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Cultural Resources Investigations Of The San Antonio Water System East Sewer Rehabilitation And Replacement Project Along The Rosillo Creek Floodplain, San Antonio, Bexar County, Texas

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CULTURAL RESOURCES INVESTIGATIONS OF THE SAN ANTONIO WATER SYSTEM EAST SEWER REHABILITATION AND REPLACEMENT PROJECT ALONG THE ROSILLO CREEK FLOODPLAIN, SAN ANTONIO, BEXAR COUNTY, TEXAS

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FINAL (Redacted)

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Management Summary

In October 2016, **Raba Kistner Environmental, Inc. (RKEI),** was contracted by K FRIESE + ASSOCIATES (CLIENT), on behalf of San Antonio Water System (SAWS), to perform cultural resources investigations associated with a sewer replacement and rehabilitation project in southeastern San Antonio, Bexar County, Texas. The purpose of the investigations was to determine whether cultural resources were located within the 69.5-acre Area of Potential Effects (APE) and, if feasible, assess their significance and eligibility for designation as State Antiquities Landmarks (SALs) and for inclusion in the National Register of Historic Places (NRHP). The project is located on both private land, and lands owned by the City of San Antonio (COSA) and maintained by SAWS, both political subdivisions of the state and therefore under the jurisdiction of the COSA Unified Development Code (UDC), as well as the Antiquities Code of Texas (ACT). Field work was conducted under Texas Antiquities Committee Permit No. 8183 with Kristi Miller Nichols as Principal investigator. Rhiana D. Ward served as Project Archaeologist and conducted field work on October 5-6 and 9-13, 2017, with the assistance of Kendra Brownlow, Chris Matthews, Chris Murray, and Rick Sample.

Background research identified two previously conducted cultural resources investigations and one potential historic battleground with in the proposed APE. Furthermore, six previously conducted cultural resources investigations, ten archaeological sites, one historical marker, and one cemetery are located within a 0.6-mile (1-kilometer) study area.

Investigations consisted of a metal detection survey and an intensive archaeological survey with auger testing. The metal detection survey resulted in the documentation of 86 hits, all of which were modern in age. No historic-age materials or evidence of the 1813 Battle of Rosillo Creek was encountered during the metal detection survey. Fifty auger tests were excavated throughout the APE, four of which tested positive for cultural materials. Three of the positive auger tests contained modern refuse materials and warranted no further investigation. The fourth positive test yielded one prehistoric tertiary flake and one piece of charcoal from an unknown depth. The positive auger test was delineated with six shovel tests to determine the vertical and horizontal extent of cultural materials within the APE and resulted in the documentation of site 41BX2208.

Site 41BX2208 is a prehistoric lithic scatter located on the eastern terrace of Rosillo Creek. The cultural assemblage consists of eight chert lithic artifacts, one mussel shell fragment, and one piece of charcoal in Level 3 (20 to 30 cmbs) to Level 5 (40 to 50 cmbs). The site measures 62-x-62 feet (18-x-18 m) and encompasses 0.09 acres. Site 41BX2208 appears to be a light scatter of prehistoric chipped lithic artifacts from early to middle reduction stage with no diagnostic materials or evidence of cultural features that would offer insight to temporal affiliation of the prehistoric component. **RKEI** recommends that the portion of 41BX2208 located within the APE has a low research potential and is not eligible for inclusion to the NRHP or for designation as a SAL.

No diagnostic or significant prehistoric or historic material was encountered within the APE. While the prehistoric artifacts documented from 41BX2208 represent the remnants of lithic production activities, these activities may represent a narrow or a very broad time frame and therefore do not contribute to the collective knowledge of the historic or prehistoric history of the region. Given this conclusion, **RKEI** does not recommend further archaeological investigations for 41BX2208, or the remaining APE. However, should changes be made to the project, it is recommended that additional testing be conducted to determine the extent and significance of cultural deposits beyond the currently defined boundaries.

RKEI proposed to collect temporally diagnostic artifacts only during field investigations; however, no diagnostic materials were identified during the course of investigations, thus nothing was collected. The only materials to be processed and curated will consist of records and digital photographs produced during field investigations. All field records generated by this project will be processed and temporarily stored at the **RKEI** Archaeological Laboratory, and will be permanently curated at the Center for Archaeological Research at the University of Texas at San Antonio.

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Chapter 1. Introduction

Raba Kistner Environmental, Inc. (**RKEI**), was contracted by K FRIESE + ASSOCIATES (CLIENT), on behalf of San Antonio Water System (SAWS), to perform cultural resources investigations for a sewer replacement and rehabilitation project in southeastern San Antonio, Bexar County, Texas (**Figure 1**). Repairs to the existing sewer alignment will be completed through a combination of non-ground disturbing robotic machinery and open-cut trenching excavations. This report summarizes the results of the investigations, and provides recommendations for the replacement and rehabilitation project.

A preliminary review conducted by the Texas Historical Commission (THC) and the City of San Antonio (COSA) Office of Historic Preservation (OHP) determined that archaeological investigations were required for the project due to its proximity to the potential battle ground of the Battle of Rosillo Creek, as well as other known archaeological sites. The purpose of the investigations was to locate any surface-exposed or buried cultural deposits and assess their significance and eligibility for inclusion in the National Register of Historic Places (NRHP) and for formal designation as State Antiquities Landmarks (SAL). All work was conducted under Texas Antiquities Committee Permit No. 8183.

The project is located on both private lands and lands owned by the COSA and maintained by SAWS, both political subdivisions of the state, and therefore under the jurisdiction of the COSA Unified Development Code (UDC) (Article VI 35-630 to 35-634), as well as the Antiquities Code of Texas (ACT) (Texas Natural Resource Code, Title 9, Chapter 191). These legislations call for the assessment of all improvement activities that have the potential to disturb historically significant standing structures, as well as significant subsurface deposits on lands owned by the State or one of its political subdivisions. Projects under the UDC are regulated by the COSA-OHP, and the ACT is regulated by the THC.

Furthermore, in the event that the project will directly impact the Rosillo Creek drainage, wetlands, or any waters recognized as jurisdictional waters, compliance with Section 106 of the National Historic Preservation Act (NHPA) (54 United States Code 306108) and its implementing regulations (36 Code of Federal Regulations 800) may be required.

Figure 1. Area of potential effects in southeastern San Antonio, Bexar County, Texas.

Area of Potential Effects

The Area of Potential Effects (APE) is located in southeastern San Antonio, Bexar County, Texas, north of the Interstate Loop 410 (I-410) and Interstate Highway 37 (I-37) intersection. The APE consists of two segments of alignment parallel to the Rosillo Creek floodplain for approximately 5.5 miles (8.6 kilometers [km]) between Farm to Market (F.M.) 1346 (also known as East Houston Street) and South W. W. White Road. The APE consists of an 80 foot (24 meter [m]) wide temporary easement that contains an existing 30 foot (9 m) wide right-of-way (ROW) for the existing sewer line. The existing ROW shifts location within the temporary 80-foot (24-m) easement throughout the APE. Six ingress/egress roads totaling approximately 2 miles (3 km) are included within the APE, and consist of existing utility access roads, private drives, and two-track access roads. Overall, the APE encompassed approximately 69.5 acres. **Figure 2** depicts the APE on the *Martinez* (2998-134), *San Antonio East* (2998-133), and *Southton* (2998-132) 7.5-minute United States Geological Society (USGS) topographic quadrangle maps.

The northern segment of the APE begins approximately 0.24 mile (0.40 km) south of the F.M. 1346–Saint Arc Drive intersection. The alignment directs south-southwest for approximately 1.4 miles (2.3 km) before terminating at a private drive for the former Keller Material, LTD facility (under construction at the time of investigations). A 0.46-mile (0.74 km) ingress/egress gravel road connects the northern segment to the I-410 access road.

The southern segment of the APE begins approximately 230 feet (70 m) southeast of Sinclair Road, 0.25 mile (0.40 km) east of its' intersection with I-410. The alignment directs south-southeast for approximately 4.1 miles (6.6 km) before terminating at an existing SAWS pump station, 0.3 mile (0.5 km) northwest of South W. W. White Road (**Figure 3**). Five ingress/egress roads connect the southern APE alignment to public roads. The first ingress/egress road is a 0.3 mile (0.5 km) private drive to the east of the alignment along New Sulphur Springs Road. The second access road is a 0.96 mile (1.58 km) two-tract to the west of the alignment, also along New Sulphur Springs Road. The third and fourth ingress/egress points consist of two private drives that measure 0.07 mile (0.11 km) and 0.28 mile (0.45 km) long along South W. W. White Road. The last ingress/egress road consists of an existing overhead utility transmission corridor that measures 0.46 mile (0.74 km) long and connects the temporary easement to the I-410 access road.

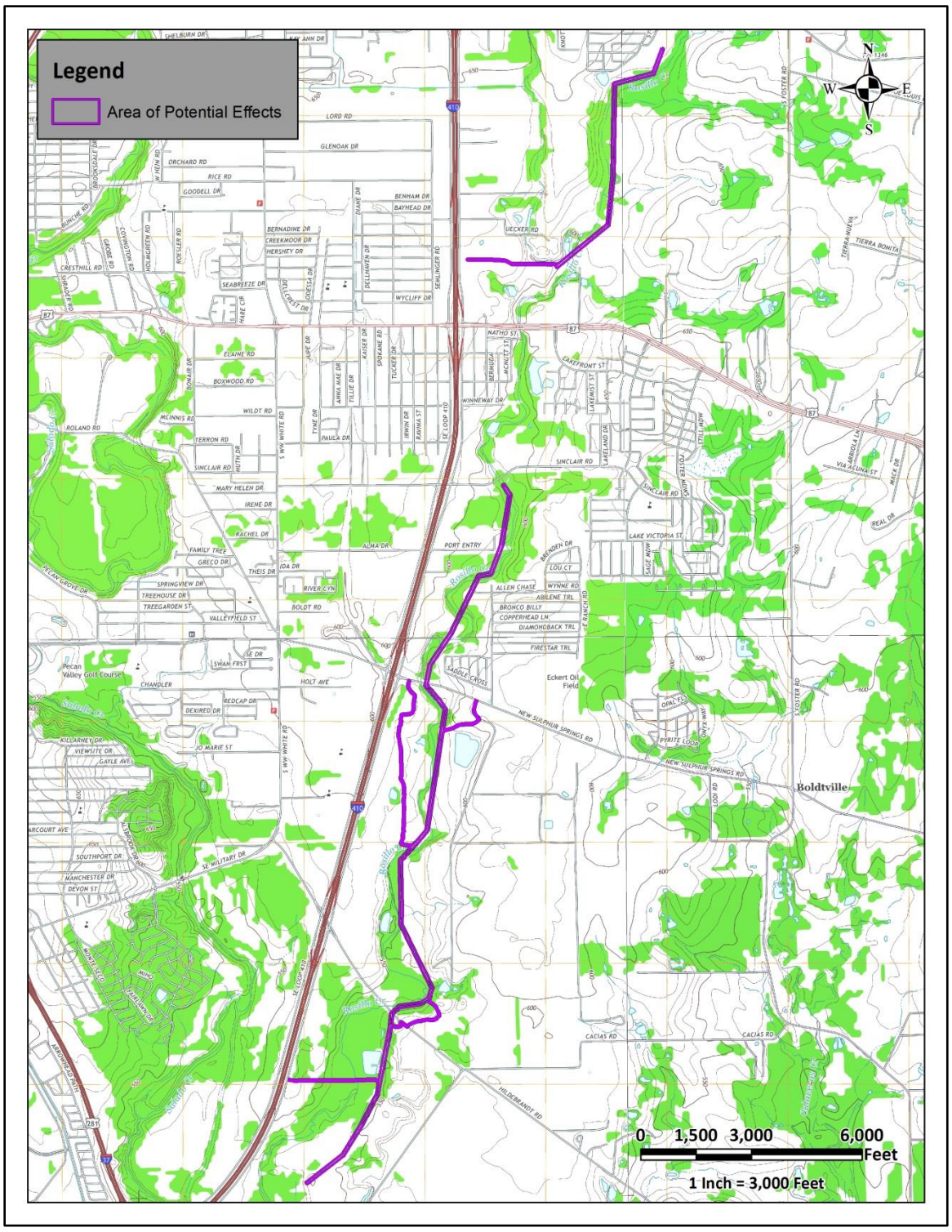

Figure 2. Project APE on the Martinez, San Antonio East, and Southton 7.5-minute USGS topographic quadrangle maps.

Figure 3. Existing pump station and tie-in location at southern APE terminus, facing west.

The APE is located in a rural setting surrounded by agricultural fields, moderately to heavily vegetated rangeland, rural residential housing, and sporadic industrial facilities. Two residential housing subdivisions and one modular home park are also located adjacent to portions of the APE. Vegetation generally consists of mixed-hardwood riparian forest immediately adjacent to Rosillo Creek, intermittently mixed with fallow agricultural fields of grasses, flowering weeds, and low-lying shrubs (**Figures 4 and 5**). Topography of the APE consists of generally level to gently sloping (5 to 10 percent slope) terraces carved out by the meandering course of Rosillo Creek and erosional drainages. Rosillo Creek is characterized by deep 10 to 15 foot (3 to 5 m) vertical earthen banks that range from 15 to 25 feet (5 to 8 m) wide (**Figures 6**).

Figure 4. Example of mixed-hardwood riparian vegetation along Rosillo Creek drainage, facing north.

Figure 5. Example of fallow agricultural field vegetation, facing south.

Figure 6. Rosillo Creek, facing northwest.

Environmental Setting

The project area is located in the south-central Texas geographic region within the Blackland Prairie eco-region. 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 1989).

Geology

The underlying geology of the APE is mapped as mostly Pleistocene-Holocene-age Terrace deposits bordered by the Midway Group, undivided in the north and the Leona Formation in the south (Barnes 1983). Terrace deposits consist of sand, silt, clay, and gravel in various propositions, with indurated calcium carbonate inclusions along point bars, natural levees, and stream channels along valley walls.

The Midway Group consists of Paleocene-aged clay, sand, limestone, and marls that range from 500 to 650 feet (152 to 198 m) in thickness. The Leona Formation is described as gravel, sand, silt, and clay fluvial deposits on the first, wide terrace of river below the level of the Uvalde Formation (Barnes 1983).

Soils

Ten soil series are mapped within the APE: Houston Black clays with 1-3 percent slopes (HsB) and 3 to 5 percent slopes (HuC); Tinn and Frio soils with 0 to 1 percent slopes, frequently flooded (Tf); Heiden clays with 1 to 3 percent slopes (HnB); Branyon clays with 0 to 1 percent slopes (HtA); Patrick soils with 1 to 3 percent slopes, rarely flooded (PaB); Sunev clay loams with 1 to 3 percent slopes (VcB); Rock outcrop-Olmos complex soils with 5 to 25 percent slopes (HgD); Loire clays occasionally flooded with 0 to 2 percent slopes (Fr); Lewisville silty clays with 0 to 1 percent slopes (LvA) and 1 to 3 percent slopes (LvB); and Pit and Quarries with 1 to 90 percent slopes (Pt) (**Figures 7–9**) (Natural Resources Conservation Service [NRCS] 2017). Houston black clays are characterized as very deep, moderately well drained soils that formed in clayey residuum derived from calcareous mudstone of Cretaceous-age on nearly level to moderately sloping interfluves and side slopes of upland ridges and plains. Tin and Frio soils are defined as very deep, moderately well drained soils that formed in calcareous clayey and loamy alluvium on flood plains of dissected plains that drain the Blackland Prairies. Heiden clay soils are deep to very deep mudstone soils that formed in clayey residuum weathered from mudstone on nearly level to moderately steep footslopes of base slopes, shoulders of interfluves, and backslopes of ridges on dissected plains. Branyon soils are described as very deep, moderately well drained soils that formed in calcareous clayey alluvium derived from mudstone of Pleistocene-age on treads of stream terraces of river valleys. Patrick soils are characterized by well drained, moderately deep, gravelly alluvium derived from shale, claystone, or siltstone of Cretaceous-age on nearly level to strongly sloping treads of stream terraces on dissected plains. Sunev clays consist of very deep, well drained soils that formed in loamy alluvium on nearly level to moderately steep stream terraces of footslopes of valleys and ridges. The Olmos complex consists of very shallow soils that form in loamy alluvium on undulating uplands, frequently accompanied by rock outcrops. Loire soils are described as very deep, well drained soils that formed in loamy alluvial sediments on nearly level flood plains. Lastly, Lewisville soils are very deep, well drained soils that formed in ancient loamy and clayey calcareous sediments in upland settings (NRCS 2017).

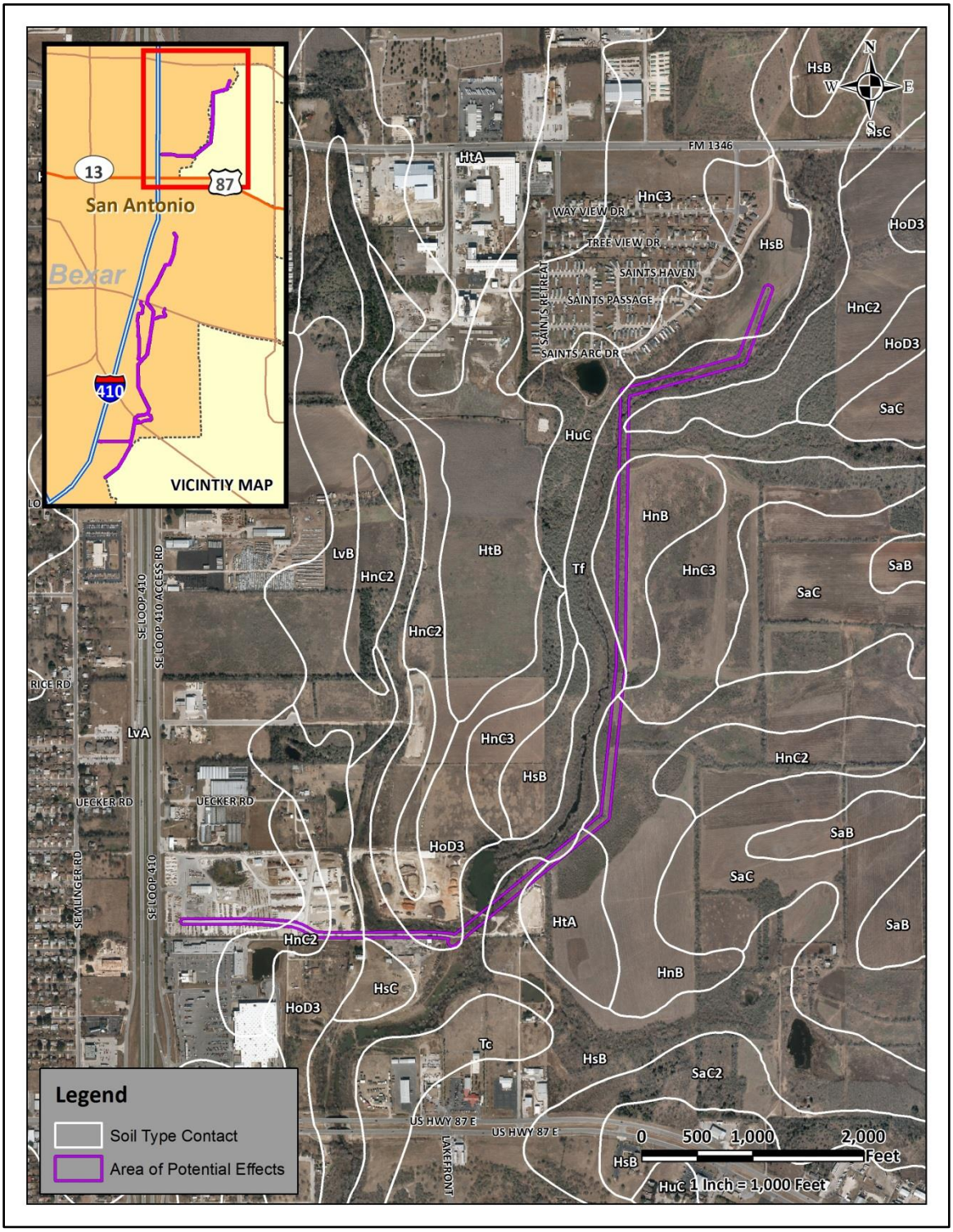

Figure 7. Project area soils, northern segment of alignment.

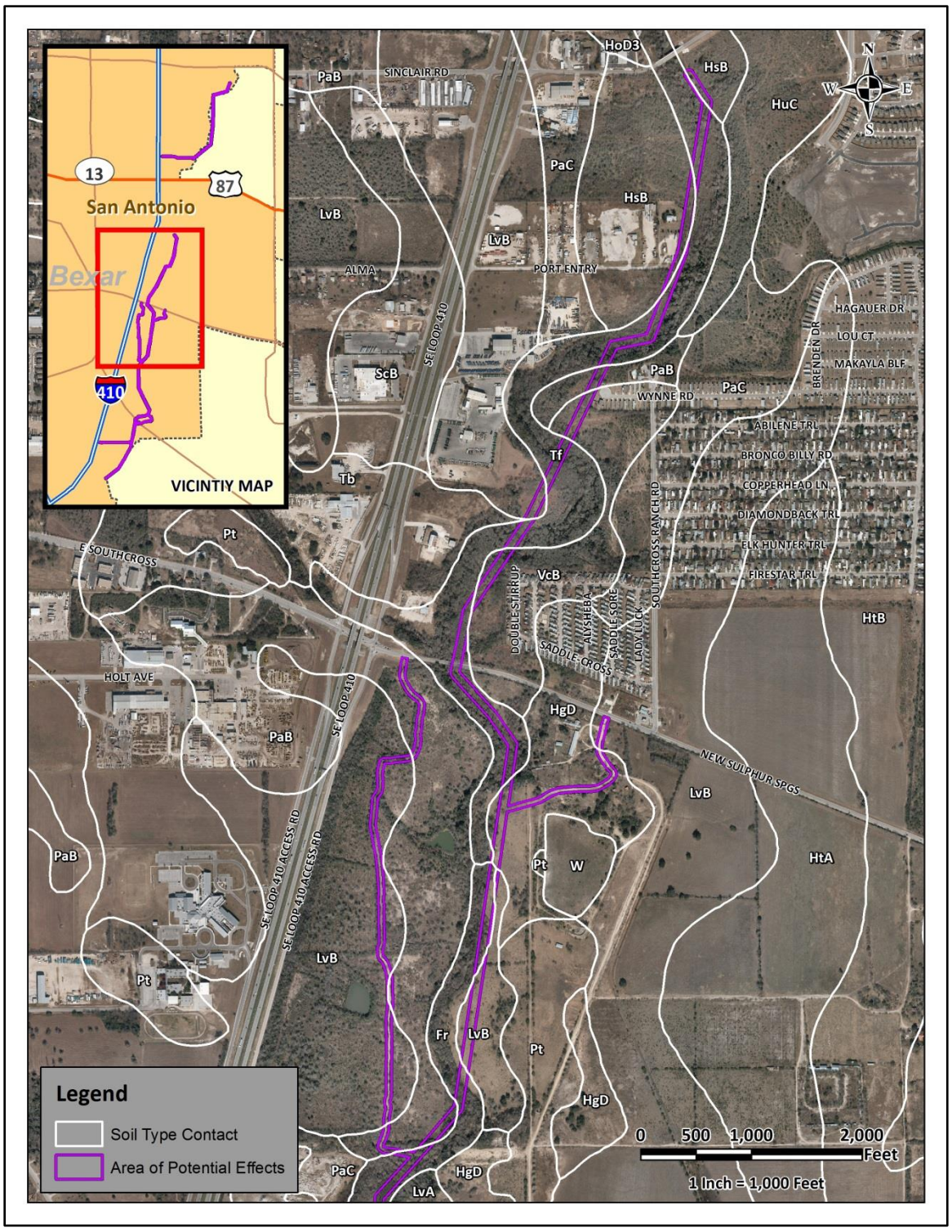

Figure 8. Project area soils, northern half of southern segment of alignment.

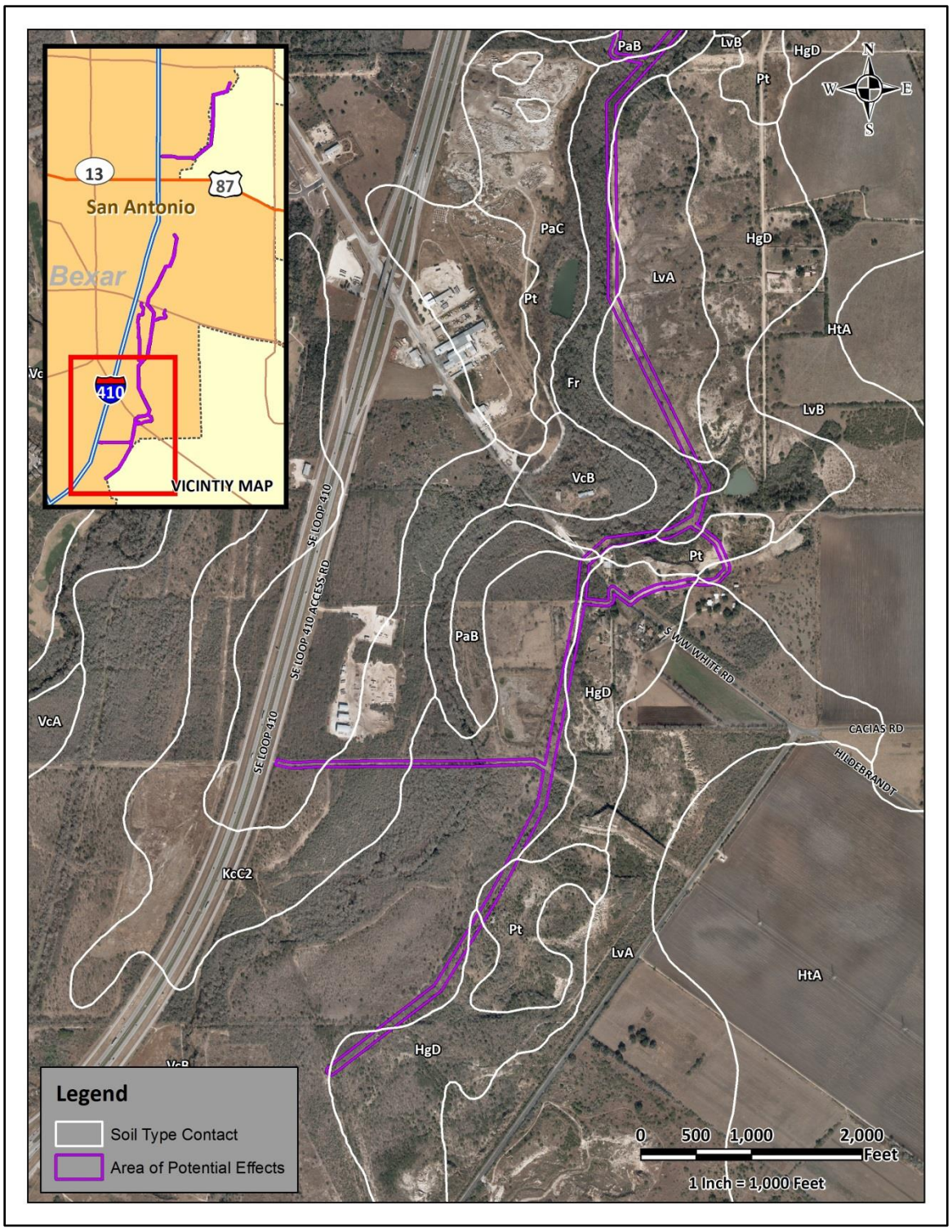

Figure 9. Project area soils, southern half of southern segment.

Flora and Fauna

The project area is located near the intersection of the Balconian and Taumaulipan biotic provinces (Blair 1950). Floral and faunal resources consist of a mix of species from the Austroriparian, Taumaulipan, Chihuahuan, Kansan, Balconian, and Texan biotic provinces. There are three major geographic regions nearby the project area: the Edwards Plateau, the Blackland Prairie, and the South Texas Plains. Trees, plants and grasses in this region include cedar (*Juniperus ashei*), live oak (*Quercus fusiformis*), 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.).

The fauna that inhabit the south-central Texas region includes at least 95 bird and 29 mammal species. The area also contains a wide array of reptiles, fish, and amphibians. Mammal species that were noted within the APE include white-tailed deer (*Odocoileus virginianus*), nine-banded armadillo (*Dasypus novemcinctus*), Virginia opossum (*Didelphis virgininana*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), coyote (*Canis latrans*), cottontail rabbit (*Sylvilagus audubonii*), feral hog, domestic and feral cat, and squirrel.

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 (SRCC 2015; based on monthly averages from 1980 to 2010). Monthly temperature averages range between 52°F in January to 85°F in August.

Chapter 2. Culture Chronology

The cultural history of south-central Texas spans approximately 11,500 years. Archaeologists have divided the occupation of the region into four principal periods and several sub-periods: Paleoindian, Archaic, Late Prehistoric, and Historic. The periods are characterized by changes in climatic conditions, distinct vegetation types and structures, 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. The standard summaries of the culture chronologies of central Texas accepted by many of the regional archaeologists were produced by Collins (1995) and Prewitt (1981). Below is a brief summary of the cultural sequence that has been reconstructed by archaeologists for the south-central part of the state.

Paleoindian

The oldest cultural materials found in the region date to the Paleoindian period. The period spans roughly from 11,500-8,800 BP (Collins 1995, 2004). The Aubrey Site in Denton County has one of the earliest occupations, with radiocarbon assays dating to between 11,542 ± 11 BP and 11,590 ± 93 BP (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 an increasingly 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 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 BP (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 2014). 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 first was 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 BP.

Archaic Period

The Archaic Period dates between ca. 8,800 to 1,200 BP. 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

Collins (1995) suggests that the Early Archaic spans from 8,800 to 6,000 BP. Projectile point styles characteristic of the Early Archaic include Angostura, Early Split Stem, Martindale, and Uvalde (Collins 1995). 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 Wilson-Leonard excavation 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. Within Bexar County, the excavations at 41BX1396 revealed an Early Archaic component, radiocarbon dated to cal 8,390 to 8,180 BP (Tomka 2014).

Middle Archaic

The Middle Archaic subperiod spans from 6,000 to 4,000 BP (Collins 1995; Weir 1976). Archaeological data indicates that there appeared to be a population increase during this time. 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 subperiod 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 1989). The increase of burned rock middens during the Middle Archaic represented the increased focus on the use of plant resources (Black 1989; 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 4,000 to 1,200 BP (Collins 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 Edward's Plateau.

Late Prehistoric

The Late Prehistoric period begins ca. 1,200 BP (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 1,000 BP (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).

Most researchers concur that the early portion of the Late Prehistoric period saw a decrease in population density (Black 1989:32). Radiocarbon dates from some sites have indicated that the middens were utilized during the Late Prehistoric. Some archaeologists feel 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 BP, 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 1989:32; 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 1,350 BP, 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 dating to this period often reveal evidence on conflict (Black 1989:32).

Historic Period

The beginnings of San Antonio came about with the establishment of Mission San Antonio de Valero (Mission 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 (de la Teja 1995). The Mission San Antonio de Valero was established along the San Pedro Creek on May 1, 1718, by the Alarcon Expedition. Mission Valero occupied at least two locations before it settled into its current spot. The final location was in use by 1724.

On May 5, 1718, five days after Mission Valero was founded, Presidio de Bexar was established. The presidio was to provide military protection from the missionaries and the mission occupants, as well as 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 (Mission San José) 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 a week's walk of each other in 1731.

These three missions, Mission Nuestra Señora de la Purisima Concepción (Mission Concepción), Mission San Juan de Capistrano (Mission San Juan), and Mission San Francisco de la Espada (Mission Espada), were originally missions 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 in 1731. Prior to the establishment of Villa San Fernando, Villa de Bexar had been settled by 30 presidio 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.

Battle of Rosillo Creek

Prior to Mexico's independence in 1821, a series of battles and skirmishes between armed insurgent groups and the Spanish military set the foundation for rebellion against Colonial rule in what would later become Texas. One such battle occurred on March 29, 1813, between the Spanish Royalist Army and the Republican Army of the North. Prior to 1847, the battle was known as the Battle of Salado Creek, but was aptly renamed to distinguish it from the 1842 Battle of Salado Creek that occurred roughly 5 miles (8 km) northwest, near the confluence of Salado Creek and Walzem Creek.

Events leading to the Battle of Rosillo Creek (also recorded as "Rosalis", "Rosalio" or "Rosio" in various accounts) began with the capture of the Presidio Nuestra Señora de Loreto de la Bahía (Presidio La Bahía) in Goliad by the Republican Army of the North. The Republican Army, comprised of the forces from the José Bernardo Maximiliano Gutiérrez de Laura and Lieutenant Augustus W. Magee (Gutiérrez–Magee) Expedition, captured the presidio on November 7, 1812. A series of lesser battles and military

maneuvers occurred in the following months, eventually forcing the Royalists to retreat up Camino de la Bahia (Goliad Road) towards San Antonio de Béxar (Cox 1990; Marshall 2015; Webb 1952:750).

On March 25, 1813, the Republican Army, under the direction of Samuel Kemper, advanced towards San Antonio from Goliad with 300 American volunteers, 300 Tejano Republicans and Royalist deserters, and 200 allied Native Americans (accounts vary from 600 to 800 men total) (Cox 1990; Webb 1952:750). Upon hearing of the Republican movement, Spanish Texas Governor Manuel María Salcedo sent Lieutenant Colonel Simón de Herrera and the Royalist army to meet the insurgents on the La Bahía Road. A force of 800 men, 400 cavalry (accounts vary from 950 to 1,200 men total), and six three-pound brass cannons took position astride the La Bahia Road, roughly 8 to 9 miles from San Antonio (Cox 1990; Marshall 2015). The Royalist forces set infantry lines between Salado and Rosillo creeks, in an open field just north of a westward fork in the road (Cox 1990; Marshall 2015).

At 9 a.m. on the morning of March 29, 1813, the Royalist Army opened fire on Republican forces (Marshall 2015). However, the advanced guard of the Republican Army had unknowingly passed the Royalists forces, taking a westward branch in the La Bahía Road that provided a direct route from La Bahía Road to Missions Espada and Concepción (Cox 1990; Marshall 2015). This fortuitous event allowed for the Republican forces to form a single line of prone infantry parallel to the Royalist advances. An additional 100 mounted Tejanos took up a southwestern flank, and a group of Native Americans reinforced with 50 mounted men under the command of Captain James Gains pressed from the southeast. Royalist cannon fire was directed towards the approaching forces, firing a combination of cannon balls, canister shot (grapeshot), and fragments of pot legs and handles off old brass kettles. However, American volunteers armed with rifles targeted the cannon artillerist and quickly halted cannon use (Marshall 2015).

As the Royalist infantry made a final advanced south, an immediate charge from flanking insurgent forces caused the Royalist ranks to collapse inward. After only two volleys of Republican fire and brief hand to hand combat with bayonets and swords, the Royalist Army broke ranks and retreated up the La Bahía Road towards San Antonio (Cox 1990; Marshall 2015). Live action fire and hand to hand combat lasted a total of half an hour. An estimated 300 Royalists (accounts range from 200 to 300) were killed, wounded, or captured during the battle. Only eight Republicans were reportedly killed during the thirty-

minute battle with 14 wounded. None of the Republican forces were injured by cannon fire (Marshall 2015).

The Republican Army of the North captured all six brass cannons after the Battle of Rosillo Creek, as well as laid claim to 1,500 horses and mules, Spanish muskets, battle gear, and provisions from the abandoned Royalist encampment (Marshall 2015). On April 1, the Republican Army advanced north towards San Antonio de Béxar, where Governor Salcedo surrendered. Salcedo's surrender and the occupation of San Antonio by the Republican army resulted in the first declaration of the "Republic of Texas" (Thonhoff 2017a). Two days later on April 3, 1813, fourteen captive Royalist officers were executed.

Written accounts pertaining to the execution vary considerably on the number of men executed, their names, and the manner of the execution (Cox 1990). The first official report of the execution was a testimony by Guillermo Navarro, an assistant to Colonel Simón de Herrera. The report stated that generals and officials were mounted on horseback, led to a place called "La Tablita", and executed (Cox 1990). La Tablita was identified in two accounts translated by Cox (1990), but additional accounts identify the place of execution as adjacent to a creek or river outside of San Antonio. It is possible that the prisoners were led back to the battlefield and executed near Rosillo Creek. Accounts place the number of execution victims as ranging from 12 to 17, with manners of execution including slashing of throats, beheading, and gunfire (Cox 1990). The brutal execution of men who surrendered unconditionally heavily disturbed the American volunteers; so much that more than 100 volunteers abandoned the cause (Cox 1990; Marshall 2015; Webb 1952:750).

Execution aside, the victory of the Battle of Rosillo Creek and surrender of San Antonio de Béxar was short lived. On August 18, 1813, Royalist commander Joaquín de Arrendondo defeated Republican forces in what is reported to be "the bloodiest battle ever fought on Texas soil" (Thonhoff 2017b). The Battle of Medina occurred 20 miles south of San Antonio and efficiently silenced insurgent groups until Mexico's Independence in 1821 (Thonhoff 2017b).

Archival Review

In 1925 the Los Angeles Times published an article on the discovery of human remains beneath the floor of the San Fernando Cathedral by workmen on July 19, 1925. The mortal remains of 13 individuals were

contained within an unknown crypt “just in front of the original chapel alter built in 1738” (Los Angeles Times [LAT] 1925). The unexpected discovery led to an archival search of the cathedral’s records by Reverend Camilo Torrente and Reverend Eugene Surgranes (LAT 1925).

Torrente and Surgranes’ search produced written accounts regarding the internment of the 13 individuals and the events that led to their demise (LAT 1925). The accounts, transcribed by Surgranes, identified the remains as belonging to Royalist troops killed during the 1813 Battle of Rosillo Creek. Records detailed the March 29 bloody battle (reported in the news article as March 28, 1813), as well as the massacre of 15 captive Royalist officers, three days after (reported in article as March 31, 1813). According to the cathedral records, those executed include: Manuel D. Salcedo, Governor of the Province; Sr. Don Simon de Herrera; Don Jeronimo de Herrera; Don Miguel de Arcos; Don Jose Goseasoechea; Don Francisco Pereira; Don Joaquin Hugarte; Don Andres Marcos; Don Juan Ignacio Arambides; Don Gregorio Amader; Don Juan Caso; Don Francisco de Arcos; Don Antonio Lopez; Don Manuel de Lara; and Don Jose Ignacio Rodrigo (LAT 1925).

Cathedral records further indicated that on August 28, 1813, ten days after the battle of Medina, General Arrendondo gave orders to gather the remains of the “eleven officers and one civilian” who had fallen at the Battle of Rosillo (LAT 1925). The recovered remains were interred in the second “tramo” (section) of the church, with memorial services conducted on the same day. Record discrepancies make it unclear if the 13 individuals uncovered beneath the cathedral floors in 1925 include any number of the 15 officers listed as massacre victims, any number of the 12 individuals recovered from the battle by Arrendondo, or a combination of the two. The newspaper article indicated that the uncovered remains were returned to the crypt shortly after their discovery in 1925 (LAT 1925).

A Texas Historical Marker (Marker No. 329) for the Battle of Rosillo Creek was dedicated in 1936 during the Texas Centennial (THC 2017). The granite marker was erected near the intersection of South W. W. White and Hildebrant Road. At the time, this was the closest publicly accessible road for the monuments construction (Marshall 2015). The monument inscription reads as follows (THC 2017):

> “In this vicinity the Battle of Rosillo was fought on March 28, 1813. Here the “Republican Army of the North” composed of Anglo-Americans, Mexicans and Indians defeated, with heavy loss of life, Spanish Royalist troops commanded by Manuel de Salcedo, governor of Texas. The prisoners of war were brutally murdered shortly afterwards by order of Colonel Bernardo Gutierrez.”

In 1988 the Center for Archaeological Research (CAR) at the University of Texas at San Antonio (UTSA) conducted archival research and survey investigations to locate the battlefield of the Battle of Rosillo Creek and the subsequent execution site of captive Royalist officers (Cox 1990). Investigations were conducted in anticipation of a proposed Waste Management landfill near the location of the 1936 marker at the intersection of South W. W. White and Hildebrant Road (Cox 1990).

Archival research consulted Spanish records, church burial records, and land grant surveys housed at the John Peace Library at UTSA, the Bexar County Archives, the San Fernando Cathedral records, the Archives and Records Division of the General Land Office, and the Daughters of the Republic of Texas Research Library at the Alamo (Cox 1990). Research transcribed multiple diary entries and correspondence letters documenting the battle and execution of Royalist prisoners. Accounts provided detailed descriptions of the events with, as expected, variation in infantry numbers, battle locations, number of dead, wounded, and captive, as well as the number of Royalists executed, the manner of execution, and execution locale (Cox 1990).

Variation aside, the one constant detail relayed in accounts was the battle location astride the La Bahía Road near Salado Creek, approximately 8–9 miles (average common distances reported) from San Antonio (Cox 1990). Based on this detail, Cox examined Bexar County plat maps from 1858 to determine the projection of the La Bahia Road in relation to Salado Creek. Cox concluded that the Battle of Rosillo Creek likely occurred 1.9 miles northwest of the 1936 marker location, on the banks of Salado Creek below its confluence with Rosillo Creek. Furthermore, Cox hypothesized that the site of Royalist execution may have occurred within the battlefield location, but account inconsistences prevented any solid conclusion (Cox 1990).

Overall, the 1990 investigations determined that the Battle of Rosillo Creek did not likely occur within proximity to the proposed landfill site (Cox 1990). However, a metal detection survey was conducted on March 24, 1988, to confirm the absence of cultural material within the project area. The survey resulted in negative finds and was cleared for development (Cox 1990).

In 2015, a newly discovered map provided important clues regarding the location of the 1813 Battle of Rosillo Creek (Marshall 2015). The map was uncovered during the cataloging and filing of archival

documents at the Bexar County Spanish Archives. The color-coded map was a December 1879 survey map by W. H. Owens, who was hired by the Bexar County Commissioner to conduct a survey of the new, 1853 Goliad Road (Marshall 2015).

Prior to the new route, San Antonio was connected to Goliad via the 1809 Spanish Colonial La Bahia Road. The original route crossed Salado Creek due east of Mission Concepción, and Rosillo Creek due east of Mission San Juan before continuing southeast to Presidio La Bahía. The 1853 Goliad Road alignment eliminated the need for multiple creek crossings by paralleling the western bank of Salado Creek before crossing its waters just south of its confluence with Rosillo Creek. The new road continued east and reconnected to the original La Bahía Road just before crossing Calaveras Creek (Marshall 2015).

According to a note recorded on the 1879 map, Owens surveyed most of the old La Bahía Road before realizing his mistake. Owens' efforts resulted in the documentation of not only the new Goliad Road and the old La Bahía Road between Rosillo and Salado creeks, the survey also identified an "old road" that branched westward on the old La Bahía Road, east of Salado Creek and west of Rosillo Creek. The unanticipated documentation of the "old road" provided a vital clue to the location of the Battle of Rosillo Creek.

As previously discussed, written accounts of the Battle of Rosillo Creek described the Republican army as traveling a westward fork for one mile towards the lower missions before the Royalist army opened fire (Marshall 2015). Based these accounts, Marshall deduced that the road traveled by the Republican forces and the "old road" on Owens map were one in the same. Utilizing this information, Marshall was able to reference a hypothesized location of the Battle of Rosillo Creek to "a gentle slope between Salado and Rosillo Creeks, about three-quarters of a mile south of the present day intersection of [I-410] and South W. W. White Road".

Marshall's analysis of the potential battlefield location determined that little archaeological evidence of the Battle of Rosillo Creek likely remains (Marshal 2015). Analysis of written accounts suggests that minimal cultural materials likely resulted from the 30-minute battle. For example, although six cannons were used by Royalist forces, canister shot and miscellaneous metal fragments were likely used more frequently than cannonballs against insurgent infantry and cavalry forces. Furthermore, the Republican Army of the north only fired two volleys, mostly with American rifles and muskets, which would have

widely-spread any evidence of ammunitions. Lastly, the battle reportedly occurred within an open field, which would have allowed the reclaiming of any weapons, battle gear, or items of value that may have been left behind during live action. Marshall (2015) concluded that any remaining cultural material has likely been destroyed or displaced by the construction of the I-410 corridor, the development of an industrial facility, and agricultural practice.

According to Marshall (2015), the 1936 marker for the Battle of Rosillo Creek was relocated in 1990 based on UTSA archival research. The granite marker was moved 2 miles northwest, to the entrance to the Republic Golf Course on Southeast Military Drive (NAD1983 UTM, Easting 557292.1 Northing 3247702.7) (**Figure 10**). Although Marshall's findings determined that the original location of the marker (at W. W. White and Hildebrant Road) was likely the more accurate of the two locations for proximity to the battlefield location, it was proposed that the monument stay at its current location to prevent theft and vandalism (Marshall2015).

Figure 10. 1936 Texas Centennial granite marker for the Battle of Rosillo Creek at its current location, in front of the Republic golf Course on Southeast Military Drive, facing east.

Previous Archaeology

RKEI conducted a desktop review of a 0.6-mile (1-km) study area surrounding the APE to determine the probability of encountering significant cultural resources within the project area. The review identified two previously conducted cultural resources investigations and one potential historic battleground within the proposed APE (THC 2017). Furthermore, six previously conducted cultural resources investigations, ten archaeological sites, one historical marker, and one cemetery are located within the study area (**Figure 11**) (THC 2017).

Two previously conducted investigations overlap the APE (THC 2017). The first were conducted by Abasolo Archaeological Consultants in anticipation of the realignment of Sinclair Road (Hester and Shafer 2006). Investigations included a pedestrian survey, a metal detection survey, and backhoe trenching investigations that resulted in the identification of archaeological site 41BX1630 (Hester and Shafer 2006). Additional investigations were conducted in 2015 by SWCA Environmental Consultants in anticipation of the Riposa Vita Subdivision Development Units 3–5 (Ward 2015). Investigations consisted of an intensive pedestrian survey augmented with shovel testing and a metal detection survey. Investigations resulted in the documentation of archaeological sites 41BX2075, 41BX2076, and 41BX2077; however, no evidence of the Battle of Rosillo Creek was identified (Ward 2015).

Six cultural resources surveys have been completed within the study area (THC 2017). The first was conducted in 1985 by Robert H. Thonhoff and Ted Schwarz at the confluence of Salado Creek and Rosillo Creek. No detailed information for the investigations is available on Atlas, but investigations are likely documented in the 1985 publication “Forgotten Battlefield of the First Texas Revolution: The Battle of Medina, August 18, 1813” (THC 2017). Additional investigations with the study area consist of: a 1986 linear survey for the I-410 ROW (THC 2017); a 1977 area survey for one of 11 drainages and three treatment plans for the proposed San Antonio 201 Wastewater Treatment Facilities Project (Fox 1977); two linear survey investigations conducted in 2001 and 2002 for Segment II and III of the SAWS Aquifer Storage and Recovery Project (Barile 2002; French 2002); and a 50-acre area survey for the construction of the Southeast Service Center on the north I-410 access road, north of Rigsby Avenue (Kibler 2016).

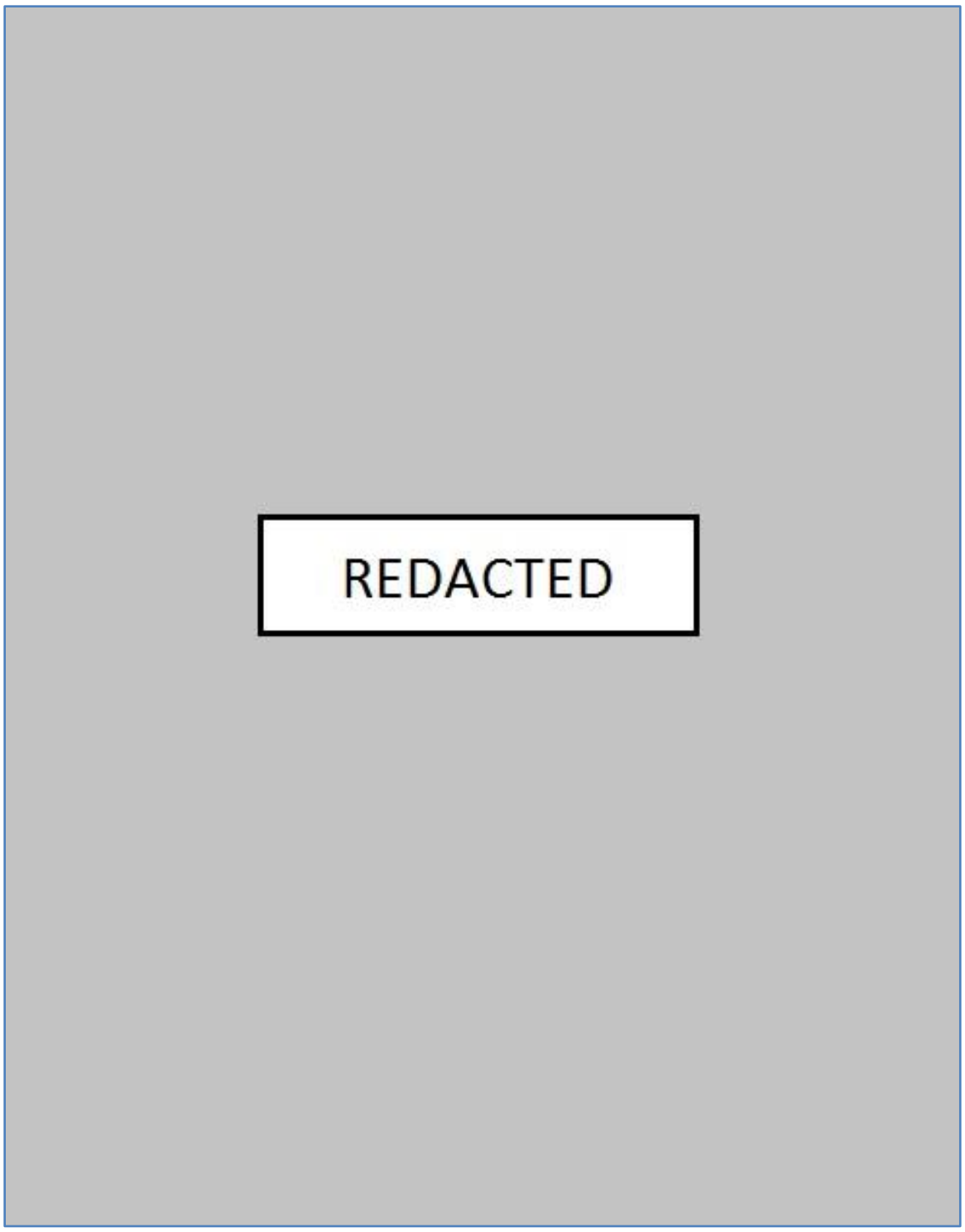

Figure 11. Archaeological investigations and resources within 1-kilometer of the project area.

Of the ten known sites within the study area, five are prehistoric lithic scatters of an unknown temporal affiliation located on the upper and lower terraces of Salado Creek and Rosillo Creek (41BX359, 41BX770, 41BX839, 41BX1630, and 41BX2077). Artifact assemblages for the five prehistoric sites consist of lithic debitage, cores, burned rock, and lithic stone tools, none of which were diagnostic (THC 2017). The five remaining sites within the study area consist of two historic sites (41BX771 and 41BX1460) and three multiple component sites (41BX358, 41BX2075, and 41BX2076). Site 41BX771 consists of the remnants of a farm complex with multiple historic-age buildings, structures, and an associated refuse scatter; and site 41BX1460 is a historic-age board and batten building with an associated refuse scatter. Sites 41BX358, 41BX2075, and 41BX2076 consist of prehistoric lithic scatters mixed with historic-age refuse materials. Site 41BX839 was documented as totally destroyed with no research value, but was listed as eligibility undetermined for listing as a NRHP property in 2002. Site 41BX1630 was documented as heavily eroded and likely destroyed by the anticipated realignment and was designated as ineligible for listing as an NRHP property in 2006. Lastly, 41BX1460 was designated as ineligible for designation as an NRHP property in 2002. The remaining seven sites within the study area have no eligibility determination recorded on Atlas (THC 2017).

Meadowlawn Memorial Park Cemetery is located east of the APE terminus, on F.M. 1346 (THC 2017). The cemetery is the original burial grounds for the Sons of Herrmann Fraternal Cemetery, which was dedicated in the 1850s but was transformed in to a perpetual care cemetery in 1963. One historic marker (Marker No. 329) for the Battle of Rosillo Creek is mapped on Atlas at the northwestern corner of South W. W. White Road and Hildebrandt Road, east of the APE. The mapped marker is the same granite marker previously discussed (see “Archival Review”; Figure 10). The location of Marker No. 329 on Atlas demarks the original dedication point of the marker, prior to its relocation in 1990 (THC 2017).

Methods of Investigation

To ensure that the project met the requirements of regulating agencies, **RKEI** performed a metal detection survey within the potential boundaries of the Battle of Rosillo Creek, and an intensive archaeological survey augmented with auger testing of the remaining APE. All work complied with THC and Council of Texas Archeologists (CTA) guidelines and standards. Investigations ensured that if historic or prehistoric deposits and/or features were present within the APE, they were properly recorded and evaluated for their significance prior to negative impacts associated with the project.

Metal Detection Survey

RKEI conducted a metal detection survey of a 0.35-mile (0.56 km) portion of the APE within the boundaries of the potential location of the Battle of Rosillo Creek, based on Marshall 2015. The metal detection survey consisted of a team of archaeologists walking in 32-foot (10-m) transects with a metal detection devise, beginning at the bank of Rosillo Creek and working west. Metal detection "hits" encountered during the survey were flagged and recovered to determine the cause of the hit. Each hit was recorded on a metal detection log that documented the approximate depth of each hit, soil type, and artifact material/type. Only diagnostic cultural materials would have been collected and taken to the **RKEI** Archaeological Laboratory for processing and analysis; however, no diagnostic materials were observed, thus nothing was collected.

Intensive Archaeological Survey with Auger Excavations

To ensure that construction does not impact significant archaeological resources, **RKEI** archaeologists also conducted an intensive archaeological survey augmented with auger testing to determine presence/absence of cultural deposits within the APE. Auger tests were conducted with a mechanical auger towed with a gas-powered all-terrain vehicle (ATV) and placed in 328-foot (100-m) intervals with respect to disturbance, ground surface visibility, and accessibility. **RKEI** archaeologists used a 12-inch bit that allowed for a maximum excavation of roughly 2 feet (60 cm) below surface (bs). Auger tests were terminated at depth or until an impassable material was encountered. Impassable materials for the auger excavations include compact soils, gravel lenses, large rocks, large vegetation roots, or bedrock. Each auger tests was documented using an auger excavation form and all soil matrix excavated was screened for cultural materials through 1/4-inch mesh hardware cloth.

No excavations were conducted within the 32-foot (10-m) wide existing SAWS sewer easement to prevent damage to the existing underground utility. No excavations were conducted in areas that had been highly disturbed or modified (e.g. asphalt or gravel roads, areas within/adjacent to existing underground utilities, etc.). Areas of disturbance were visually inspected for cultural materials at ground surface through a pedestrian survey.

When auger testing identified areas that had the potential of containing subsurface cultural deposits, **RKEI** conducted shovel test excavations to determine the vertical and horizontal extent of cultural deposits. Shovel tests were excavated 30 cm in diameter and, unless prevented by obstacles or buried features, extend to a depth of 60 cmbs at 10 cm intervals. Shovel tests were documented with a shovel test form. All soil matrix excavated with shovel testing was screened for cultural materials through 1/4-inch mesh hardware cloth.

RKEI proposed to collect temporally diagnostic artifacts only during the intensive archaeological survey; however, no diagnostic materials were identified during the course of investigations, thus nothing was collected.

Laboratory and Curation

No diagnostic artifacts were collected during the course of the investigations, thus, no artifacts will be curated at the completion of the project. The only materials to be processed and curated consist of documents and digital photographs produced during field investigations. Digital photographs were printed on acid-free paper, labeled with archivally appropriate materials, and placed in archival-quality plastic sleeves. Ink-jet produced maps and illustrations were placed in archival quality plastic page protectors to prevent against accidental smearing due to moisture. Field notes, field forms, photographs, and field drawings were placed into labeled archival folders and were also converted into electronic files (i.e., pdf). A copy of the report and all digital material were burned onto a CD and permanently curated with field notes and documents. All field records generated by this project will be permanently curated in accordance with the CAR-UTSA guidelines.

Chapter 3. Results of Investigations

RKEI archaeologists conducted a metal detection survey on October 5-6, 2017, and an intensive archaeological survey with auger excavations on October 9-13, 2017, for the SAWS East Sewer Rehabilitation and Replacement Project along the Rosillo Creek Floodplain. Kristi Miller Nichols acted as Principal Investigator and Rhiana D. Ward served as Project Archaeologist. Kendra Brownlow, Chris Matthews, Chris Murray, and Rick Sample assisted in field investigations. Investigations resulted in the documentation of newly recorded archaeological site 41BX2208, a prehistoric lithic scatter of unknown temporal affiliation. No evidence of the 1813 Battle of Rosillo Creek was documented.

Metal Detection Survey

RKEI archaeologists conducted a metal detection survey for a 0.35-mile (0.56 km) ingress/egress easement of the APE (**Figure 12**). The 0.35-mile portion is contained within an existing CPS Energy transmission corridor that extends from the I-410 access road to the western bank of Rosillo Creek. Vegetation of the corridor consists of tall grasses, weeds, and low-lying shrubs (**Figure 13**). The topography consists of a generally level, upper terrace to the west that gradually slopes (5-10 percent slope) towards Rosillo Creek to the east.

Eighty-six 86 metal detection hits were documented within the 0.35-mile (0.56 km) portion (Appendix A). Eleven of the hits contained more than one item, resulting in 109 items recorded during the survey. Forty-four percent of the total metal detection hits (38 hits) were concentrated within the first 200 feet (61 m) closest to Rosillo Creek. A second concentration consisting of 28 percent of the total metal detection hits (24 hits) was also observed approximately 700 feet (213 m) east of the I-410 access road, within an 80-foot (24-m) long section of alignment. The remaining 28 percent of hits (24 hits) were detected sporadically throughout the remaining corridor.

Material types consisted predominately of iron (59 hits), with aluminum (20 hits) as the second most common material type. Other material types included brass (5 hits), copper (1 hit), and lead (1 hit). The most common item observed was iron barbed and bailing wire fragments, which made up 58 percent of the metal detection hits (50 hits; 57 individual fragments of wire total). Other items included: 10 aluminum beverage cans; 10 iron container fragments, likely from paint or chemical containers; six

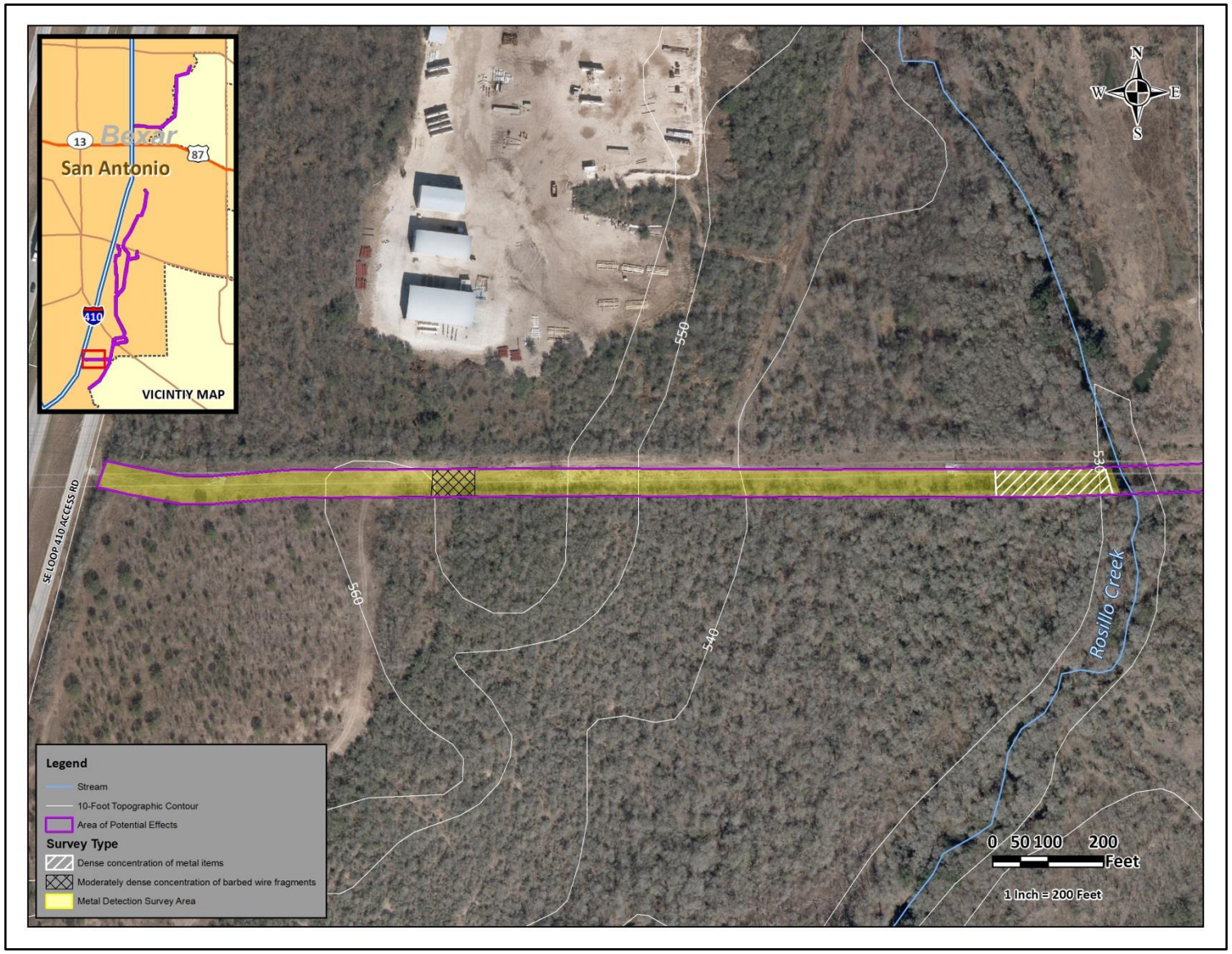

Figure 12. Results of metal detection survey.

Figure 13. Overview of existing overhead transmission line and metal detection survey area.

aluminum twist-top bottle caps/rings; five brass shotgun shell bases; three iron bolts; two clusters of aluminum foil food wrappers; two fragments of large-gauge iron sheet metal, likely from automobile or farm equipment; one iron screw; one iron wire nail; one aluminum fencing wire; one iron ring/lip from a container or farm equipment; one modern, led bullet with a full, copper metal jacket from a hunting rifle; one car battery cable; one aluminum top to a syringe medicine bottle; one iron bearing cover; and one iron nut (**Figures 14-15**).

The concentration of items closest to the creek likely represents the remains of a push-pile that has since been removed (**Figure 16**). The push pile may have been created during the construction of the existing utility corridor and was likely removed shortly after construction ended. The second concentration documented east of the I-410 access road is likely the result of the removal of a fence that once transected the existing utility corridor from north to south. The former fence line is evidenced by two wooden fence posts that likely served as gate supports within the center of the corridor. All hits recovered from this concentration consisted of barbed wire and bailing wire fragments.

Based on material type, style, and condition, all 86 hits documented during the metal detection survey date from the mid-twentieth century to present. No historic-age materials were observed and no evidence of the 1813 Battle of Rosillo Creek was recovered during the metal detection survey.

Figure 14. Example of metal detection items.

Figure 15. Example of metal detection items.

Figure 16. Pin flags marking a concentration of metal detection hits west of Rosillo Creek, facing south.

Intensive Archaeological Survey with Auger Excavations

RKEI archaeologists conducted presence/absence investigations of the approximately 5.5-mile (8.6 km) project alignment and associated ingress/egress roads (**Figures 17-19**). Excavations were conducted in areas of minimal ground disturbance with a towable mechanical auger (**Figure 20**). Areas of disturbance were examined by pedestrian survey with ground surface inspection.

A total of 50 auger tests were excavated throughout the APE (Appendix B). Seven Auger excavations (AG44-50) were conducted along the northern 0.43 mile (0.69 km) northern segment (see **Figure 17**). Soils for the seven tests consisted of very dark gray (10YR3/1) compact clays with less than 5 percent gravel inclusions (**Figure 21**). All seven tests were terminated at depth (60 to 75 cmbs), and none tested positive for cultural materials or evidence of cultural features.

At the time of investigations, the remaining 0.97-mile (1.56-km) portion of northern segment was undergoing a transfer of ownership which restricted access to the 80-foot temporary easement. As a result, investigations were limited to a pedestrian survey with ground surface inspection of the existing 30-foot (9-m) existing SAWS sewer easement. Due to existing disturbance and to prevent damage to the

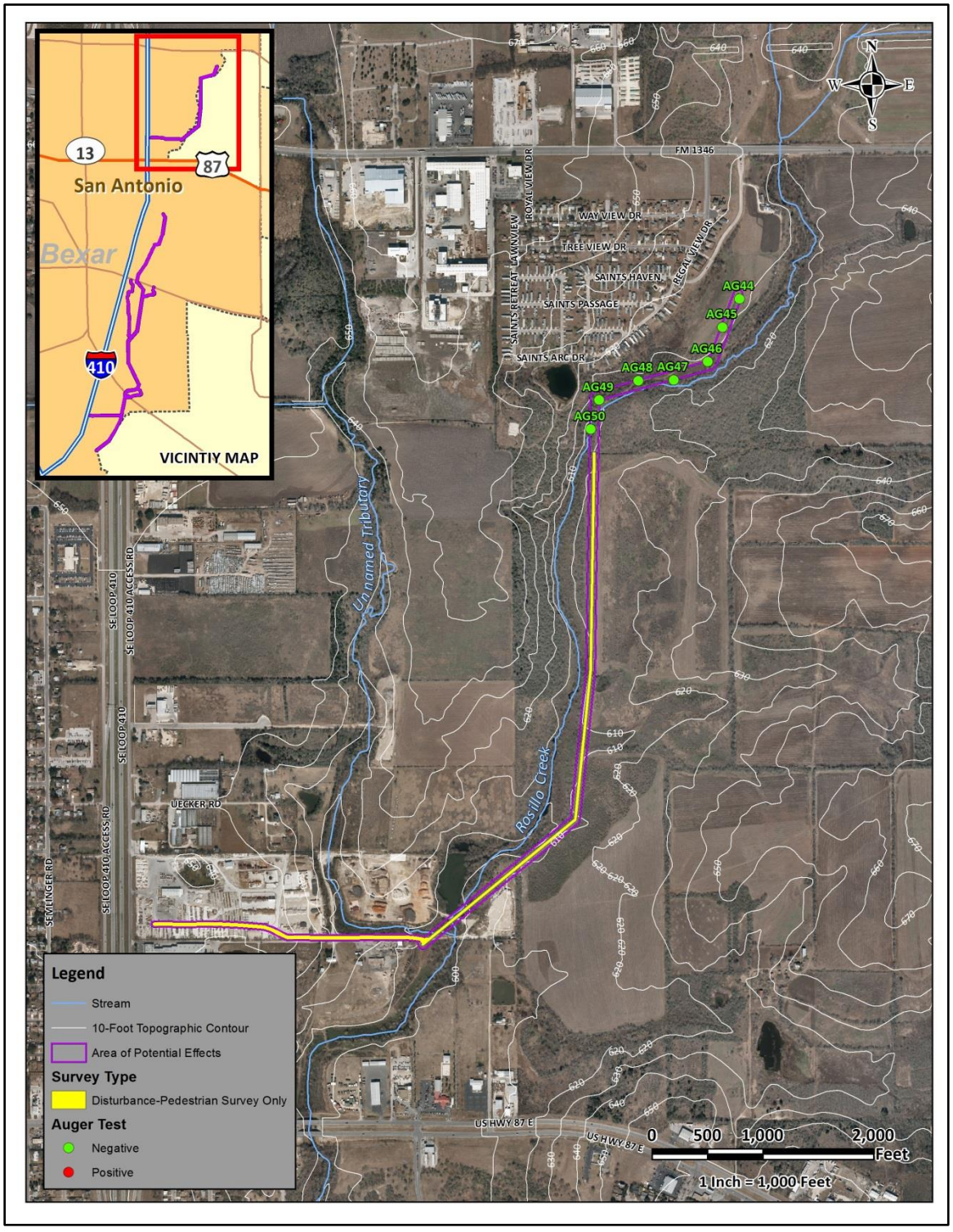

Figure 17. Survey results for the northern segment of APE.

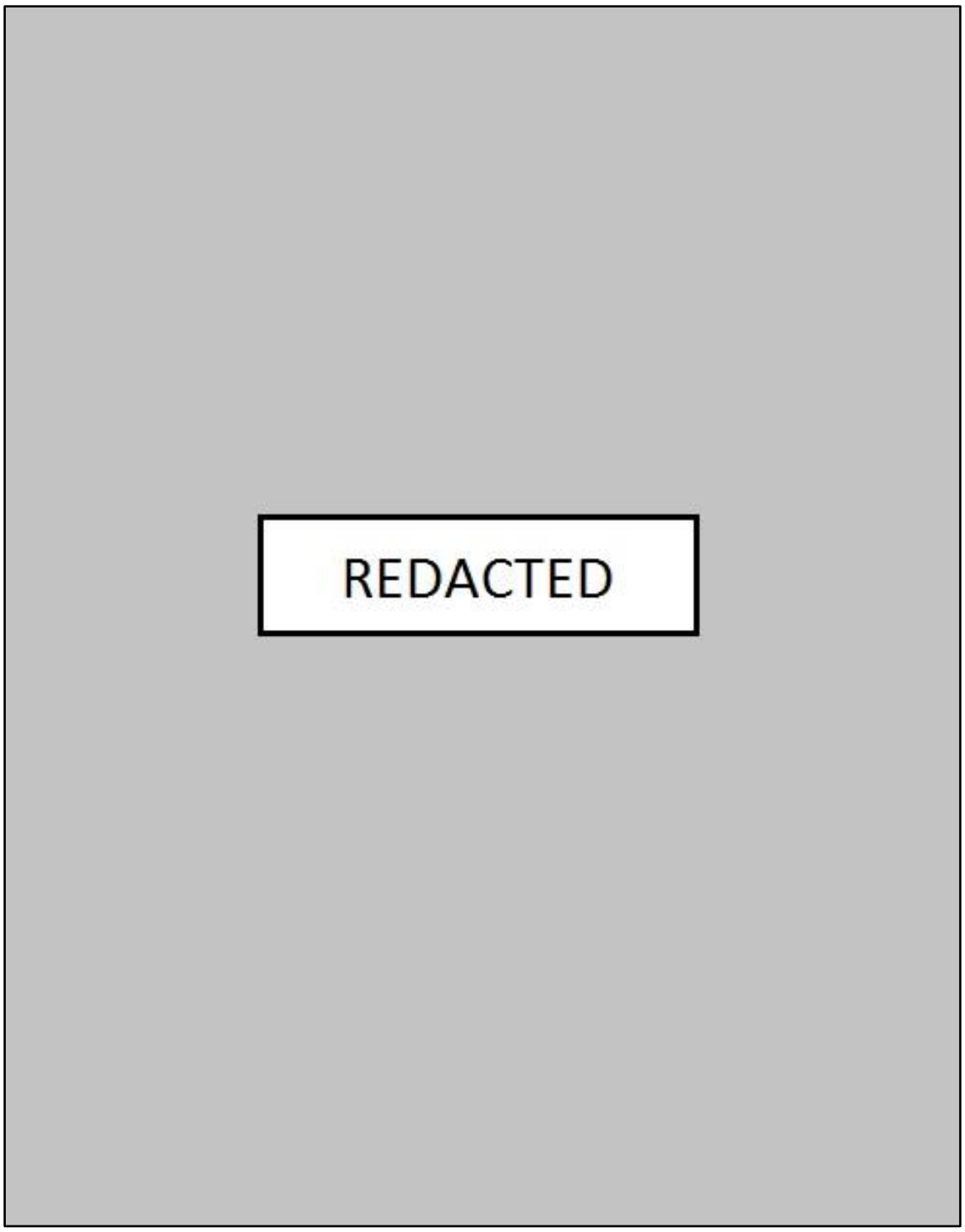

Figure 18. Survey results for northern half of the southern APE segment.

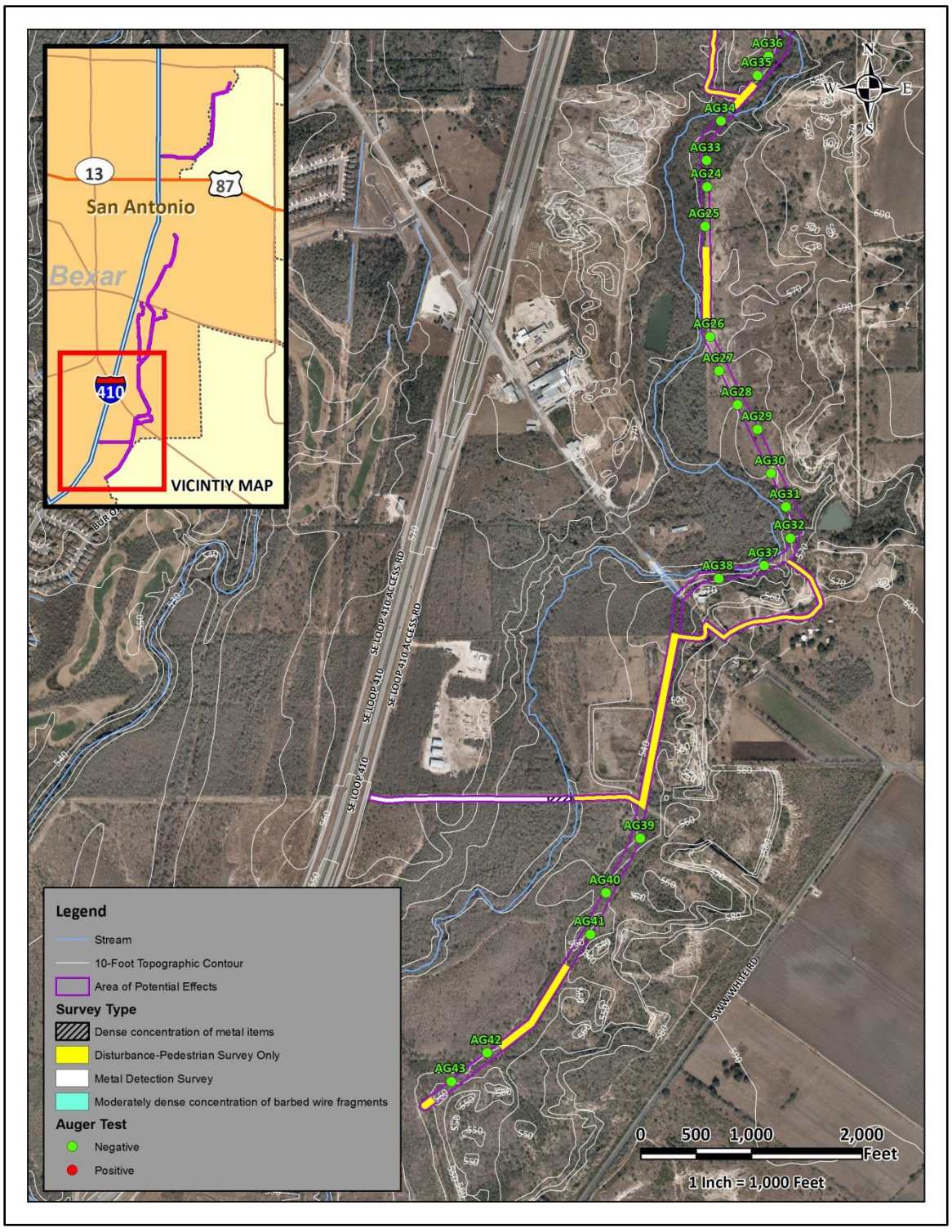

Figure 19. Survey results for the southern half of the southern APE Segment.

Figure 20. Mechanical auger used for presence/absence investigations at AG05, facing south-southeast.

Figure 21. Average soil profile for northern APE segment, AG49.

existing underground utility, no subsurface investigations were conducted. Ground surface inspection observed highly disturbed, dark yellowish-brown (10YR4/4) silty clay soils with cobbles and gravels 60-percent ground surface visibility (**Figures 22-23**). An abundance of natural chert material with from mechanical breakage from agricultural practice was observed. Overall, no cultural materials or features were observed during the pedestrian survey of the northern APE segment.

Figure 22. Overview of existing SAWS sewer easement along the northern APE segment, facing north.

Nine auger excavations (AG01-09) were excavated along the first 0.66 mile (1.06 km) of the southern APE segment, beginning just south of Sinclair Road (see **Figure 18**). The nine auger tests observed compact to hard, very dark grey (10YR3/1) to dark grayish-brown (10YR4/2) clays with 5 to 10 percent gravel inclusions on average (**Figure 24**). No significant cultural materials were observed in AG01-09. However, AG02 and AG09 did yield three shards of brown container glass, two fragments of metal bands, and a piece of decorative plastic likely associated with lawn décor (**Figure 25**). All materials were modern in age and did not warrant further investigation.

Figure 23. Example of ground surface visibility along the northern APE segment, facing north.

Figure 24. Average soil profile for AG01–09.

Figure 25. Example of modern refused materials observed during auger excavations, Auger 09.

No investigations were conducted for a 0.32-mile (0.5-km) portion of the southern APE segment between Wynne Road and Side Saddle Drive (see **Figure 18**). High fences, dense vegetation, the Rosillo Creek drainage, and limited access and right-of-entry at the time of investigations prevented access to this portion of the alignment.

Auger excavations continued 0.17 mile (0.27 km) north of New Sulphur Springs Road and extended south for 2.13 miles (3.43 km) to South W. W. White Road (AG10-38) (see **Figures 18 and 19**). Soils generally consisted of compact, brown (10YR5/3) clay and clay loams with dense (20 to 75 percent) gravel inclusions (AG10-23) (**Figure 26**) that transitioned to compact and very hard, very dark grayish-brown (10YR3/2) to brown (10YR4/3) clay and clay loams (AG24-38) (**Figure 27**). AG10-38 bordered a series of cattle pastures and fallow agricultural fields that have been impacted from land modification and vegetation clearing.

Vegetation clearing activities were observed near AG22 and AG23 and warranted no additional excavation (**Figures 28-29**). Additionally, land disturbing activities observed within a 626-foot (200-m) portion of alignment between AG25 and AG26 warranted no subsurface investigation. Soils

Figure 26. Average soil profile from AG10-23, AG19.

Figure 27. Average soil profile for AG24–38, AG26.

Figure 28. Vegetation clearing near AG22, facing northwest.

Figure 29. Vegetation clearing near AG23, facing southeast.

within the 626-foot portion consisted of loose, brown (10YR4/3) clay loams with high volumes (40 to 60 percent) of gravel inclusions that had been graded to create a level pasture with significant drops in elevations at the edges of the field (**Figure 30**). No cultural materials or evidence of cultural features was identified during the pedestrian survey of the 626-foot portion.

Figure 30. Land disturbing activities between AG25 and AG26, facing north.

Of the 29 auger tests (AG10-38) conducted between New Sulphur Springs Road and South W. W. White, only one, AG18, tested positive for prehistoric subsurface cultural materials (see **Figure 18**). AG18 is located within an open cattle pasture, roughly 0.58 mile (0.93 m) south of New Sulphur Springs Road. The soil profile consisted of compact, very dark grayish-brown (10YR3/2) clay that terminated at super compact clay at 40 cmbs (**Figure 31**). Inclusions consisted of 5-percent gravels. Cultural materials recovered included one tertiary chert flake and one piece of charcoal at an unknown depth (**Figure 32**). AG18 was delineated with shovel testing to determine the extent of cultural materials within the APE. The additional shovel tests led to the delineation of site 41BX2208. A discussion for 41BX2208 is detailed below.

Figure 31. Soil profile of AG18.

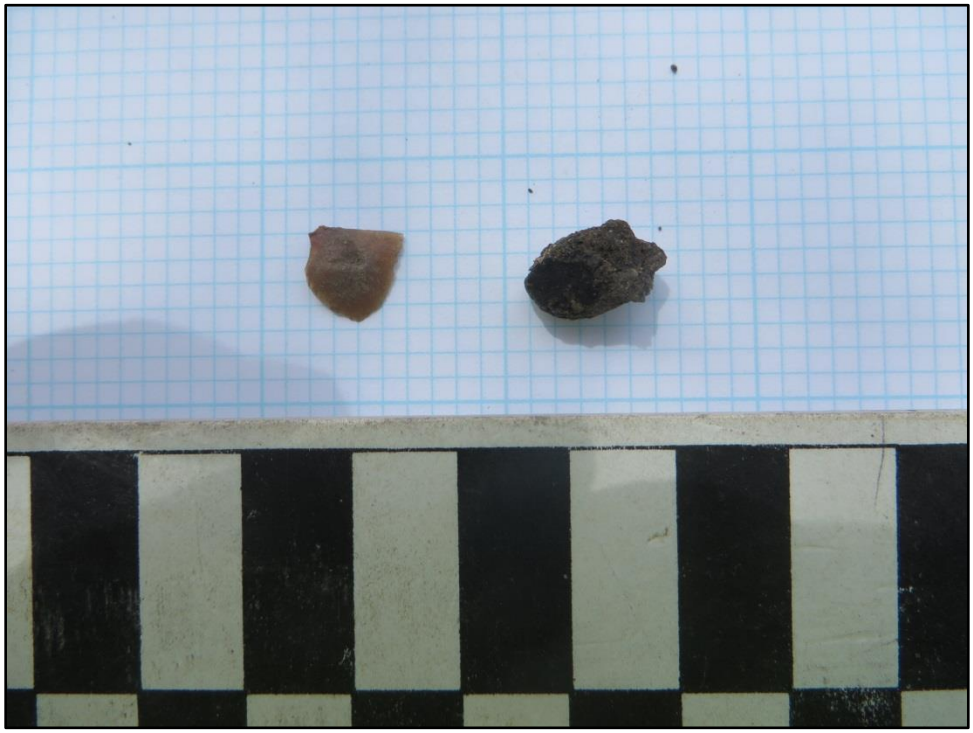

Figure 32. One tertiary chert flake and one piece of charcoal recovered from AG18.

Six auger excavations (AG39-43) and approximately 0.55 mile (0.89 km) of pedestrian survey were conducted south of South W. W. White Road (see **Figure 19**). Minimal soil deposition and land disturbing activities limited the number of auger tests excavated for the remaining APE. A 0.37-mile (0.60-km) portion immediately south of W. W. White had been significantly disturbed from the construction of a large, man-made pond and overflow reservoir immediately west of the APE (**Figure 33**). The pond and overflow reservoir were inundated at the time of investigation and contained flora common to wetland environments (**Figure 34**). The area east of the APE within the 0.37-mile (0.60-km) portion had also been significantly altered by the construction of an earthen embankment, likely constructed from the spoils of the pond and reservoir (**Figure 35**). Other land disturbing activities observed included a two-track road constructed on an earthen berm (**Figure 36**), and sporadic earthen, brush, and rock piles throughout the APE (**Figure 37**).

Figure 33. Overview of man-made pond (background) from the APE, facing west.

Figure 34. Overview of overflow reservoir to the north of the man-made pond, facing west-southwest.

Figure 35. Example of earthen embankment east of the APE, facing south-southeast.

Figure 36. Two-track dirt road constructed on an earthen berm and bordered by bedrock boulders, facing south.

Figure 37. Example of earthen and brush piles observed throughout the APE, south of South W. W. White Road, facing north.

The remaining 0.65 mile (1.05 km) of alignment south of South W. W. White Road consisted of shallow (15 to 40 cmbs), gray (10YR6/1) and dark brownish-gray (10YR4/2) compact silty clays that terminated at bedrock (**Figure 38**). Six auger excavations (AG39-43) and approximately 0.18 mile (0.29 km) of pedestrian survey were conducted in this section of the APE before its termination at an existing pump station (see **Figure 3**). Disturbances included the existing SAWS sewer easement paralleled by an artificial drainage, quarry activity, and a two-track access road with cut banks for level access (**Figures 39-40**). An examination of two cut banks adjacent to the two-track road was conducted in lieu of auger testing for approximately 0.19 mile (0.30 km) of alignment between AG41 and A42 (**Figures 41-42**). Overall, no cultural materials or features were documented during investigation of the APE south of South W. W. White Road.

Figure 38. Average soil profile for AG39-43, AG39.

Figure 39. Drainage paralleling the existing SAWS sewer easement, facing south.

Figure 40. Back side of earthen berm paralleling drainage for the existing SAWS sewer easement, facing northeast.

Figure 41. Cut bank adjacent to two-track road between AG41 and AG42, facing east.

Figure 42. Cut bank adjacent to two-track road between AG41 and AG42, facing east.

Six ingress/egress roads were examined through pedestrian survey throughout the APE. The first is a gravel and asphalt drive that connects the I-410 access road to the northern segment of the APE through the former Keller Material, LTD facility. At the time of investigation, the road was partly within an active construction site and used as an access road to a material storage area near the southern terminus of the northern APE segment.

The second ingress/egress road is a gravel and dirt two-track road that can be accessed off New Sulphur Springs Road, west of the southern APE segment. The two-track extends south for 0.96 mile (1.54 km) before crossing Rosillo Creek and connecting to the temporary easement (**Figures 43-44**). The third ingress/egress road consists of a 0.07-mile (0.11-km) private drive off of New Sulphur Springs Road to the east of the temporary easement. The private drive is a combination of asphalt, compact base, and dirt that navigates between multiple residential houses and barns before connecting to the temporary easement through an open cattle pasture. The fourth ingress/egress road is a 0.28-mile (0.45-km) gravel drive that can be accessed to the east of the temporary easement off of South W. W. White Road. The gravel drive provides access to a residential complex to the east, and acts as an earthen berm/barrier for a series of abandoned quarry pits (**Figure 45**). The fifth access road is a small asphalt private drive that measures 328 feet (100 m) long, east of the temporary easement on South W. W. White Road. The sixth and last ingress/egress road consists of the 50-foot (15-m) wide existing CPS Energy overhead transmission corridor that connects the temporary easement to the I-410 access road (**Figure 46**). The 0.35-mile (0.65-km) section of corridor east of Rosillo Creek was investigated by metal detection, while the remaining 0.11 mile (0.18 km) of corridor was surveyed with a pedestrian survey and ground surface inspection. Overall, no cultural materials or evidence of cultural features was observed during the pedestrian survey for any ingress/egress roads of the APE.

Site 41BX2208

Site 41BX2208 is a prehistoric lithic scatter of an unknown temporal affiliation located 0.58 mile (0.93 m) south of New Sulphur Springs Road and 0.35 mile (0.56 m) east of the I-410 access road. The site is situated on the lower terrace of Rosillo Creek, approximately 308 feet (94 m) east of the creek bank (**Figure 47)**. Topography is generally level along the lower terrace with less than 2-percent slope towards the creek. Vegetation consists of tall grasses, weeds, and low-lying shrubs mixed with sporadic mesquite

Figure 43. Two-track access road off of New Sulphur Springs Road, east of alignment, facing south.

Figure 44. Two-track access road crossing of Rosillo Creek between AG34 and AG35, facing east.

Figure 45. Ingress/egress road to the east of alignment, north of South W. W. White Road, facing southeast.

Figure 46. Existing CPS Energy corridor to be used as ingress/egress, facing east.

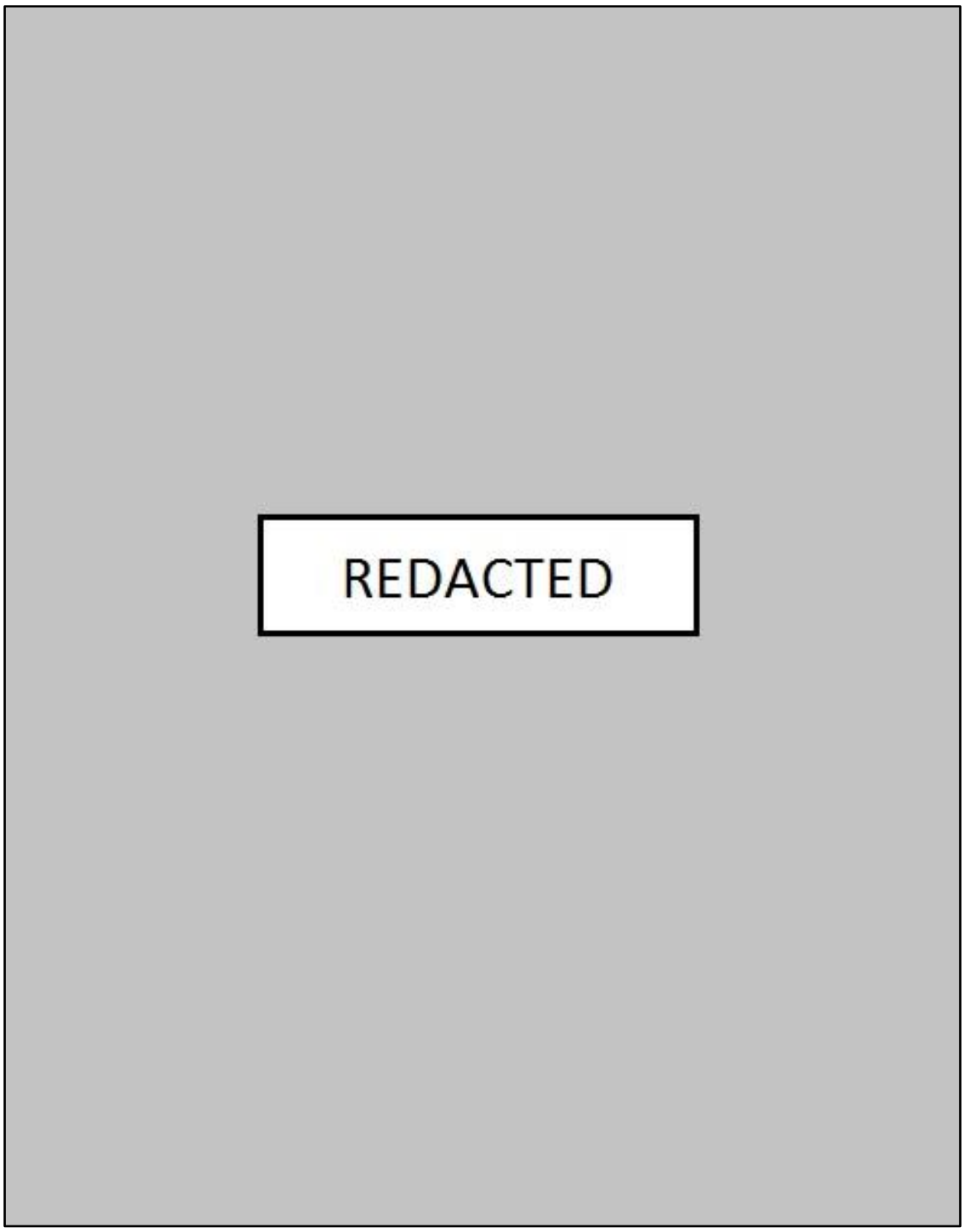

Figure 47. Site map for 41BX2208.

trees and scrub (**Figure 48**). Ground surface visibility is 60-percent on average, with small gravels and cobbles at surface. Soils range from compact, very dark brown (10YR2/2) to dark grayish-brown (10YR4/2) clay and silty clays that range from 0 to 30 cmbs before transitioning to very hard, very dark grayish-brown (10YR3/2) to dark yellowish brown (10YR4/4) clays from 30 to 60 cmbs (**Figure 49**). Gravel, root, and calcium carbonate inclusions were observed throughout.

Site boundaries for 41BX2208 measure 62-x-62 feet (18-x-18 m) and encompass a total of 0.09 acres. The northern and southern site boundaries were determined by two consecutive, negative shovel tests, and the western site boundary was determined by the APE boundary. The eastern site boundary was determined by the existing SAWS ROW, which has been heavily impacted by the construction of the sewer alignment and was not tested for cultural materials.

Six shovel tests were excavated to determine the extent of subsurface cultural materials for 41BX2208 (Appendix C). Shovel tests were excavated in 32-foot (10-m) intervals to the north, east, and south of AG18. No shovel tests were excavated to the west of the auger test due to the APE boundary. All six shovel tests were excavated to 60 cmbs and were terminated at depth. Of the six shovel tests, two (ST01 and ST02) tested positive for subsurface cultural materials. ST01 tested positive at Level 5 (40 to 50 cmbs) and consisted of two tertiary chert flakes (**Figure 50**). ST02 tested positive for cultural materials at Level 3 (20 to 30 cmbs) and consisted of four tertiary chert flakes, one secondary chert flake, and one fragment of mussel shell (**Figure 51**). No diagnostic materials or cultural features were encountered; therefore, the prehistoric temporal affiliation of the site is unknown.

Figure 48. Overview of 41BX2208 vegetation and topography, facing south.

Figure 49. Example of average soil profile for 41BX2208, ST06, facing east.

Figure 50. Two tertiary chert flakes from ST01, 41BX2208.

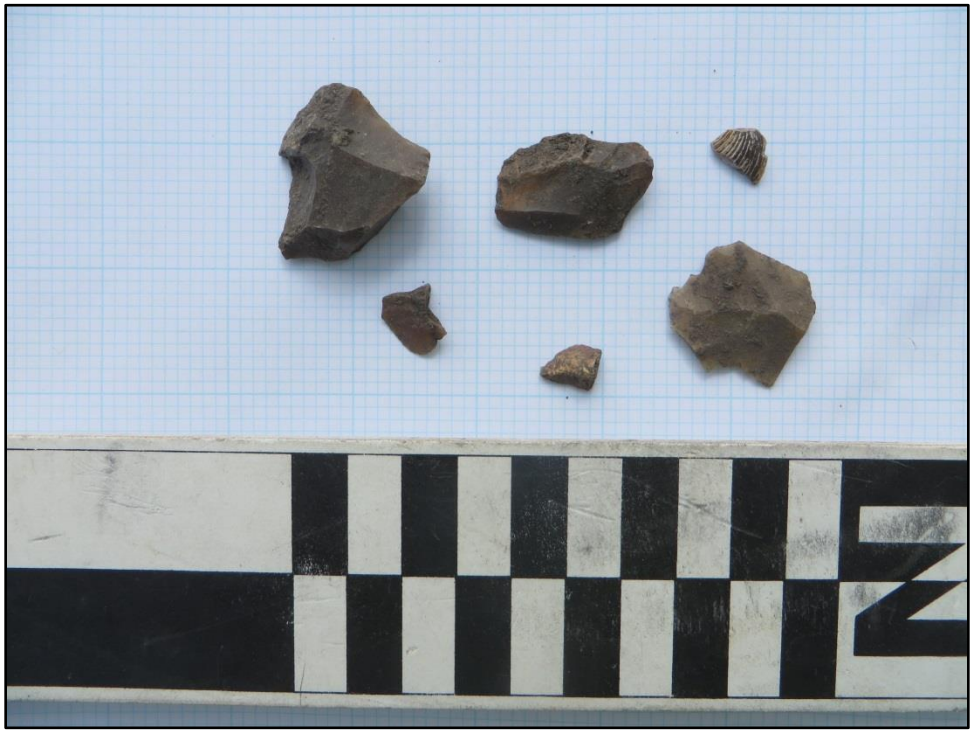

Figure 51. Chert flakes and mussel shell fragment from ST02, 41BX2208.

Chapter 4. Summary and Recommendations

Archaeological investigations for the SAWS East Sewer Rehabilitation and Replacement Project along the Rosillo Creek floodplain were conducted on October 5-6 and 9-13, 2017. Investigations consisted of a metal detection survey for a 0.35-mile (0.56 km) portion of the APE, and an intensive archaeological survey with auger testing of the remaining APE. The metal detection survey resulted in the documentation of 86 hits, all of which were modern in age. No historic-age materials or evidence of the 1813 Battle of Rosillo Creek was encountered during the metal detection survey.

Fifty auger tests were excavated throughout the APE in areas of minimal ground disturbance, four of which tested positive for cultural materials. Three of the positive auger tests contained modern refuse materials and warranted no further investigation. The fourth positive auger test yielded one prehistoric tertiary flake and one piece of charcoal from an unknown depth. The positive auger test was delineated with shovel testing to determine the vertical and horizontal extent of cultural materials within the APE. Six shovel test investigations resulted in the documentation of site 41BX2208.

41BX2208 is a prehistoric lithic scatter located on the eastern terrace of Rosillo Creek within the APE. The cultural assemblage consists of eight chert lithic artifacts, one mussel shell fragment, and one piece of charcoal that were identified in Level 3 (20 to 30 cmbs) to Level 5 (40 to 50 cmbs). The site measures 62-x-62 feet (18-x-18 m) and encompasses 0.09 acre. 41BX2208 appears to be a light scatter of prehistoric chipped lithic artifacts from early to middle reduction stage with no diagnostic materials or evidence of cultural features that would offer insight to temporal affiliation of the prehistoric component. **RKEI** recommends that the portion of 41BX2208 located within the APE has a low research potential and is not eligible for inclusion to the NRHP or for designation as an SAL.

No diagnostic or significant prehistoric or historic material was encountered within the APE. While the prehistoric artifacts documented from 41BX2208 represent the remnants of lithic production activities, these activities may represent a narrow or a very broad time frame and therefore do not contribute to the collective knowledge of the historic or prehistoric history of the region. Given this conclusion, **RKEI** does not recommend further archaeological investigations for 41BX2208. Furthermore, no further work is recommended for the APE. However, should changes 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.

Furthermore, revision to the Atlas (THC 2017) entry for the 1936 Texas Centennial Marker for the Battle of Rosillo Creek is recommended. The current location of the marker on Atlas does not correlate with the physical location of the granite marker. **RKEI** recommends that the Atlas location remain at its current coordinates due to its proximity to the likely battlefield location. However, a notation should be made to the file that indicates the location of the physical marker at the Republic Golf Course.

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Appendix A
Metal Detection Log

Date	Hit No.	Approx. Level/ Depth (cm)	UTM Easting	UTM Northing	Soil Type	Soil Color	Material Type	Comments/Description
10/5/2017	**1**	5	558425.7	3246032.1	Clay loam	10YR3/2	Aluminum	1 Beverage can top
10/5/2017	**2**	5	558422.8	3246035.4	Clay loam	10YR3/2	Iron	1 Bailing wire fragment
10/5/2017	**3**	5	558419.9	3246033.1	Clay loam	10YR3/2	Aluminum	1 Beer bottle cap
10/5/2017	**4**	5	558419.9	3246030.9	Clay loam	10YR3/2	Iron	1 Bailing wire fragment
10/5/2017	**5**	5	558420.8	3246038.7	Clay loam	10YR3/2	Iron	1 Bailing wire fragment
10/5/2017	**6**	5	558418.9	3246038.7	Clay loam	10YR3/2	Iron	1 Barbed wire fragment
10/5/2017	**7**	5	558422.8	3246035.4	Clay loam	10YR3/2	Iron	1 Barbed wire fragment
10/5/2017	**8**	5	558419.9	3246035.3	Clay loam	10YR3/2	Iron	1 Bailing wire fragment
10/5/2017	**9**	5	558419.9	3246037.6	Clay loam	10YR3/2	Iron	4 Barbed wire
10/5/2017	**10**	5	558419.9	3246037.6	Clay loam	10YR3/2	Iron	1 Barbed wire fragment
10/5/2017	**11**	5	558418.9	3246040.9	Clay loam	10YR3/2	Iron	3 Barbed wire fragments
10/5/2017	**12**	5	558416.9	3246045.3	Clay loam	10YR3/2	Iron	1 Barbed wire fragment
10/5/2017	**13**	10	558414	3246042	Clay loam	10YR3/2	Iron	1 screw, 1 bolt, 1 wire nail

Date	Hit No.	Approx. Level/ Depth (cm)	UTM Easting	UTM Northing	Soil Type	Soil Color	Material Type	Comments/Description
10/5/2017	**14**	5	558416	3246038.7	Clay loam	10YR3/2	Iron	1 Bailing wire fragment
10/5/2017	**15**	5	558419.8	3246040.9	Clay loam	10YR3/2	Aluminum	1 Fence wire fragment
10/5/2017	**16**	10	558419.9	3246037.6	Clay loam	10YR3/2	Iron	1 Ring/lip off of container or farm equipment
10/5/2017	**17**	5	558417	3246035.3	Clay loam	10YR3/2	Iron	1 Bailing wire fragment
10/5/2017	**18**	5	558417.9	3246037.6	Clay loam	10YR3/2	Iron	1 Barbed wire fragment
10/5/2017	**19**	5	558420.8	3246036.5	Clay loam	10YR3/2	Iron	1 Barbed wire fragment
10/5/2017	**20**	5	558419.9	3246037.6	Clay loam	10YR3/2	Iron	1 Barbed wire fragment and 2 bailing wire fragments
10/5/2017	**21**	10	558417.9	3246038.7	Clay loam	10YR3/2	Iron and Aluminum	1 Bailing wire, 1 beer can top
10/5/2017	**22**	5	558412.1	3246040.8	Clay loam	10YR3/2	Iron	1 Barbed wire fragment
10/5/2017	**23**	5	558411.1	3246039.7	Clay loam	10YR3/2	Iron	9 container fragments

Date	Hit No.	Approx. Level/ Depth (cm)	UTM Easting	UTM Northing	Soil Type	Soil Color	Material Type	Comments/Description
10/5/2017	**24**	5	558409.2	3246070.8	Clay loam	10YR3/2	Iron	1 Chemical can bottom
10/5/2017	**25**	5	558410.1	3246038.6	Clay loam	10YR3/2	Iron	1 Bailing wire fragment
10/5/2017	**26**	5	558413.1	3246037.5	Clay loam	10YR3/2	Lead	1 Bullet; led with copper jacket
10/5/2017	**27**	5	558414	3246037.5	Clay loam	10YR3/2	Aluminum	1 Foil cluster
10/5/2017	**28**	5	558411.1	3246035.3	Clay loam	10YR3/2	Aluminum	1 Foil cluster
10/5/2017	**29**	Surface	558414	3246035.3	Clay loam	10YR3/2	Iron	1 Barbed wire fragment
10/5/2017	**30**	Surface	558414	3246035.3	Clay loam	10YR3/2	Iron	1 Barbed wire fragment
10/5/2017	**31**	Surface	558409.1	3246045.3	Clay loam	10YR3/2	Iron	2 Barbed wire fragments
10/5/2017	**32**	5	558414	3246037.5	Clay loam	10YR3/2	Iron	1 Thick gauge sheet metal fragment
10/5/2017	**33**	5	558414	3246039.7	Clay loam	10YR3/2	Iron	1 Thick gauge sheet metal fragment
10/5/2017	**34**	5	558400.4	3246038.6	Clay loam	10YR3/2	Aluminum	1 Twist top beer bottle ring and cap with glass fragments

Date	Hit No.	Approx. Level/ Depth (cm)	UTM Easting	UTM Northing	Soil Type	Soil Color	Material Type	Comments/Description
10/5/2017	**35**	5	558402.4	3246040.8	Clay loam	10YR3/2	Copper	1 Battery cable
10/5/2017	**36**	5	558401.4	3246043	Clay loam	10YR3/2	Aluminum	1 Twist top beer bottle ring
10/5/2017	**37**	5	558394.6	3246038.5	Clay loam	10YR3/2	Aluminum	1 Medicine bottle top
10/5/2017	**38**	5	558395.6	3246036.3	Clay loam	10YR3/2	Aluminum	1 Twist top beer bottle ring
10/5/2017	**39**	5	558396.6	3246039.7	Clay loam	10YR3/2	Aluminum	1 Beverage can top, pull tab
10/5/2017	**40**	5	558391.7	3246043	Clay loam	10YR3/2	Aluminum	1 Beverage can top, pull tab
10/5/2017	**41**	5	558390.7	3246036.3	Clay loam	10YR3/2	Aluminum	1 Beverage can top
10/5/2017	**42**	5	558383.9	3246040.7	Clay loam	10YR3/2	Aluminum	1 Beverage can base
10/5/2017	**43**	5	558376.1	3246044	Clay loam	10YR3/2	Aluminum	1 Twist top beer bottle cap
10/5/2017	**44**	5	558372.3	3246039.5	Clay loam	10YR3/2	Iron	1 Beverage can base

Date	Hit No.	Approx. Level/ Depth (cm)	UTM Easting	UTM Northing	Soil Type	Soil Color	Material Type	Comments/Description
10/5/2017	**45**	5	558337.3	3246043.8	Clay loam	10YR3/2	Aluminum	1 Beverage can
10/5/2017	**46**	5	558323.7	3246038.2	Clay loam	10YR4/2	Aluminum	1 Twist top beer bottle cap
10/5/2017	**47**	5	558321.8	3246036	Clay loam	10YR4/2	Iron	1 Bailing wire fragment
10/5/2017	**48**	5	558316.9	3246042.6	Clay loam	10YR4/2	Iron	1 Barbed wire fragment
10/5/2017	**49**	5	558306.3	3246041.4	Clay loam	10YR4/2	Aluminum	1 Beverage can
10/5/2017	**50**	5	558307.2	3246038.1	Clay loam	10YR4/2	Aluminum	1 Beverage can
10/5/2017	**51**	5	558310.1	3246040.3	Clay loam	10YR4/2	Iron	1 Bailing wire fragment
10/5/2017	**52**	5	558297.5	3246036.9	Clay loam	10YR4/2	Iron	1 Barbed wire fragment
10/5/2017	**53**	5	558295.6	3246039.1	Clay loam	10YR4/2	Iron	1 Barbed wire fragment
10/5/2017	**54**	5	558228.6	3246041	Clay loam	10YR4/2	Iron	1 Barbed wire fragment
10/5/2017	**55**	5	558229.6	3246041	Clay loam	10YR4/2	Iron	1 Bailing wire fragment
10/5/2017	**56**	5	558229.6	3246043.2	Clay loam	10YR4/2	Iron	1 Barbed wire fragment

Date	Hit No.	Approx. Level/ Depth (cm)	UTM Easting	UTM Northing	Soil Type	Soil Color	Material Type	Comments/Description
10/5/2017	**57**	5	558181	3246044.1	Clay loam	10YR4/2	Iron	1 Bearing cover
10/5/2017	**58**	Surface	558151.9	3246037.3	Sandy clay	10YR5/3	Brass	1 Shotgun shell base
10/5/2017	**59**	5	558152.9	3246034	Sandy clay	10YR5/3	Iron	1 Nut
10/5/2017	**60**	5	558163.6	3246031.8	Sandy clay	10YR5/3	Iron	1 Bolt
10/5/2017	**61**	5	558153.8	3246048.4	Sandy clay	10YR5/3	Iron	2 bailing wire fragments
10/6/2017	**62**	5	558073.2	3246046.9	Clay loam	7.5YR3/2	Iron	1 Barbed wire fragment
10/6/2017	**63**	5	558076.2	3246042.4	Clay loam	7.5YR3/2	Brass	1 Shotgun shell base
10/6/2017	**64**	5	558070.3	3246041.3	Clay loam	7.5YR3/2	Iron	1 Barbed wire fragment
10/6/2017	**65**	10	558069.4	3246038	Clay loam	7.5YR3/2	Iron	2 Barbed wire fragments
10/6/2017	**66**	5	558066.6	3246021.3	Clay loam	7.5YR3/2	Iron	1 Barbed wire fragment and 1 bailing wire fragment
10/6/2017	**67**	5	558057.8	3246033.5	Silty clay	7.5YR3/2	Iron	1 Bailing wire fragment
10/6/2017	**68**	5	558054.8	3246034.6	Silty clay	7.5YR3/2	Iron	1 Bailing wire fragment
10/6/2017	**69**	5	558053.8	3246040.1	Silty clay	7.5YR3/2	Iron	1 Barbed wire fragment

Date	Hit No.	Approx. Level/ Depth (cm)	UTM Easting	UTM Northing	Soil Type	Soil Color	Material Type	Comments/Description
10/6/2017	**70**	5	558053.9	3246039	Silty clay	7.5YR3/2	Iron	1 Barbed wire fragment
10/6/2017	**71**	5	558050.9	3246037.9	Silty clay	7.5YR3/2	Iron	1 Barbed wire fragment
10/6/2017	**72**	5	558051	3246036.8	Silty clay	7.5YR3/2	Iron	1 Barbed wire fragment
10/6/2017	**73**	5	558051	3246036.8	Silty clay	7.5YR3/2	Iron	1 Barbed wire fragment
10/6/2017	**74**	5	558038.3	3246041.1	Silty clay	7.5YR3/2	Iron	1 Barbed wire fragment
10/6/2017	**75**	5	558034.4	3246043.3	Silty clay	7.5YR3/2	Iron	1 Barbed wire fragment
10/6/2017	**76**	5	558032.5	3246041.1	Silty clay	7.5YR3/2	Iron	1 Barbed wire fragment
10/6/2017	**77**	5	558032.5	3246041.1	Silty clay	7.5YR3/2	Iron	1 Barbed wire fragment
10/6/2017	**78**	5	558030.6	3246036.7	Silty clay	7.5YR3/2	Iron	1 Barbed wire fragment
10/6/2017	**79**	5	558032.5	3246032.3	Silty clay	7.5YR3/2	Iron	1 Bailing wire fragment
10/6/2017	**80**	5	558022.8	3246033.3	Silty clay	7.5YR3/2	Iron	1 Barbed wire fragment
10/6/2017	**81**	5	558026.7	3246030	Silty clay	7.5YR3/2	Iron	1 Barbed wire fragment
10/6/2017	**82**	5	558027.7	3246021.1	Silty clay	7.5YR3/2	Iron	1 Barbed wire fragment

Date	Hit No.	Approx. Level/ Depth (cm)	UTM Easting	UTM Northing	Soil Type	Soil Color	Material Type	Comments/Description
10/6/2017	**83**	5	557999.5	3246033.2	Silty clay	7.5YR3/2	Brass	1 Shotgun shell base
10/6/2017	**84**	5	557949.1	3246029.6	Clay loam	10YR3/2	Brass	1 Shotgun shell base
10/6/2017	**85**	5	557940.3	3246026.2	Clay loam	10YR3/2	Brass	1 Shotgun shell base
10/6/2017	**86**	5	557910.2	3246035	Clay loam	10YR3/1	Iron and Aluminum	1 bolt, 1 beverage can

Appendix B
Auger Test Log

Date	Site No.	Auger Test No.	Max Depth	Average Soil Type	Average Soil Color(s)	Inclusions	Presence/Absence	Comments/Description/ Reason for Termination	Recorder
10/9/2017	-	**1**	30 cmbs	Compact Clay	10YR3/2	10% gravels, roots	Absent of cultural material	Within existing ROW, with disturbance from fence construction and earthen berms. Termination due to compact soils.	R. Ward
10/9/2017	-	**2**	44 cmbs	Compact Clay	10YR3/2	10% gravels, roots	Present- 3 modern brown container glass shards.	Within two-track road, with disturbances from existing ROW, road, and earthen berm. Termination due to compact soils.	R. Ward
10/9/2017	-	**3**	60 cmbs	Hard Clay	10YR3/1	10% gravels, roots	Absent of cultural material	Termination due to depth.	R. Ward
10/9/2017	-	**4**	50 cmbs	Hard Clay	10YR4/2	10% gravels, pebbles, and roots	Absent of cultural material	Adjacent to creek, termination due to dense river cobble and hydric soils (10YR4/2, 10YR3/2, and 10YR6/6).	R. Ward
10/9/2017	-	**5**	45 cmbs	Compact Clay	10YR3/3	10% gravels and roots	Absent of cultural material	Approximately 5 m from wash out/erosional drainage. Termination due to large, impassable root.	R. Ward
10/9/2017	-	**6**	60 cmbs	Compact Silty Clay	10YR3/2	Gravels	Absent of cultural material	Termination due to depth.	C. Murray
10/9/2017	-	**7**	25 cmbs	Compact Silty Clay	10YR4/2; 10YR3/2	-	Absent of cultural material	Termination due to dense gravels.	C. Matthews

Date	Site No.	Auger Test No.	Max Depth	Average Soil Type	Average Soil Color(s)	Inclusions	Presence/Absence	Comments/Description/ Reason for Termination	Recorder
10/9/2017	-	**8**	60 cmbs	Compact Clay Loam	10YR3/2	Gravels <5% gravels and roots	Absent of cultural material	Termination at depth and 10YR4/3 clay.	R. Ward
10/9/2017	-	**9**	75 cmbs	Disturbed Compact Clay	10YR6/6; 10YR2/1	40% gravels	Present-2 Modern metal band fragments and 1 plastic flower from yard decoration	Within dump area associated with modular home park. Termination due to depth.	R. Ward
10/10/2017	-	**10**	20 cmbs	Compact Silty Clay	10YR3/3	75% gravels	Absent of cultural material	Termination due to dense gravels.	C. Matthews
10/10/2017	-	**11**	50 cmbs	Compact Clay Loam	10YR3/2; with 10YR5/4 and 5/8 hydric	70% gravels	Absent of cultural material	Termination at sandstone bedrock.	R. Ward
10/10/2017	-	**12**	60 cmbs	Compact Clay Loam	10YR6/6; 10YR4/4	40% gravels	Absent of cultural material	Termination at depth.	R. Ward
10/10/2017	-	**13**	60 cmbs	Compact Clay Loam	10YR5/4	60% rounded and angular gravels	Absent of cultural material	Termination due to depth.	R. Ward

Date	Site No.	Auger Test No.	Max Depth	Average Soil Type	Average Soil Color(s)	Inclusions	Presence/Absence	Comments/Description/ Reason for Termination	Recorder
10/10/2017	-	**14**	40 cmbs	Compact Clay Loam	10YR5/3 with 10YR4/3 and iron redox	20% gravels	Absent of cultural material	Termination at super compact hydric clay.	R. Ward
10/10/2017	-	**15**	50 cmbs	Compact Clay Loam	10YR5/3 with 10YR4/3 and iron redox	40% gravels	Absent of cultural material	Termination at super compact hydric clay.	R. Ward
10/10/2017	-	**16**	50 cmbs	Compact Clay Loam	10YR5/3	40% gravels and roots	Absent of cultural material	Termination at super compact hydric clay (10YR5/3, 10YR8/1, and 10YR6/8).	R. Ward
10/10/2017	-	**17**	50 cmbs	Compact Clay	10YR4/3	10% gravels	Absent of cultural material	Termination at depth.	R. Ward
10/10/2017	41BX2208	**18**	40 cmbs	Compact Clay	10YR3/2	5% gravels	Present- 1 tertiary chert flake, charcoal.	Termination due to super compact clay.	R. Ward
10/10/2017	-	**19**	45 cmbs	Compact Clay	10YR3/2	30% gravels	Absent of cultural material	Termination due to sandstone bedrock.	R. Ward
10/10/2017	-	**20**	45 cmbs	Compact Clay	10YR3/2	20% gravels	Absent of cultural material	Termination due to sandstone bedrock.	R. Ward
10/11/2017	-	**21**	80 cmbs	Silty Loam	10YR4/3	10% gravels	Present-modern PVC pipe fragments	Approximately 10 m east of creek in area showing recent flooding. Termination due to depth.	R. Ward

Date	Site No.	Auger Test No.	Max Depth	Average Soil Type	Average Soil Color(s)	Inclusions	Presence/Absence	Comments/Description/ Reason for Termination	Recorder
10/11/2017	-	**22**	-	-	-	-	-	No dig due to heavy disturbance from land clearing and 100% GSV.	R. Ward
10/11/2017	-	**23**	-	-	-	-	-	No dig due to heavy disturbance from land clearing and 100% GSV.	R. Ward
10/11/2017	-	**24**	70 cmbs	Soft Silty Sand	10YR6/6	20% gravels	Absent of cultural material	Termination due to depth.	R. Ward
10/11/2017	-	**25**	30 cmbs	Very Hard Clay Loam	10YR5/3	60% gravels	Absent of cultural material	Termination due to dense gravels and super compact clay.	R. Ward
10/11/2017	-	**26**	50 cmbs	Compact Clay Loam	10YR5/4	30% gravels	Absent of cultural material	Termination due to dense gravels and super compact clay.	R. Ward
10/11/2017	-	**27**	60 cmbs	Compact Clay	10YR3/2	<5% gravels	Absent of cultural material	Termination due to depth.	R. Ward
10/11/2017	-	**28**	50 cmbs	Compact Clay	10YR3/2	<5% gravels	Absent of cultural material	Termination due to super compact clay.	R. Ward
10/11/2017	-	**29**	60 cmbs	Compact Clay	10YR3/2	<5% gravels	Absent of cultural material	Termination due to depth.	R. Ward
10/11/2017	-	**30**	60 cmbs	Compact Clay	10YR3/2	<5% gravels	Absent of cultural material	Termination due to depth.	R. Ward
10/11/2017	-	**31**	40 cmbs	Compact Clay	10YR3/2	30% gravels	Absent of cultural material	Termination due to dense gravels and super compact clay.	R. Ward

Date	Site No.	Auger Test No.	Max Depth	Average Soil Type	Average Soil Color(s)	Inclusions	Presence/Absence	Comments/Description/ Reason for Termination	Recorder
10/11/2017	-	**32**	40 cmbs	Compact Clay	10YR3/2	5% gravels	Absent of cultural material	Termination due to dense gravels and super compact clay.	R. Ward
10/11/2017	-	**33**	10 cmbs	Compact Silty Loam	10YR4/3; 10YR5/4	50% gravels	Absent of cultural material	Termination due to dense gravels.	C. Matthews
10/11/2017	-	**34**	45 cmbs	Compact Clay Loam	10YR4/2	10% gravels	Absent of cultural material	Termination due to dense gravels and super compact clay.	R. Ward
10/11/2017	-	**35**	45 cmbs	Compact Clay	10YR4/2	<5% gravels	Absent of cultural material	Termination due to super compact clay.	R. Ward
10/11/2017	-	**36**	45 cmbs	Very Hard Clay	10YR4/3	<5% gravels	Absent of cultural material	Termination due to super compact clay.	R. Ward
10/11/2017	-	**37**	45 cmbs	Very Hard Clay	10YR4/3	10% gravels	Absent of cultural material	Termination due to super compact clay.	R. Ward
10/12/2017	-	**38**	-	-	-	-	-	No dig due to erosional wash, existing ROW, and quarried area.	R. Ward
10/12/2017	-	**39**	25 cmbs	Compact Silty Loam	10YR6/1	<5% gravels	Absent of cultural material	Termination due to bedrock.	R. Ward
10/12/2017	-	**40**	15 cmbs	Compact Silty Loam	10YR6/1	<5% gravels	Absent of cultural material	Termination due to bedrock.	R. Ward
10/12/2017	-	**41**	15 cmbs	Compact Silty Loam	10YR6/1	<5% gravels	Absent of cultural material	Termination due to bedrock.	R. Ward
10/12/2017	-	**42**	20 cmbs	Compact Silty Loam	10YR4/2	50% gravels and pebbles	Absent of cultural material	15 m west of earthen berm and fence line. Termination due to bedrock.	R. Ward

Date	Site No.	Auger Test No.	Max Depth	Average Soil Type	Average Soil Color(s)	Inclusions	Presence/Absence	Comments/Description/ Reason for Termination	Recorder
10/12/2017	-	**43**	40 cmbs	Compact Silty Loam	10YR4/2	50% gravels and pebbles	Absent of cultural material	Termination due to bedrock.	R. Ward
10/13/2017	-	**44**	60 cmbs	Compact Clay	10YR3/1	<5% gravels	Absent of cultural material	Termination due to depth.	R. Ward
10/13/2017	-	**45**	60 cmbs	Compact Clay	10YR3/1	<5% gravels	Absent of cultural material	Termination due to depth.	R. Ward
10/13/2017	-	**46**	70 cmbs	Compact Clay	10YR4/2	<5% gravels	Absent of cultural material	Termination due to depth.	R. Ward
10/13/2017	-	**47**	65 cmbs	Compact Clay	10YR3/1	<5% gravels	Absent of cultural material	Termination due to depth.	R. Ward
10/13/2017	-	**48**	60 cmbs	Compact Clay	10YR3/1	<5% gravels	Absent of cultural material	Termination due to depth.	R. Ward
10/13/2017	-	**49**	60 cmbs	Compact Clay	10YR3/1	<5% gravels	Absent of cultural material	Termination due to depth.	R. Ward
10/13/2017	-	**50**	75 cmbs	Compact Clay	10YR3/1	<5% gravels	Absent of cultural material	5 m from creek. Termination due to depth.	R. Ward

Appendix C
Shovel Test Log

Site No.	Shovel Test No.	Level	Depth (cm)	Soil Type	Soil Color(s)	Inclusions	Positive/ Negative	Comments/Description/ Reason for Termination
41BX2208	1	1	0-10	Compact Clay	10YR2/2	Gravel	Negative	-
41BX2208		2	10-20	Very Hard Clay	10YR4/4	Gravel	Negative	-
41BX2208		3	20-30	Very Hard Clay	10YR4/4	Gravel	Negative	-
41BX2208		4	30-40	Very Hard Clay	10YR4/4	Gravel	Negative	-
41BX2208		5	40-50	Very Hard Clay	10YR4/4	Gravel	Positive	2 tertiary flakes at 48 cmbs
41BX2208		6	50-60	Very Hard Clay	10YR4/4	Gravel	Negative	Termination at depth.
41BX2208	2	1	0-10	Compact Silty Clay	10YR2/2	-	Negative	-
41BX2208		2	10-20	Compact Silty Clay	10YR2/2	-	Negative	-
41BX2208		3	20-30	Compact Silty Clay	10YR2/2	-	Positive	5 chert flakes and 1 mussel shell fragment.
41BX2208		4	30-40	Compact Silty Clay	10YR2/2	-	Negative	-
41BX2208		5	40-50	Compact Silty Clay	10YR2/2	-	Negative	-
41BX2208		6	50-60	Compact Silty Clay	10YR2/2	-	Negative	Termination at depth.

Site No.	Shovel Test No.	Level	Depth (cm)	Soil Type	Soil Color(s)	Inclusions	Positive/ Negative	Comments/Description/ Reason for Termination
-	3	1	0-10	Compact Silty Clay	10YR3/2	-	Negative	-
-		2	10-20	Compact Silty Clay	10YR3/2	-	Negative	-
-		3	20-30	Compact Silty Clay	10YR5/6	-	Negative	-
-		4	30-40	Hard Silty Clay	10YR5/6	-	Negative	-
-		5	40-50	Hard Silty Clay	10YR5/6	-	Negative	-
-		6	50-60	Hard Silty Clay	10YR5/6	-	Negative	Termination at depth.
-	4	1	0-10	Compact Silty Clay	10YR4/2	Gravel	Negative	-
-		2	10-20	Compact Silty Clay	10YR4/2	Gravel	Negative	-
-		3	20-30	Compact Silty Clay	10YR4/2	Gravel	Negative	-
-		4	30-40	Very Hard Clay	10YR3/2	Gravel and CaCO3	Negative	-
-		5	40-50	Very Hard Clay	10YR3/2	Gravel	Negative	-
-		6	50-60	Very Hard Clay	10YR3/2	Gravel	Negative	Termination at depth.

Site No.	Shovel Test No.	Level	Depth (cm)	Soil Type	Soil Color(s)	Inclusions	Positive/ Negative	Comments/Description/ Reason for Termination
-	5	1	0-10	Compact Silty Clay	10YR3/2	<5% Gravel	Negative	-
-		2	10-20	Compact Silty Clay	10YR3/2	<5% Gravel	Negative	-
-		3	20-30	Compact Silty Clay	10YR3/2	<5% Gravel	Negative	-
-		4	30-40	Compact Silty Clay	10YR4/2	10% Gravel	Negative	-
-		5	40-50	Compact Silty Clay	10YR4/2	10% Gravel	Negative	-
-		6	50-60	Very Hard Clay	10YR4/2	-	Negative	Termination at depth.
-	6	1	0-10	Compact Clay	10YR2/2	10% gravel and roots	Negative	-
-		2	10-20	Compact Clay	10YR2/2	10% gravel and roots	Negative	-
-		3	20-30	Compact Clay	10YR2/2	10% gravel and roots	Negative	-
-		4	30-40	Hard Silty Clay	10YR/2/2	10% gravel and roots	Negative	-
-		5	40-50	Hard Clay	10YR2/2	<5% gravel	Negative	-
-		6	50-60	Hard Clay	10YR2/2	<5% gravel	Negative	Termination at depth.