorded on a scale of 10-5, by the sample bulk density (sample mass/ sample volume).

The analysis results show that the susceptibility patterns are similar in the case of the two banks, and these two are in turn drastically different from the pattern noted in the column derived from the center of the *acequia* (Figure 4-10). The susceptibility pattern in the two bank column samples is typical of natural depositional sequences lacking buried surfaces. In contrast, the pattern in the central column suggests several buried surfaces distributed between 30-100 cm below surface. The profile of the *acequia* (Figure 4-9)

Figure 4-9. *Close-up of the edge of the acequia trench showing the contrast between mottled matrix on the inside of the trench and dark gray matrix on the outside (left of photo).*





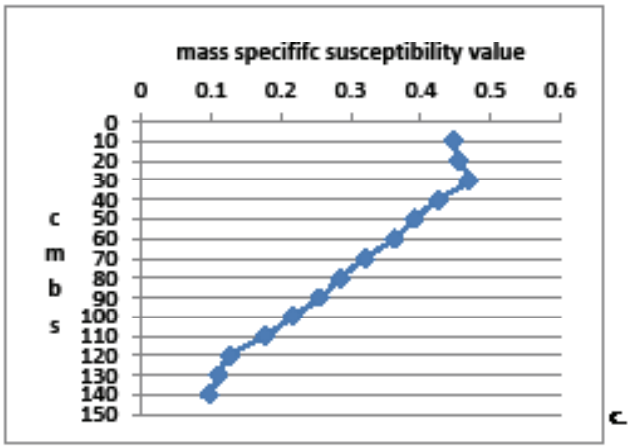


Figure 4-10. *Mass specific susceptibility values of the three soil columns extracted from 41BX1920: a) east bank of* acequia*; b) center of* acequia *channel; and c) west bank of* acequia.

clearly reveals several lenses of material within the trench, and these may derive from the intermittent filling of the trench through natural sedimentation derived from seasonal use or long-term use followed by intermittent abandonment.

Feature 2 consists of a large scatter of burnt daub (Figure 4-6) that was first noted in the north wall of BHT 1 and 2 near the San José *Acequia*. Fragments of daub were sometimes associated with clusters of charred plant materials, and specks of charcoal were common on the same surface. The daub appeared to be distributed at an elevation of roughly 65-70 cm (25.6-27.6 in.) below the surface at the contact between two soil zones. The upper zone consisted of dark gray silty clay while the underlying zone was lighter colored sandy loam (see lower right corner of Figure 4-1 and Figure 4-2).

The aforementioned piece of charcoal (Beta-312348) associated with the fragment of daub exposed in the trench wall (Figure 4-1) returned a 2 sigma date range of cal BP 3450-3360 (1500-1410 BC). The result suggests that the fire event that is likely responsible for the preservation of the daub in the concentration that is Feature 2 dates to the early portion of the Late Archaic Period.

Some of the pieces of daub recovered from Feature 2 showed obvious impressions of poles and sticks as in the example shown in Figure 4-11. This piece of daub contains an impression of a vertical pole measuring approximately 7.6 cm (3 in.) in diameter flanked by two stick-impressions running perpendicular to the pole and to each other. These impressions clearly represent a corner piece from a *jacal*-type construction. Numerous other fragments of daub collected during the investigations retain impressions of individual sticks and poles. Few of the ones recovered to date, however, retain multiple impressions on the same piece of daub.

Feature 3 consists of a basin-shaped pit situated roughly in the center of TU 2 and extending into TU 3 just to its north

Figure 4-11. *Fragment of burnt daub showing vertical pole (semi-circle at front) and perpendicular stick impressions indicative of a corner segment.*

(Figures 4-6, 4-12, and 4-13). Upon excavation, the pit appeared as an oval, basin-shaped depression that contained charcoal, a large quantity of snails, and fragments of burnt rock and baked daub. The feature extended into the two units, and it was fully excavated. It appeared that burnt daub lined at least a portion of the rim of the feature and several pieces of daub also were inside the pit at least one of these containing clear evidence of wooden post impressions. The materials recovered from the feature matrix consist of the following: 4 pieces of unmodified debitage, 16 pieces of fire-cracked rock, 53 pieces of burnt daub weighing 860 g, and 3.1 g of mussel shell fragments. A charcoal sample extracted from this feature and subsequently submitted to Beta Analytic Inc. (Beta-312810) returned a 2 sigma date range of cal BP 4230-3990 (2280-2040 BC).

Feature 4 consists of a fire-cracked rock concentration situated roughly in the north-central portion of the stripped area in TU 1. Feature 4 (Figures 4-6 and 4-8) was a small concentration of fire-cracked rock measuring roughly 70-x-60 cm (27.6-x-23.6 in.) in diameter. The rock fragments were small and exhibited several angular fractures. Small specks of charcoal also were present in the feature matrix.

Figure 4-12. *Basin-shaped feature in profile (Feature 3).*

Figure 4-13. *One half of the basin-shaped feature after excavation (Feature 3), TU 2. TU 3 was placed immediately north adjoining TU 2.*

Chapter 5: Construction Monitoring

Improvements to Mission County Park were to begin with the demolition of the majority of the facilities and structures found within the park. These facilities included most of the structures found in the administrative complex (see below) near the San Antonio River, the tennis and basketball courts located to the north of the administrative complex, the playground, the nearby restroom facilities associated with the sports courts, and the bleachers and backstop fencing associated with the two baseball/softball courts at the western edge of Park adjacent to South Padre Drive. In addition, the asphalted parking lot and the metal maintenance shed used by park personnel were to be removed. Only two structures were to remain in place for future use, the circular pavilion structure and the principal administrative building, with the purple roof shown in Figure 5-1.

The administrative complex contained five structures (Figure 5-1). They consisted of the principal administrative building (1), a covered square pavilion with a raised platform at one end (2), a covered rectangular pavilion with temporary benches for seating (3), a rectangular brick building at the eastern edge of the complex (4), the circular pavilion with a vending area delineated by a low concrete wall (5), and the restroom facilities (6).

Mission County Park is found within the Mission Parkway National Register District. The district's significance period extends from 1700-1874. None of the above-listed structures and facilities that are part of Mission County Park falls within the period of significance of the Mission Parkway National Register District. Therefore, none of them are contributing elements to the Mission Parkway National Register District. In fact, all but one of the structures/facilities has been constructed in the late 1960s and early 1970s. The lone structure that predates the 1960s is a pavilion that was constructed in 1951 (see Figures 5-2 and 5-3). The City of San Antonio Historic Design and Review Commission has approved the demolition of all of the structures and facilities within the park, including the 1951 pavilion. However, the County has chosen to proceed with the restoration of this structure.

Because none of the structures and facilities within the park are contributing elements of the Mission Parkway National Register District, no formal standing structure survey was conducted during the project. However, prior to the inception of the demolition, CAR personnel photo-documented the standing structures that made-up the administrative complex. These photographs were augmented by others taken by personnel of Kell Muñoz Architects. Figures 5-2 through 5-5 provide details of the 1951 pavilion. Figures 5-6 through 5-20 provide details of each of the structures slated for demolition within the administrative complex.

Figure 5-1. *Close-up of the structures and facilities at Mission County Park.*

Figure 5-2. *Historic pavilion structure.*

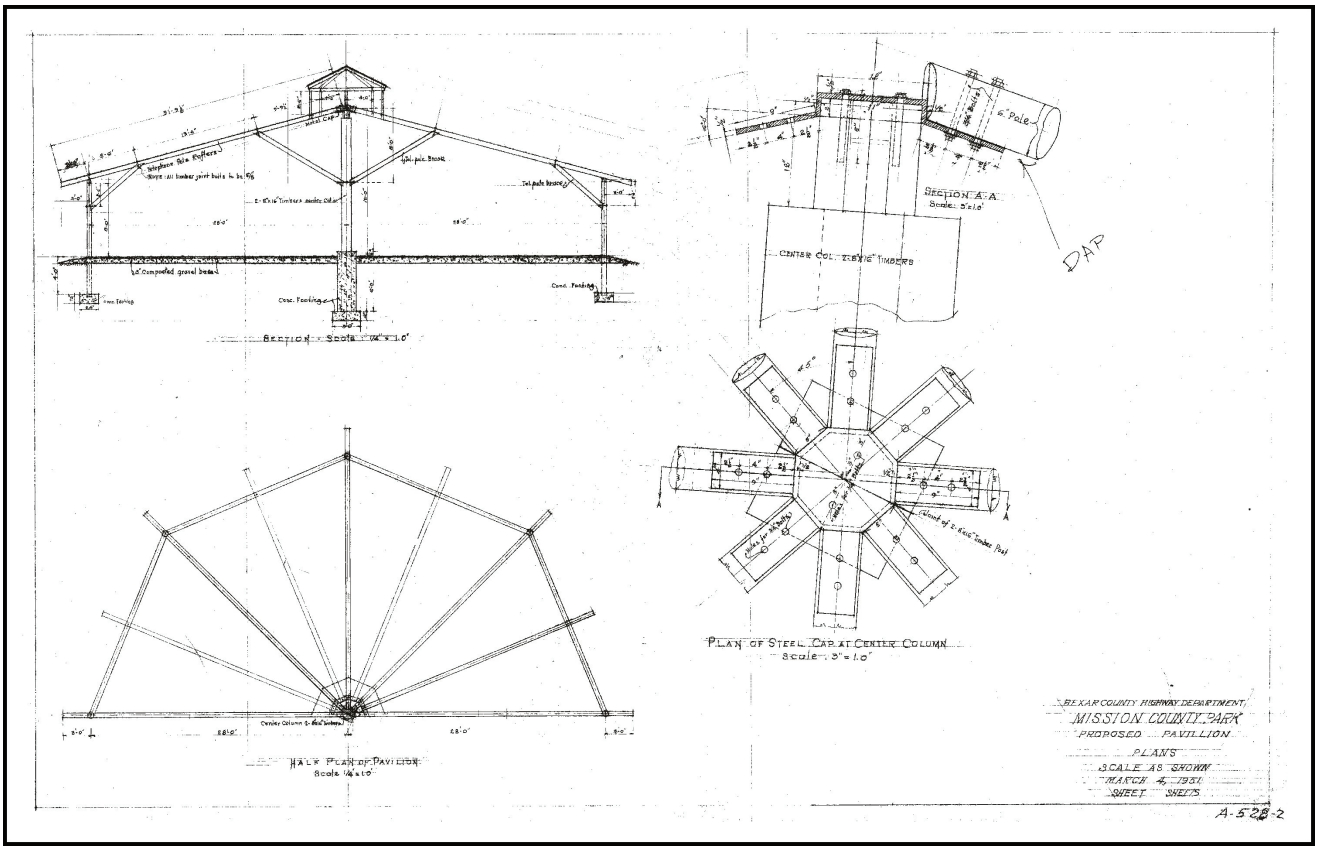


Figure 5-3. *Schematic plan of pavilion structure.*

Figure 5-4. *Detail of central column and associated timber bracing of pavilion.*

Figure 5-5. *Telephone poles supporting joists and roof of pavilion.*

Figure 5-6. *Concrete wall delineating vending area under pavilion.*

Figure 5-7. *Principal administrative structure (1) that will not be demolished, looking north.*

Figure 5-8. *Northern end of principal administrative structure (1), looking south.*

Figure 5-9. *Pavilion structure 2 with temporary picnic tables.*

Figure 5-10. *Roof detail of pavilion structure 2.*

Figure 5-11. *Stage-like feature at one end of structure 2, a covered pavilion.*

Figure 5-12. *Stage-like feature along one side of structure 2. Note decorative window details in concrete block wall.*

Figure 5-13. *Small concrete block building attached to structure 2. Note decorative window details.*

Figure 5-14. *Pavilion structure 3 with temporary picnic tables.*

Figure 5-15. *Roof detail of pavilion structure 3.*

Figure 5-16. *Rectangular brick building at eastern edge of complex.*

Figure 5-17. *Doors and decorative detail in brick wall of rectangular brick building.*

Figure 5-18. *Detail of cap on roof of rectangular building at eastern edge of administrative complex.*

Figure 5-19. *Window detail of rectangular building at eastern edge of administrative complex.*

Figure 5-20. *Restroom facilities within the administrative complex.*

In addition to the photo documentation of the structures that made up the principal administrative complex, CAR personnel monitored the demolition of these structures as well as the demolition of the sports courts, playground and associated restroom facilities, and the two baseball/softball courts. Figure 5-21 shows the demolition of the sports courts, and Figure 5-22 shows the administrative complex after the demolition of structures 2, 3, 4, and 6. Finally, Figure 5-23 shows the location of the southernmost baseball field with the bleachers and backstop removed.

No intact historic and/or prehistoric cultural deposits were noted during the demolition of the structures and facilities within the park. Furthermore, the demolition of the baseball field that was near site 41BX1920 impacted only the upper 15.24 cm (6 in.) of deposits and did not disturb the buried archaeological component identified during testing.

Figure 5-21. *Tennis and basketball courts being demolished.*

Figure 5-22. *Administrative complex after the demolition of the targeted structures. Note structures 1 and 5 in the mid-ground.*

Figure 5-23. *Former location of the southernmost baseball field adjacent to Padre Drive.*

Chapter 6: Summary and Recommendations

The staff of the Center for Archaeological Research at The University of Texas at San Antonio has recently completed an intensive pedestrian survey of Mission County Park. Mission County Park is part of the Mission Parkway National Register District, and the district's significance period extends from 1700-1874. The survey documented four newly discovered multi-component sites, 41BX1917-41BX1920. Following the discovery of site 41BX1920, CAR staff conducted limited National Register of Historic Places eligibility testing of a portion of the deposits exposed during shovel testing to ascertain the significance of the findings. The crews also carried out photo documentation of the standing structures found within the administrative complex associated with Mission County Park. However, because the structures do not fall within the period of significance of the National Register District and only one of them is 50 years old, no formal standing structure survey was carried out. As a last task, the CAR staff also monitored the demolition of structures and facilities within the park. Prior to the inception of the fieldwork, it was thought that the area had a high probability of containing buried cultural remains and possibly the second site of Mission San José before it was moved to its final setting.

Summary

As part of the survey, 65 mechanical auger bores were excavated to 1.2 m (4 ft.) below the surface and ten backhoe trenches were excavated in various locations in search of deeply buried cultural remains as well as the San José *Acequia.* Each of the auger bores was excavated as a single provenience unit (0-1.2 m below the surface; 4 ft.), and all matrix was screened through ¼-inch hardware cloth for cultural materials. The backhoe trenches were excavated to a depth of 100-120 cmbs (39.4-47.3 in.), and although no matrix was screened, the back dirt and the walls of the trenches were inspected for cultural materials. In addition, three 1-x-1-m (3.28-x-3.28-ft.) test units (TUs) were excavated in a 10-x-10-m (32.8-x-32.8-ft.) area stripped to a depth of 55-60 cmbs (21.65-23.6 in.) to investigate clusters of burnt daub and fire-cracked rocks.

These investigations resulted in the definition of four clusters of positive auger bores, backhoe trenches, and in one case, surface artifact scatters. While the four clusters of positive units are found within the same park, the distances between positive auger bores exceeds 30 m (98 ft.), and therefore, CAR recommends that these localities be identified as separate individual sites rather than being lumped into one large site encompassing nearly the entire investigated portion of the park. These four clusters are hereby defined as 41BX1917, 41BX1918, 41BX1919, and 41BX1920.

41BX1917, a multi-component site, is located in the northwest portion of the project area and encompasses ten positive ABs and two backhoe trenches (BHTs 9 and 10) containing pieces of fire-cracked rock. Of the ten auger bores, seven 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. The flake recovered from AB 64 was mechanically created by the auger boring equipment. Only one auger bore (AB 66) contained prehistoric artifacts alone (i.e., a single flake). A single piece of fire-cracked rock was noted at 35 cmbs (13.78 in.), several pieces of fire-cracked rock were at 80cmbs (31.5 in.) in BHT 9, and a cluster of burnt rock was present at 45 cmbs (17.72 in.) in BHT 10. The site covers an area measuring roughly 120-x-70-m (394-x-230-ft.) and encompasses roughly 8,400 sq. m (90,620 sq. ft.). The majority of the artifacts consist of a mix of modern and historic artifacts. The presence of buried modern materials mixed with lithics is indicative of extensive disturbance of the cultural deposits.

41BX1918, also a multi-component site, contains five positive ABs and a positive backhoe trench (BHT 7) located near the old meander of the San Antonio River. The site measures approximately 55-x-30-m (180-x-98-ft.) and encompasses approximately 1,650 sq. m (17,640 sq. ft.). It is a multi-component site consisting of an undated prehistoric component and a historic/modern component likely dating to the late nineteenth or early twentieth century. Three of the units (ABs 45, 46, and 49) contain a mix of prehistoric and historic/modern artifacts, although the flakes found in ABs 45 and 46 are mechanically derived rather than prehistoric artifacts. BHT 7 contained a piece of unmodified lithic debitage at approximately 70 cmbs (27.6 in.) and a utilized flake at 80 cmbs (31.5 in.). It appears that the cultural materials found in these auger bores and in the backhoe trench wall are the product of either mechanical activities associated with infilling of the channel or channel infilling.

41BX1919 is located in the southeastern corner of the area investigated during this intensive pedestrian survey. It contains seven positive auger bores (ABs 8, 9, 21, 22, 23, 28, and 29) and one positive backhoe trench (BHT 6). The site measures approximately 70-x-50-m (230-x-164-ft.) and encompasses a surface scatter of historic materials consisting primarily of late nineteenth and early twentieth century metal artifacts. 41BX1919 also is a multi-component site consisting of an undated prehistoric component and a historic/modern component likely dating to the late nineteenth or early twentieth century. A single piece of unmodified lithic debitage was recovered from two ABs (9 and 22) in addition to modern materials found in the matrix derived from AB 9. BHT 6, located in the vicinity of these positive auger bores, also yielded two pieces of lithic debitage. The co-occurrence of modern and prehistoric materials, including historic and modern metal artifacts, such as square nails, wire nails, and fasteners, found on the surface of this area, suggests that the deposits of this site are disturbed.

41BX1920 is a multi-component prehistoric and Spanish Colonial Period site. The San José *Acequia* represents the Spanish Colonial component, while the early Late Archaic daub, pit feature, and fire-cracked rock hearth are part of the prehistoric component. One charcoal sample associated with one of the daub fragments returned a 2 sigma date range of cal BP 3450-3360 (1500-1410 BC), placing the occurrence of the burning event to the early portion of the Late Archaic Period. The second charcoal sample (Beta-312810) associated with Feature 3, a pit feature, returned a 2 sigma date range of cal BP 4230-3990 (2280-2040 BC).

The photo documentation efforts concentrated on the six structures that formed the principal administrative complex at Mission County Park. Five of the six structures that form this complex were built in the late 1960s and early 1970s. The lone structure that predates the 1960s is a pavilion (structure 5) that was constructed in 1951. The City of San Antonio Historic Design and Review Commission has approved the demolition of all of the structures and facilities within the park, including the 1951 pavilion. However, the County has chosen to proceed with the restoration of this structure. In addition, the principal administrative structure (structure 1) also will be reused rather than demolished. The demolition of the structures, sports courts, associated restroom facilities, and baseball courts did not impact buried historic or prehistoric cultural deposits. The impacts resulting from the demolition of the baseball field and associated bleachers and backstop fence found in vicinity of 41BX1920 had shallow impacts that did not reach to the highly significant buried deposits of the site.

Recommendations

In order to be eligible for listing on National Register of Historic Places (NRHP) a property must meet at least one of four possible criteria. The property must:

A) be associated with events that have made a significant contribution to the broad patterns of our history;
B) be associated with the lives of persons significant in our past;
C) embody the distinctive characteristics of a type, period or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinctions; or
D) have yielded, or may be likely to yield, information important in prehistory or history.

Based on the degree of mixture of modern and prehistoric deposits (41BX1917 and 41BX1919) and the likely re-deposited nature of the materials (41BX1918), CAR suggests that 41BX1917, 41BX1918, and 41BX1919 have very minimal research potential and, therefore, do not meet the aforementioned eligibility criteria to warrant nomination to the NRHP and formal listing as State Archaeological Landmarks (SAL). In contrast, 41BX1920 appears to be one of the more significant archaeological sites in Central and South Texas, and CAR suggests that it warrants listing on the NRHP and formal designation as an SAL. The significance of 41BX1920 is briefly outlined below.

Although 41BX1920 does not appear to contain remnants of the second site of Mission San José, the discovery of archaeological evidence suggestive of the presence of a *jacal*-type architectural feature on site dating to the early portion of the Late Archaic period is a highly significant result. To date, with the exception of 41BX1920, there are only three professionally excavated archaeological sites in Central and South Texas that have evidence of structures. The sites are the Lion Creek Site (41BT105; Johnson 1997), the Turkey Bend Ranch Site (41CC112; Treece et al. 1993), and 41BX256 (Padilla and Nickels 2010) along the San Antonio River in Bexar County. At the Lion Creek site, based on reconstruction derived from field notes, Johnson (1997:30-48) proposes that three structures or houses may be present. One of the houses (House 1) dates to the Middle Archaic (Johnson 1997:30), House 2 has a variety of associated temporal diagnostics making dating impossible (Johnson 1997:38-41), and House 3 appears to date to the Late Prehistoric Period (Johnson 1997:41-42). Feature 14, the house at the Turkey Bend Ranch Site, dates between 8429 and 8179 BP, well into the Early Archaic (Treece et al.

1993:218). The burnt daub remains uncovered at 41BX256 date to between 5040-4840 cal BP (Padilla and Nickels 2010:327) falling well within the Middle Archaic Period. Therefore, the burnt daub specimens recovered from 41BX1920 represent the first early Late Archaic *jacal*-type structure hitherto identified in Central and South Texas.

Another interesting aspect of the small number of structures defined in archaeological contexts is the fact that the structures defined in Central Texas appear to have been constructed of poles stuck into the ground and bent over to form a superstructure while their bases were supported by rocks piled against them at ground level. In contrast, the two structures defined along the San Antonio River represent a *jacal*-type construction that is quite different from the Central Texas forms and most similar to historic period and Spanish Colonial styles. The existence of the *jacal*-type as early as the Middle Archaic and its persistence into historic times suggests an extreme degree of cultural continuity within the region and an architectural approach to house construction that may be dramatically different from patterns seen in Central Texas. In contrast, the distinct building styles may also reflect seasonal differences in construction approaches with fall/winter structures being more protective and spring/summer structures being less air-tight.

Regardless of the possible explanations for these regional differences, the discovery of the architectural remains suggestive of a *jacal* structure that is more than 3,000 years old at 41BX1920 is a highly significant find and it has great research potential for a number of reasons, including better understanding of hunter-gatherer mobility and sedentism, seasonality, and the organization of space and activity areas in and surrounding structures. Therefore, CAR suggests that if future impacts are foreseen or planned in the vicinity of this site, additional archaeological investigations should be carried out at the site to systematically address these and other related research issues.

Miss Betty Bueche, Facilities Division Manager of Bexar County Infrastructure Services, the sponsor of the project, has been notified of the significance of the finds associated with 41BX1920 and of the need to preserve these deposits until they can be adequately studied. Miss Bueche recognizes the significance of the new findings and has, in turn, discussed redesigning the proposed plans. As a result of these discussions, the CPS utility and electrical lines originally designed to cut through the area have been moved off of the southern half of the park to limit impacts to these buried deposits.

Given the presence of these buried cultural deposits and features, the project design team of Kell Muñoz Architects, Inc. has altered the proposed impacts to the southern half of the project area. The deep impacts originally derived from the CPS underground utility have been moved against VFW Boulevard, and the only impact to occur within the boundaries of 41BX1920 is a sidewalk associated with the proposed hike and bike trail. The sidewalk is to run along the El Charito property fence line along the southern boundary of the site. The anticipated subsurface impact will penetrate to a depth of 30-46 cm (12-18 in.) below the modern surface and pass over the San José *Acequia*. Since the surface of the park has been graded, and because grading has truncated the upper lip of the *acequia* as shown in BHT 1, CAR anticipates that that the construction of the sidewalk will impact the *acequia* channel. However, since CAR has documented its location and characteristics in BHT 1, CAR does not see the necessity of documenting it again just a few feet from BHT 1. In addition, since the irrigation ditch has already been documented, CAR does not see significant loss in scientific information from the shallow disturbance derived from the sidewalk construction. Therefore, CAR suggests that the construction of the hike and bike sidewalk may occur along the southern edge of 41BX1920 even though it will likely shallowly impact the underlying San José *Acequia*.

In contrast, however, the remainder of 41BX1920 appears to retain significant deposits that have the potential to contribute valuable information to understanding hunter-gatherer mobility and sedentism during the early portion of the Late Archaic Period. Therefore, CAR suggests that the site warrants listing on the National Register of Historic Places and formal designation as a State Archeological Landmark.

References Cited:

Bement, L.C.
1994 *Hunter-Gatherer Mortuary Practices during the Central Texas Archaic*. University of Texas Press, 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.

Bousman, C.B., B.W. Baker, and A.C. Kerr
2004 Paleoindian Archeology in Texas. In The Prehistory of Texas, edited by T.K. Perttula, pp. 15-97. Texas A&M University Press, College Station.

Chapa, J.B.
1997 Historia del Nuevo Reino de Leon. In *Texas and Northeastern Mexico, 1630-1690*, edited by W.C. Foster. Translated by N.F. Brierly. 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.

Dearing, J.
1999 *Environmental Magnetic Susceptibility*. Chi Publishing, Kenilworth, England.

Eckhardt, G.
2011 The Hot Wells Hotel and Spa. The Edwards Aquifer Website. Electronic document, www.edwardsaquifer.net/hotwells.html, accessed April 2011.

Fox, A.A., and I.W. Cox
1991 *Testing of the San José Mission Acequia, San Antonio Missions National Historical Park, Bexar County, Texas*. Archaeological Survey Report, No. 207. Center for Archaeological Research, The University of Texas a San Antonio.

Fox, D.E.
1970 *Archeological Salvage at Mission San José, December 1969 and August 1970*. Archeological Report 3. Texas Historical Survey Committee, 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.

Habig, M.A.
1968 *The Alamo Chain of Missions: A History of San Antonio's Five Old Missions*. Franciscan Herald Press, Chicago.

1990 *Spanish Texas Pilgrimage: The Old Franciscan Missions 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.

Johnson, L.
1997 *The Lion Creek Site (41BT105)*. Archeological Studies Program, Report 1. Office of the State Archeologists, Report 41. Texas Department of Transportation and Texas Historical Commission, Austin.

Jordan, T.G.
1977 German Element in Texas: An Overview. *Rice University Studies* 63:1-11.

Mauldin, R.P., and L. Kemp
2005 An Initial Summary of Bison Presence/Absence associated with Data Recovery at 41ZV202. Report on file, Center for Archaeological Research, The University of Texas at San Antonio.

Mauldin, R.P., B.K. Moses, R.D. Greave, S.A. Tomka, J.P. Dering, and J.D. Weston
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.

McClean, R.G., and W.F. Kean
1993 Contributions of Wood Ash Magnetism to Archeomagnetic Properties of Fire Pits and Hearths. *Earth and Planetary Science Letters* 119:387-394.

McKinney, W.
1981 Early Holocene Adaptations in Central and Southwestern Texas: The Problem of the Paleoindian – Archaic Transition. *Bulletin of the Texas Archeological Society* 52:91-120.

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.

Padilla, A.E., and D.L. Nickels
2010 Chapter 7. Results from Site 41BX256. In *Archaeological Data Recovery on the Three Sites along the San Antonio River, Bexar County, Texas*, pp. 251-350. Ecological Communications Corporation. Austin.

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.

Raba Kistner Consultants, Inc. (RKCI)
2011 *Geotechnical Engineering Study for Mission County Park Redevelopment San Antonio, Texas*. Project Number ASA11-063-00, Raba Kistner Consultants, Inc. San Antonio.

Reynolds, R.L., and J.W. King
1995 Magnetic Records of Climate Change. U.S. National Report to I.U.G.G., 1991-1994. American Geophysical Union. Electronic document, http://www.agu.ong/revgeophys/reyno100/reyno100.html, accessed April 2011.

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

Singer, M.J., and P. Fine
1989 Pedogenic Factors Affecting Magnetic Susceptibility of Northern California Soils. *Soil Science of America Journal* 53:1119-1127.

Scurlock, D., and D.E. Fox
1977 *An Archeological Investigation of Mission Concepción, San Antonio, Texas*. Office of the State Archeologist, Texas Historical Commission, Austin.

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.

Thurgood, R.J.
1972 *The Complete Encyclopedia of Barbed Wire*. Collector Books, Paducah, Kentucky.

Tomka, S.A., and A.A. Fox
1998 *Mission San José Indian Quarters Wall Base Project, Bexar County, Texas*. Archaeological Survey Report, No. 278. Center for Archaeological Research, The University of Texas at San Antonio.

1999 *Archaeological Investigations of Rainwater Catchment Basins along the South Wall of Mission San José, San Antonio, Texas*. Archaeological Survey Report, No. 287. Center for Archaeological Research, The University of Texas at San Antonio.

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

Treece, A.C., J.M. Quigg, K. Miller, and C. Lintz
1993 Turkey Bend Ranch Site (41CC112). In C*ultural Resource Investigations in the O.H. Ivie Reservoir, Concho, Coleman and Runnels Counties, Texas. Volume III: Data Recovery Results from Non-ceramic Sites*, edited by A.C. Treece, C. Lintz, W.N., Trierweiler, J.M. Quigg, and K.A. Miller, pp. 67-242. Technical Report No. 346-III. Mariah Associates, Inc. Austin.

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.

Appendix A:
Geomorphological and Geoarchaeological Investigations

Appendix A

Geomorphological and Geoarchaeological Investigations

Introduction and Objectives

This chapter documents the results of geomorphological and geoarchaeological studies that were conducted concurrently with an intensive archaeological survey at Mission County Park, located in San Antonio, Texas, in Bexar County. 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.

Physical Setting

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).

Along the San Antonio River in the study area, Venus clay loam (VcA), 0-1% 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.

Methods

Eight backhoe trenches (BHTs) were excavated in the APE during the original investigations, ranging in depth from 90-260 cmbs (35-102 in.). Two additional trenches were excavated during a second phase of field work in order to further prospect for additional cultural materials (See Figure 3-1). For the geomorphological investigations, 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 abun-

dance, 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 B and are illustrated in Figure A-1. Each profile was photographed, and trenches were backfilled after field descriptions were completed.

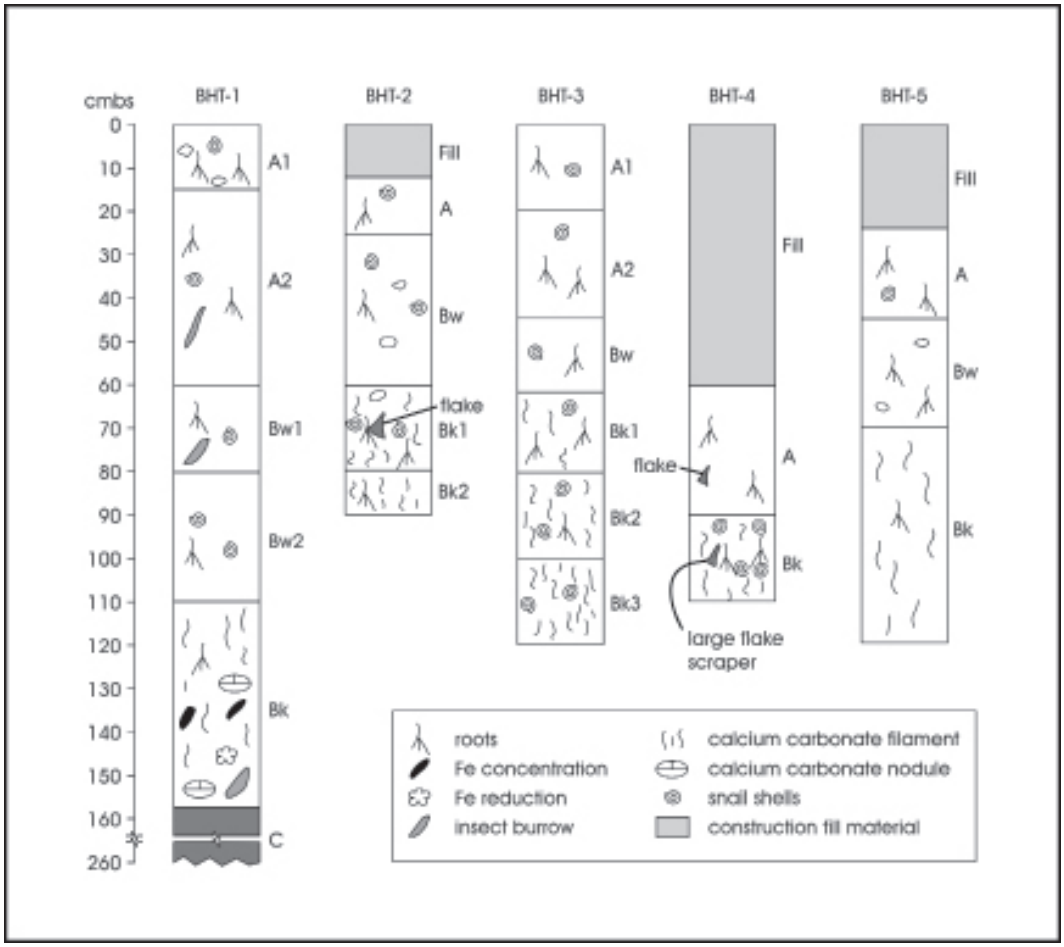


Figure A-1. *Soil profile columns.*

Alluvial Stratigraphy and Pedology

The alluvial landforms within and adjacent to the study area include a terrace (T-1), comprised of Unit 1 and Unit 2 fill, and a floodplain (T-0), comprised of Unit 3 fill.

T-1 Terrace

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. While the T-1 terrace deposits likely rest unconformably on deposits of the Eocene-age Wilcox and Midway Groups, the depth of this lower contact is unknown.

The T-1 terrace fill was subdivided into two alluvial-stratigraphic units, designated as Units 1 and 2. Unit 1 comprises the lower portions of the terrace fill and is presumed to be Pleistocene in age. Unit 1 deposits were not directly observed during the current project. However, investigations in other nearby portions of the San Antonio River as part of the San Antonio River Improvement Project strongly indicate that such deposits consist of laterally accreted channel gravels that fine upward

into vertical accretion facies of sands, silts, and loams (Barnes 1974). Based on the CAR's current level of investigations and backhoe trenches, these older Unit 1 deposits in the study area would be present at depths exceeding 2.6 m (8.5 ft.) below the current ground surface.

Unit 2 comprises the upper part of the T-1 terrace fill, though the exact thickness could not be determined through the current backhoe trenching regime. Prior to modifications to the river channel, Unit 2 would have aggraded during the Holocene, consisting of fine-grained overbank sediments that overtopped the terrace surface during periodic floods. Based on current investigations, Unit 2 deposits are at least 2.6 m (8.5 ft.) thick (i.e., the maximum depth of backhoe trenching) and contain prehistoric materials in at least the upper 1 m (3.28 ft.). The portion of the Holocene alluvial deposits observed in backhoe trenches exhibit generalized A-Bw-Bk soil horizon sequences within fine-grained overbank alluvial sediments. No profile disturbances were noted in BHTs 2 and 6; however, varying amounts of construction and grading fill were observed in the upper zones of BHTs 4, 7, and 8, ranging from 12-60 cm (4.7-23.6 in.) thick (Figure A-1). Greater amounts of fill are present in the northwest portion of the park where the original river alignment was buried. The edge of the west bank of the in-filled river channel was uncovered in BHT 7, which shows fill deposits increasing in thickness to the east (Figure A-2). Here, previous geotechnical auger bore studies (Raba Kistner 2011) indicate fill depths of up to 0.3-1.8 m (1-6 ft.) below the current surface.

Figure A-2. *View of pre-modification in-filled San Antonio River channel exposed in profile in BHT 7, facing northeast.*

In undisturbed profile sections, A horizons are as much as 60 cm (23.6 in.) thick, possibly due to regular additions of recent sediments (e.g., cumulic profiles). Soil colors in the upper A horizons range from 10YR 3/2 to 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. Several small clumps of reddish-orange burned clay were observed in profile at the base of the A horizon in BHT 2 and were recorded as Feature 2 (see Chapter 4 of current report). Trench profiles exhibit transitional and weakly developed Bw horizons between the A and first Bk horizons. 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% in abundance within the Bw horizons, while small pebbles and other coarse fragments are generally less than 1%.

One or more Bk horizon was recorded in each of the investigated trenches. These horizons contain between 2-15% fine secondary pedogenic carbonate filaments that increase with increased 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 Bk horizons also contain abundant *Rabdotus* sp. snail shells throughout. Within BHTs 1-5, which collectively form a contiguous 45 m (147.6 ft.) long trench, the depth to the Bk horizons is variable and somewhat undulating (Figure A-3). It is currently unclear whether this undulation represents post-depositional cultural modification of the subsurface due to *acequia* construction or if it represents the natural soil horizon variability. Given the fine-grained (silty clay loam) sediments that are indicative of a low-energy depositional environment, multiple-component cultural deposits could be well-preserved and vertically separated into stratigraphically distinct cultural occupation zones. Lithic artifacts were observed distributed throughout the upper 100 cm (39.4 in.) of these soils.

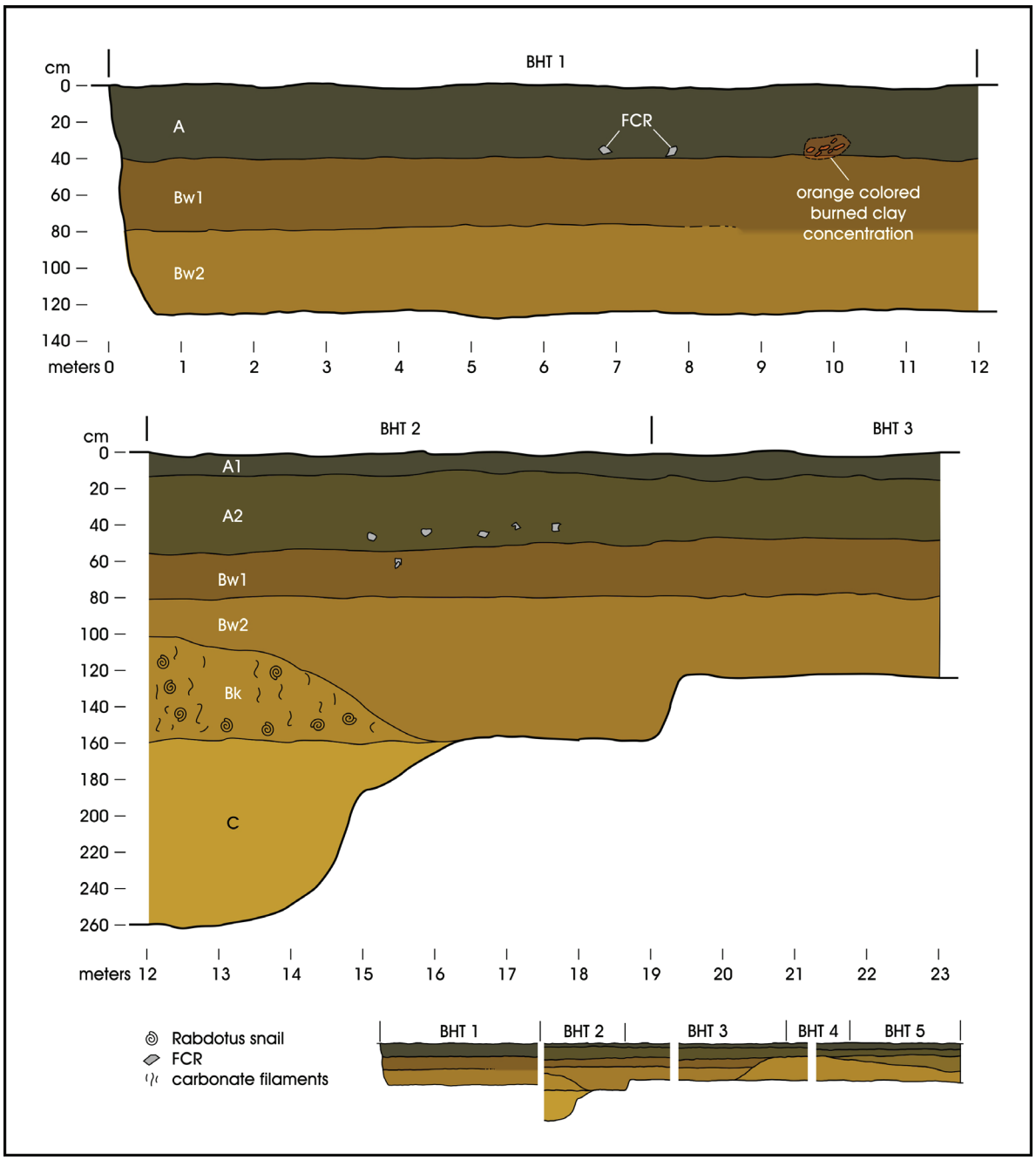


Figure A-3. *Composite drawing of BHTs 1-5.*

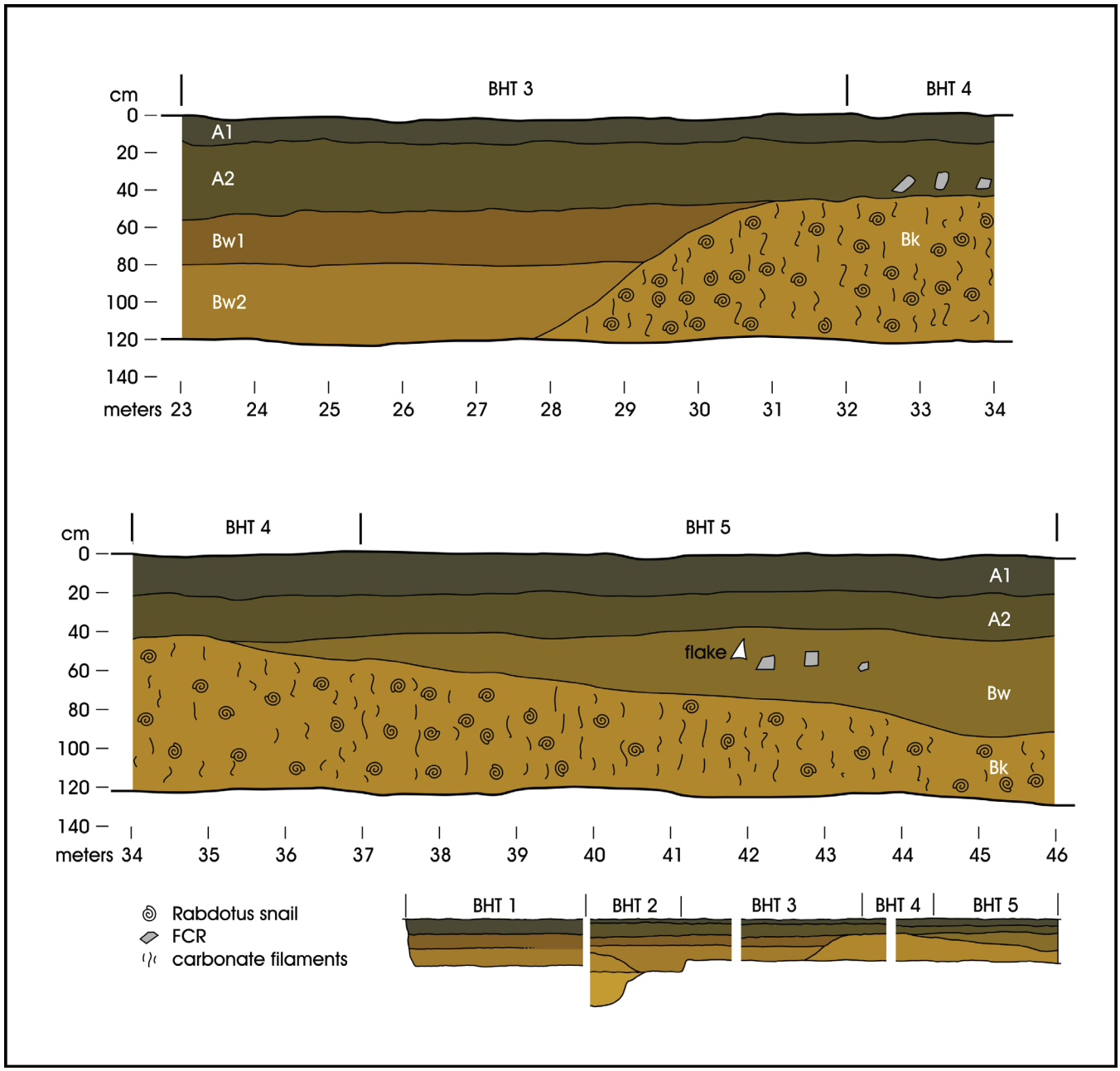


Figure A-3. *Composite drawing of BHTs 1-5 continued….*

T-0 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 (Figure A-4). 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.

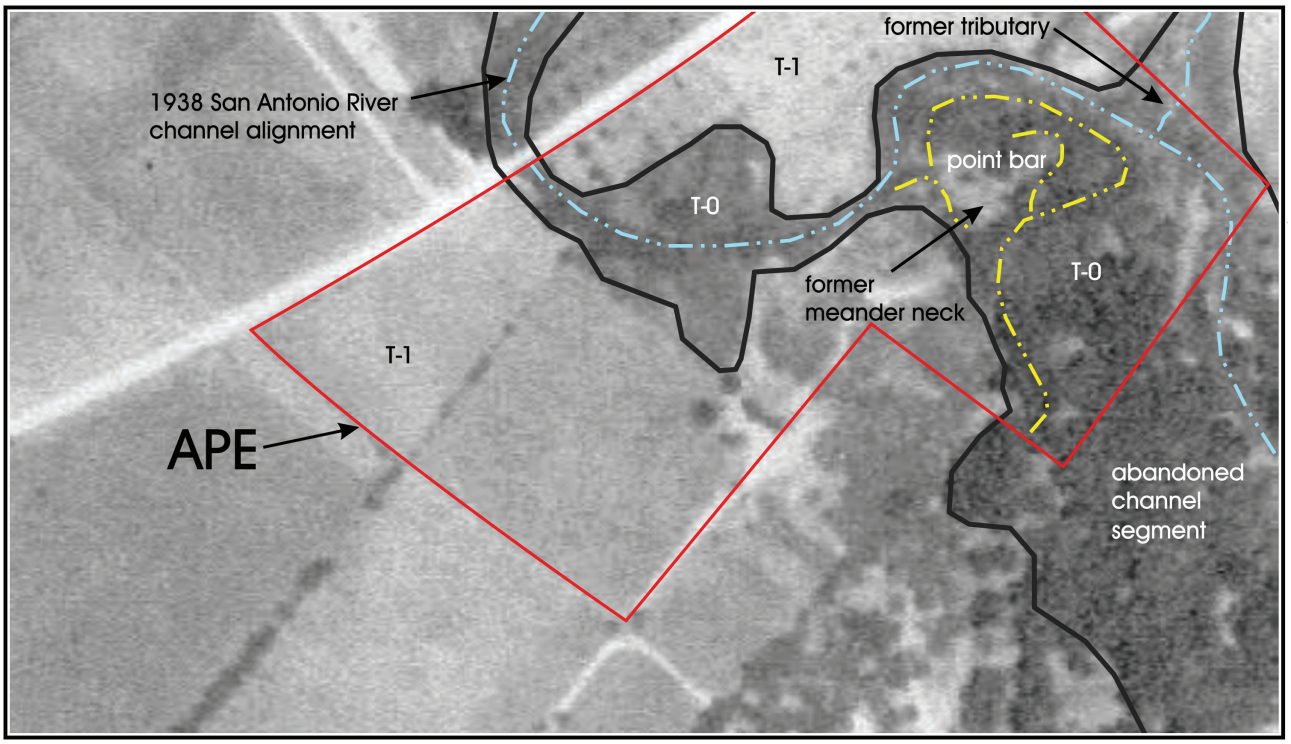


Figure A-4. *Geomorphic surfaces and channel features observed on 1938 aerial photograph of study area.*

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 is comprised of Unit 1 and Unit 2 alluvial fill.

Based on previous studies in the surrounding region, Unit 1 consists of Pleistocene-age deposits and exhibits no potential to contain archaeological materials in good context.

Unit 2 consists of recent, fine-grained overbank flood deposits of Holocene age. This unit represents a low-energy depositional environment in which fine-grained silty clay loams were deposited on the top of the T-1 terrace during periodic overbank flooding. 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. In either case, the current investigations revealed that cultural materials are contained within at least the upper 1 m (3.28 ft.) of Unit 2, and as such, multiple-component cultural deposits could be well-preserved and vertically separated into stratigraphically distinct cultural occupation zones. Thus, Unit 2 exhibits excellent potential to contain archaeological materials in good context.

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, T-0 floodplain (Unit 3) 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.

The artificially constructed floodplain is situated to the east/northeast of the study area and was not directly investigated during the survey. Considering the modern channel disturbances that have occurred, it is unlikely any remnants of the pre-modification channel features or T-0 floodplain are preserved beneath the artificial fill. Thus, this area exhibits very low potential to contain archaeological materials in good context.

References Cited:

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

Raba Kistner Consultants, Inc. (RKCI)
2011 *Geotechnical Engineering Study for Mission County Park Redevelopment San Antonio, Texas*. Project Number ASA11-063-00, Raba Kistner Consultants, Inc. San Antonio.

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.

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.

Appendix B:
Mission County Park Backhoe Trench Descriptions

Appendix B

Mission County Park Backhoe Trench Descriptions

BHT-2
East wall profile; UTM_NAD83: 550802E, 3248739N

Horizon	Depth (cm)	Description
A1	0-15	10YR 3/2 clay loam; weak medium granular structure; friable consistence; common medium, fine and very fine roots; 2% snail shells of *Rabdotus* and water rounded pebble clasts; gradual smooth boundary.
A2	15-60	10YR 3/2 clay loam; weak fine granular structure; friable consistence; common fine and very fine roots; 1% snail shell fragments of *Rabdotus*; common <5 mm sandy in-filled insect burrows; clear smooth boundary.
Bw1	60-80	10YR 4/6 clay loam; weak fine granular; friable consistence; few fine and very fine roots; 3% snail shell fragments of *Rabdotus*; few sandy in-filled insect burrows; clear smooth boundary.
Bw2	80-110	10YR 5/8 sandy loam; weak fine granular structure; very friable consistence; very few fine and very fine roots; 5% snail shell fragments of *Rabdotus*; abrupt smooth boundary.
Bk	110-160	10YR 8/3 silt loam; structureless; very friable; very few very fine roots; FeMn staining (5YR 6/8) occurring along pores as well as occasion Fe reduction zones; 2% subangular carbonate nodules 2 mm diameter increasing in size (15 mm) and abundance (12%) with depth; common carbonate filaments; abrupt smooth boundary; common in-filled root and worm casts; abrupt smooth boundary.
C	160-260	Dark grayish brown, fine-grained overbank clays; too deep to inspect up-close.

BHT-4
East wall profile; UTM_NAD83: 550810E, 3248746N

Horizon	Depth (cm)	Description
Fill	0-12	Construction fill material
A	12-25	10YR 3/2 clay loam; massive; friable consistence; common fine and very fine roots; 1% *Rabdotus* snail shell fragments; abrupt smooth boundary.
Bw	25-60	10YR 3/2 silty clay loam; moderate medium subangular blocky structure; friable consistence; few fine and very fine roots; 3% *Rabdotus* snail shell fragments; <1% pebbles; clear smooth boundary.
Bk1	60-80	10YR 4/6 silt loam; moderate medium subangular blocky structure; firm consistence; few fine and very fine roots; common (10%) fine secondary calcium carbonate filaments; 3% pebbles and *Rabdotus* snail shell fragments; large flake in wall profile associated with 5% whole snail shells; abrupt smooth boundary.
Bk2	80-90	10YR 5/8 silt loam; moderate medium subangular blocky structure; very friable consistence; very few very fine and fine roots; 15% fine secondary calcium carbonate filaments.

BHT-6
East wall profile; UTM_NAD83: 440856E, 3248828N

Horizon	Depth (cm)	Description
A1	0-20	10YR 3/2 silty clay loam; weak medium subangular blocky structure; friable consistence; common medium, fine, and very fine roots; <1% coarse fragments of *Rabdotus* snail shell fragments; clear smooth boundary.
A2	20-45	10YR 3/3 silty clay loam; moderate medium subangular blocky structure; firm consistence; common fine and very fine roots; <1% coarse fragments of *Rabdotus* snail shell fragments; clear smooth boundary.
Bw	45-62	10YR 3/6 silty clay loam; weak fine subangular blocky structure; common very fine roots; <1% coarse fragments of *Rabdotus* snail shell fragments; clear smooth boundary.
Bk1	62-80	10YR 4/6 silty clay loam; weak fine subangular blocky; friable; few very fine roots; 2% fine secondary calcium carbonate filaments (stage I); <1% coarse fragments of *Rabdotus* snail shell fragments; abrupt smooth boundary.
Bk2	80-100	10YR 5/8 silty clay loam; weak fine subangular blocky structure; very friable consistence; very few very fine roots; 3% fine secondary calcium carbonate filaments (stage I); 3% intact *Rabdotus* snail shells; abrupt smooth boundary.
Bk3	100-120	10YR 5/6 silty clay loam; weak fine subangular blocky structure; very friable; 5% fine secondary calcium carbonate filaments (stage I); <1% coarse fragments of *Rabdotus* snail shell fragments; 1.5 cm diameter "oncolite."

BHT-7
West wall profile; UTM_NAD83: 550810E, 3248920N

Horizon	Depth (cm)	Description
Fill	0-60	Construction fill material
A	60-90	10YR 3/4 silt loam; weak fine granular parting to subangular blocky structure; friable consistence; few fine and very fine roots; thinning flake found at 80 cm depth; abrupt smooth boundary.
Bk	90-110	10YR 5/6 silt loam; weak fine subangular blocky structure; very friable; few fine and very fine roots; 2% fine secondary calcium carbonate filaments (stage I); 2% *Rabdotus* snail shell fragments; large flake scraper at 108 cm depth.

BHT-8
West wall profile; UTM_NAD83: 550798E, 3248911N

Horizon	Depth (cm)	Description
Fill	0-25	Construction fill material
A	25-45	10YR 3/2 silty clay loam; moderate medium subangular blocky structure; firm consistence; few fine and very fine roots; <1% coarse fragments of *Rabdotus* snail shell fragments; clear smooth boundary.
Bw	45-70	10YR 3/3 silty clay loam; weak fine subangular blocky structure; very friable consistence; very few very fine roots; <1% coarse fragments; abrupt smooth boundary.
Bk	70-120	10YR 5/6 silty clay loam; weak fine subangular blocky structure; very friable; very few very fine roots; 3% fine secondary carbonate filaments (stage I).

Appendix C:
Beta Analytic Inc. Radiocarbon Reports

Appendix C

Beta Analytic Inc. Radiocarbon Reports

BETA ANALYTIC INC.
DR. M.A. TAMERS and MR. D.G. HOOD
4985 S.W. 74 COURT
MIAMI, FLORIDA, USA 33155
PH: 305-667-5167 FAX:305-663-0964
beta@radiocarbon.com

REPORT OF RADIOCARBON DATING ANALYSES

Mr. Eric Oksanen — Report Date: 1/4/2012

The University of Texas — Material Received: 12/21/2011

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 312810	3770 +/- 30 BP	-26.5 o/oo	3750 +/- 30 BP

SAMPLE : MCP2-2
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal BC 2280 to 2250 (Cal BP 4230 to 4200) AND Cal BC 2230 to 2220 (Cal BP 4180 to 4170)
Cal BC 2210 to 2120 (Cal BP 4160 to 4070) AND Cal BC 2090 to 2040 (Cal BP 4040 to 3990)

Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "*". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.

Page 2 of 3

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.5:lab. mult=1)

Laboratory number: **Beta-312810**

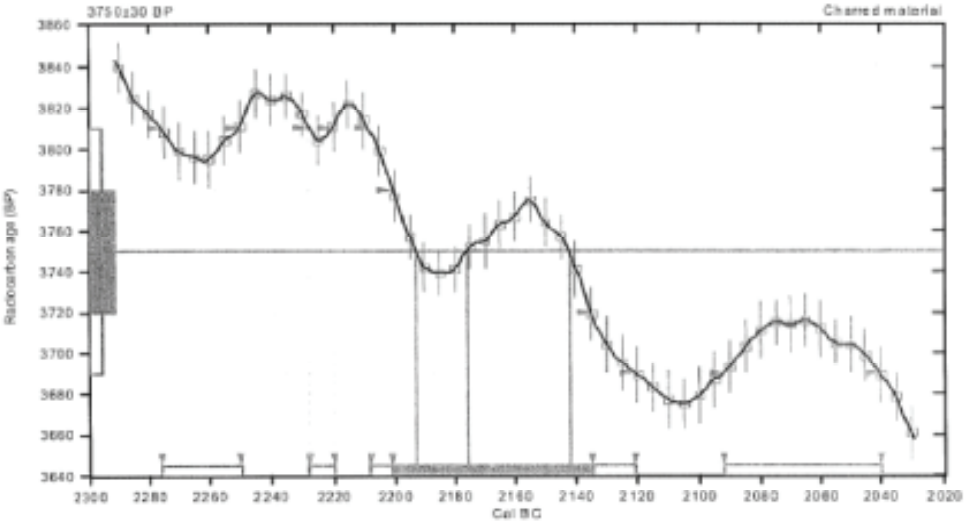
Conventional radiocarbon age: **3750±30 BP**

2 Sigma calibrated results: **Cal BC 2280 to 2250 (Cal BP 4230 to 4200) and**
(95% probability) **Cal BC 2230 to 2220 (Cal BP 4180 to 4170) and**
Cal BC 2210 to 2120 (Cal BP 4160 to 4070) and
Cal BC 2090 to 2040 (Cal BP 4040 to 3990)

Intercept data

Intercepts of radiocarbon age with calibration curve: Cal BC 2190 (Cal BP 4140) and
Cal BC 2180 (Cal BP 4130) and
Cal BC 2140 (Cal BP 4090)

1 Sigma calibrated result: Cal BC 2200 to 2140 (Cal BP 4150 to 4080)
(68% probability)



References:

Database used

INTCAL09

References to INTCAL09 database

Reimer,et al.,2009, Radiocarbon 51(4):1111-1150, Stuiver,et al,1993, Radiocarbon 35(1):137-189, Oeschger,et al.,1975,Tellus 27:168-192

Mathematics used for calibration scenario

A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

BETA ANALYTIC INC.
DR. M.A. TAMERS and MR. D.G. HOOD
4985 S.W. 74 COURT
MIAMI, FLORIDA, USA 33155
PH: 305-667-5167 FAX:305-663-0964
beta@radiocarbon.com

REPORT OF RADIOCARBON DATING ANALYSES

Mr. Eric Oksanen — Report Date: 12/30/2011

The University of Texas — Material Received: 12/15/2011

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 312348	3180 +/- 30 BP	-25.8 o/oo	3170 +/- 30 BP
SAMPLE : FS37			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid			
2 SIGMA CALIBRATION :	Cal BC 1500 to 1410 (Cal BP 3450 to 3360)		

Dates are reported as RCYBP (radiocarbon years before present, "present" = AD 1950). By international convention, the modern reference standard was 95% the 14C activity of the National Institute of Standards and Technology (NIST) Oxalic Acid (SRM 4990C) and calculated using the Libby 14C half-life (5568 years). Quoted errors represent 1 relative standard deviation statistics (68% probability) counting errors based on the combined measurements of the sample, background, and modern reference standards. Measured 13C/12C ratios (delta 13C) were calculated relative to the PDB-1 standard.

The Conventional Radiocarbon Age represents the Measured Radiocarbon Age corrected for isotopic fractionation, calculated using the delta 13C. On rare occasion where the Conventional Radiocarbon Age was calculated using an assumed delta 13C, the ratio and the Conventional Radiocarbon Age will be followed by "*". The Conventional Radiocarbon Age is not calendar calibrated. When available, the Calendar Calibrated result is calculated from the Conventional Radiocarbon Age and is listed as the "Two Sigma Calibrated Result" for each sample.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.8:lab. mult=1)

Laboratory number: **Beta-312348**

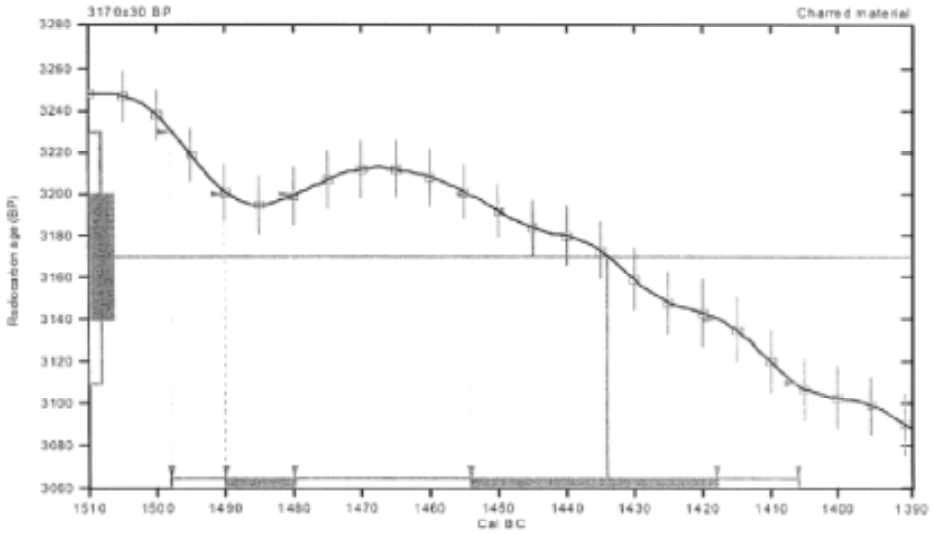
Conventional radiocarbon age: **3170±30 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 1500 to 1410 (Cal BP 3450 to 3360)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 1430 (Cal BP 3380)

1 Sigma calibrated results: (68% probability) Cal BC 1490 to 1480 (Cal BP 3440 to 3430) and Cal BC 1450 to 1420 (Cal BP 3400 to 3370)



References:

Database used

INTCAL09

References to INTCAL09 database

Reimer,et.al.,2009, Radiocarbon 51(4):1111-1150, Stuiver,et.al,1993, Radiocarbon 35(1):137-189, Oeschger,et al.,1975,Tellus 27:168-192

Mathematics used for calibration scenario

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

Page 3 of 3