

An Intensive Pedestrian Archaeological Survey of Hot Wells County Park, San Antonio, Bexar County, Texas

by
Stephen Smith and Paul Shawn Marceaux



Principal Investigator
Paul Shawn Marceaux

REDACTED

Texas Antiquities Permit No. 7576

Prepared for:
Bexar County
Bexar Heritage and Parks Department
100 Dolorosa #311
San Antonio, Texas 78205



Prepared by:
Center for Archaeological Research
The University of Texas at San Antonio
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San Antonio, Texas 78249-1644
Archaeological Report, No. 450

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Abstract:

On March 2, 2016, the Center for Archaeological Research (CAR) at the University of Texas at San Antonio (UTSA) conducted an archaeological survey of approximately 1.62 ha (4 acres) of land in advance of development at Hot Wells County Park in San Antonio, Bexar County, Texas. This archaeological work was performed for the Bexar Heritage and Parks Department on behalf of Bexar County. The survey, conducted in accordance with the requirements of the Texas Antiquities Code, was performed under Texas Antiquities Permit No. 7576. Dr. Paul Shawn Marceaux served as the Principal Investigator, and Stephen Smith functioned as the Project Archaeologist.

The CAR used pedestrian reconnaissance with shovel testing to search for cultural resources across the project area. The survey identified one new archaeological site (41BX2128) and revisited the previously recorded Hot Wells Bath House site (41BX237). Prehistoric material recovered from shovel tests within 41BX2128 consisted of chert flakes and burned rock; no temporally diagnostic artifacts or features were identified. Deposits containing prehistoric cultural material appeared intact below about 10-15 cm (4-6 in.), while the matrix above this contained a mixture of prehistoric and modern materials. The depth of the intact deposits and density of buried prehistoric material suggest the site has research potential. Recently investigated sites in close proximity to 41BX2128 make useful comparisons and demonstrate further the newly recorded site's research potential. The CAR recommends site 41BX2128 be listed as having unknown eligibility to the National Register of Historic Places (NRHP) until testing to determine eligibility status can be completed. CAR also recommends 41BX2128 is eligible to be formally designated a State Antiquities Landmark (SAL).

Based on current construction plans, the CAR recommends no further archaeological testing at this time as planned improvements will not impact cultural resources identified during this survey. CAR recommends all subsurface impacts deeper than 12 cm (5 in.) within the boundary of site 41BX2128 be avoided. If impacts below 12 cm (5 in.) cannot be avoided, CAR recommends test level investigations.

All collected artifacts and records generated during this project were prepared for curation in accordance with THC guidelines. They are permanently curated at CAR.

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The success of this project is due to several people. I want to thank David Barron who assisted me in performing the shovel testing for this project. Dr. Paul Shawn Marceaux served as the Principal Investigator and assisted in writing the report. Katherine Smyth downloaded the Trimble GPS data and created the maps. Melissa Eiring, serving as Lab Director, processed the artifacts and compiled the artifact table. Kelly Harris edited the report. Special thanks to Betty Bueché and Jeannette Jay with Bexar Heritage and Parks Department, Kay Hindes and Matt Elverson with the City of San Antonio Office of Historic Preservation, and Mark Denton of the Texas Historical Commission.

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Chapter 1: Introduction and Project Summary

The University of Texas at San Antonio (UTSA) Center for Archaeological Research (CAR), in response to a request from Bexar County, conducted an archaeological survey of approximately 1.6 ha (4 acres) of land as part of the stabilization of bath house ruins and development of the Hot Wells County Park project in San Antonio, Bexar County. This intensive pedestrian survey included a reconnaissance

survey and shovel testing of the project area. The Hot Wells Bath House site (41BX237), hereafter Hot Wells site, is located south of the 5500 block of South Presa Street in southern San Antonio (Figure 1-1). Proposed development work will take place on property owned by Bexar County, therefore, the project fell under jurisdiction of the Antiquities Code of Texas. In addition, the project occurred within the



Figure 1-1. Project APE on the Southton and San Antonio East USGS 7.5-minute quadrangle map. Inset shows the approximate location of the APE in Bexar County.

limits of the City of San Antonio and, therefore, comes under the City's Unified Development Code, Chapter 35. Archaeological work was performed under Texas Antiquities Permit No. 7576, with Dr. Paul Shawn Marceaux serving as Principal Investigator and with Stephen Smith functioning as Project Archaeologist.

This report discusses the results from the archaeological investigations. The remainder of this chapter presents the Area of Potential Effect (APE) and proposed plans for the area. Chapter 2 presents the project area background, including the environmental setting, cultural history, history and previous archaeology of the Hot Wells site, and previously recorded sites in the area. The latter reviews recently discovered

sites that have implications for the research potential of the newly discovered 41BX2128. An overview of the field and laboratory methods is presented in Chapter 3. Chapter 4 is a discussion of the results of archaeological investigations, and Chapter 5 provides a summary and recommendations.

Area of Potential Effect (APE)

The survey was conducted to identify and document prehistoric and historic archaeological sites in the APE (Figures 1-1 and 1-2), especially in areas affected by the proposed development plans. CAR completed background research, a pedestrian walkover survey, and shovel testing across the entire project area, which contains a large, early



Figure 1-2. Project APE on satellite imagery. Inset shows the approximate location of the APE in Bexar County.

twentieth-century brick building constructed as the bath house for a health resort. Fox and Highley (1985) recorded the remains of the historic bath house and resort as 41BX237. In addition to the historic resources, prehistoric populations were attracted to the San Antonio River as documented by numerous prehistoric sites in the surrounding area.

The project area is situated on the east bank of the San Antonio River. The Hot Wells site consists of a large brick building constructed in 1900 as the bath house for a health resort, which used the waters of the hot sulphur spring. In addition to the bath house, a group of small, one-story cottages built in the 1930s once existed on the property. Mission San José is visible across the river about 1.1 km (0.7 miles) to the west, and the tracks of the Southern Pacific Railroad lie between the hotel site and South Presa Street. It is the CAR's understanding that the property will be developed for use as a county park.

Current plans call for the installation of restrooms and a maintenance facility northeast of the bath house. Other impacts to the project area include signage, the installation of an event field, walkways, and landscaping. The deepest impacts include the restroom/maintenance building and signage. The footings for the restroom/maintenance building will be at 91 cm (35.8 in.) below grade. The signage footing will vary from 46-91 cm (18.11-35.8 in.) below grade. Previous impacts to the project area include extensive landscaping and gardening (Figures 1-3, 1-4, and 1-5). The project area has been graded for roads and parking that have been constructed over much of the project area (Figure 1-6). It was also apparent that utility trenching has taken place. The trenches observed during this survey were approximately 30 cm (11.81 in.) in depth (Figure 1-7). In addition, informants advised that a large fuel tank had once been buried directly west of the bath house. Informal reports suggest the buried fuel tank has been removed.



Figure 1-3. Gardens on the east side of the bath house and hotel.



Figure 1-4. Gardens on west side of the bath house and hotel.



Figure 1-5. Water fountain and gardens immediately east of the bath house and hotel.



Figure 1-6. Roads and parking areas on project site.



Figure 1-7. Utility trenching in project area.

Chapter 2: Project Setting

Environmental Setting

The project area is in a region of subtropical humid climate with cool winters and hot summers (Norwine 1995). Average annual rainfall measures 73.93 cm (29.11 in.; NOAA 2013) and monthly temperatures range from 37.9°F in January to 95°F in July (Bomar 1995). Three major geographic regions meet in Bexar County. These are the Edwards Plateau, the Blackland Prairie, and the South Texas Brush Country (Nickels et al. 1997). Bexar County is located at the southeastern edge of the Edward's Plateau on the Balcones Escarpment. The escarpment marks the break between two major physiographic divisions in North America: the Great Plains Province on the west and the Coastal Plains to the east (Abbott and Woodruff 1986). The escarpment is a geological fault zone several miles wide extending from Del Rio to the Red River and dividing the Edwards Plateau from the southern Coastal Plains (Collins and Laubach 1990:2).

The Balcones Escarpment also plays a major role in weather production in Central Texas (Abbott and Woodruff 1986). Although a relief of only a few hundred feet, the escarpment is the first topographic break inland from the Gulf of Mexico, making its orographic influence on the unstable, moisture saturated Gulf air more pronounced. In fact, high magnitude flooding occurs along the Balcones Escarpment more frequently than any other place in the United States, and precipitation and discharge rates are close to the maximum in the world (Caran and Baker 1986). The single largest rainfall ever recorded in the coterminous United States occurred in 1921 when 96.5 cm (38 in.) fell in 24 hours in Williamson County just north of Austin (Abbott and Woodruff 1986).

One of the most productive carbonate aquifers in the United States (Stein and Ozuna 1995), the Edwards Aquifer is a cavernous zone of water-bearing permeable limestone 91-213 m (298.56-698.82 ft.) thick (Menard 1995). Composed of Cretaceous-era limestone, the Edwards Aquifer dips coastward, and its southern and eastern edge mark the transition line from freshwater to saline.

Cultural History

The following section of the report offers a cursory account of the prehistoric and historic cultural history of south and central Texas. Researchers generally discuss the prehistory of south and central Texas in terms of three broad periods, the Paleoindian, Archaic, and Late Prehistoric. Projectile

point classifications have driven distinctions between these prehistoric periods, which have both temporal (Bousman et al. 2004) and cultural (Collins 2004) features. The historic period begins with the first arrival of Europeans into the area. Below, this report provides a brief summary of important post-contact periods.

Prehistoric History

Paleoindian Period (11,500-9000 BP)

This period dates to the end of the last Ice Age during the Pleistocene and beginnings of the Holocene. A period of great climate change, subsistence practices altered dramatically. In the early part of the period, focus was on large "megafauna," but as these resources became extinct diet shifted to bison, deer, and plants (Collins 2004).

Archaic Period (9000-1200 BP)

Compared to the Paleoindian Period, the 7,800-year Archaic period reflected increased population, an intensification of hunting and gathering, lower mobility, and an associated focus on the use of increasingly local resources. In Central Texas, a variety of technological changes, some of which are clearly related to subsistence and a shifting resource structure, appear during this period.

Early Archaic

In the Early Archaic, spanning from 9000 through 6800 BP, there was a shift in subsistence from large game hunting to plant foods and medium and small species of game (Collins 2004). New projectile point types include Early Split Stem/Early Triangular, Gower, Martindale, and Uvalde. Specialized, task-specific tools, including Clear Fork gouges and Guadalupe bifaces, also appear during this time.

Middle Archaic

The Middle Archaic spans from 6800 to 4200 BP. Diagnostic projectile points from this period include Andice, Bell, Calf Creek, Nolan, Taylor, and Travis. Some disagreement exists over the presence and/or absence of bison during this time sub-period (Collins 2004; Dillehay 1974; Munoz and Mauldin 2011). Many researchers agree that human populations in the region increased during the Middle Archaic (Story 1985; Weir 1976).

Late Archaic

This last sub-period spans 4200 to 1200 BP. Dart point diagnostics of the Late Archaic are triangular points with corner notches that include Ensor and Ellis (Turner and

Hester 1993:114-122). Other Late Archaic dart point types are Bulverde, Castroville, Marcos, Marshall, and Pedernales (Collins 2004). Changes in mobility and organization including the founding of large cemeteries and more restricted spatial distribution of point types may signal the development of territories during this period (Black and McGraw 1985).

Late Prehistoric Period (1200-350 BP)

This period has been divided into two phases: Austin (ca. 1200 to ca. 700 BP) and Toyah (ca. 700 to 350 BP). Technological change distinguishes the phases. In the Austin phase, bow and arrows replaced a 9,000-year-old dart and spear technology. During the Toyah phase, bone tempered ceramics appeared.

Historic Period

The Historic period is divided into the Proto-historic (AD 1528-1700), the Colonial/Mission period (1700-1821), the Mexican period (1821-1836), and the Republic of Texas/Early State Period (1836-1900). Readers interested in a more thorough review of this period should refer to McKenzie et al. (2016).

Proto-historic (1528-1700)

The Proto-historic period commenced with the Spanish arrival in 1528 and terminated when European settlements were established around the AD 1700 (see Chipman and Joseph 2010; Weddle 1968). Archaeological evidence of Native American and European contact is scant (see Thoms and Ahr 1995). Therefore, most of what is known about the period comes from European accounts.

The Colonial/Mission Period (1700-1821)

This period commenced with the Spanish founding of permanent missions in south and central Texas. In San Antonio, the Villa de Bexar and Mission Valero were founded in 1718. Mission San José y San Miguel de Aguayo, directly across the San Antonio River from the Hot Wells site, was founded in 1720 to accommodate overcrowding at Mission Valero. For a complete overview of the history and development of Mission San José, readers should consult Day (1965:129-164), Habig (1968a, 1968b, 1978), Habig et al. (1983) and Ivey et al. (1990a, 1990b).

Three additional missions were relocated to San Antonio from east Texas in 1731. The permanent Spanish presence in Central Texas was solidified over the next few years as the Spanish responded to the perceived threat of the French. However, missions in San Antonio were on the decline by the close of the 1700s. Falling population totals and several epidemics, including small pox and measles, hastened this decline (Ewers 1973).

A decree issued in 1794 called for secularization of the San Antonio missions, and several missions were essentially abandoned (Cox 1997, 2005). Missions in the area were secularized by 1824 (Carlson 1994; Cox 1997). At roughly this same time, Colonial rule ended. Tensions at the close of the eighteenth century between Spain and its colonies in Texas and Mexico increased, and in 1810, several groups rebelled against Spanish control. The rebels were eventually successful, and in 1821, Mexico became independent, essentially ending Spanish Colonial rule (Henderson 2009).

The Mexican Period (1821-1835)

In 1821, Texas was underpopulated and in economic chaos. To remedy this situation, Mexico adopted laws and constitutional changes that allowed heads of households to claim land in Mexico. A significant number of settlers moved to Mexico from the United States (Cox 1997), but tensions between settlers and the nation of Mexico soon erupted. When Santa Anna took control of the Mexican government in 1834, he dissolved the legislature and began rescinding the laws and constitution and dispatching troops under Martin Perfecto de Cos to deal with unrest. Insurrection brought Cos to San Antonio, and he occupied the town in October of 1835. Eventually, Cos was defeated, forced to surrender, and withdraw his forces to the south (Cox 1997; Marley 2014).

Santa Anna recaptured San Antonio in the winter of 1836 after a short siege at Mission Valero. Following the victory, Santa Anna dispatched forces to crush the remaining resistance. Santa Anna was defeated in late April at the battle of San Jacinto ending Mexican rule of Texas (Cox 1997; Davis 2004).

The Republic of Texas and Early Texas State (1836-1900)

The new Republic of Texas was established in March of 1836. Boundary disputes continued with Mexico until June 1843 when an armistice was reached (Cox 1997). The Republic offered cheap land to encourage immigrants who came from the United States and Europe including many Germans (Meinig 1969). In 1845, the United States Congress and the Texas Republic agreed to annexation terms, and Texas was admitted as the 28th state on December 29, 1845 (Neu 2013; Texas State Library and Archivist Commission [TSLAC] 2014). Texas statehood led to war between the U.S. and Mexico in May 1846. The Treaty of Guadalupe-Hidalgo, signed February of 1848, ended the dispute and established the Rio Grande as the southern boundary between the U.S. and Mexico.

Following the war, Texas experienced rapid population growth. People came from the southern states and from Europe with German, Czech, and Polish immigrants arriving in large numbers. By 1860, population totals exceeded

600,000, which was a significant increase from 1847 when the population had been recorded as 142,000 (Campbell 2003). Much of this growth was tied to the availability of farmland. Cotton, often supported by slave labor, was the dominant crop in East Texas. Roughly 30,000 black slaves were present in the state in 1847 (Campbell 1989; Cox 1997), and this number increased to over 180,000 by 1860 (Campbell 1989, 2003; Meinig 1969).

Texas sided with the Confederacy and seceded from the United States in February 1861. The following month, Texas joined the Confederate States of America. Few major battles occurred within the state (Campbell 2003). Following defeat of the Confederacy, Texas was readmitted to the United States in 1870.

Throughout the late 1800s, the state's population increased. In the early 1870s, the population surpassed one million, and by the turn of the century, the number had grown to over three million (Meinig 1969). Relative to southern states, Texas had suffered little damage during the Civil War and possessed cheap land. Farming in eastern Texas, and cattle ranching in the south, west, and the plains/panhandle areas were the major economic activities during this period (Campbell 2003; Meinig 1969; Sonnichsen 1950). Railroads expanded into Texas, and by 1900, the state was crisscrossed by an extensive network of rail lines connecting Texas with the rest of the union (Meinig 1969; Reed 1941). As a result, commercial development increased throughout the twentieth century.

History of Hot Wells Hotel and Resort

This following section presents a brief history of Hot Wells Hotel and Resort. For a more detailed examination, see Fox and Highley (1985). In 1892, the state mental hospital dug an artesian well to supply potable water to the hospital. The water proved undrinkable because of its high temperature and odor, so, the hospital leased its water rights to Charles Scheuermeyer (Fox and Highley 1985:4). The next year, McClellan Shacklett acquired Scheuermeyer's water rights as well as the property and opened a resort. He named the resort Natural Hot Sulphur Wells. Shacklett added an artificial lake and fountain to the property (Fox and Highley 1985:4-8). Later, the Texas Hot Sulphur Water Sanitarium Company purchased a portion of the property from Shacklett and completed three swimming pools and a power plant to provide electricity. A third tract of land and hotel were also added (Fox and Highley 1985:10-11).

The hotel was expanded again in 1908 (Fox and Highley 1985:14-15). In its heyday, the property hosted luminaries such as E.H. Harriman, Cecil B. DeMille, Teddy Roosevelt, Will Rogers, Mrs. J. P. Morgan, and Rudolph Valentino (Fox

and Highley 1985:15-16). The property became a parochial school in 1923 that used the hotel as a dormitory. Eventually, the property was renamed The Hot Wells Tourist Court and operated as a tourist court until 1942. During subsequent years, the property saw use as a trailer park and a bar and grill (Fox and Highley 1985:17-19). However, none of these uses succeeded. When a city proposition to revitalize the property in 2000 failed, the property came into disuse.

Previously Recorded Sites in Area

Hot Wells Bath House Site (41BX237)

The Hot Wells Bath House site (41BX237) is the only previously recorded site within the APE (Figure 2-1). Two archaeological investigations have taken place on the Hot Wells site. The purpose of the first investigation by Fox and Highley (1985:19-28) was to document and map the locations of the hotel foundation and any other structures. Fox and Cox (1990:6-8) conducted the second investigation prior to the installation of new sewer pipes in another building located within the site area.

Mission Reach Sites (41BX1628, 41BX1888, and 41BX1902)

A number of archaeological sites are located nearby the APE, including three sites recently investigated during the Mission Reach Project (Figure 2-2). Below is a discussion of these sites, which will be fully reported on in a forthcoming publication (Kemp and Mauldin 2017). These three sites on the east bank of the San Antonio River are in close proximity to 41BX2128 and in analogous environmental settings. Results from initial surveys of the three sites also compare favorably to results from the current study. Thus, these sites serve as a comparative model and demonstrate the potential significance of site 41BX2128.

41BX1628

Site 41BX1628 is in close proximity to the Hot Wells site (Figure 2-3). Geo-Marine Inc. (GMI) discovered 41BX1628 during an archaeological assessment along the Mission Reach of the San Antonio River (Peter et al. 2006). Their archaeological assessment consisted of archival research, archeological survey of the 51.8 ha (128 acres) of land that would be affected by the development, and a geoarchaeological assessment of the potential for deeply buried deposits. The geoarchaeological study employed 33 backhoe trenches and 16 geoprobe cores designed to sample alluvial deposits. A total of two shovel tests and five auger bores were excavated in and around 41BX1628 for areal delineation (Peter et al. 2006:68).

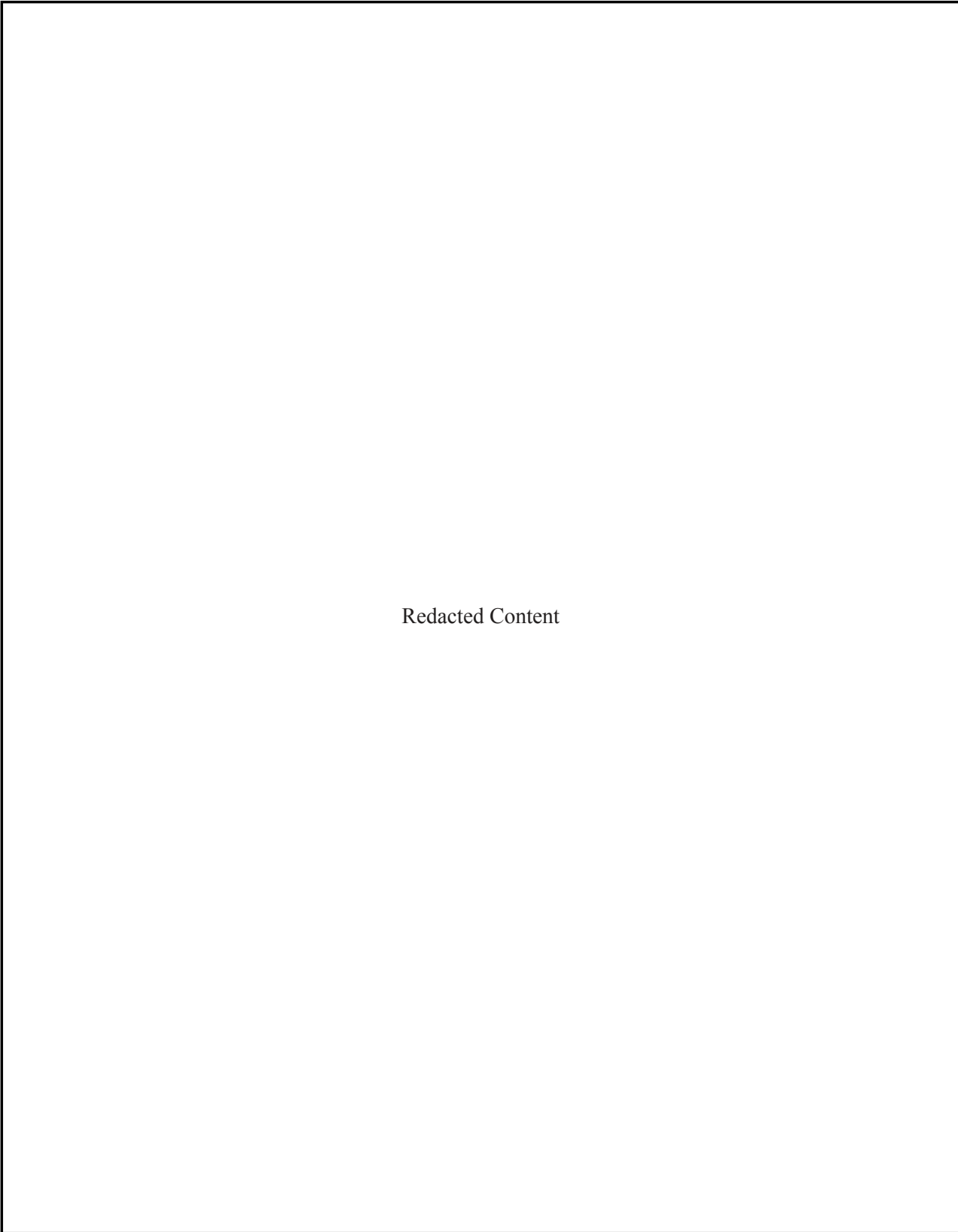


Figure 2-1. Previously recorded sites within 1 km (0.62 mi.) of the project APE. Inset shows the approximate location of the APE in Bexar County.

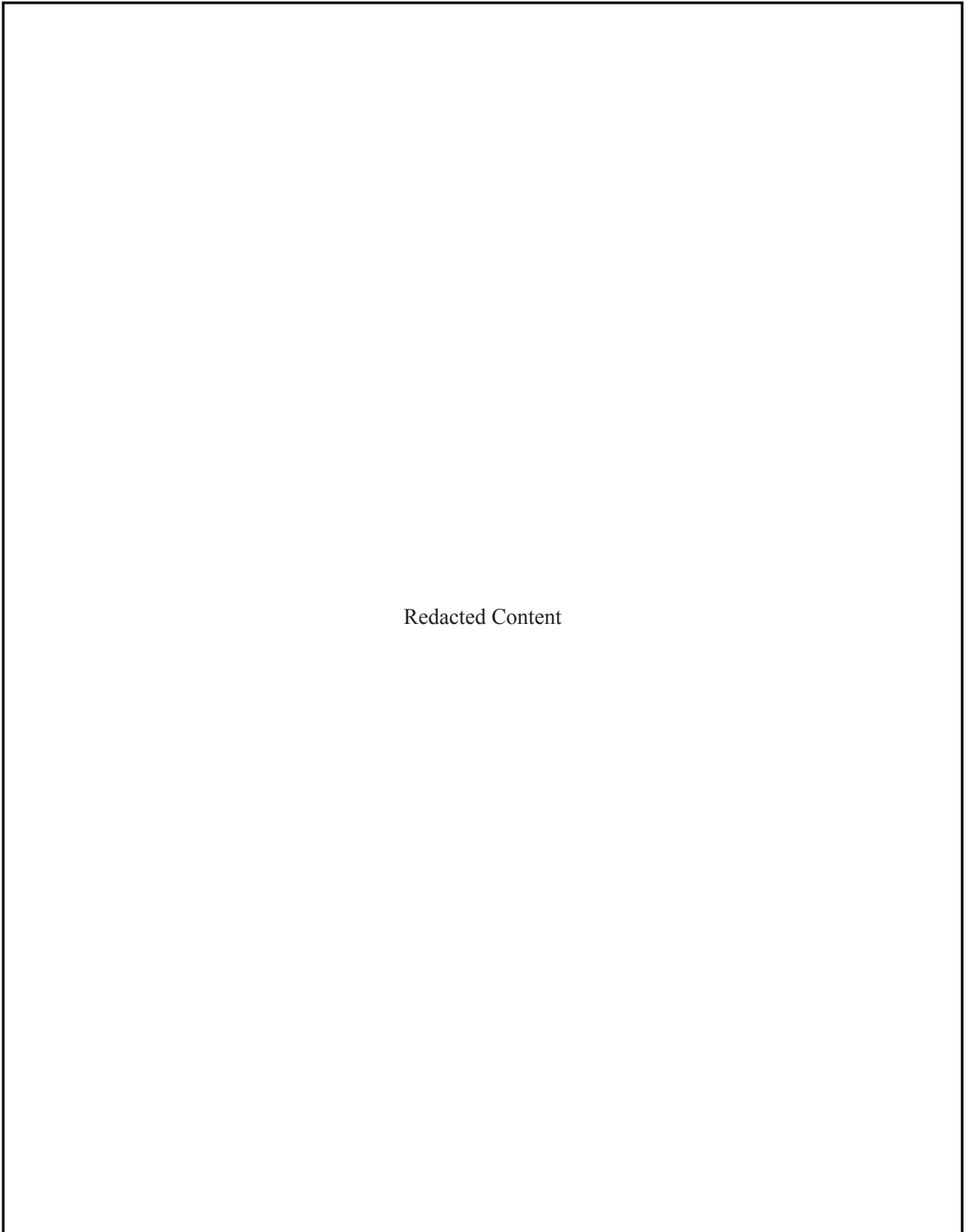


Figure 2-2. Mission Reach Sites that compare favorably to 4IBX2128.

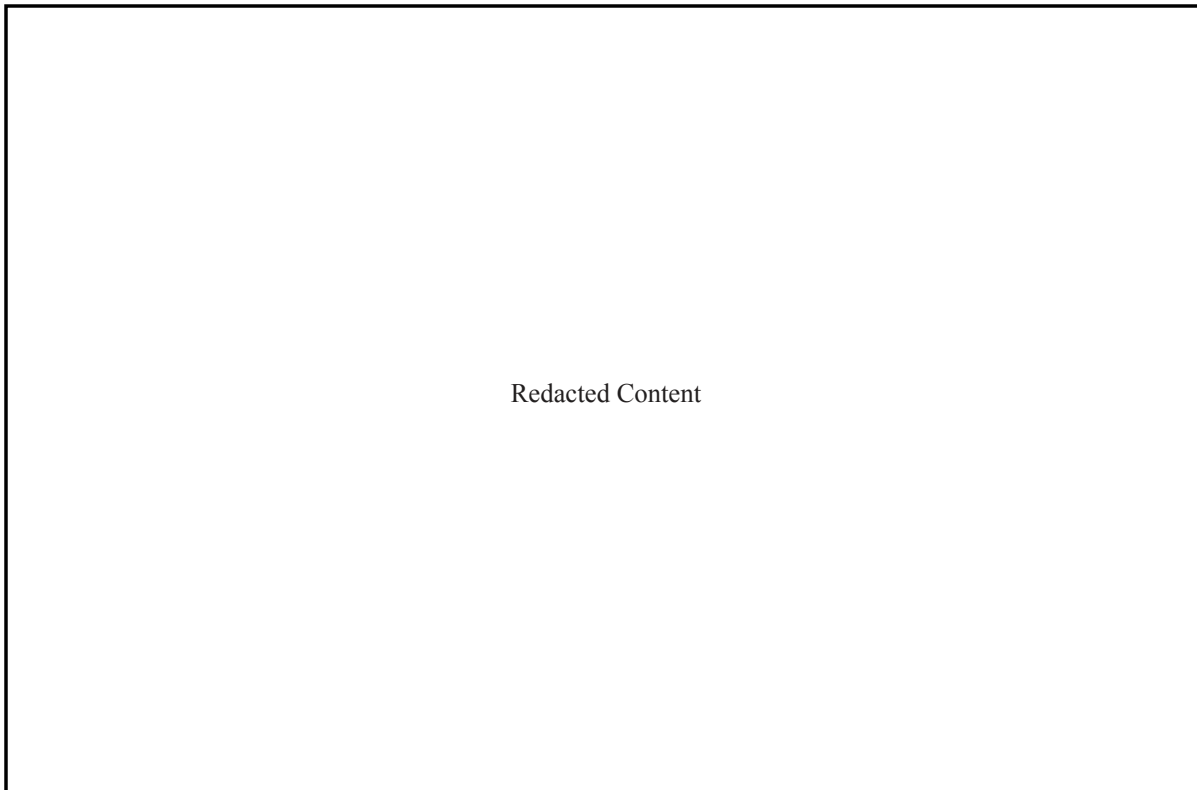


Figure 2-3. Location of 41BX1628 (site boundary in red) in relation to the Hot Wells site.

Subsurface testing yielded 46 pieces of cultural material, and although the 20-40-cm (7.87-11.81 in.) level and the 40-60-cm (15.75-23.62 in.) level were the most productive, GMI recovered artifacts throughout the depth of the single positive shovel test. This shovel test was terminated at 80 cm (31.5 in.) below the surface (cmbs) because of the hardness of the clay that is present throughout much of the project area. Artifacts recovered from the shovel test and the two positive auger bores consisted of one core, debitage, fire-cracked rock, and historic material. GMI obtained no radiocarbon dates. Based on its survey, GMI recommended additional testing of the site to determine its size, dimensions, overall site integrity, presence of site features, and prehistoric cultural affiliation before assessing its eligibility for the National Register of Historic Places (NRHP) and designation as State Archeological Landmark (SAL; Peter et al. 2006:72).

GMI conducted Phase II archaeological investigation at 41BX1628 (Osburn et al. 2007) in the summer of 2006. GMI excavated six backhoe trenches and six 1-x-1 m (3.28-x-3.28 ft.) test units (Osburn et al. 2007). Construction modification and dense underbrush made assessing the original site topography difficult, but geomorphic study of the adjacent modern San Antonio River channel suggests that 41BX1628 is on the T2 surface situated above a Holocene floodplain

(Osburn 2007:175-176). All of the test units were excavated adjacent to backhoe trenches where cultural material was noted in the trench wall (Osburn 2007:177).

In BHT 1, an adult burial and an infant burial dating to the Late Archaic period were encountered and subsequently excavated in Test Units 5 and 6. Charcoal recovered from sediment presumed to be within the burial pit yielded a Late Archaic radiocarbon date (Osburn 2007:210). In addition, cultural materials associated with the human remains, together with the orientation of the individuals, support assignment of this cemetery to the Late Archaic south Texas mortuary tradition (Osburn 2007:203-207, 225). Some previously documented Late Archaic south Texas cemeteries were used simultaneously for habitation, but no evidence of occupation coterminous to the burials was encountered at 41BX1628 (Osburn 2007:225).

Two burned rock features were identified in the test units. A Pedernales projectile point was recovered from Feature 1 suggesting that deposits associated with Feature 1 date to the Middle Archaic. Unfortunately, insufficient charcoal remained in Feature 1 from which to obtain a radiocarbon date (Osburn 2007:208). The only other projectile point recovered was a proximal fragment possessing characteristics reminiscent of

late period Paleo-Indian projectile points (Osburn 2007:208). The point may have been reworked (Osburn 2007:208). Based on the presence of intact cultural features, datable organic material, and the likelihood for discovery of more human remains, GMI strongly recommended the site for inclusion on the NRHP and proposed a data recovery plan for further investigation of these cultural components of the site (Osburn 2007:225).

Ecological Communications Corporation (ECOMM) revisited 41BX1628 to execute data recovery (Padilla and Nickels 2010). The data recovery effort consisted first of clearing the site of vegetation using a backhoe (Padilla and Nickels 2010:6). Then, the backhoe was used to expose additional areas throughout the site for evidence of possible interments. Ultimately, archaeologists excavated seven backhoe trenches and 48 test units. They also horizontally scraped the terrace edge in the zone where GMI excavated the Late Archaic burials to locate additional burials along the artificial channel slope (Padilla and Nickels 2010:352).

In addition to their excavations, ECOMM performed a geoarchaeological study of BHT 1. Test units and trenches were excavated to a depth of about 0.87 m (2.85 ft.) with approximately 42 m³ (1,483.22 ft.³) dug by hand, uncovering 14 burned rock and burned clay features and recovering close to 8,000 artifacts (Padilla and Nickels 2010:7, 354). During data recovery investigations, six distinct components were identified representing the Historic, Late Prehistoric, Transitional Archaic, Late Archaic, Middle Archaic, and Early Archaic occupation of the site. Artifacts consisted of 19 projectile points, 83 bifaces, 98 unifaces, 13 cores or tested cobbles, two ground stones, and 5,882 pieces of chipped stone debitage, 10 Native American pottery sherds, 13 modern ceramic sherds, 54.9 g of ocher, 2.261 kg of burned clay, 4.597 kg of bone, 6,022 *Rabdotus*, 241 mussel shell umbos, and historic artifacts (Padilla and Nickels 2010:354). The 175 historic artifacts range from 1835 to the present. Additionally, ECOMM collected 60 charcoal samples, 61 flotation samples, and 465 magnetic susceptibility and pH samples. They size sorted, counted, and weighed 9,061 burned rocks totaling 369.372 kg in weight (Padilla and Nickels 2010:354).

Recently, additional prehistoric cultural materials were discovered at 41BX1628 in a section of profile cut during construction monitoring by CAR. Investigations followed the grading of the area, making it difficult to precisely compare depths. The CAR initially excavated 19 shovel tests and three backhoe trenches. A single 1-x-1 m (3.28-x-3.28 ft.) test unit was also excavated on top of a feature. Artifacts recovered from testing included both prehistoric and historic materials.

Specifically, materials consisted of debitage, lithic tools, burned rock, mussel shell, snail shell, charcoal, glass, and ceramics. Artifacts were recovered from 30 to 60 cm below the graded surface, and a Guadalupe adze was also found at 61 cmbs in BHT 2. Full results from these investigations will be published in a multi-volume set (Kemp and Mauldin 2017).

41BX1888

GMI investigated the area where 41BX1888 sits as part of their Phase II survey of the San Antonio River Improvements Project (Peter et al. 2006). The site is located on a terrace adjacent to the San Antonio River. The currently rechanneled river was scheduled to be returned to its previous configuration of a meandering river. To accomplish this reformation, contractors planned to remove the riverbanks from both sides of the current channel. GMI excavated one backhoe trench at the southern portion of the area. The trench contained construction fill and modern glass. They also bore three geological cores with a maximum depth between 2-7 m (6.56-22.97 ft.), and 25 mechanical auger bores with a maximum depth of 80 cmbs (31.5 in.). Two auger tests were positive for historic material. One auger contained a whiteware plate fragment in the upper 40 cm (15.75 in.), and another auger test produced a clear, molded bottle glass fragment. GMI considered both finds isolates. They recovered no prehistoric cultural material.

CAR was contracted to monitor the mechanical grading of these river terraces in archaeologically sensitive areas along the east bank of the San Antonio River. The section of the river was between SE Military Road Bridge and the Espada Dam. In May 2011, CAR monitors noted cultural material in the profile of two construction cuts. These cuts ran parallel to the stream channel and were 1.8 m (5.91 ft.) below grade. Within their profiles, archaeologists identified lithic debitage, isolated burned rock, and snail and mussel shells in an area about 100-m (328.08-ft.) long. CAR also noted two fire-cracked hearth features. While cleaning the profile walls, archaeologists exposed a Guadalupe adze, a bifacial adze, and a Saint Mary's Hall projectile point. Based upon their findings, CAR designated the area archaeological site 41BX1888.

Discovery of 41BX1888 triggered the Programmatic Agreement (2006) between the U.S. Army Corps of Engineers (USACE), San Antonio River Authority (SARA), National Park Service (NPS), and Texas State Historic Preservation Office (SHPO) concerning discovery of previously unidentified cultural resources. As stipulated in the agreement, if the site could not be avoided, then a data recovery plan would be developed to mitigate adverse effects and to determine potential NRHP eligibility of the site.

CAR recommended preservation of 41BX1888, but SARA deemed that unfeasible. Accordingly, CAR was contracted to perform testing to determine the NRHP-eligibility of the site. CAR developed a SOW to define the age and nature of the cultural deposits and the geomorphic conditions that formed the site. In June 2011, CAR excavated 10 trenches to help delineate the boundaries of 41BX1888. CAR also hand-excavated test units within trenches that were positive for cultural material, and CAR placed units above features. In total, CAR excavated 16 hand-dug units. Trenches were excavated perpendicular to the river in a general east to west direction. Most trenches were documented, photographed, and recorded with GPS. Dr. Charles Frederick examined all trenches and test units to create a geomorphic study of the site.

In total, the analysis revealed four prehistoric components, an upper Early Archaic component, a second component represented by four hearth rock features, a third component with four hearth features, and a lower Paleoindian component with two hearth features, a Saint Mary's Hall dart point, and two bifacial Clear Fork tools. Based on these findings, CAR recommended 41BX1888 eligible for the NRHP.

In consultation with the THC, CAR began data recovery, or Phase III, to further explore archaeological deposits associated with burned rock features in the lower components. The data recovery phase was completed in August 2011. Following this Phase III excavation, CAR monitored the removal of 41BX1888. This removal had the concurrence of the CAR, THC, USACE, and NPS. Twenty-one additional fire-cracked rock features were recorded during the site's removal. The report for this data recovery is currently pending (Kemp and Mauldin 2017).

41BX1902

As with 41BX1888, GMI first investigated the area (referenced as Area 2L) that encompasses 41BX1902 during the Phase II survey assessing the potential impact of SARIP (Peter et al. 2006). In late September 2011, site 41BX1902 was discovered during Mission Reach construction monitoring of grading activities. The CAR staff identified cultural deposits exposed in an approximately 70 m (229.66 ft.) cut within the east bank of the San Antonio River. Four burned rock features and artifacts including a Guadalupe adze, a distal fragment of a retouched projectile point (a Nolan-like, Early Archaic point), large mammal bone, and charcoal were observed within the cut and flagged.

The discovery of the burned rock features and artifacts initiated the Programmatic Agreement (2006) protocol. A field meeting between representatives of SARA, SHPO, NPS, and the CAR determined that because the site would be removed by construction activities, the site warranted

further investigation to determine its NRHP eligibility status. Ultimately, CAR conducted both testing and data recovery phases to mitigate the destruction of the site.

Initial testing of the site consisted of four backhoe trenches, four 50-x-50 cm (19.69-x-19.69 in.) units and four 1-x-1 m (3.28-x-3.28 ft.) units. CAR also excavated six auger tests. The site appears to have high degree of spatial integrity with preserved organic material. Based upon the presence of diagnostic artifacts, features, artifact counts, and radiocarbon assays, recent excavations revealed at least two main components.

The first, or upper, component is characterized by numerous burned rock hearths, occasional ceramics, an arrow point, and concentrations of debitage. The lower component is represented by at least two burned rock features, a Guadalupe tool, and sparse lithic debitage. Charcoal should allow for greater precision in dating the upper occupation(s) associated with ceramics and the Scallorn point. Coinciding with the initial testing, Dr. Steve Ahr conducted a geomorphological and geoarchaeological analysis to provide stratigraphic and pedologic framework for the archaeological deposits of 41BX1902.

CAR, with concurrence by the SHPO, USACE, SARA, and NPS, proposed additional testing was warranted based on the presence of stratified occupation zones with features and datable material. The mitigation strategy consisted of the excavation of three 4-x-4 m (13.12-x-13.12 ft.) blocks (Blocks A, B, and C) targeting the upper and lower components. Numerous features were documented during the data recovery phase. The majority of the features were small burned rock concentrations and scatters found in the upper component. Other feature types included a burned clay feature and an articulated joint of a medium to large mammal with an associated core and debitage.

Following data recovery, all parties agreed that grading proceed with the proviso that CAR would monitor grading and removal of the portion of the site within the construction right-of-way. Most fieldwork was completed by fall 2012, though monitoring associated with ancillary projects continued into April of 2014. Results from this important study will be published in a multi-volume set (Kemp and Mauldin 2017).

Mission San José y San Miguel de Aguayo (41BX3)

According to Nickels and Fox (1999:6), professional or "[f]ormal archaeology" did not occur at Mission San José until 1968 when Scheutz (1970) oversaw the monitoring of trench excavations. In December 1969, and April and August of

1970, D. Fox (1970) conducted archaeological trenching and testing at Mission San José that revealed artifacts from the eighteenth through the twentieth centuries (Nickels and Fox 1999:6). In 1974, Clark (1978) located a stone-lined, rectangular feature during investigations of the reconstructed Indian Quarters and suggested further research be conducted in the area. During testing along the west wall of the granary, Clark and Prewitt (1979) recorded seven features. Clark and Prewitt (1979) suggested that one of the features, a wall, might represent a Spanish Colonial blacksmith shop thought to have existed in or around the same location.

In 1981, CAR (Nickels and Fox 1999:i) excavated four hand units and found materials and architectural details of what may been the first church on the grounds of the mission that was later converted to a sacristy for the present church. Additional archeological excavations by Bradford and Traylor (1981) in conjunction with the stabilization of the grape arbor revealed, among other things, both the WPA foundation constructed in 1934 and remnants of the colonial period foundation, bringing into question the notion that WPA foundations were built directly on top of colonial ones.

In 1996, Tennis (1998:i) oversaw a project located at the southeast gate of the mission and outside a portion of the mission walls. The units excavated near the gate were required prior to the installation of a storm drain, while the shovel tests and trenches along the mission wall preceded the placement of a pipeline. In both areas, portions of the original walls of the mission were discovered. Near the southeast gate excavations revealed a stone alignment, and the shovel tests and trenches exposed remnants of the interior and exterior walls of the mission (Tennis 1998:i).

After the work in 1996 (Tennis 1998), Tomka and Fox (1998:i) returned in 1997 to conduct excavations focused in and around the Indian Quarters prior to the NPS's restoration plans for the wall, which were reconstructions that were set in place during the 1930s as a Civil Works Administration (CWA) project. Tomka and Fox's excavations made it possible to see that the CWA had placed their wall on top of the original limestone foundation built during the colonial period (Tomka and Fox 1998:i).

More recently, CAR conducted monitoring of excavations within the church and convento (Ulrich 2011) and in front of the church and convento (Wack 2012). The work in 2011 monitored the excavation of trenches for the installation of utility and gas lines (Ulrich 2011:i). The excavations revealed "seven clusters of disarticulated human remains" that were transferred to the CAR laboratory where the remains were documented and inventoried (Ulrich 2011:i). Human remains were returned to Fr. Tony Posadas who oversaw their reinterment within the church (Ulrich 2011:i). In 2012, CAR monitored the area in

front of the church and convento where trenches excavated to allow for the installation of new electrical conduit and drainage pipes (Wack 2012:i). Trench excavation for the drainage pipe revealed two features in addition to an isolated, human bone fragment that was documented and returned to Susan Snow, archaeologist for the San Antonio Missions National Historical Park (Wack 2012:i).

CAR Mission County Park Survey (41BX1917, 41BX1918, 41BX1919, and 41BX1920)

In 2011, CAR (DiVito and Oksanen 2012) conducted an intensive pedestrian survey of Mission County Park. DiVito and Oksanen's (2012) survey of the park utilized auger bores, backhoe trenches, and hand-excavated test units. Four sites (41BX1917, 41BX1918, 41BX1919, and 41BX1920) were recorded during the project. Site 41BX1917 is a multicomponent site consisting of an undated prehistoric component and a historic/modern component likely dating to the late nineteenth or early twentieth century (DiVito and Oksanen 2012:20). Both site 41BX1918 and site 41BX1919 were combinations of a lithic scatter and a historic scatter (DiVito and Oksanen 2012:21-22). The lithic material recovered from both sites was not temporally diagnostic. However, the historic scatter recovered from both sites contained materials likely dated to the late nineteenth to the early twentieth centuries (DiVito and Oksanen 2012:21-22). The final site recorded by CAR during the park survey was 41BX1920, which contained buried cultural features (DiVito and Oksanen 2012:22-23). Like the other three sites, 41BX1920 was a multicomponent site; however, unlike the other sites, 41BX1920 contained datable material: "a portion of the 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" (DiVito and Oksanen 2012:iii).

Additional Sites within 1 km (0.62 mi.) of the APE

An archaeological and historical survey of the proposed Mission Parkway took place between July 1 and December 31, 1974. The THC conducted the survey and Dan Scurlock directed the project (Scurlock et al. 1976). Of the 84 sites recorded during the Mission Parkway Survey, only one falls within 1 km of the project APE. Site 41BX241 is an area containing historic artifacts namely glass bottles, shell casings, Bristol stoneware, and wire nails.

CAR recorded site 41BX1757 during backhoe trenching in 2007 (Dowling 2008). The site is located on west bank of Old San Antonio River Channel at E. Pyron Avenue intersection. The artifacts observed during this survey included abundant

historic bottle glass, 2 .22 LR casings, a Bristol stoneware ceramic rim sherd, 1 turkey femur bone fragment, and 1 ferrous wire metal nail. Although site 41BX1757 contained numerous historic artifacts, the highly disturbed context and lack of diagnostic information limited the research potential. Therefore, CAR recommended that site 41BX1757 not warrant nomination to the NRHP or formal designation as a SAL. Further archaeological work not recommended.

SWCA Environmental Consultants recorded 41BX1774, a historic early twentieth-century residence, in 2008 (Bonine

et al. 2009). SWCA recovered Depression-era domestic glass items, wire nails, whiteware, a railroad spike, a medicine bottle, cut bone, and milk glass. SWCA determined the research value of the site is low due to previous disturbance and burning. SWCA recommended no further work at the site.

Abasolo Archaeological Consultants recorded site 41BX1935 in 2012 (THC Atlas 2016). It consists of thinly dispersed scatter of burned limestone and flakes. A Guadalupe tool was also recovered. The deposit was very shallow and appeared mixed by plowing and tree root disturbance.

Chapter 3: Field and Laboratory Methodology

Field Methods

In order to identify and document prehistoric and historic properties, the fieldwork consisted of pedestrian survey and shovel testing. The field crew consisted of the Project Archaeologist and Field Technician. A lab-based GIS Specialist supported the field crew.

CAR archaeologists completed a 100 percent pedestrian survey of the 1.6-ha (4-acre) Hot Wells property using systematic transects ranging from 15-30 m (49.21-98.43 ft.) between individuals depending on surface visibility. Archaeologists closely examined ground surfaces and utilized GPS mapping and extensive photography to record any surface sites, standing architecture, or other features. In addition to the pedestrian survey, archaeologists excavated 12 shovel tests, a rate consistent with THC guidelines, to locate and document subsurface cultural deposits. Shovel tests were approximately 30 cm (11.81 in.) in diameter and excavated to depths of up to 60 cm (23.62 in.) below the ground surface, terminating before that depth if excavators encountered bedrock, disturbances, sterile sub-soil, or the water table. Shovel tests were excavated in arbitrary 10-cm (3.94-in.) levels, and all soil matrix was screened through one-quarter inch hardware cloth. All encountered artifacts were recovered with appropriate provenience for laboratory processing, analysis, and curation. A shovel test form was completed for every excavated shovel test. Data collected from each shovel test included the final excavation depth, a tally of all materials recovered from each 10-cm (3.94-in.) level, and a brief soil description (texture, consistency, Munsell color, and inclusions). The location of every shovel test was recorded with a GPS unit and sketched onto aerial maps as a backup to GPS provenience information. Any additional observations considered pertinent were included as comments on the standard shovel test excavation form. Excavators recorded natural stratigraphic levels when possible and refilled the hole with the screened soil.

Site Recording and Collection Policy

For the purposes of this survey, an archaeological site had to contain cultural materials or features that were at least 50 years old within a given area. The definition of a site used for this project was as follows: (1) five or more surface artifacts within a 15-m (49.21-ft.) radius (ca. 706.9 m²; 7,609 ft.², or (2) a single cultural feature, such as a hearth, observed on

surface or exposed in shovel testing, or (3) a positive shovel test containing at least three artifacts within a given 10-cm (3.94-in.) level, or (4) a positive shovel test containing at least five total artifacts, or (5) two positive shovel tests located within 30 m (98.43 ft.) of each other.

As evidence of cultural materials meeting the minimum criteria for an archaeological site was encountered in a shovel test, shovel tests were excavated at close intervals to define the extent of the site. Six shovel tests were excavated to define the site boundaries within the limits of the project boundaries. Site boundaries were plotted on aerial photographs and a topographic quadrangle map, and location data was collected using a GPS unit. Digital photographs were taken of the site, and CAR submitted a Texas Archeological Sites Atlas form for the newly recorded archaeological site.

Laboratory Methods

All cultural materials and records obtained and generated during the project were prepared in accordance with federal regulation 36 CFR Part 79 and THC requirements for State Held-in-Trust collections. Additionally, materials were prepared in accordance with the current guidelines of the CAR. Artifacts processed in the CAR laboratory were washed, air-dried, and stored in 4-mil zip-locking, archival-quality bags. Materials needing extra support were double-bagged. Acid-free tags were placed in all artifact bags. Each inkjet-printer generated tag contained provenience information with a corresponding lot number. All glass and ceramic artifacts were labeled by first applying a clear undercoat of acryloid. The site and catalog number were written on this undercoat using archival-safe ink. Finally, an acryloid topcoat was applied to permanently seal the label.

Lab staff separated artifacts by class. All field notes, forms, and photographs were placed into labeled, archival-appropriate folders. Digital photographs were printed on acid-free paper, labeled with archival-appropriate materials, and placed into archival-quality sleeves. All field forms were completed in pencil. Any soiled forms were placed in plastic, archival-quality page protectors. Inkjet printer produced maps and illustrations were also placed in archival-quality page protectors to prevent against accidental smearing due to moisture. All collected materials and project related documentation are permanently housed at the CAR.

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Chapter 4: Results of Field Work

On March 2, 2016, archaeologists with the Center for Archaeological Research (CAR) conducted an archaeological survey of approximately 1.6 ha (4 acres) of land as part of the stabilization of bath house ruins and development of Hot Wells County Park in San Antonio, Bexar County, Texas. Most of the area of the pedestrian survey was heavily overgrown and ground visibility limited to approximately 15 to 20 percent (Figure 4-1). CAR archaeologists systematically walked the entire project area, but no cultural artifacts were observed during this portion of the survey except for the extant remains of the Hot Wells Bath House site. A few days earlier, during a site visit with Bexar County staff, CAR archaeologists observed a single chert flake on the surface. There was abundant evidence of disturbance on the property including scraped areas, push piles, road base, and utility trenches.

In addition to the pedestrian survey, CAR archaeologists excavated twelve shovel tests across the APE (Figure 4-2; see also Appendix A). Shovel Tests 1, 2, 3, 5, 6, 10, 11, and 12

were negative for cultural material (Table 4-1). Shovel Tests 1, 3, 6, and 12 were not completed to depth. Shovel Test 1 was abandoned after three levels due to thick impenetrable roots obstructing more than 70 percent of the opening of the excavation. Shovel Tests 3, 6, and 12 encountered road base, which made continued excavations impossible. Shovel Tests 2 and 3 were within the footprint of the proposed restroom/maintenance building and signage footings.

Shovel Tests 4, 7, 8, and 9, located southwest of the Hot Wells ruin on the terrace overlooking the San Antonio River, were positive for cultural material. The upper-most levels of matrix in these shovel tests appeared disturbed and contained a mixture of prehistoric and modern materials. The matrix below 10-15 cm (3.9-5.9 in.) appeared to be intact, and material recovered in the lower levels consisted of lithic debitage and burned rock (Table 4-2). No historic material, lithic tools, or prehistoric diagnostic artifacts were recovered from the lower deposits. In Shovel Tests 8 and 9, prehistoric artifacts were collected



Figure 4-1. Overgrown state of the project area.

from multiple levels including near the terminal depth of 60 cmbs (23.62 in.). In Shovel Test 4, prehistoric artifacts were collected from several levels including the penultimate level.

Positive shovel tests were grouped in two areas (Figure 4-2). Shovel Tests 7 and 9 were west and southwest, respectively, from the corner of the Hot Wells Bath House building. The remaining two positive shovel tests were west and northwest from the corner of the building. The area in between these positive shovel tests is highly disturbed as evidenced by churned

up soils and the mixing of prehistoric and modern materials. This disturbed area reportedly once contained a fuel tank. The fuel tank is reported to have been removed at some time in the past. Both groups of positive shovel tests were near the project area boundary, which prevented further delineation to the north, south, and west. The Hot Wells Bath House precluded additional shovel tests to the east. It is thought that the area between the two clusters of positive shovel tests, immediately west of the building, was once part of a contiguous prehistoric site interrupted by the buried fuel tank and construction of the bath house and hotel.

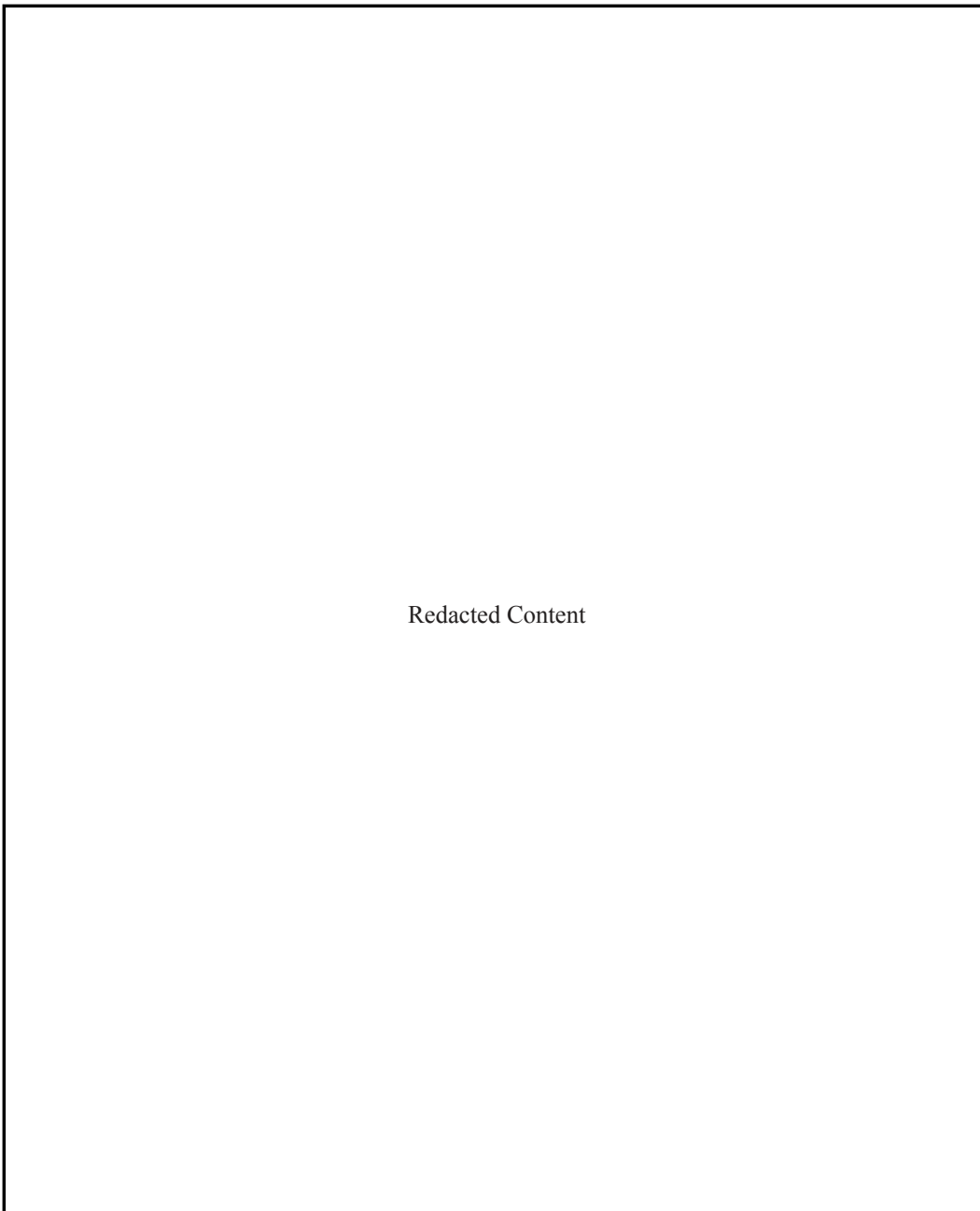


Figure 4-2. Site 41BX2128 boundary and distribution of shovel tests across the APE.

Table 4-1. Shovel Tests Excavated in the APE

ST	Site	Terminal Depth (cmbs)	Cultural Material
1		27	negative
2		60	negative
3		35	negative
4	41BX2128	60	positive
5		60	negative
6		27	negative
7	41BX2128	60	positive
8	41BX2128	60	positive
9	41BX2128	60	positive
10		60	negative
11		60	negative
12		20	negative

Table 4-2. Prehistoric Artifacts Recovered from 41BX2128

Shovel Test	Depth (cmbs)	Superclass	Class	Count
4	40-50	Lithics	Debitage	1
4	50-60	Lithics	Burned Rock	1
7	0-10	Lithics	Burned Rock	1
7	10-20	Lithics	Burned Rock	1
7	10-20	Lithics	Debitage	1
7	20-30	Lithics	Burned Rock	2
7	20-30	Lithics	Debitage	1
7	30-40	Lithics	Burned Rock	1
8	20-30	Lithics	Debitage	2
8	20-30	Lithics	Burned Rock	3
8	30-40	Lithics	Burned Rock	2
8	40-50	Lithics	Burned Rock	1
8	40-50	Lithics	Debitage	2
8	40-50	Organics	Shell	1
8	50-60	Lithics	Burned Rock	1
8	50-60	Lithics	Debitage	1
9	40-50	Lithics	Burned Rock	2
9	40-50	Organics	Shell	1

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Chapter 5: Summary and Recommendations

On March 2, 2016, the Center for Archaeological Research, in response to a request from Bexar Heritage and Parks Department, conducted an intensive pedestrian survey of approximately 1.6 ha (4 acres) in advance of development at Hot Wells County Park in San Antonio, Bexar County, Texas. The survey identified one new archaeological site (41BX2128) and revisited the previously recorded Hot Wells Bath House site (41BX237). The pedestrian survey consisted of a walkover of the entire area. Ground visibility was limited, and no cultural material was observed on the surface. In addition to the pedestrian survey, CAR archaeologists excavated 12 shovel tests across the APE. Eight of the shovel tests were negative for cultural material. These shovel tests were excavated to the north and east of the Hot Wells Bath House site (41BX237), including in the area proposed for new restroom/maintenance building and signage footings. Most negative shovel tests revealed disturbed deposits to the terminal depth of excavations.

Four shovel tests were positive for prehistoric cultural material, including lithic debitage and burned rock. No temporally diagnostic artifacts or features were identified. Positive shovel tests were located in two clusters west of the Hot Wells ruin on the terrace overlooking the San Antonio River. The upper matrix appeared disturbed and contained a mixture of prehistoric and modern materials, but deposits excavated within these two clusters of shovel tests were intact below the top 10-15 cm (3.9-5.9 in.). Separating the two groups of positive shovel tests were two negative shovel tests. These two negative shovel tests contained disturbed deposits believed to be associated with a buried fuel tank. The fuel tank was reportedly removed at some point in the past. In CAR's opinion, the terrace west of the extant Hot Wells Bath House constituted one continuous site prior to the construction of the building and the presumably associated buried fuel tank. This area has been recorded and assigned the trinomial 41BX2128.

The depth of the intact deposits and density of buried prehistoric material suggest 41BX2128 has research potential. As discussed in Chapter 2, three recently investigated sites in the area (41BX1628, 41BX1888, and

41BX1902) demonstrate further the newly recorded site's research potential (Kemp and Mauldin 2017). The four sites are in close proximity, within 3.22 km (2 mi.) of each other, and in analogous environmental settings on the eastern bank of the San Antonio River. Site 41BX1628, in closest proximity to 41BX2128, contained two burials dating to the Archaic period and six distinct components representing the Early Archaic through the Historic periods. Presently, there exists a 40-50 m (131.23-164.04 ft.) span of untested ground separating 41BX1628 from 41BX2128 that prevents their being treated as one (see Figure 2-3). Future work may prove that the two areas are one contiguous site. Results from the initial surveys of the three previously recorded sites also compare favorably to the results from the current study. Thus, these sites serve as comparative models for 41BX2128.

The CAR recommends site 41BX2128 be listed as having unknown eligibility to the National Register of Historic Places (NRHP) until testing to determine eligibility status can be completed. CAR also recommends 41BX2128 is eligible to be formally designated a State Antiquities Landmark (SAL).

The site meets two criteria per the Rules of Practice and Procedure for the Antiquities Code of Texas, Texas Administrative Code, Title 13, Chapter 26. Criteria include:

- (1) the site has the potential to contribute to a better understanding of the prehistory and/or history of Texas by the addition of new and important information; and
- (2) the site's archeological deposits and the artifacts within the site are preserved and intact, thereby supporting the research potential or preservation interests of the site.

Based on current construction plans, the CAR recommends no further archaeological testing at this time as planned improvements will not impact cultural resources identified during this survey. CAR recommends all subsurface impacts deeper than 12.7 cm (5 in.) within the boundary of site 41BX2128 be avoided. If impacts below 12.7 cm (5 in.) cannot be avoided, CAR recommends test level investigations.

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Appendix A: Summary of Shovel Test Data

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Table A-1. Summary of Shovel Test Data

ST	Site	Cultural Material	Hardness	Inclusions	Sediment	Color	Comments
1		negative	soft	gravel/roots	silt/clay	brown to tan	large roots present
2		negative	hard	gravel	silt/clay	tan/light tan to dark brown	soils undisturbed below 40 cmbs
3		negative	compact	gravel/roots/stones	clay	light brown	large stones at 40 cmbs prevented completion
4	41BX2128	positive	compact	gravel	silt/clay	medium brown	burned rock and debitage present
5		negative	compact	gravel	silt/clay	dark brown	soils undisturbed below 40 cmbs
6		negative	compact	gravel	sand	light tan	road base at 27 cmbs prevented completion
7	41BX2128	positive	compact	gravel	silt/clay	light brown	debitage and burned rock present
8	41BX2128	positive	compact	none	silt/clay	medium brown	debitage, burned rock, and umbo present
9	41BX2128	positive	compact	gravel	silt/clay	light brown	debitage, burned rock, and mussel shell
10		negative	compact	none	silt/clay	medium brown	
11		negative	compact	none	silt/clay	brown	
12		negative	compact	none	silt/clay	medium brown	road base at 20 cmbs prevented completion