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Cultural Resources Investigations of the Brooks City Base Proposed Improvements Street And Drainage Project, San Antonio, Bexar County, Texas

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CULTURAL RESOURCES INVESTIGATIONS OF THE BROOKS CITY BASE PROPOSED IMPROVEMENTS STREET AND DRAINAGE PROJECT, SAN ANTONIO, BEXAR COUNTY, TEXAS

FINAL DRAFT (REDACTED)

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MANAGEMENT SUMMARY

Raba Kistner Environmental, Inc. (**RKEI**), was contracted by the Brooks Development Authority (CLIENT) to conduct an intensive cultural resources survey of 34.95 acres at the southern boundary of Brooks City Base between the southern terminus of South New Braunfels Avenue and the western terminus of Lyster Road. This survey was in advance of the connection of South New Braunfels Avenue with Lyster Road, the improvement of 3,500 linear feet of the existing Lyster Road right-of-way, the installation of utility lines (telecommunications, underground electric, potable and recycled water), as well as surface grading, installation of culverts, and the construction of a larger detention basin for storm water management. Working cooperatively with the CLIENT, this project was funded by the City of San Antonio (COSA) through the 2017 Bond Program. As such, the project fell under the jurisdiction of Chapter 35 of the COSA Unified Development Code (UDC), as well as the Antiquities Code of Texas (ACT) (Texas Natural Resource Code, Title 9, Chapter 191), by virtue of it representing a public undertaking. Furthermore, the undertaking will required a Preconstruction Notification under Nationwide Permit 43, Stormwater Management Facilities. As such, the project also fell under the jurisdiction of Section 106 of the National Historic Preservation Act (NHPA) (16 United States Code 470) and it's implementing regulations (36 Code of Federal Regulation 800).

On September 19 and 20, 2018, **RKEI** archaeologists conducted an intensive pedestrian survey augmented with both shovel testing and backhoe trenching for the 34.95 acres of Brooks City Base associated with this project. Antonio E. Padilla, M.A. served as Principal Investigator and all field work was conducted by Archaeologists Jason M. Whitaker and Kirsten M. Atwood. A total of 19 shovel tests were excavated, as well as two backhoe trenches within the project area: five shovel tests (ST-13-18) and two backhoe trenches (BHT 1-2) in the southwest section of the APE, one in the southeastern section (ST-12) a planned shovel test (ST-18) was not excavated due to standing water, five in the northeast section (ST-6-9 and 10) a planned shovel test (ST-10) was not excavated due to standing water, and eight in the northwest section (ST-1-5 and ST-19-21). Asphalt fragments were observed in several of these shovel tests (ST-4, 16, 19, and 21), which were most likely fragments from utility roads associated with the former Brooks Air Force Base and were not considered culturally significant. As such, none of the shovel tests or backhoe trenches were positive for subsurface cultural materials. The pedestrian survey did, however, document numerous above ground structures associated with the former Brooks Air Force Base FamCamp and other associated camping facilities.

Overall, no significant prehistoric or historic materials or features were encountered within the Area of Potential Effects (APE). Given this conclusion, no significant cultural deposits will be impacted by the proposed project, and **RKEI** recommends no further archaeological investigations for the current APE. However, should additions be made to the project area, it is recommended that additional testing be conducted to determine the extent and significance of cultural deposits beyond the currently defined boundaries. All field records generated by this project will be permanently curated at the University of Texas at San Antonio Center for Archaeological Research (UTSA-CAR).

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CHAPTER 1. INTRODUCTION

Raba Kistner Environmental, Inc. (**RKEI**) was contracted Brooks Development Authority (CLIENT) to conduct archaeological investigation of a 34.95-acre tract of land located at the southern boundary of Brooks City Base. The tract of land is located between the southern terminus of S. New Braunfels Ave and the western terminus of Lyster Road (**Figure 1-1**). The proposed project will be funded and managed by the City of San Antonio through the 2017 Bond Program, working cooperatively with the CLIENT. As such, the project falls under the jurisdiction of Chapter 35 of the City of San Antonio (COSA) Unified Development Code (UDC), as well as the Antiquities Code of Texas (ACT) (Texas Natural Resource Code, Title 9, Chapter 191), by virtue of it representing a public undertaking. Furthermore, the undertaking will required a Preconstruction Notification under Nationwide Permit 43, Stormwater Management Facilities. As such, the project falls under the jurisdiction of Section 106 of the National Historic Preservation Act (NHPA) (16 United States Code 470) and it's implementing regulations (36 Code of Federal Regulation 800).

Project Description and Area of Potential Effect

The proposed project will involve improvements of 34.95 acres and will consist of the extension of South New Braunfels Avenue that will connect with Lyster Road, improvement of 3,500 linear feet of the existing Lyster Road right-of-way, installation of telecommunications, underground electric, potable water, and recycle water, as well as surface grading, installation of culverts, and the construction of a large detention basing for storm water management.

The Area of Potential Effects (APE) is defined as an irregularly shaped, 34.95 acre area of existing city roads streets, cleared agricultural pastures, and vegetated rangeland. An unnamed tributary of the San Antonio River is located adjacent to the southern APE boundary, which appears to have been dammed to form a small stock pond along the southwestern corner of the APE. A former Recreational Vehicle (R.V.) Park, known as FamCamp within the Joint Base SA system, is located at the southwestern corner of the APE. A review of current aerial photography depicts the APE as generally set within a mix of rural agricultural farmland and areas of new residential and commercial development. The APE is located on the Southton (2998-132) *Texas*, USGS 7.5-Minute Quadrangle Map (**Figure 1-2**).

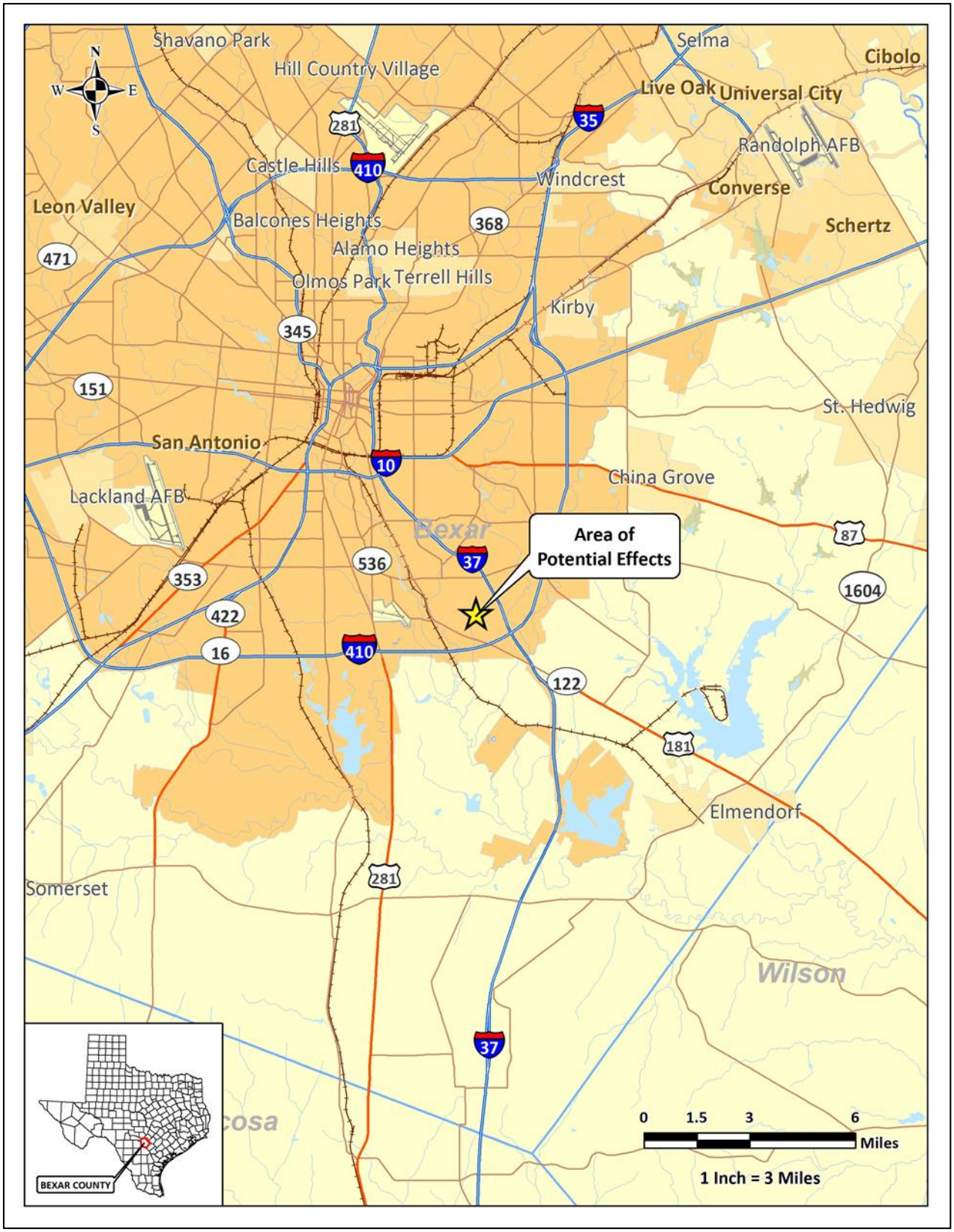

Figure 1-1. Location of APE within San Antonio, Bexar County, Texas.

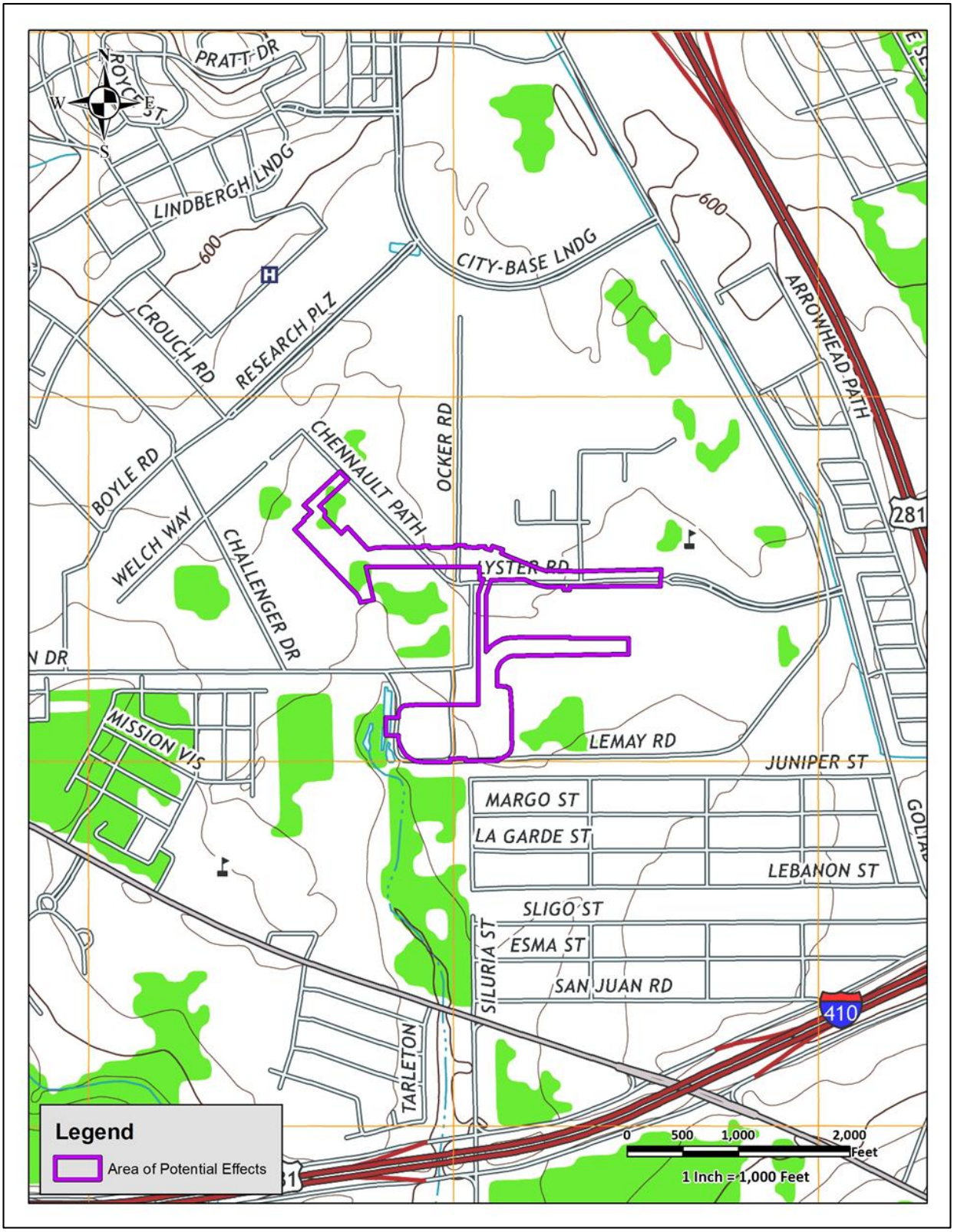

Figure 1-2. The APE depicted on the *Southton* (2998-132) *Texas*, USGS 7.5-Minute Quadrangle Map.

CHAPTER 2. ENVIRONMENTAL SETTING

Project Area Setting

The project area is located in the south-central Texas geographic region within the Blackland Prairie ecoregion. The Blackland Prairie is an area of low topographic relief and poor drainage, prone to frequent flooding (Collins 1995). The Blackland Prairie physiographic region is characterized by gently undulating topography and is generally defined as grasslands punctuated by riparian bands along creeks, rivers, and other drainages. Creation of the Blackland Prairies occurred during the late Tertiary, with the erosions of soils on the Edwards Plateau. These soils were deposited by eolian and colluvial processes across an existing, eroded parent material of the Gulf Coastal Plain, creating a mix of deep Tertiary and Quaternary calcareous clay soils (Black 1989a).

Soils and Geology

Soils mapped within the APE consist predominately of Branyon clays, with Tinn and Frio soils adjacent to the unnamed tributary of the San Antonio River, and Lewisville silty clays along the southern APE boundaries (National Resources Conservation Service [NRCS] 2018) (**Figure 2-1**). Branyon soils consist of very deep, moderately well drained, very slowly permeable soils that formed in calcareous clayey alluvium derived from mudstone of a Pleistocene-age on nearly level to very gently sloping treads of stream terraces on river valleys (NRCS 2018). Tinn and Frio soils are very deep, moderately well-drained, slowly permeable soils that formed in calcareous loamy and clayey alluvium on floodplains of dissected plains within the Blackland Prairies (NRCS 2018). Lewisville soils consist of very deep, well drained, moderately permeable soils that formed in ancient loamy and clayey calcareous sediments in upland settings (NRCS 2018). Geologically, the APE is underlain by the Leona Formation of Pleistocene-age to the east, and the Midway Group, undivided, of Paleocene-age to the west (Barnes 1992) (**Figure 2-2**).

Flora and Fauna

The APE is located near the juncture of the Balconian and Taumaulipan biotic provinces (Blair 1950). The Balconian Biotic Province is associated with the Edwards Plateau, which is typically characterized by open savannah rangeland interspersed with live oak-ashe juniper woodlands and small brush (Griffith and

Omernik 2018). The Texan Biotic Province, associated with the Blackland Prairie physiographic region, is characterized by gently undulating topography and generally defined as grasslands punctuated by riparian bands along creeks, rivers, and other drainages (Griffith and Omernik 2018).

Due to the location of the APE, floral and faunal resources consist of a mix of the two provinces. Common vegetation types of the area include post oak (Quercus stellate), live oak (Quercus virginiana), bald cypress (Taxodium distichum), pecan trees (Carya illinoinensis), cedar (Juniperus ashei), Texas mountain laurel (Sophora secundiflora), mesquite (Prosopis glandulosa), prickly pear (Optunia sp.), agarita (Berberis trifoliolata), cat claw (Smilax bona-nox), mustang grape (Vitis mustangensis), sotol (Dasylirion texanum), and Spanish dagger (Yucca sp.). A brief list of some of the animal species found in Bexar County includes the eastern cottontail (Sylvilagus floridianus), nine-banded armadillo (Dasypus novemcincus), white-tailed deer (Odocoileus virginianus), Virginia opossum (Didelphis virginiana), common raccoon (Procyon lotor), fox squirrel (Sciurus niger), striped skunk (Mephitis mephitis), Carolina chickadee (Poecile carolinensis), northern cardinal (Cardinalis cardinalis), great horned owl (Bubo virginianus), mourning dove (Zenaida macroura), red-shouldered hawk (Buteo jamaicensis), northern mockingbird (Mimus polyglottos), Texas rat snake (Elaphe obsoleta lindheimeri), western coachwhip (Masticophis flagellum), Texas toad (Bufo speciosus), Texas spiny lizard (Sceloporus olivaceus), and the western diamondback rattlesnake (Crotalus atrox) (Blair 1950).

South Texas Climate

The climate in south-central Texas is humid subtropical with hot and humid summers. From May through September, hot weather dominates with the cool season beginning around the first of November and extending through March. Winters are typically short and mild with little precipitation. San Antonio averages only 33 inches of rain per year (Southern Regional Climate Center 2018; based on monthly averages from 1980 to 2010). Monthly temperature averages range between 52°F in January to 85°F in August.

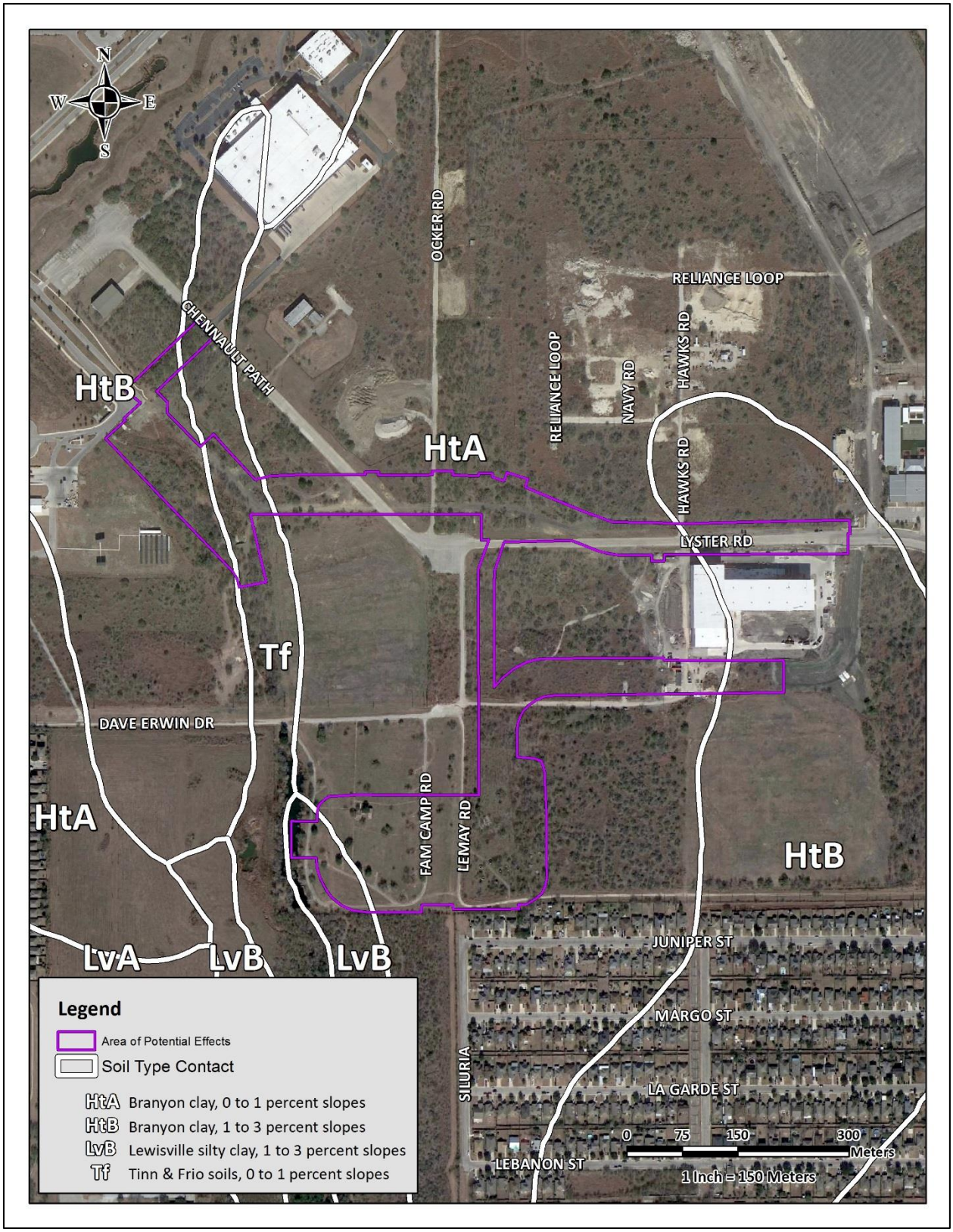

Figure 2-1. Soils of the APE.

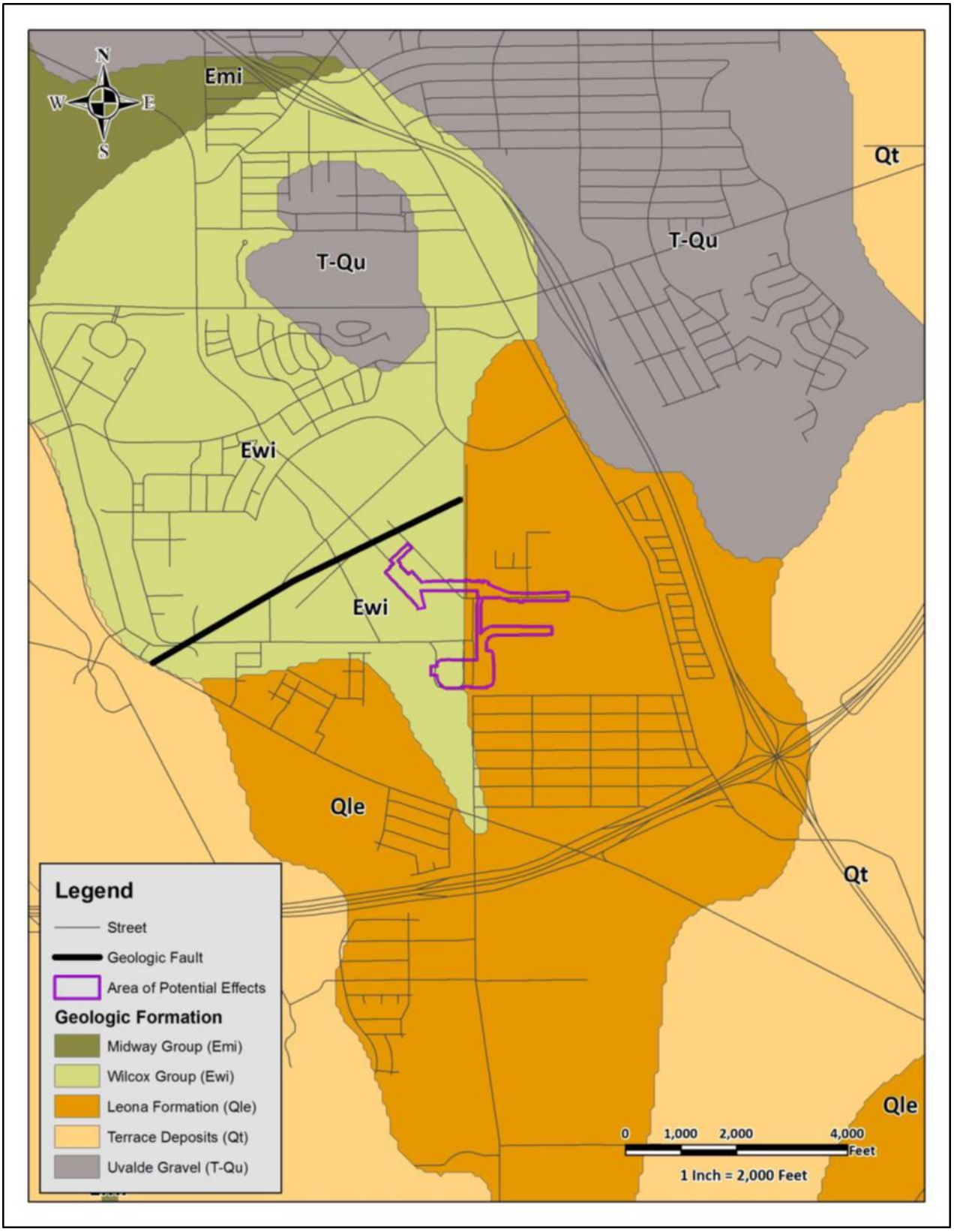

Figure 2-2. Underlying Geology of the APE.

CHAPTER 3. CULTURAL CONTEX

The APE is located at the cusp of Central Texas and South Texas archaeological regions (Turner and Hester 1999). Based on extensive research conducted by Black (1989b), Collins (1995, 2004), Hester (2004), Johnson et al. (1962), Prewitt (1981, 1985), Sorrow et al. (1967), Suhm (1957, 1960), Suhm et al. (1954), and Weir (1976), Central Texas has a well-established chronological sequence beginning 12,000 years ago. The sequence for South Texas is less defined, though the project area likely shares many of the attributes identified for Central Texas. Nonetheless, the chronological sequence of Bexar County and the vicinity is divided in to four cultural periods, spanning approximately 11,500 years. Archaeologists have divided the occupation of the region into four principal periods and several sub-periods: Paleoindian (11,500–8800 B.P.), Archaic (8000–1200 B.P.), Late Prehistoric (1200–400 B.P.), and Historic (400 B.P. to present). The periods are characterized by changes in climatic conditions, distinct vegetation types and structure, and concomitant adaptive changes by human populations in hunting and gathering technologies and strategies, general material culture, and at the tail end of the cultural sequence, the arrival of non-indigenous populations.

Paleoindian Period

The oldest cultural materials found in the region date to the Paleoindian period. The period spans roughly from 11,500–8800 B.P. (Collins 1995, 2004). The Aubrey site in Denton County has one of the earliest occupations, with radiocarbon assays dating to between 11,542 ± 11 B.P. and 11,590 ± 93 B.P. (Bousman et al. 2004:48). Paleoclimatic proxy measures suggest that a cooler climate with increased precipitation was predominant during the Late Pleistocene (Mauldin and Nickels 2001; Toomey et al 1993), the later portion of the period.

Initial reconstructions of Paleoindian adaptations typically viewed these hunter-gatherers as traversing extreme distances in pursuit of now extinct mega-fauna such as mammoth and mastodon. While these Paleoindian populations did exploit the Late Pleistocene mega-fauna when it was accessible, a number of faunal assemblages from a larger number of sites indicate that the Paleoindian diet was more varied and consisted of a wide range of resources, including small game and plants. The Lewisville (Winkler 1982) and the Aubrey sites (Ferring 2001) produced faunal assemblages that represented a wide range of taxa, including large, medium, and small species. Information on the consumption of plant resources during the

Paleoindian period is lacking. Bousman et al. (2004) reported that the late Paleoindian component at the Wilson-Leonard site reflected the exploitation of riparian, forest, and grassland species. Analysis of Paleoindian skeletal remains indicates that the diets of the Paleoindian and later Archaic hunter-gatherers may have been similar (Bousman et al. 2004; Powell and Steele 1994).

The early portion of the Paleoindian period was characterized by the appearance of Clovis and Folsom fluted projectile points that were used for hunting mega-fauna. Typical projectile points produced at sites with occupations dating to the later portion of the Paleoindian period included the Plainview, Dalton, Angostura, Golandrina, Meserve, and Scottsbluff types. Meltzer and Bever (1995) have identified 406 Clovis sites in Texas. One of the earliest, 41RB1, yielded radiocarbon assays that put the maximum age for the Paleoindian component at 11,415 ± 125 B.P. (Bousman et al. 2004:47).

Sites in Bexar County that contain Paleoindian components include St. Mary's Hall (Hester 1978, 1990), Pavo Real (Collins et al. 2003), the Richard Beene site (Thoms et al. 1996; Thoms and Mandel 2006) and 41BX1396 (Tomka 2012). St. Mary's Hall, 41BX229, was first encountered in 1972 during the construction of a house just outside the school's property. The Pavo Real site, 41BX52, is located along Leon Creek in northwest Bexar County. The site was first documented in 1970 and has been investigated several times over the past 40 years (Collins et al. 2003). The Richard Beene site, 41BX831, is located along the Medina River in southern Bexar County (Thoms et al. 1996). Site 41BX1396 is located in Brackenridge Park in San Antonio, and was encountered during installations for lighting in 2010. Dating of organic samples indicated that occupation at the site occurred as early as 10,490–10,230 B.P.

Archaic Period

The Archaic period dates between ca. 8800 to 1200 B.P. It is divided into three subperiods: Early, Middle, and Late. During the Archaic, mobility strategies may have shifted to more frequent short distance movements that allowed the exploitation of seasonal resource patches. The intermittent presence of bison in parts of Texas, combined with changes is climatic conditions and the primary productivity of the plant resources may have contributed to shifts in subsistence strategies and associated technological repertoire. When bison was not present in the region, hunting strategies focused on medium to small game along with continued foraging for plant resources. When bison was available, hunter-gatherers targeted the larger-bodied prey on a regular basis.

Early Archaic

The Early Archaic spans from 8800 to 6000 B.P. (Collins 1995, 2004). Projectile point styles characteristic of the Early Archaic include Angostura, Early Split Stem, Martindale, and Uvalde (Collins 1995, 2004). The Early Archaic climate was drier than the Paleoindian period and witnessed a return to grasslands (Bousman 1998). Mega-fauna of the Paleoindian period could not survive the new climate and ecosystems, therefore eventually dying out. Early Archaic exploitation of medium to small fauna intensified.

The excavations at the Wilson-Leonard site (41WM235) produced a wealth of cultural materials representative of a lengthy period in regional prehistory. The projectile point assemblages from the site indicate that the lanceolate Paleoindian point forms continue from the Paleoindian into the Early Archaic (Angostura). However, relatively quickly during the Early Archaic, they are replaced by corner- and basally-notched and shouldered forms (Early Triangular, Andice, Bell) that quickly become the dominant points tipping the atlatl-thrown darts. In addition, the uses of small to medium hearths similar to the previous period were noted. The appearance of earth ovens suggests another shift in subsistence strategies. The earth ovens encountered at the Wilson-Leonard site were used to cook wild hyacinth along with aquatic and terrestrial resources (Collins et al. 1998). Analyses of Early Archaic human remains encountered in Kerr County (Bement 1991) reveal diets low in carbohydrates in comparison to the Early Archaic populations found in the Lower Pecos region.

Middle Archaic

The Middle Archaic sub-period spans from 6000 to 4000 B.P. (Collins 1995, 2004; Weir 1976). Archaeological data indicates that there appeared to be a population increase during this time. The climate was gradually drying leading to the onset of a long drought period. Changes to the demographics and cultural characteristics were likely in response to the warmer and more arid conditions. Projectile point styles characteristic of this sub-period include Bell, Andice, Calf Creek, Taylor, Nolan, and Travis.

Subsistence during the Middle Archaic saw an increased reliance on nuts and other products of riverine environments (Black 1989b). The increase of burned rock middens during the Middle Archaic represented the increased focus on the use of plant resources (Black 1989b; Johnson and Goode 1994). Little is known

about burial practices during the Middle Archaic. An excavation in an Uvalde County sinkhole (41UV4) contained 25–50 individuals (Johnson and Goode 1994:28).

Late Archaic

The Late Archaic spans from 4000 to 1200 B.P. (Collins 1995, 2004). It is represented by the Bulverde, Pedernales, Kinney, Lange, Marshall, Williams, Marcos, Montell, Castroville, Ensor, Frio, Fairland, and Darl projectile points. The early part of the Late Archaic exhibited fluctuations in the temperature and rainfall. There appears to have been an increase in population at this time (Nickels et al. 1998).

Some researchers believe that the use of burned rock middens decreased during the Late Archaic. Some research has challenged this notion (Black and Creel 1997; Mauldin et al. 2003). Johnson and Goode (1994) discuss the role of burned rock middens in relation to acorn processing.

Human remains from burials related to the Late Archaic in Central and South Texas suggest the region saw an increase in population. This increase may have prompted the establishment of territorial boundaries which resulted in boundary disputes (Story 1985). Human remains dating to this sub-period have been encountered near the Edwards Plateau.

Late Prehistoric Period

The Late Prehistoric period begins ca. 1200 B.P. (Collins 1995, 2004), and appears to continue until the beginning of the Protohistoric period (ca. A.D. 1700). The term Late Prehistoric is used in Central and South Texas to designate the time following the end of the Archaic period. A series of traits characterizes the shift from the Archaic to the Late Prehistoric period. The main technological changes were the shift to the bow and arrow and the introduction of pottery. The Late Prehistoric period is divided into two phases: the Austin phase and the Toyah phase.

At the beginning of this period, environmental conditions were deemed to be warm and dry. Moister conditions appear after 1000 B.P. (Mauldin and Nickels 2001). Subsistence practices appeared similar to

the Late Archaic. Projectile points associated with the Austin phase include the Scallorn and Edwards types. The Toyah phase is characterized by the prominence of the Perdiz point (Collins 1995, 2004).

Most researchers concur that the early portion of the Late Prehistoric period saw a decrease in population density (Black 1989b:32). Radiocarbon dates from some sites have indicated that the middens were utilized during the Late Prehistoric. Some archaeologists assert that the peak of midden use was after A.D. 1 and into the Late Prehistoric (Black and Creel 1997:273). Radiocarbon dates from Camp Bowie middens provide evidence that supports Black and Creel's arguments that burned rock middens were a primarily Late Prehistoric occurrence (Mauldin et al. 2003).

Beginning rather abruptly at about 650 B.P., a shift in technology occurred. This shift is characterized by the introduction of blade technology, the first ceramics in Central Texas (bone-tempered plainwares), the appearance of Perdiz arrow points, and alternately beveled bifaces (Black 1989b:32; Huebner 1991:346). Prewitt (1981) suggests this technology originated in north-central Texas. Patterson (1988), however, notes that the Perdiz point was first seen in southeast Texas by about 1350 B.P., and was introduced to west Texas some 600 to 700 years later.

Early ceramics in Central Texas (ca. A.D. 1250 to 1300) are associated with the Toyah phase of the Late Prehistoric and are referred to as Leon Plain ware. The Leon Plain ceramic types are undecorated, bone-tempered bowls, jars, and ollas with oxidized, burnished, and floated exterior surfaces (Ricklis 1995). There is notable variation within the type (Black 1986; Johnson 1994; Kalter et al. 2005). This variation can be attributed to differences in manufacturing techniques and cultural affiliation. Analysis of residues on ceramic sherds suggests that vessels were used to process bison bone grease/fat, mesquite bean/bison bone grease and deer/bison bone grease (Quigg et al. 1993).

The return of bison to South and Central Texas during the Late Prehistoric resulted from a drier climate in the plains located to the north of Texas and increased grasses in the Cross-Timbers and Post Oak Savannah in north-central Texas (Huebner 1991). The increased grasses in the two biotas formed the "bison corridor" along the eastern edge of the Edwards Plateau and into the South Texas Plain (Huebner 1991:354–355). Rock shelter sites, such as Scorpion Cave in Medina County (Highley et al. 1978) and Classen Rock Shelter in northern Bexar County (Fox and Fox 1967), have indicated a shift in settlement

strategies (Skinner 1981). Burials encountered that dated to this period often reveal evidence on conflict (Black 1989b:32).

Historic Period

The beginnings of San Antonio came about with the establishment of Mission San Antonio de Valero in 1718. Fray Antonio de San Buenaventura y Olivares had briefly visited the site several years prior, and petitioned to set up a mission at the headwaters of the San Antonio River to act as a waypoint in the journey to East Texas. The Marques de Valero, Viceroy of New Spain, granted Olivares' request and granted him permission (de la Teja 1995). Mission Valero occupied at least two locations before it settled into its current spot.

The first location of Mission Valero was located on a prominent hill along San Pedro Creek, near the modern day location of the Christopher Columbus Italian Society. The mission remained in this location for approximately a year before its relocation to the east bank of the San Antonio River in 1719. It is hypothesized that this second location is the modern day location of Saint Joseph's Church on East Commerce Street. Due to the destruction of the mission location by a disastrous storm that flooded the area, the mission was moved to its current location (Chipman 1992; Cox 1999, 2005; Habig 1968; Nichols 2015; Schoelwer 2018; Tous 1930). The final location was in use by 1724.

Five days after Mission Valero was founded, Presidio de Bexar was established. The presidio was to house the Spanish soldiers who had come along with the expedition to found the Mission. Typically, the families that followed the soldiers lived just outside the presidio.

Two years later, in 1720, Mission San José y San Miguel de Aguayo was established on the opposite bank of the San Antonio River, and to the south of Mission Valero and Presidio San Antonio de Bexar. This mission was established to help serve native groups that did not want to reside at Mission Valero because they were not on friendly terms with groups already living there. The original location of Mission San José was along the east bank of the San Antonio River, approximately three leagues from Mission Valero. The mission was then moved to the opposite bank sometime between 1724 and 1729, and relocated to its present site during the 1740s due to an epidemic (Scurlock et al. 1976:222).

In 1722, just two years after Mission San José was founded, Mission San Francisco Xavier de Nàjera was established. The mission was to serve a group of 50 Ervipiami families that came from the Brazos River area (Schuetz 1968:11). Mission San Francisco Xavier de Nàjera was located on or near the present site of Mission Concepción. The mission was unsuccessful due to a lack of funding. An attempt was made to make the mission a sub-mission of Valero, but this failed as well (Habig 1968:78–81). Its doors closed in 1726 (Schuetz 1968:11). Ivey (1984:13) argued that the closure of the mission was due to the natives' lack of interest in entering mission life.

Within the next few years, three other missions were established within the San Antonio area. The remaining three missions were established in San Antonio within weeks of each other in 1731. These three missions, Mission Nuestra Señora de la Purísima Concepción, Mission San Juan de Capistrano, and Mission San Francisco de la Espada, were originally established in east Texas. When each failed along the eastern border, they were moved to San Antonio.

In addition to the five missions, the civilian community outside of the mission and presidio, Villa San Fernando de Bexar was established by the Canary Islanders. Prior to the establishment of Villa San Fernando, Villa de Bexar had been settled by 30 presidial soldiers, seven of whom were married and brought their families. Archival research indicates that upon arrival, the Canary Islanders immediately took over the land surrounding the garrison. This land was used as pasture and was originally property of Mission Valero. There had been a lack of cleared agricultural land at the time, leading Captain Juan Antonio Pérez de Almazán to allow the Canary Islanders use of the property (de la Teja 1995). The initial plan was for additional Canary Island settlers to be sent to San Antonio after the first group was established. Due to high costs to the Spanish Crown, no more groups were brought to Texas. The Canary Islanders launched a formal complaint against Mission Valero. In 1731, the Canary Islanders established their own villa, named San Fernando de Bexar, with their own church. The arrival of the Isleños resulted in the first clearly defined civilian settlement in San Antonio.

Brooks Air Force Base

Brooks Air Force Base encompasses approximately 1,300 acres of land in southeastern San Antonio, Texas (Alcott 2018). The base was established as a training field for student pilots in 1917, shortly after the United States entered World War I (WWI). The purpose of the field was to train student pilots in the

Gosport System, earning it the title Gosport Field. The name of the facility was changed to Signal Corps Aviation School, Kelly Field No. 5 on December 5, 1917, and renamed Brooks Field following the death of Cadet Sidney Johnson Brooks, Jr., during a training accident on February 4, 1918. By the time of Brooks' passing, the base housed 16 hangers. After WWI, the air field continued to act as an aviation school, including a pilot school for balloon and airships from 1919–1922, a primary flying school for the Army Air Corps from 1922 to 1931, and a paratrooper training facility in 1928 (Alcott 2018).

In 1926, the School of Aviation Medicine was transferred from Hazelhurst Field in New York to Brooks Field, but in 1931, both the flying school and the aviation medicine school were moved to Randolph Field in northeastern San Antonio (Alcott 2018). Throughout the 1930s and 1940s, Brooks Field served as a center for aerial-observation training and a special school for combat observers. In 1948, the facility was renamed Brooks Air Force Base after the Army and Air Force separated and the Third Air Force joined the base (Alcott 2018).

In 1959, Brooks began a transition from flight-training to medical research and education (Alcott 2018). The School of Aviation Medicine was transferred back to Brooks from Randolph Air Force Base, and by October 1959, the base had become the headquarters for the Aerospace Medical Center. By June 1960, all flying at the base had ceased. From 1960 to present, the base continued to house major divisions for aerospace medicine, as well as space medicine for the Nation Space Program. The base was officially decommissioned in 2011, and is now managed by the Air Force Civil Engineer Center. The now-named Brooks City-Base houses a civilian community with state-of-the-art medical facilities, residential, and commercial development (Alcott 2018).

Previous Archaeological Investigations

Prior to field investigations, **RKEI** conducted a review to determine if any previously archaeological investigations or any cultural resources have been documented within the APE. Review of the Texas Archaeological Site Atlas (Atlas), an online data base maintained by the Texas Historical Commission (THC), revealed that two cultural resource surveys intersect the APE, and that no known cultural resources are located within its boundaries (THC 2018) (**Figure 3-1**). Similarly, there are two cultural resource surveys and no known cultural resources that fall within a ½ kilometer (km) buffer zone of the APE. Further review of a 1-mile (1.6 km) radius of the study area identified nine known archaeological sites, one Official Texas

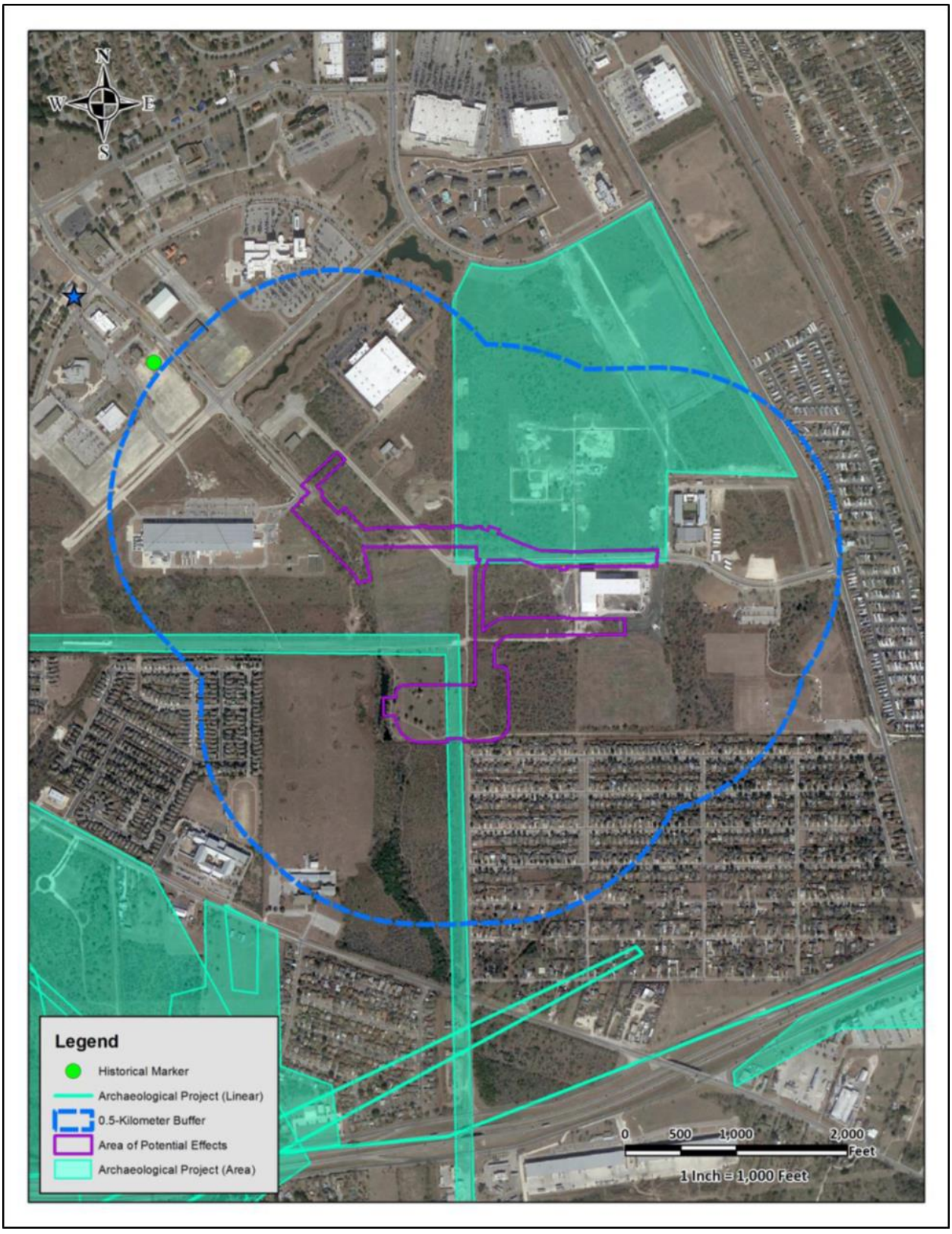

Figure 3-1. Archaeological surveys and site locations within 0.5 km of the APE.

Historical Marker (OTHM), one National Register of Historic Places (NRHP) Property, one National Register (NR) Historic District, and multiple locally designated Historic Sites, Districts, and a Spanish Colonial Acequia. Most of the identified resources are concentrated near the San Antonio River, 1.26 miles (2.03 km) west of the APE (THC 2018).

In 2015, Terracon Consultants, Inc. conducted an area survey at the northeastern corner of the APE (Yelacic 2015). The 147.5-acre pedestrian survey was conducted shovel testing investigations that found the study area to be recently disturbed from the demolition of the former Brooks Air Force Base runways and medical research laboratories. No new cultural resources were documented as a result of the 2015 investigations (Yelacic 2015).

In 2011, a linear survey was conducted by Abasolo Archaeological Consultants for the NuStar San Antonio Refinery Pipeline Project (Shafer and Hester, 2011). The 2011 survey enters the current APE from west to east, along the Dave Erwin Drive right-of-way before redirecting south down FamCamp Road and exiting the southern APE boundary. The survey examined high probably areas, which resulted in the documentation of eleven archaeological sites and one historic architectural feature. None of the resources documented during the 2011 survey are located within the current APE (Shafer and Hester 2011).

Nine known archaeological sites are located within 1-mile (1.6 km) of the APE, two of which were historic-age houses recorded during the 1974 Mission Parkway Project: 41BX258 and 41BX259 (THC 2018). Site 41BX258 is two-room adobe house with modern modifications known as the Mariano Zuniga House. The site is located 0.93 mile (1.50 km) west of the APE, on the east side of Corpus Christi Road near Graf Road. No investigations have been conducted from the site, but additional work was recommended. Site 41BX259 is a two-room stucco house, 0.95 mile (1.53 km) west of the APE. No eligibility determinations have been made for either site (THC 2018).

Two prehistoric sites documented within 1-mile (1.6 km) of the APE include 41BX705 and 41BX2036 (THC 2018). Site 41BX705 is a prehistoric campsite of an unknown temporal affiliation, 0.96 mile (1.54 km) southeast of the APE. The site consists of a light scatter of lithic debris and burned rock within a disturbed road right-of-way. No eligibility determination has been listed for 41BX705. Site 41BX2036 is a buried lithic scatter located 0.74 mile (1.19 km) west of the APE. The site was recorded in 2014 during a pedestrian

survey that observed cultural materials eroding out of an agricultural pasture. No diagnostic materials or features were observed, and no further work was recommended. No eligibility determination made for 41BX2036 (THC 2018).

The last two archaeological sites documented within 1-mile (1.6 km) of the APE are historic sites 41BX268 and 41BX2153 (THC 2018). Site 41BX268 is a segment of the San Juan Acequia that was first identified by archaeological investigations in 1975. The segment, located 0.76 mile (1.22 km) southwest of the APE, has been revisited three times since 2012, and now consists of a concrete-lined ditch that is now used as a drainage easement. The site was designated as eligible for listing in 2018 (THC 2018). Site 41BX2153 is a historic-age artifact scatter, 0.99 mile (1.59 km) south of the APE. The scatter was recorded in 2017, and is likely associated with a residential complex located to the north; however, the residence was beyond the boundaries of the investigations. As a result, the documented portion of the site was recorded scatter was listed as ineligible, but additional investigations are recommended to the north of the site boundary (THC 2018).

One OTHM was documented within 1-mile (1.6 km) of the APE (THC 2018). OTHM Marker No. 1398, commemorating the Edward H. White II Memorial Hanger at Brooks Air Force Base is located 0.34 mile (0.55 km) northwest of the APE. The marker was dedicated in 1970 for Astronaut Lieutenant Colonel Edward H. White, the first American to walk in space while tethered to his Gemini spacecraft on June 3, 1965. The Hanger 9 NRHP Property is 0.53 mile (0.85 km) northwest of the APE. Hanger 9 is a historic aircraft hangar constructed in 1918, and is the only surviving hanger from World War II. The property listed as a NRHP Property in 1970 and is also a locally designated Historic Site. One NR Historic District, the Mission Parkway NR District, is located 0.52 mile (0.84 km) west of the APE. The district encompasses the lower four Spanish Colonial Missions and their associated lands along the San Antonio River (THC 2018).

Two locally designated Historic Sites, one locally designated Historic District, and one Spanish Colonial Acequia are located within the 1-mile (1.6 km) study buffer: the Brooks Building No. 538, 0.65 mile (1.45 km) north of the APE; the Hanger 9 Historic Site, 0.25 mile (0.40 km) northwest of the APE, the Mission Historic District, 0.86 mile (1.38 km) west of the APE; and the San Juan Acequia, 0.91 mile (1.46 km) west of the APE. Furthermore, two locally designated zoning districts are located within study area: River Improvements Overlay (RIO) District 3, and Mission Protection Overlay Districts (MPOD) 3. RIO Districts

are zoning overlays that establish regulations to protect, preserve, and enhance the San Antonio River and its surrounding area by establishing design standards and guidelines for local properties. The APE is 0.96 mile east of RIO District 6. MPODs are zoning overlays that protect the overall environment and setting for mission sites. The APE is located 0.86 mile east of MPOD 3 for Mission San Juan Capistrano.

Historic Aerial Photography

A review of historic aerial photography was conducted in order to determine previous impacts to the APE. Aerial imagery from 1955 to 1966, depicts the northern section of the APE skirting the southern extent of the Brooks Air Force Base runway system. The southern half of the APE is seemingly undeveloped. After 1966 a road was added in the northwest section of the APE, which connected current Welch and Ocher Roads. This road is not visible in an image dating to 1986. Aerial photographs from 1973, show the addition of structures in the southwest corner of the APE, which may have been the early stages of the military campground known as FamCamp. Also in this image, a larger aircraft is parked in the southeastern section of the APE. Images after 1986 show that expansion of the FamCamp in the southwest corner of the APE and extensions into the southeast section of the APE. Images from 2004 and beyond show the repurposing of this area from Brooks Air Force Base into Brooks City Base. The repurposing of the area involved, changing previous base roads to city streets and construction of civilian facilities. The areas associated with the FamCamp have not been modified.

CHAPTER 4. METHODS OF INVESTIGATION

RKEI utilized a combination of visual inspection of the ground surface augmented by shovel testing and the excavation of backhoe trenches in selected locations within the APE. Shovel testing was employed to assess surface and shallowly buried archaeological deposits. Shovel testing was conducted in areas judged to have high probabilities for cultural deposits and/or when surface visibility was below 30-percent. No shovel tests were conducted in areas containing 20-percent or greater slope. Backhoe trenching was employed to assess deeply buried archaeological deposits. All work complied with the THC and Council of Texas Archeologists (CTA) survey standards for Texas for the overall project area.

Pedestrian Survey and Shovel Testing

The archaeological survey consisted of an intensive pedestrian survey of the APE. The survey involved visual inspection of the ground surface and included the examination of cut bank exposures along creeks and drainages within the APE. Archaeologists surveyed the APE along transects spaced no greater than 30 meters (m) apart to locate cultural materials on the ground surface, which were photographed and documented. The survey was accompanied by the excavation of shovel tests. Per requirements of THC's minimum standards for project measuring 11 to 100 acres in size, two shovel tests are required per acre. The APE measured 34.95 acres; thus, requiring a minimum of 18 shovel tests within the APE. **RKEI** archaeologists exceeded the recommended minimum number of shovel tests by excavating a total of 19 shovel tests within the APE, none of which tested positive for subsurface cultural materials.

On average, shovel tests were excavated to a depth of 60 centimeters (cm) below surface (bs). Shovel tests ranged in size from 32 to 35 cm in diameter and excavated in 10 cm arbitrary levels. All soils were screened through a ¼ inch mesh to observe artifacts. A shovel test form was completed for each excavated shovel test. Data collected from the shovel test included the final excavation depth, a tally of all materials encountered from each 10-cm level, and a brief soil description (texture, consistency, Munsell color, inclusions). The location was recorded using a Garmin, hand-held, GPS unit. Shovel test locations were sketched onto a current aerial photograph of the APE as a backup to the GPS information. Any additional observation considered pertinent was included as comments on the standard shovel test excavation form.

As a part of any archaeological survey, existing standing structures or above-ground resources within the APE were photo-documented. A review of historic aerial maps and county records was conducted as needed to determine the significance and age of any historic-age resources located in the project area.

Backhoe Trenching

RKEI Archaeologists conducted two backhoe trenches within the APE. A third backhoe trench was planned but not completed. The backhoe operator along with archaeological field staff determined that conditions in that area of the APE to be dangerous concerning the insertion and extraction of heavy equipment. The two completed backhoe trenches were placed near the unnamed tributary of the San Antonio River. The backhoe trenches were excavated by a professional backhoe operator, and performed in accordance with Occupational Safety and Health Administration (OSHA) guidelines (29 CFR Part 1926) and the Texas Trench Safety Act (H.B. 1569). Prior to excavations, **RKEI** performed a One-Call (Texas 811) to verify that there were no existing utilities within excavation areas.

Backhoe trenches ranged from 3 to 5 m in length and were 1 m wide to allow ease of access. Trenches did not exceed 1.5 m in depth. Backhoe trenches were both monitored and photo-documented. During the excavation process, back-dirt from these trenches was placed adjacent to the open trench and visually inspected for cultural materials. Additionally, trench profiles were monitored during the excavation process to identify exposed cultural materials or features. Documentation of a completed trench consisted of clearing of a one-meter representative segment of each trench wall. The cleared trench wall was then photographed with a scale and a detailed profile drawing was made of the soil strata.

The project adhered to a temporally diagnostic artifact collection-only policy. No diagnostic artifacts were observed during the course of the investigations, thus, no artifacts were collected. All project related documentation will be curated at the University of Texas at San Antonio-Center for Archaeological Research (UTSA CAR).

CHAPTER 5. RESULTS OF INVESTIGATIONS

On September 19 and 20, 2018, **RKEI** archaeologists conducted an intensive pedestrian survey augmented with shovel testing and backhoe trenching of 34.95-acres within Brooks City-Base. The archaeological investigation were in advance of the Brooks City-Base improvement of streets and drainages. Antonio E. Padilla, M.A. served as the Principal Investigator and all field work was conducted by Jason M. Whitaker, M.A. and Kirsten M. Atwood Ph.D. As a result of the investigations, 19 shovel tests and two backhoe trenches were excavated, and the remains of the FamCamp R.V. Park, associated camping facilities, and three cement pads were documented through pedestrian survey (**Figure 5-1**). None of the shovel tests or backhoe trenches encountered significant subsurface cultural materials.

The APE was situated on the southern end of the former Brooks Air Force Base and the current Brooks City Base. The majority of the APE was situated on generally level terrain with light to moderate tree cover, with a dense understory primarily comprised of short to medium-height grasses interspersed with cacti and brush. Ground surface visibility in the northwest section was primarily under 30-percent. The northwest section of the APE, conversely, was situated on uneven terrain with numerous drainages and dense tree cover underlain with briar, cacti, and vines. Ground surface visibility in the northwest section of the APE was primarily below 30-percent with medium to tall grasses as ground cover.

Disturbances within the majority of the APE consisted of facilities associated with the former Brooks Air Force Base, such as the FamCamp R.V. Park, camping facilities associated with the Air Force Outdoor Recreation Program, and numerous base roads. A review of historic aerial photography also shows that there roads in the northwest section of the APE, which fell into disuse or were removed through time. More recent disturbances include the installation of a petroleum pipeline on the site of the former FamCamp R.V. Park. In the northwest section of the APE, disturbances were associated with drainage and flood control efforts, such as the installation of a large drainage culvert and a flood control berm.

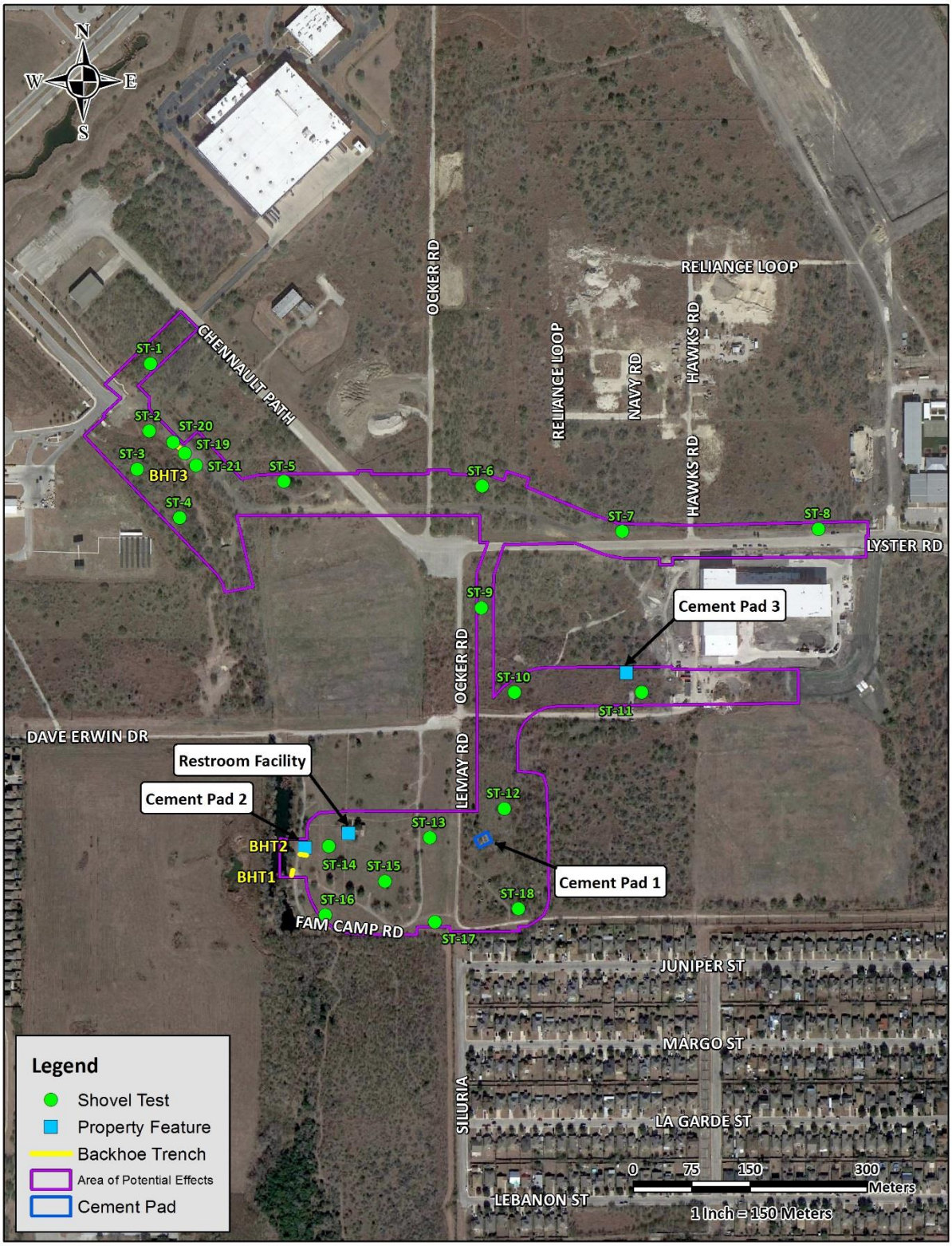

Figure 5-1. Excavated Shovel tests and Backhoe Trenches within the APE.

Pedestrian Survey with Shovel Testing

The pedestrian survey of the former FamCamp R.V. Park in the southwestern corner of the APE recorded the remains of lamp posts, R.V. slots, a masonry structure, a covered slab, numerous concrete pathways, and a cement pad. The masonry structure was located roughly in the center of the former R.V. Park. Inspection of the 26 x 43 foot (8 x 13 m) structure revealed that it functioned as a restroom and shower facility. A 3 foot (1 m)-wide sidewalk surrounded the perimeter of the structure (**Figure 5-2**). The structure was filled with discarded clothing and other trash. Connected by a 3.28 x 30 foot (1 x 9 m) long concrete sidewalk, a 13 x 46 foot (4 x 14 m) concrete slab was positioned approximately 30 feet (9 m) east of the masonry structure. The northern 13 x 20 feet (4 x 6 m) of the slab exhibited a metal roof covering (**Figure 5-3**). The southwest section of the APE contained 18 slots for R.V. parking and numerous lampposts. Four, 2.79 foot (85 cm) tall posts demarcated each 6 x 11 foot (1.8 x 3.5 m) slot. Power hookups and a 2.95 x 2.95 foot (90 x 90 cm) concrete box filled with gravel were present in each R.V. slot (**Figure 5-4**).

Five aircraft nose cones placed on wooden platforms measuring 6.8 feet (2.1 m) in height were located in the southeast corner of the APE. The nose cones were situated in an 82 x 82 foot (25 x 25 m) area, and each individually measured 14.8 feet (4.5 m) in diameter. Access to the nose cone was provide via a concrete stair set that measured 4.9 feet (1.15 m) in length and 3.9 feet (1.2 m) in width (**Figure 5-5**). Aerial photography shows that there is an additional set of these nose cones 131 feet (40 m) east, just outside the APE.

Three cement pads were recorded in other areas of the APE. Cement Pad 1 (CP1) was located in the southeastern section of the APE (**Figure 5-6**). The northern-most section of CP1 was oriented east-west and measured 39 x 66 feet (12 x 20 m). A trapezoidal cement post with an extending metal pole, which had fallen over on its side, was located in the center of the pad. A 4.9 foot (1.5 m) wide walkway extended southwest from CP1. This section of CP1 was irregularly shaped with an area comprising 525 square feet. Cultural materials associated with CP1 include: two pieces of flat glass, green and white polyvinyl chloride (PVC) pipe pieces, a metal (ferrous) ring, a metal screw, a single white porcelain sherd, and a shingle fragment (**Figure 5-7**). Additionally, there was an unknown utility consisting of two PVC pipes extending out of a nearby concrete housing.

Figure 5-2. FamCamp Restroom and Showers, facing north.

Figure 5-3. Covered concrete slab, facing west.

Figure 5-4. R.V. Hookup, facing north.

Figure 5-5. Aircraft nosecone huts, facing southwest.

Figure 5-6. Cement Pad 1, facing southeast.

Figure 5-7. Artifacts associated with Cement Pad 1.

Located in the southwest section of the APE, 6.5 feet (2 m) south of a road connecting to the restroom and shower facility, was Cement Pad 2 (CP2). The pad was oriented northeast-southwest and measured 6.5 x 9.8 feet (2 x 3 m) (**Figure 5-8**). CP2 was devoid of cultural materials. There was no clear indication of CP2's former function at the FamCamp R.V. Park.

Cement Pad 3 (CP3) was located 180 feet (55 m) north of an unnamed, chained-off road in the eastern section of the APE (see **Figure 5-1**). The feature was oriented northwest-southeast and measured 14.7 x 23 feet (4.5 x 7 m). No artifacts were associated with this feature. Steel bolts were observed protruding from the corners of CP3 (**Figure 5-9**). The function of CP3 is unknown.

Figure 5-8. Cement Pad 2, facing north.

Figure 5-9. Cement Pad 3, facing northeast.

Nineteen (19) shovel tests were excavated within the APE. Twenty-one shovel tests were planned, but two were not excavated due to standing water. None of the excavated shovel tests were positive for subsurface cultural materials. Several of the shovel tests yielded asphalt, which was most likely associated with the former Brooks Air Force Base. Shovel testing began in the southwest section of the APE, in the area associated with the FamCamp R.V. Park. The FamCamp was demarcated by Dave Erwin Drive to the north, FamCamp Road to the west and south, and LeMay Road to the east (see **Figure 1-2**). This section of the APE was characterized by generally level terrain with short to medium grasses and medium-sized trees scattered throughout the area. Ground surface visibility was low in this area (less than 30-percent). Five shovel tests (ST-13-17) were excavated within the FamCamp section of the APE (**Figure 5-1**). The five shovel tests were excavated to 60 cmbs (**Figure 5-10**). No cultural material was encountered. However, asphalt fragments were observed in ST-16 in all levels, which was most likely associated with the nearby FamCamp Road. The soils associated with the FamCamp section of the APE were primarily very dark gray (10YR3/1) to brownish yellow (10YR6/6) silty clay loams, clay loams, and silty clays (see **Appendix A**). The most common inclusions were gravels, which decreased with depth.

The southeastern section of the APE was bounded by fences to the south and east, LeMay Road to the west, and an unnamed utility road to the north. The topography of this area of the APE was generally

level, but contained more trees than the southwest corner. Ground surface visibility was low. Two shovel tests were planned for excavation within this area (ST-12 and 18). Shovel test 18 was not excavated due to large amounts of standing water (**Figure 5-11**). The excavation of ST-12 showed that the soils of this area consisted of pale brown (10YR6/3) sandy clay loams and black (10YR2/1) silty clays. Gravels were low in this area and mostly confined to the upper 30 cm of the soil profile.

The northeast section of the APE (see **Figure 2-1**) was characterized as level topography with moderate tree cover and medium to tall grasses. Ground surface visibility was low in the majority of this area. Six shovel tests (ST-6-11) were excavated in this area (**Figure 5-12**). One (ST-10) was not excavated due to standing water in the area (**Figure 5-13**). The remaining shovel tests consisted of very dark gray (10YR3/1) to dark gray (10YR4/1) silty clay loams and silty clays ranging from brownish yellow (10YR6/6) to very dark gray (10YR3/1) to black (10YR2/1, 7.5YR2.5/1, and 5YR2.5/1). The most common inclusion was gravels, which was highest in those shovel tests immediately north of Lyster Road (ST-7 and ST-8).

Figure 5-10. Shovel Test 15 (ST-15).

Figure 5-11. Standing Water, southeast section of APE (ST-18).

Figure 5-12. Shovel Test 11 (ST-11).

Figure 5-13. Standing Water Shovel Test 10 (ST-10).

The northwest section of the APE was characterized by numerous drainages and heavier tree cover than previously investigated areas of the APE. Topography in this zone appeared more uneven than other areas of the APE. Eight shovel tests (ST-1-5 and 19-21) were excavated in the northwest section (**Figure 5-14**). Asphalt was observed in three units. In ST-19 there were asphalt fragments observed in the upper 20 cm. Shovel test ST-21 also yielded an asphalt fragment, but this was restricted to a single piece at 37 cmbs. The excavation of shovel test ST-4 revealed an asphalt layer between 32 and 37 cmbs. The soils of this section of the APE were primarily reddish black (2.5YR2.5/1) to yellow (10YR7/8) silty clays. Other soil types in this zone were dark yellowish brown (10YR4/4) sandy clays, dark grayish brown (10YR4/2) to very dark grayish brown (10YR3/2) clay loams, dark grayish brown (10YR4/2) silty loams, and very dark grayish brown (10YR3/2) silty clay loams. The most common inclusions in these shovel tests were caliche and gravels. A single shovel test (ST-3) was terminated at 40 cmbs because of compact gravels.

Figure 5-14. Shovel Test 20 (ST-20).

Backhoe Trenching

RKEI archaeologists excavated two backhoe trenches (BHT) within the APE on September 19, 2018 (see **Figure 5-1**). A third BHT was planned in the northwest section of the APE, but backhoe operator deemed the area inaccessible due to recent rains and flooding. Both excavated trenches were placed in the southwest section of the APE, near the dammed, unnamed tributary of the San Antonio River intersecting the APE. No cultural materials or features were identified during BHT excavations.

BHT1

BHT1 was oriented north to south and excavated on the eastern edge of the unnamed tributary of the San Antonio River (see **Figure 5-1**). The trench measured 5 m in length and 1 m in width, to a maximum depth of 1.85 m (**Figure 5-15**). The soil profile consisted of: Level I, friable very dark grayish brown (10YR3/2) silty loam with 25 to 30-percent gravels and 20-percent roots from 0 to 15 cmbs; Level II, firm very dark gray (10YR3/1) silty loam with 7-percent gravels and 5 to 7-percent roots from 15 to 44 cmbs; Level III, firm very dark brown (10YR2/2) silty loam with 1 to 2-percent gravels and 5-percent roots to a depth of 44 to 80 cmbs; Level IV, firm very dark grayish brown (10YR3/2) silty clay loam mottled with light

yellowish brown (10YR6/4) clay (few) and less than 1-percent gravels, 3-percent roots, and less than 1-percent calcium carbonates to a depth 80 to 110 cmbs; Level V, very firm dark gray (10YR4/1) clay loam mottled with light yellowish brown (10YR6/4) clay (common) and 7 to 10-percent gravels, less than 1-percent roots, and 3 to 5-percent calcium carbonates to a depth of 110 to 142 cmbs; Level VI, very firm light yellowish brown (10YR6/4) clay mottled with dark gray (10YR4/1) (few) and very dark gray (10YR3/1) (few) clays, and 15 to 20-percent gravels, 3 to 5-percent iron, and 15-percent calcium carbonates to a depth of 142 to174 cmbs; Level VII, very firm light brownish gray (10YR6/2) clay mottled with light yellowish brown (10YR6/4) (common) and very dark gray (10YR3/1) (common) clays, and 2 to 3-percent gravels and 15 to 20-percent calcium carbonates to a depth of 174 to 186 cmbs (**Figure 5-16**). The clearest evidence of cultural disturbances within the BHT1 profile was the uppermost stratum (see **Figure 5-15**). The high percentage of gravels in this stratum could have been associated with construction activities of the nearby FamCamp road and other Air Force Outdoor Recreation Program facilities. The remaining soil strata seemed to have been the result of natural soil formation processes. No cultural materials for features were observed during BHT1 excavations.

Figure 5-15. BHT-1 Profile.

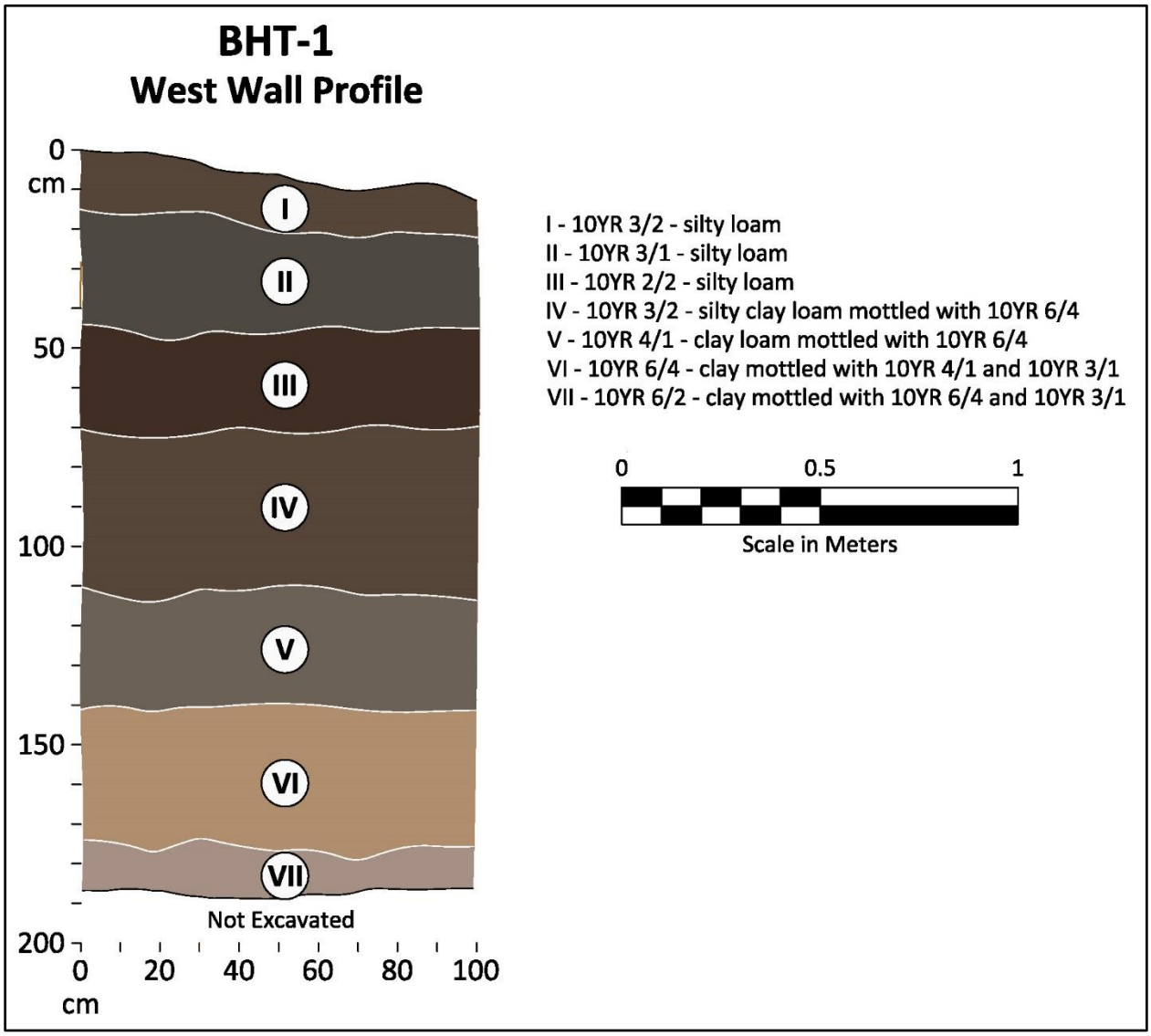

Figure 5-16. BHT-1 Soil Profile.

BHT2

BHT2 was oriented east to west and located 3 m east of FamCamp road and 18 m east of the unnamed tributary of the San Antonio River (see **Figure 5-1**). This trench measured 5 m in length and 1 m in width to a maximum depth 1.80 m below surface (**Figure 5-17**). The soil profile consisted of: Level I, firm yellowish brown (10YR5/8) clay mottled with pale brown (10YR6/3) (few) and very dark gray (10YR3/1) (few) clays, and 40-percent road base and 20-percent roots to a depth of 48 cmbs; Level II, firm very dark gray (10YR3/1) silty clay with 1-percent gravel and 1-percent shell to a depth of 48 to 153 cmbs; Level III, firm very dark gray (10YR3/1) silty clay mottled with dark gray (10YR4/1) silty clay (many) and 1-percent

gravels excavated to a depth of 153 to 203 cmbs; Level IV, very firm dark grayish brown (10YR4/2) silty clay mottled with very dark gray (10YR3/1) silty clay (few) and less than 1-percent gravels excavated to depth of 203 to 215 cmbs (**Figure 5-18**). Cultural disturbances were apparent in BHT2 in the uppermost stratum (see **Figure 5-16**). The high percentage of road base in Level I was most likely associated with construction associated with the former Brooks Air Force Base FamCamp and other Air Force Outdoor Recreation Program facilities. The remainder of the soil profile for BHT2 seemed to have been the result of natural soil formation processes. No cultural materials or features were observed during BHT2 excavations.

Figure 5-17. BHT-2 Profile.

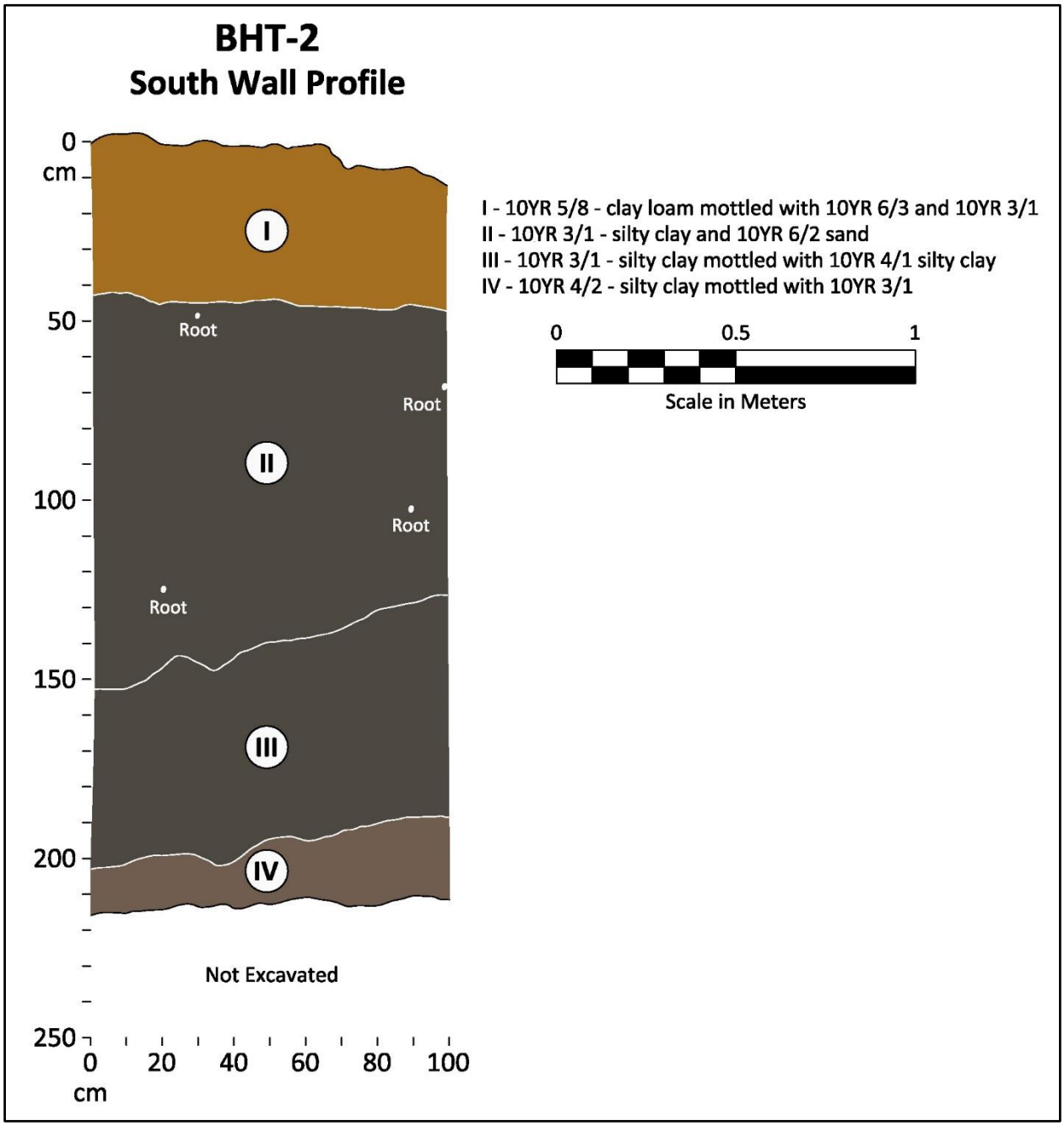

Figure 5-18. BHT-2 Soil Profile.

CHAPTER 6. SUMMARY AND RECOMMENDATIONS

RKEI was contracted by the Brooks Development Authority to conduct an intensive cultural resources survey of 34.95 acres at the southern boundary of Brooks City Base, between the southern terminus of South New Braunfels Avenue and the western terminus of Lyster Road. The survey was conducted in advance of the connection of South New Braunfels Avenue with Lyster Road, the improvement of 3,500 linear feet of the existing Lyster Road right-of-way, and the installation of utility lines (telecommunications, underground electric, potable and recycled water), as well as surface grading, installation of culverts, and the construction of a larger detention basin for storm water management.

On September 19 and 20, 2018, RKEI archaeologists conducted an intensive pedestrian survey augmented with both shovel testing and backhoe trenching of the 34.95 acres of Brooks City Base associated with the improvements. Nineteen (19) shovel tests were excavated, as well as two backhoe trenches within the APE. Five shovel tests (ST-13-17) and two backhoe trenches (BHT 1-2) were placed in the southwest section of the APE. A single shovel test (ST-12) was excavated in the southeast section of the APE. In the northeast section of the APE, five shovel tests (St-6-9 and 11) were excavated. Finally, eight shovel tests (ST-1-5 and 19-21) were excavated in the northwest section of the APE. Asphalt fragments were observed in several of the shovel tests (ST-4, 16, 19, and 21). The asphalt most likely resulted from utility road construction associated with the former Brooks Air Force Base and was not considered culturally significant. As a result, no significant cultural materials or features were encountered as a result of the shovel tests or backhoe trenches. However, the pedestrian survey did document numerous above ground features associated with the former Brooks Air Force Base FamCamp R.V. Park and other camping facilities, which were a component of the Air Force Outdoor Recreation Program.

Overall, no prehistoric or historic materials were encountered within the APE. Aerial photography from 1986 shows clear evidence of facilities associated with the Air Force Outdoor Recreation Program, such as the FamCamp R.V. Park; thus, the observed facilities were not considered of archaeological or historical importance. Given this conclusion, no prehistoric or historic materials were encountered within the APE. RKEI recommends no further archaeological investigations for the current APE and improvements should proceed as planned. However, should additions be made to the project area, additional testing may be required to determine the presence and significance of cultural deposits beyond the currently defined boundaries.

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Appendix A:
Shovel Test Log

Shovel Test	Depth (cm)	Munsell	Soil Color	Texture	Inclusions	Mottling	Cultural Materials	Reason for Termination
ST-1	0-10	10YR 3/2	Very Dark Grayish Brown	Silty Clay	20% gravels, 1% road base			
	10-20	10YR 3/2	Very Dark Grayish Brown	Silty Clay	20% gravels	-	-	
	20-30	10YR 2/1	Black	Silty Clay	30% gravels	10YR 5/4-many	-	
	30-40	10YR 2/1	Black	Silty Clay	30% gravels	10YR 5/4-many	-	
	40-50	10YR 3/1	Very Dark Gray	Silty Clay	-	-	-	
	50-60	10YR 3/1	Very Dark Gray	Silty Clay	-	-	-	Terminal depth
ST-2	0-10	10YR 4/2	Dark Grayish Brown	Silty Loam	7% roots, 1% gravels		-	
	10-20	10YR 4/2	Dark Grayish Brown	Silty Loam	5-7% roots, 1% gravels		-	
	20-30	10YR 4/1	Dark Gray	Silty Clay	2% roots, 10-15% gravels	10YR 8/3-few, 10YR 6/4-common	-	
	30-40	10YR 4/1	Dark Gray	Silty Clay	2% roots, 10% gravels	10YR 8/3-few, 10YR 6/4-common	-	
	40-50	2.5Y 5/6	Light Olive Brown	Silty Clay	2% roots, 7-10% gravels	10YR 6/4-few, 10YR 3/2-common	-	
	50-60	2.5Y 5/6	Light Olive Brown	Silty Clay	2% roots, 7-10% gravels	10YR 6/4-few, 10YR 3/2-common	-	Terminal Depth
ST-3	0-10	10YR 3/2	Very Dark Grayish Brown	Silty Clay	3% roots, 7% gravels		-	
	10-20	10YR 3/2	Very Dark Grayish Brown	Silty Clay	2-3% roots, 7% gravels		-	
	20-30	10YR 2/2	Very Dark Brown	Silty Clay	1% roots, 30% gravels		-	
	30-40	10yr 2/2	Very Dark Brown	Silty Clay	40% gravels			Termination based on compact gravels
	40-50	-	-	-	-		-	-
	50-60	-	-	-	-		-	-
ST-4	0-10	10YR 3/2	Very Dark Grayish Brown	Silty Clay Loam	5% roots		-	
	10-20	10YR 3/2	Very Dark Grayish Brown	Silty Clay Loam	5% roots		-	
	20-30	10YR 3/2	Very Dark Grayish Brown	Clay Loam	3% roots, 2% gravels		-	
	30-40	10YR 3/2	Very Dark Grayish Brown	Clay Loam	40-50% gravels		Layer of asphalt from 32-38 cmbs	
	40-50	10YR 2/2	Very Dark Brown	Silty Clay	3% gravels, <1% roots		-	
	50-60	10YR 6/4	Light Yellowish Brown	Silty Clay	-	10YR 7/4-common, 10YR 5/3-common	-	Possible Cr Horizon; Terminal Depth

Shovel Test	Depth (cm)	Munsell	Soil Color	Texture	Inclusions	Mottling	Cultural Materials	Reason for Termination
ST-5	0-10	10YR 3/2	Very Dark Grayish Brown	Clay Loam	5% roots		-	
	10-20	10YR 3/2	Very Dark Grayish Brown	Clay Loam	5% roots		-	
	20-30	10YR 4/2	Dark Grayish Brown	Clay Loam	2% roots, 2-3% gravels	10YR 5/2-few	-	
	30-40	10YR 4/2	Dark Grayish Brown	Clay Loam	2% roots, 2% gravels	10YR 5/2-few	-	
	40-50	10YR 4/2	Dark Grayish Brown	Silty Clay	1% roots, <1% gravels	10YR 3/2-few	-	
	50-60	2.5Y 4/2	Dark Grayish Brown	Silty Clay	<1% gravels	10YR 6/2-few	-	Terminal Depth
ST-6	0-10	10YR 3/1	Very Dark Gray	Silty Clay Loam	5% roots		-	
	10-20	10YR 3/1	Very Dark Gray	Silty Clay Loam	5% roots, <1% gravels		-	
	20-30	10YR 3/1	Very Dark Gray	Silty Clay Loam	3-5% roots, <1% gravels		-	
	30-40	10YR 3/1	Very Dark Gray	Silty Clay	1-2% roots, <1% calcium carbonate		-	
	40-50	10YR 2/1	Black	Silty Clay	1% roots		-	
	50-60	10YR 2/1	Black	Silty Clay	<1% roots		-	Terminal Depth
ST-7	0-10	5YR 2.5/1	Black	Silty Clay Loam	20% roots, 5% gravels	-	-	
	10-20	10YR 3/1	Very Dark Gray	Silty Clay	-	-	-	
	20-30	10YR 3/1	Very Dark Gray	Silty Clay	-	-	-	
	30-40	10YR 3/1	Very Dark Gray	Silty Clay	-	-	-	
	40-50	10YR 3/1	Very Dark Gray	Silty Clay	-	-	-	
	50-60	10YR 3/1	Very Dark Gray	Silty Clay	-	-	-	
ST-8	0-10	10YR 4/1	Dark Gray	Silty Clay Loam	5% roots, <1% gravels		-	
	10-20	10YR 4/1	Dark Gray	Silty Clay Loam	3-5% roots, 10-15% gravels		-	
	20-30	10YR 2/2	Very Dark Brown	Silty Clay	2% roots, 5% gravels		-	
	30-40	10YR 2/1	Black	Silty Clay	2% roots, 1% gravels		-	
	40-50	10YR 2/1	Black	Silty Clay	1-2% roots, <1% gravels		-	
	50-60	10YR 2/1	Black	Silty Clay	1% roots, <1% gravels		-	Terminal Depth
ST-9	0-10	10YR 6/6	Brownish Yellow	Silty Clay	5% ironstone, 10% caliche	-	-	
	10-20	10YR 6/6	Brownish Yellow	Silty Clay	-	-	-	

Shovel Test	Depth (cm)	Munsell	Soil Color	Texture	Inclusions	Mottling	Cultural Materials	Reason for Termination
	20-30	10YR 3/1	Very Dark Gray	Silty Clay	-	-	-	
	30-40	10YR 3/1	Very Dark Gray	Silty Clay	-	-	-	
	40-50	10YR 3/1	Very Dark Gray	Silty Clay	-	-	-	
	50-60	10YR 3/1	Very Dark Gray	Silty Clay	-	-	-	Terminal depth
ST-10	0-10	-	-	-	-	-	-	No Dig-Standing Water
	10-20	-	-	-	-	-	-	No Dig-Standing Water
	20-30	-	-	-	-	-	-	No Dig-Standing Water
	30-40	-	-	-	-	-	-	No Dig-Standing Water
	40-50	-	-	-	-	-	-	No Dig-Standing Water
	50-60	-	-	-	-	-	-	No Dig-Standing Water
ST-11	0-10	10YR 3/1	Very Dark Gray	Silty Clay	5% roots	-	-	
	10-20	10YR 3/1	Very Dark Gray	Silty Clay	5% roots	-	-	
	20-30	10YR 3/1	Very Dark Gray	Silty Clay	-	-	-	
	30-40	10YR 3/1	Very Dark Gray	Silty Clay	-	-	-	
	40-50	7.5YR 2.5/1	Black	Silty Clay	-	-	-	
	50-60	7.5YR 2.5/1	Black	Silty Clay	-	-	-	Terminal Depth
ST-12	0-10	10YR 4/2	Dark Grayish Brown	Silty Clay Loam	5% roots	10YR 6/3-few	-	
	10-20	10YR 6/3	Pale Brown	Sandy clay loam	1-2% roots, 2-3% gravels	10YR 5/8-common, 10YR 4/1-few	-	
	20-30	10YR 6/3	Pale Brown	Sandy Clay Loam	1-2% roots, 2% gravels	10Yr 5/8-common, 10YR 4/1-few	-	
	30-40	10YR 6/3	Pale Brown	Sandy Clay Loam	1% roots, <1% gravels	10YR 5/8-few, 10YR 4/1-few	-	
	40-50	10YR 2/1	Black	Silty Clay	1% roots		-	
	50-60	10YR 2/1	Black	Silty Clay	<1% roots		-	Terminal Depth
ST-13	0-10	10YR 3/1	Very Dark Gray	Silty Clay	5% roots	-	-	
	10-20	10YR 3/1	Very Dark Gray	Silty Clay	5% roots	-	-	
	20-30	10YR 4/2	Dark Grayish Brown	Silty Clay	-	-	-	
	30-40	10YR 4/2	Dark Grayish Brown	Silty Clay	-	-	-	
	40-50	10YR 4/2	Dark Grayish Brown	Silty Clay	-	-	-	
	50-60	10YR 4/2	Dark Grayish Brown	Silty Clay	-	-	-	Terminal Depth

Shovel Test	Depth (cm)	Munsell	Soil Color	Texture	Inclusions	Mottling	Cultural Materials	Reason for Termination
ST-14	0-10	10YR 4/1	Dark Gray	Silty Clay Loam	5% roots, 1 % gravels		-	
	10-20	10YR 4/1	Dark Gray	Silt Clay Loam	3-5% roots		-	
	20-30	10YR 6/6	Brownish Yellow	Clay Loam	3-5% roots, 1% gravels	10YR 4/1-Many	-	
	30-40	10YR 6/6	Brownish Yellow	Clay Loam	3% roots, <1% gravels	10YR 4/1-Many	-	
	40-50	10YR 6/6	Brownish Yellow	Clay Loam	1-2% roots, <1% gravels	10YR 4/1-Common	-	
	50-60	10YR 3/1	Very Dark Gray	Clay Loam	<1% roots		-	Terminal Depth
ST-15	0-10	10YR 3/1	Very Dark Gray	Silty Clay Loam	7% roots		-	
	10-20	10YR 3/1	Very Dark Gray	Silty Clay Loam	5-7% roots		-	
	20-30	10YR 4/1	Dark Gray	Silty Clay Loam	5% roots		-	
	30-40	10YR 4/1	Dark Gray	Silty Clay Loam	5% roots		-	
	40-50	10YR 5/2	Grayish Brown	Clay Loam	5% Roots		-	
	50-60	10YR 5/2	Grayish Brown	Clay Loam	3-5% roots		-	Terminal Depth
ST-16	0-10	10YR 4/2	Dark Grayish Brown	Silty Clay	5% gravels	-	Asphalt	
	10-20	10YR 4/2	Dark Grayish Brown	Silty Clay	5% gravels	-	Asphalt	
	20-30	10YR 4/2	Dark Grayish Brown	Silty Clay	3-5% gravels	10YR 6/8-few	Asphalt	
	30-40	10YR 3/2	Very Dark Grayish Brown	Silty Clay	3-5% gravels	-	Asphalt	
	40-50	10YR 3/2	Very Dark Grayish Brown	Silty Clay	3-5% gravels	-	Asphalt	
	50-60	10YR 3/2	Very Dark Grayish Brown	Silty Clay	3-5% gravels	-	Asphalt	Terminal depth
ST-17	0-10	10YR 4/1	Dark Gray	Silty Clay Loam	7% roots, 1% gravels		-	
	10-20	10YR 4/1	Dark Gray	Silty Clay Loam	7% roots, 1-2% gravels		-	
	20-30	10YR 4/1	Dark Gray	Silty Clay Loam	3-5% roots, <1% gravels	10YR 4/2-few	-	
	30-40	10YR 4/2	Dark Grayish Brown	Silty Clay	1% roots, <1% gravels		-	
	40-50	10YR 4/2	Dark Grayish Brown	Silty Clay	<1% roots, <% gravels		-	
	50-60	10Yr 4/2	Dark Grayish Brown	Silty Clay	<1% gravels		-	Terminal Depth

Shovel Test	Depth (cm)	Munsell	Soil Color	Texture	Inclusions	Mottling	Cultural Materials	Reason for Termination
ST-18	0-10	-	-	-	-	-	-	No Dig-Standing Water
	10-20	-	-	-	-	-	-	No Dig-Standing Water
	20-30	-	-	-	-	-	-	No Dig-Standing Water
	30-40	-	-	-	-	-	-	No Dig-Standing Water
	40-50	-	-	-	-	-	-	No Dig-Standing Water
	50-60	-	-	-	-	-	-	No Dig-Standing Water
ST-19	0-10	10YR 4/4	Dark Yellowish Brown	Sandy Clay	-	-	Asphalt	
	10-20	10YR 4/4	Dark Yellowish Brown	Sandy Clay	-	10YR 6/8-few	Asphalt	
	20-30	10YR 4/4	Dark Yellowish Brown	Sandy Clay	-	10YR 6/8-few	Asphalt	
	30-40	10YR 4/4	Dark Yellowish Brown	Sandy Clay	-	10YR 6/8-few	Asphalt	
	40-50	10YR 7/8	Yellow	Silty Clay	20% caliche	10YR 6/3-common	-	
	50-60	10YR 7/8	Yellow	Silty Clay	5% gravels	10YR 6/3-common	-	Terminal Depth
ST-20	0-10	10YR 2/2	Very Dark Brown	Silty Clay	1% gravels	-	-	
	10-20	10YR 2/2	Very Dark Brown	Silty Clay	1% gravels	-	-	
	20-30	10YR 2/2	Very Dark Brown	Silty Clay	1% gravels	-	-	
	30-40	10YR 2/2	Very Dark Brown	Silty Clay	1% gravels	-	-	
	40-50	10YR 7/8	Yellow	Silty Clay	20% caliche	10YR 6/3-common	-	
	50-60	10YR 7/8	Yellow	Silty clay	15-20% caliche	10YR 6/3-common	-	Terminal depth
ST-21	0-10	2.5YR 2.5/1	Reddish Black	Silty Clay	1% gravels	-	-	
	10-20	2.5YR 2.5/1	Reddish Black	Silty Clay	1% gravels	-	-	
	20-30	10YR 4/4	Dark Yellowish Brown	Silty Clay	15% gravels, 1% caliche	-	-	
	30-40	10YR 4/4	Dark Yellowish Brown	Silty Clay	15% gravels, 1% caliche	-	Asphalt at 37 cmbs	
	40-50	10YR 4/4	Dark Yellowish Brown	Silty Clay	15% gravels, 1% caliche	-	-	
	50-60	10YR 4/4	Dark Yellowish Brown	Silty Clay	-	-	-	Terminal Depth