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Cultural Resources Investigation of the CPS Energy Interstate Highway 10 / Loop 1604 to FM 1518 Project, Bexar County, Texas

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Texas Antiquities Permit No. 8395

MAY 2019

PREPARED FOR

CPS Energy

PREPARED BY

SWCA Environmental Consultants

Redacted

CULTURAL RESOURCES INVESTIGATION FOR THE CPS ENERGY INTERSTATE HIGHWAY 10 / LOOP 1604 TO FM 1518 PROJECT, BEXAR COUNTY, TEXAS

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ABSTRACT

CPS Energy retained SWCA Environmental Consultants (SWCA) to complete an intensive cultural resources survey for the Interstate Highway (IH) 10 / Loop 1604 to Farm-to-Market Road (FM) 1518 Project (Project). The Project consists of the installation of a 3.44-mile (5.53-kilometer) long steel supply gas main in eastern Bexar County, Texas. The total size of the proposed area of investigation is 22.9 acres (9.3 ha) in extent, which represents the area of potential effects (APE) for the Project. The Project area is located parallel to IH-10 between Loop 1604 and Graytown Road, with sections also paralleling Loop 1604 and Graytown Road. Most of the Project area falls within the city limits and extraterritorial jurisdiction of San Antonio, Texas.

The Project requires an Antiquities Code of Texas (ACT) permit since it will involve more than 5 acres and/or 5,000 cubic yards of land disturbance. The ACT is administered by the Texas State Historic Preservation Office, known as the Texas Historical Commission (THC).

The purpose of this investigation was to identify and assess any cultural resources, such as historic and prehistoric archaeological sites and historic buildings, structures, objects, and sites (such as cemeteries) that might be located within the boundaries of the Project area. All investigations were conducted in accordance with the ACT and standards and guidelines established by the THC and Council of Texas Archeologists. The cultural resources investigation was conducted under ACT Permit No. 8395.

The cultural resources investigation consisted of a thorough background literature and records review. Field investigations consisted of an intensive pedestrian survey augmented by shovel testing. The background review determined that one previously identified cultural resource (site 41BX1693) is located within the Project area. Site 41BX1693 is a lithic artifact scatter of unknown temporal association located within a plowed field. The initial investigation of 41BX1693 observed cultural materials on the surface and subsurface (plow zone) identified through shovel tests and backhoe trenching efforts. SWCA conducted a site revisit to 41BX1693 and observed cultural lithic materials present on the surface and within the plow zone. SWCA extended the site boundary to the northeast and southwest. SWCA did not identify any cultural features or diagnostic artifacts during the revisit. The portion of site 41BX1693 within the Project area does not possess research potential beyond its locational data and does not meet the criteria for designation as a State Antiquities Landmark (SAL).

The SWCA investigation also recorded one prehistoric archaeological site (41BX2277) within the Project area. Site 41BX2277 consists of a light scatter of lithic debitage and tested cobbles/cores across a disturbed land surface. The artifacts have likely been secondarily deposited from a site located uphill to the northwest, which is outside of the Project area. SWCA did not identify any cultural features or diagnostic artifacts within the portion of 41BX2277 within the Project area. It is the professional opinion of SWCA that 41BX2277 does not possess research potential beyond its locational data and does not meet the criteria for designation as a SAL.

In accordance with the ACT, SWCA has made a reasonable and good faith effort to identify cultural resources within the Project area. No archaeological sites or above-ground historic resources were identified within the Project area that may meet the criteria for designation as a SAL according to 13 Texas Administrative Code 26.10. SWCA recommends no additional cultural resources investigations within the Project area, as currently defined.

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CONTENTS

Appendices

Figures

Tables

INTRODUCTION

CPS Energy retained SWCA Environmental Consultants (SWCA) to complete an intensive cultural resources survey for the Interstate Highway (IH) 10/ Loop 1604 to Farm-to-Market Road (FM) 1518 Project (Project). The Project consists of the installation of an approximately 3.44-mile (5.53-kilometer [km]) long steel supply gas main in eastern Bexar County, Texas (Figure 1). SWCA completed the investigation along a 100-foot- (30.5-meter [m]-) wide survey corridor. The proposed approximate depth of impact for the gas main is 6-feet (1.8-m) deep with a 2-foot (0.6-m) trench width. The Project area is located parallel to IH-10 between Loop 1604 and Graytown Road, with sections also paralleling Loop 1604 and Graytown Road. Most of the Project area falls within the city limits and extraterritorial jurisdiction of San Antonio, Texas.

The Project requires an Antiquities Code of Texas (ACT) permit because the Project will involve more than 5 acres and/or 5,000 cubic yards of land disturbance. The ACT is administered by the Texas State Historic Preservation Office, known as the Texas Historical Commission (THC).

The purpose of this investigation was to identify and assess any cultural resources, such as historic and prehistoric archaeological sites and historic buildings, structures, objects, and sites (such as cemeteries) that might be located within the boundaries of the Project area and evaluate the cultural resources for designation as a State Antiquities Landmark (SAL). Overall, the Project area encompasses approximately 41.68 acres (16.87 hectares [ha]) of right-of-way (ROW) and CPS-owned easements within privately-owned agricultural fields and residential property. The total survey area is 3.44 miles (5.53 km) in length, of which 1.55 miles (2.5 km [45 percent]) was previously surveyed (Thompson et al. 2008; THC 2019). The portion of the Project area requiring investigation was defined through consultation with the THC and in the ACT permit scope of work and permit amendment. As a part of this investigation SWCA surveyed the remaining 1.89 miles (3.03 km), encompassing 22.9 acres (9.3 ha) and representing approximately 55 percent of the alignment.

All investigations were conducted in accordance with the ACT and the standards and guidelines established by the THC and Council of Texas Archeologists (CTA). Following review and acceptance of the final cultural resources report, all records and photographs will be curated with the Center for Archaeological Research at the University of Texas at San Antonio, per requirements of the ACT in accordance with the CTA guidelines. The cultural resources investigation was conducted under ACT Permit No. 8395.

Project Personnel

Zachary Overfield, M.A., RPA, served as the Principal Investigator for the duration of the Project, overseeing overall logistics and organization, managing reporting, and agency consultation. Archaeologists Cody Roush, B.A., and Laura Vilsack, M.A., completed the survey on February 25, 2019, and March 12–14, 2019, with field technician David Keim. Laura Vilsack and Sophia Salgado prepared the report of investigations. Jason Kainer produced all field and report maps for the Project, and Lauri Logan provided technical editing and document preparation.

PROJECT AREA DESCRIPTION

CPS Energy is installing a 3.44-mile (5.53-km) long steel supply gas main in eastern Bexar County, Texas. The Project is located 12.4 miles (20.0 km) east of the city center of San Antonio, Texas. The Project setting is suburban with surrounding landscape characterized by expansive agricultural fields. The Project alignment is sparsely to moderately vegetated with grasses, shrubs, mesquite, live-oak, and pecan trees.

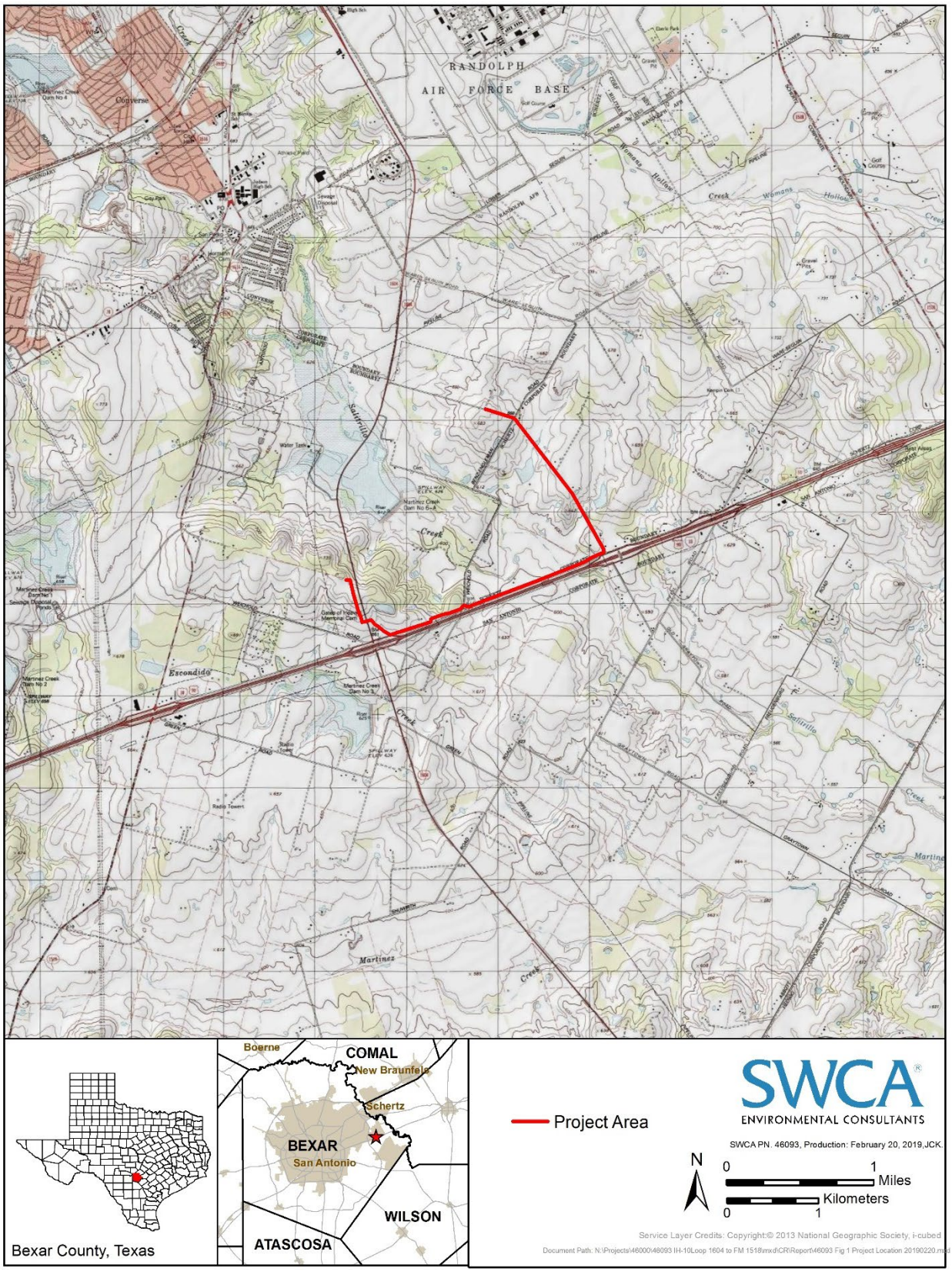

Figure 1. Project area location.

Salitrillo Creek intersects the Project area 0.29-mile (0.47-km) west of the intersection of Graytown Road and IH-10 frontage road.

ENVIRONMENTAL SETTING

The Project area is situated within the Texas Blackland Prairies Level III Ecoregion and the Northern Blackland Prairie Level IV Ecoregion (Griffith et al. 2007). The landscape consists of vast expanses of tallgrass prairie vegetation (Griffith et al. 2007).

Geology and Soils

The underlying geology of the Project area is entirely mapped by Navarro Group and Marlbrook Marl, undivided, of Late Cretaceous Age (Barnes et al. 1983) (Figure 2). Soil survey data for the proposed Project area in Bexar County was derived from the Natural Resources Conservation Service (NRCS) (2019). The Project corridor traverses four main soil map series with variations of Houston Black clay underlying most of the Project area, with Heiden clay, Heiden-Ferris, and Tinn and Frio soil formations in the remainder of the Project area (Figure 3; Table 1). Houston Black and Heiden clay series soils consist of clayey residuum weathered from mudstone to an average depth of 8.7 feet (2.6 m) and 5.8 feet (1.8 m), respectively. Tinn and Frio clay series soils consist of calcareous clayey alluvium of Quaternary age derived from mixed sources and /or sandy alluvium with an average depth of 6.6 feet (2.0 m) (NRCS 2019). The low percentage (7.6%) of Tinn and Frio soils and the presence of Heiden-Ferris and Houston Black clayey deposits encompassed by the Project area supports the discussed conclusion that archaeological deposits are most likely, if present, not deeply buried and confined to the plow zone.

Flora and Fauna

The Project area, located in the southern extent of the Northern Blackland Prairie ecoregion, falls along the boundary of the Balconian and Tamaulipan biotic province (Blair 1950; Griffith et al. 2004). The most characteristic plant association of these provinces include scrub brush comprised of mesquite, juniper, and cacti across pasturelands.

The most characteristic vegetation observed around the Project area includes pecan (*Carya illinoensis*), Shumard oak (*Quercus shumardii)*, eastern cottonwood (*Populus deltoids)*, southern hackberry (*Celtis laevigata*), cedar elm (*Ulmus crassifolia*), bur oak (*Quercus macrocarpa*), blackjack oak (*Quercus marilandica*), mesquite (*Prosopis glandulosa*), American elm (*Ulmus americana*), Texas oak (*Quercus texana*), Ashe juniper (*Juniperus ashei*), bitternut hickory (*Carya cordiformis*), and sand post oak (*Quercus margaretta*), with an understory of bunch grasses (e.g., Silveanus dropseed, Mead's sedge, bluestems, and long-spike tridens), and common forbs included asters, prairie bluet, prairie clovers, and black-eyed Susan (*Rudbeckia hirta*) (Griffith et al. 2007).

Mammals common among the Balconian and Tamaulipan biotic provinces include striped skunk (*Mephitis mephitis*), white-tailed deer (*Odocoileus virginianus*), opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), armadillo (*Dasypus novemcinctus*), black-tailed jackrabbit (*Lepus californicus*), and deer mouse (*Peromyscus maniculatis*). Less common are the predatory mammals, including the coyote (*Canis latrans*), bobcat (*Lynx rufus*), and gray fox (*Urocyon cinereoargenteus*) (Burt and Grossenheider 1976). In addition to the above-mentioned mammals, bison (*Bison bison*), mountain lion (*Felis concolor*), and black bear (*Ursus americanus*) would have been in the area during prehistoric times (Davis and Schmidly 1994).

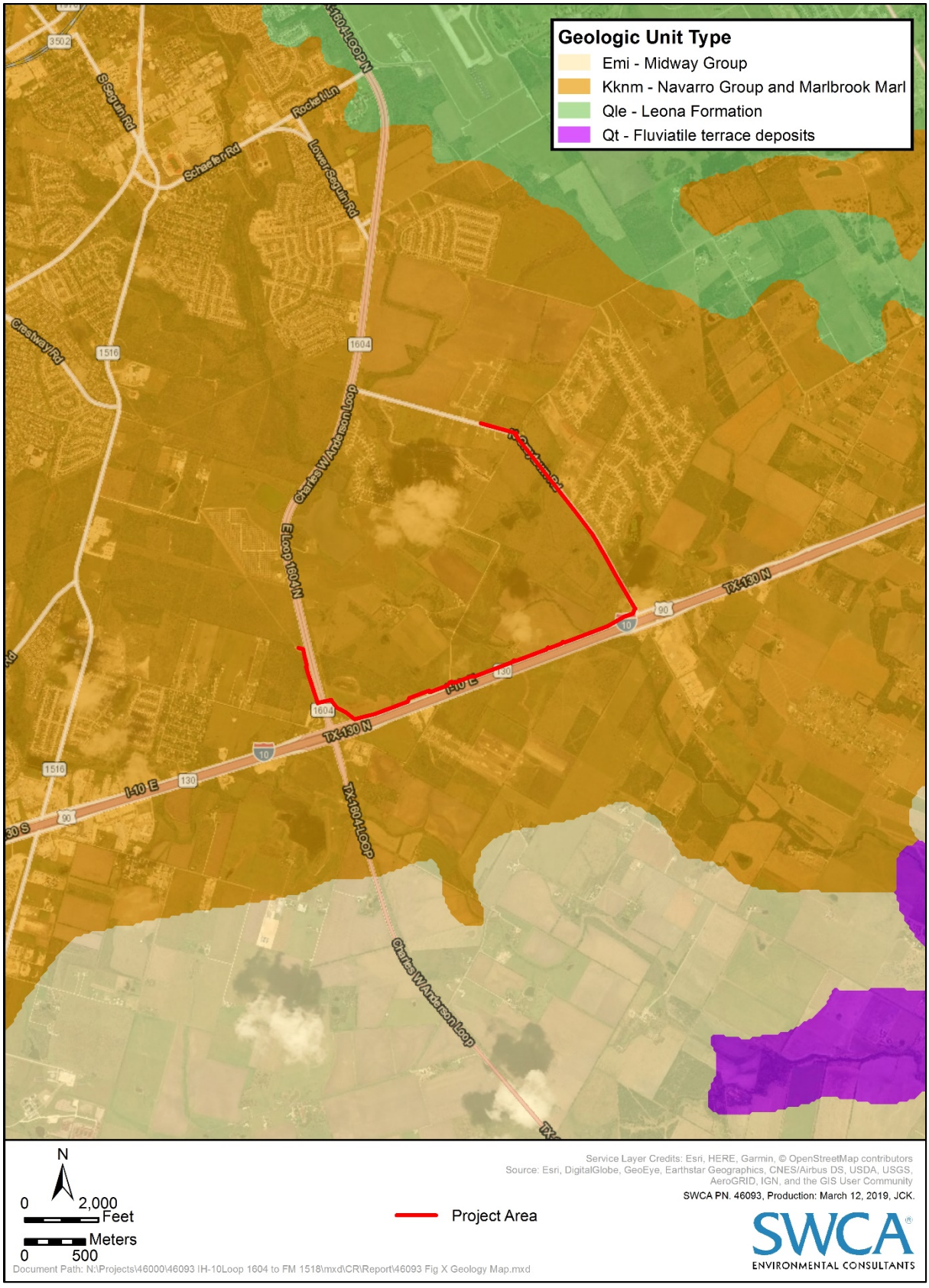

Figure 2. Project area geology map.

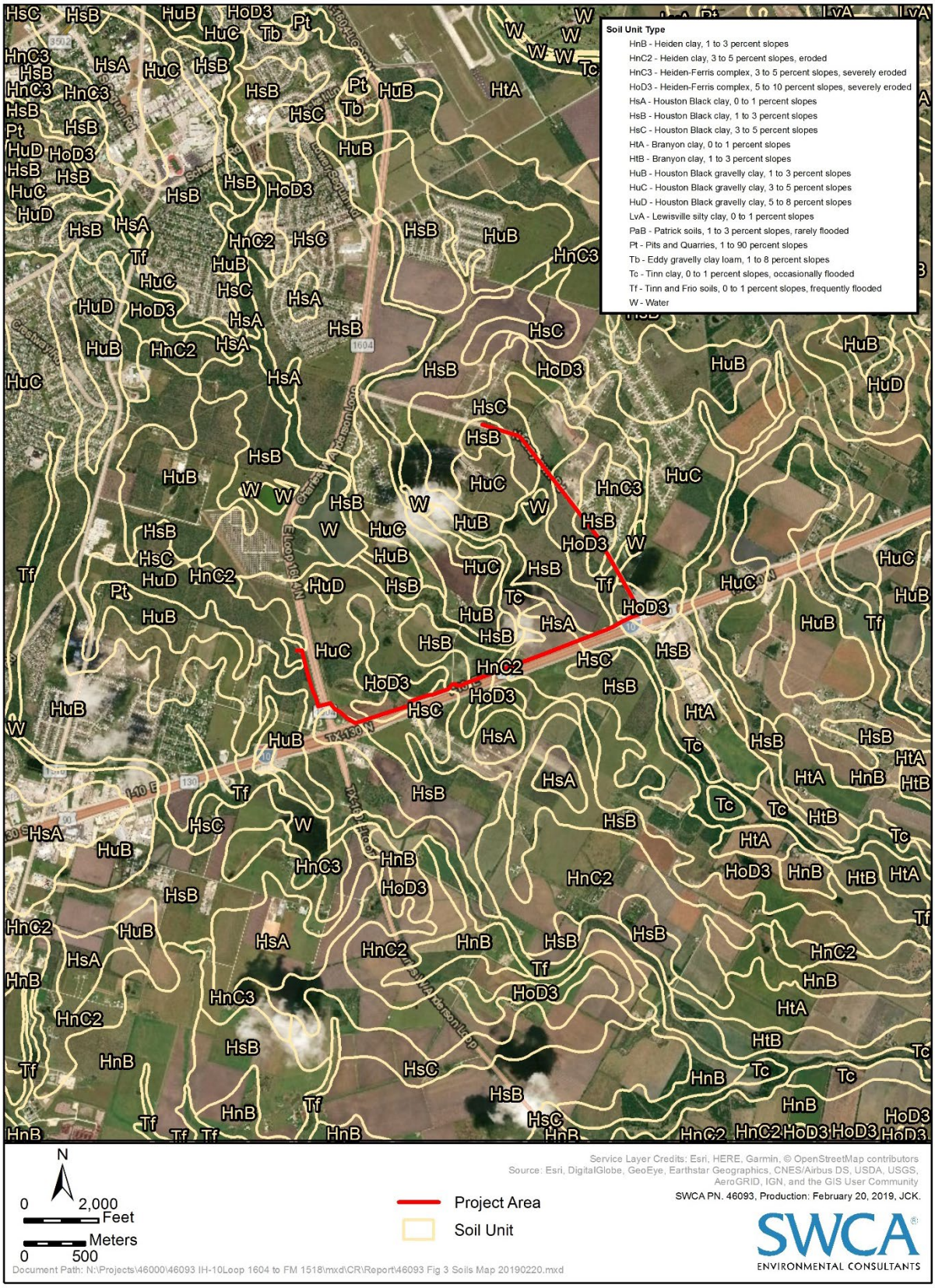

Figure 3. Project area soils map.

Table 1. Soil Series Mapped within the Project Alignment

Soil Type	Symbol	Acreage	Percent
Houston Black clay, 1 to 3 percent slopes	HsB	13.41	32.17
Houston Black clay, 3 to 5 percent slopes	HsC	10.13	24.30
Houston Black gravelly clay, 3 to 5 percent slopes	HuC	9.45	22.67
Heiden-Ferris complex, 5 to 10 percent slopes, severely eroded	HoD3	3.61	8.66
Tinn and Frio soils, 0 to 1 percent slopes, frequently flooded	Tf	3.17	7.61
Heiden clay, 3 to 5 percent slopes	HC2	1.09	2.61
Heiden-Ferris complex, 3 to 5 percent slopes, severely eroded	HnC3	0.80	1.92
Houston Black gravelly clay, 5 to 8 percent slopes	HuD	0.02	0.05
Total		**41.68**	**99.99%**

CULTURAL SETTING

The Project area lies at the intersection of two archaeological regions, the Central Texas Region and South Texas Region. These regions are recent analytical constructs, but they do contain a measure of distinct, spatial, cultural information (Collins 2004; Prewitt 1981). The cultural setting discussion below focuses on the prehistoric and historic record within the Central Texas Archeological Region in order to contextualize the investigation findings.

Following Collins (2004), the archaeological periods in Central and South Texas are Paleoindian, Archaic, Prehistoric, and Historic. Subperiods of the Paleoindian period are Early and Late. The Archaic subperiods are Early, Middle, and Late Archaic. The date ranges for archaeological periods uses radiocarbon years before present (B.P.), following the convention of Collins (1995).

Paleoindian Period

Paleoindian sites occur in a variety of topographic settings and include both surface and deeply buried sites, rockshelter sites, and isolated artifacts spanning over 2,500 years of occupations (ca. 11,500–8800 B.P.) in the Central Texas region (Collins 2004:116). The period is often described as having been characterized by small but highly mobile bands of foragers who were specialized hunters of now-extinct Pleistocene megafauna such as mastodon. But Paleoindians probably used a much wider array of resources (Meltzer and Bever 1995:59), including small fauna and plant foods. Faunal remains from Kincaid Rockshelter and the Wilson-Leonard site (41WM235) support this view (Bousman 1998; Bousman et al. 2004; Collins 1998; Collins et al. 1989).

Collins (1995, 2004) divides the Paleoindian period into early and late subperiods. Two main projectile point styles, Clovis and Folsom, are included in the early subperiod. A third type, Plainview, may be contemporary with Folsom. Clovis chipped stone artifact assemblages, including the diagnostic fluted lanceolate Clovis point, were produced by bifacial, flake, and prismatic-blade techniques on high-quality and oftentimes exotic lithic materials (Collins 1990). Along with chipped stone artifacts, Clovis assemblages include engraved stones, bone and ivory points, stone bolas, and ochre (Collins 2004:116; Collins et al. 1992). Clovis points are found evenly distributed along the eastern edge of the Edwards Plateau, where the presence of springs and outcrops of chert-bearing limestone are common (Meltzer and Bever 1995:58). Analyses of Clovis artifacts and site types suggest that Clovis peoples were well-adapted, generalized hunter-gatherers with the technology to hunt larger game but not solely rely on it.

In contrast, Folsom tool kits—consisting of fluted Folsom points, thin unfluted (Midland) points, large thin bifaces, and end scrapers—are more indicative of specialized hunting, particularly of bison (Collins 2004:117). Folsom points have been recovered from Kincaid Rockshelter (Collins et al. 1989) and Pavo Real (Collins et al. 2003; Henderson and Goode 1991). Folsom point distributions, both the frequency and spatial patterning, differ from the Clovis patterns, suggesting a shift in adaptation patterns (Bever and Meltzer 2007; Meltzer and Bever 1995:60,74).

Postdating Clovis and Folsom points in the archaeological record are a series of dart point styles (primarily unfluted lanceolate darts) for which the temporal, technological, or cultural significance is unclear. Often, the Plainview type name is assigned these dart points, but Collins (2004:117) has noted that many of these points typed as Plainview do not parallel Plainview type-site points in thinness and flaking technology. At Wilson-Leonard, the Paleoindian projectile point sequence includes an expanding-stem dart point termed Wilson, which dates to ca. 10,000–9500 B.P. Postdating the Wilson component is a series of unfluted lanceolate points referred to as Golondrina-Barber, St. Mary's Hall, and Angostura, but their chronological sequence is poorly understood.

By the Late Paleoindian subperiod, aspects of Archaic lifeways became increasingly entrenched, and in many ways, the Late Paleoindian subperiod is a transition between the early Paleoindian and succeeding Archaic periods (Collins 2004:118). During this period, there is evidence of a diverse subsistence practice, a variety of lithic tools, and ritualized burial practices (Bousman 1998; Bousman et al. 2004).

Archaic Period

The longest archaeological period is the Archaic, beginning between 8800 B.P. and 8000 B.P. and extending until approximately 1200 B.P., when the widespread use of the bow and arrow occurs. Collins (1995, 2004) and Collins et al. (1998) use 8800 B.P. as the approximate starting date for the Early Archaic, when there is a shift toward hunting and gathering of a wider array of animal and plant resources and a decrease in group mobility (Willey and Phillips 1958:107–108).

In the eastern and southwestern United States and on the Great Plains, development of horticultural-based, semi-sedentary to sedentary societies succeeds the Archaic period. In these areas, the Archaic truly represents a developmental stage of adaptation as Willey and Phillips (1958) define it. For central Texas, this manifestation of the Archaic is somewhat problematic. An increasing amount of evidence suggests that Archaic-like adaptations were in place before the Archaic (see Collins 1998, 2004:118; Collins et al. 1989) and these practices continued into the succeeding Late Prehistoric period (Collins 1995:385; Prewitt 1981:74).

Early Archaic (ca. 8800 to 6000 B.P.)

The use of 8800 B.P. as a beginning date for the Early Archaic appears to be at the extreme older date range. It is just as probable that the date is closer to 8000 B.P., which is closer to the beginning date of the Early Archaic for South Texas, according to Hester (2004).

Early Archaic (8800–6000 B.P.) lithic assemblages can be diverse, with a greater variety of stone tool types than during the previous Paleoindian period (Weir 1976:115–122), suggesting that populations were highly mobile and population densities were probably low (Houk et al. 2008). It has been noted that Early Archaic sites are concentrated along the eastern and southern margins of the Edwards Plateau (Johnson and Goode 1994; McKinney 1981; Story 1985). This distribution may indicate drier and/or more extreme climatic conditions at the time, given that these environments have more reliable water sources and a more diverse resource base than other parts of the region. Early Archaic projectile point styles include Hoxie, Gower, Wells, Martindale, and Uvalde. Clear Fork and Guadalupe bifaces and a variety of other

bifacial and unifacial tools are common to Early Archaic assemblages. The increasing regional variation in tool styles also suggests increasing territorialism that reduced exchanges of technology and interaction between distant and possibly local groups (Oksanen 2008).

Construction and use of rock hearths and ovens, which had been limited during late Paleoindian times, became commonplace. Such a practice probably was related to cooking plant foods, particularly roots and bulbs, many of which must be subjected to prolonged periods of cooking to render them consumable and digestible (Black et al. 1997:257; Wandsnider 1997; Wilson 1930).

Significant Early Archaic sites include the Richard Beene site in Bexar County (Thoms and Mandel 1992), the Gatlin site in Kerr County (Houk et al. 2008), the Wilson-Leonard site in Williamson County (Collins et al. 1998), the Icehouse site (41HY161) in San Marcos (Oksanen 2008), and the Youngsport site in Bell County (Shafer 1963). The end of the Early Archaic is a poorly documented transition. The convention of 6000 B.P. intends to mark both the appearance of a changing environment and the appearance of specialized technology associated with bison hunting.

Middle Archaic (ca. 6000 to 4000 B.P)

During the Middle Archaic period (6000–4000 B.P.), the number and distribution of sites, as well as their size, probably increased as population densities grew (Prewitt 1981:73; Weir 1976:124, 135). Macrobands may have formed at least seasonally, or more small groups may have used the same sites for longer periods (Weir 1976:130–131). Development of burned rock middens toward the end of the Middle Archaic suggest a greater reliance on plant foods, although tool kits still imply a considerable dependence on hunting (Prewitt 1985:222–226). Middle Archaic projectile point styles include Bell, Andice, Taylor, Baird, Nolan, and Travis. Bell and Andice points reflect a shift in lithic technology from the preceding Early Archaic Martindale and Uvalde point styles (Collins 2004:119). Johnson and Goode (1994:25) suggest that the Bell and Andice darts are parts of a specialized bison-hunting tool kit. They also believe that an influx of bison and bison-hunting groups from the Eastern Woodland margins during a slightly more mesic period marked the beginning of the Middle Archaic.

Although no bison remains were detected, Bell and Andice points were recovered from the Cibolo Crossing (Kibler and Scott 2000), Panther Springs Creek, and Granberg II (Black and McGraw 1985) sites in Bexar County. Bison were either absent or decreased drastically in number as more xeric conditions returned during the late part of the Middle Archaic. Later Middle Archaic projectile point styles represent another shift in lithic technology (Collins 2004:120; Johnson and Goode 1994:27). At the same time, a shift to more xeric conditions saw the burned rock middens develop, probably because intensified use of a specific resource (geophytic or xerophytic plants) or resource patches meant the debris of multiple rock ovens and hearths accumulated as middens on stable to slowly aggrading surfaces, as Kelley and Campbell (1942) suggested many years ago. Johnson and Goode (1994:26) believe that the dry conditions promoted the spread of yuccas and sotols, and that it was these plants that Middle Archaic peoples collected and cooked in large rock ovens.

Late Archaic (ca. 4000 to 1300–1200 B.P.)

During the succeeding Late Archaic period (4000 to 1300–1200 B.P.), populations continued to increase (Prewitt 1985:217). Within stratified Archaic sites such as Loeve-Fox, Cibolo Crossing, and Panther Springs Creek, the Late Archaic components contain the densest concentrations of cultural materials. Establishment of large cemeteries along drainages suggests certain groups had strong territorial ties (Story 1985:40). A variety of projectile point styles appeared throughout the Late Archaic period. Middle Archaic subsistence technology, including the use of rock and earth ovens, continued into the Late Archaic period. Collins (2004:121) states that, at the beginning of the Late Archaic period, the use of rock

ovens and the resultant formation of burned rock middens reached its zenith and that the use of rock and earth ovens declined during the latter half of the Late Archaic. There is, however, mounting chronological data that midden formation culminated much later and that this high level of rock and earth oven use continued into the early Late Prehistoric period (Black et al. 1997:270–284; Kleinbach et al. 1995:795).

The use of rock and earth ovens (and the formation of burned rock middens) for processing and cooking plant foods suggests that this technology was part of a generalized foraging strategy. However, at times during the Late Archaic, this generalized foraging strategy appears to have been marked by shifts to a specialized economy focused on bison hunting (Kibler and Scott 2000:125–137). Castroville, Montell, and Marcos dart points are elements of tool kits often associated with bison hunting (Collins 1968). Archaeological evidence of this association is seen at Bonfire Shelter in Val Verde County (Dibble and Lorrain 1968), Jonas Terrace (Johnson 1995), Oblate Rockshelter (Johnson et al. 1962:116), John Ischy (Sorrow 1969), and Panther Springs Creek (Black and McGraw 1985).

Transitional Archaic (ca. 2250 to 1250 B.P.)

As Collins (2004:122–123) notes, diverse and comparatively complex archaeological manifestations toward the end of the Late Archaic attest to the emergence of kinds of human conduct without precedent in the area. This period (2250–1250 B.P.), referred to as the Transitional Archaic (Turner and Hester 1999) or Terminal Archaic (Black 1989), is not recognized by all researchers. Other chronologies terminate the Late Archaic at around 1200–1250 B.P. (Collins 2004; Johnson and Goode 1994) to encompass this later subperiod. Johnson et al. (1962) originally designated the Transitional Archaic as a subperiod of the Archaic because of the similarities between the latest dart point types and the earliest arrow point types. Since then, however, the designation has failed to be universally accepted by researchers. In two recent chronologies for central Texas, Collins (2004) does not include the Transitional as a subperiod of the Archaic, and Johnson and Goode (1994) separate the Late Archaic into two subperiods designated Late Archaic I and Late Archaic II. The Transitional Archaic, as it is used here, closely corresponds to Johnson and Goode's (1994) Late Archaic II, but begins after the appearance of Marcos points, not with it. In this scheme, the Transitional Archaic coincides with the last two style intervals recognized by Collins (2004) for the Late Archaic subperiod.

During the Transitional Archaic, smaller dart point forms such as Darl, Ensor, Fairland, and Frio were developed (Turner and Hester 1999). These points were probably ancestral to the first Late Prehistoric arrow point types and may have overlapped temporally with them (Carpenter et al. 2006; Hester 1995; Houk and Lohse 1993). Several researchers believe that the increased interaction between groups at the end of the Late Archaic was an important catalyst for cultural change (Collins 2004; Johnson and Goode 1994). This change may have included increased regional stress and conflict between groups as interaction became more frequent (Houk et al. 1997). In Bexar County, researchers noted a distinct shift in settlement patterns during this period (Houk et al. 1997). Groups began to use hilltops as camps rather than just lithic procurement locations. These elevated locations would have provided points from which to observe game and other groups of humans as they moved through the surrounding creek valleys and upland prairies (Houk et al. 1997).

Late Prehistoric Period

Introduction of the bow and arrow and, later, ceramics into Central Texas marked the Late Prehistoric period. Population densities dropped considerably from their Late Archaic peak (Prewitt 1985:217). Subsistence strategies did not differ greatly from those of the preceding period, although bison again became an important economic resource during the late part of the Late Prehistoric period (Prewitt 1981:74). Use of rock and earth ovens for plant food processing and the subsequent development of

burned rock middens continued throughout the Late Prehistoric period (Black et al. 1997; Kleinbach et al. 1995:795). Horticulture came into play very late in the region but was of minor importance to overall subsistence strategies (Collins 2004:122).

In central Texas, the Late Prehistoric period generally is associated with the Austin and Toyah phases (Jelks 1962; Prewitt 1981:82–84). Austin and Toyah phase horizon markers, Scallorn-Edwards and Perdiz arrow points, respectively, are distributed across most of the state. Violence and conflict often marked introduction of Scallorn and Edwards arrow points into central Texas—many excavated burials contain these point tips in contexts indicating they were the cause of death (Prewitt 1981:83). Subsistence strategies and technologies (other than arrow points) did not change much from the preceding Late Archaic period. Prewitt's (1981) use of the term "Neoarchaic" recognizes this continuity. In fact, Johnson and Goode (1994:39–40) and Collins (2004:122) state that the break between the Austin and Toyah phases could easily and appropriately represent the break between the Late Archaic and the Late Prehistoric.

Austin Phase (ca. 1250 to 650 B.P.)

The earlier Austin phase (identified by Scallorn and Edwards points) and the later Toyah phase (defined through Perdiz points) divide the Late Prehistoric period throughout central Texas (Black 1989; Story 1990). These divisions were originally recognized by Suhm (1960) and Jelks (1962) and remain an accepted separation of the period. Although a distinct change in the material culture between the two phases can be seen in the archaeological record, there is some debate over the cultural underpinnings that prompted the change. The different arrow point styles (and other associated artifacts in the assemblage) may represent distinct cultural groups (Johnson 1994), but others challenge this view (e.g., Black and Creel 1997) and attribute the change to a spread of new technological ideas in response to the increase of a different economic resource in bison populations (Ricklis 1992). Nevertheless, prehistoric communities traced through cultural remains assigned to the Austin phase (1250–650 B.P.), like many of the Archaic period cultures before them, relied on a hunting and gathering subsistence with more of an emphasis on gathering (Prewitt 1981:83). Communities attributed to the Toyah phase (650–200 B.P.) relied more on bison procurement (Prewitt 1981:84).

Toyah Phase (ca. 650 to 200 B.P.)

Around 1000 to 750 B.P., slightly more xeric or drought-prone climatic conditions returned to the region, and bison came back in large numbers (Huebner 1991; Toomey 1993). Using this vast resource, Toyah peoples were equipped with Perdiz point-tipped arrows, end scrapers, four-beveled-edge knives, and plain bone tempered ceramics. Toyah technology and subsistence strategies represent a completely different tradition from the preceding Austin phase. Collins (1995:388) states that formation of burned rock middens ceased as bison hunting and group mobility obtained a level of importance not witnessed since Folsom times. Although the importance of bison hunting and high group mobility hardly can be disputed, the argument that burned rock midden development ceased during the Toyah phase is tenuous. A recent examination of Toyah-age radiocarbon assays and assemblages by Black et al. (1997) suggest that their association with burned rock middens represents more than a "thin veneer" capping Archaic-age features. Black et al. (1997) claim that burned rock midden formations, although not as prevalent as in earlier periods, were part of the adaptive strategies of Toyah peoples.

Historic Period

Landscape features have dictated human movement and subsistence patterns for thousands of years. Specifically, geographical influences during the Historic Period (A.D. 1630–present) confined settlements to riparian zones and limited farming to these areas. The larger rugged landscape was used for sheep,

goat, and cattle ranching. These practices were introduced and promoted by the Spanish as part of their colonial agenda, and many were carried through to the twentieth century, giving Texas a strong agricultural history dominating economic, social, and cultural patterns over the years (Freeman 1994).

Accordingly, the following historic context emphasizes the changes to rural Texas in terms of its agricultural and economic history. These developments in effect dictate the social and political development of central Texas as seen against the backdrop of broader Texas history in and around the Project area.

The beginning of the late seventeenth and early eighteenth centuries was an era of more permanent contact between Europeans and Native Americans as the Spanish moved northward out of Mexico to establish settlements and missions on their northern frontier (see Castañeda [1936–1958] and Bolton [1970] for extended discussions of the mission system and Native relations in Texas and central Texas region). There is little available information on aboriginal groups and their ways of life except for the fragmentary data Spanish missionaries gathered. In the San Antonio area and areas to the south, these groups have been referred to collectively as Coahuiltecans because of an assumed similarity in way of life, but many individual groups may have existed (Campbell 1988). This area also served as a point of contact between the southward-advancing Apaches and the Spanish, with native groups often caught in between. Disease and hostile encounters with Europeans and intruding groups such as the Apache were already wreaking their inevitable and disastrous havoc on native social structures and economic systems by this time.

Spanish Colonial/Mexican Independence Period (1630 to 1820s)

The Spanish Colonial period (A.D. 1630–1821) may be characterized as the initial period of Aboriginal/European contact and European settlement in Texas. During this time, central Texas was inhabited by several aboriginal groups including the Comanche, Kiowa, Apache, and Lipan Apache (Thompson 2011). Motivated more by a fear of French expansion than anything else, the Spanish explored and established missions in eastern and central Texas during the latter part of the seventeenth century (Foster 1995). These early overland Spanish entradas utilized established Native trade routes, with the first being led by Governor Alonso de Léon (1689 and 1690) (Foster 1995). José de Urrutia passed through the project area as the leader of a Spanish campaign against Apaches in 1739. In 1754, Pedro de Rabago y Teran passed through on his way to the lands surrounding the San Saba River. Other early Spaniards in the area included Diego Ortiz Parrilla, who led a campaign against the Apaches in 1759, and the Marques de Rubi, who led an inspection of the northern Frontier of New Spain in 1767 (Thompson 2011). In 1808, Capt. Francisco Amangual commanded a military expedition from San Antonio to Santa Fe. The expedition was intended as a show of strength to the Plains Indians.

Establishment of the mission system in the first half of the eighteenth century to its ultimate demise around 1800 brought the peaceful movement of some indigenous groups into mission life, but others were forced in or moved in to escape the increasing hostilities of southward-moving Apaches and Comanches. Many of the Payaya and Juanca lived at Mission San Antonio de Valero (the Alamo), but so many died there that their numbers declined rapidly (Campbell 1988:106, 121–123). By the end of the mission period, European expansion and disease and intrusions by other Native American peoples had decimated many Native American groups. The small numbers of surviving Payaya and Juanca were acculturated into mission life. The last references to the Juanca and Payaya were recorded in 1754 and 1789, respectively, in the waning days of the mission (Campbell 1988:98, 123). By that time, intrusive groups such as the Tonkawa, Apache, and Comanche had moved into the region to fill the void. Outside of the missions, few sites attributable to these groups have been investigated. To complicate matters, many aboriginal ways of life endured even after contact with the Spanish. For example, manufacture of stone tools continued even for many groups settling in the missions (Fox 1979). Hostilities with indigenous groups who camped

along the Guadalupe River in the mid-1830s caused many early settlers to retreat from their land to Gonzales until more protection could be provided (Smyrl 2010). The nineteenth century brought the final decimation of the Native American groups and the U.S. defeat of the Apaches and Comanches and their removal to reservations.

Republic of Texas/Pre-Civil War (1836 to 1860)

During the Republic of Texas era, from 1836 to 1845, the central Texas area remained a Native American stronghold until the 1870s. On December 29, 1845, Congress signed the Texas Admission Act, the result of several years of annexation debate. A few months later, on February 19, 1846, members of the newly formed state government conducted a ceremony in front of the Capitol at Austin marking Texas' official annexation into the Union and the end of the Republic of Texas (Campbell 2003:186; Miller and Faux 1997:78).

The Post-Civil War to Twentieth Century (1865 to 1950)

Subsequent to the Civil War, Texas entered the Reconstruction period. To begin reconstruction, federal troops, in part, had to spread the word of the Emancipation Proclamation (Campbell 2003:268). In Galveston on June 19, 1865, General Gordon Granger and the Union army spread the word of the slaves' emancipation (Campbell 2003:268). Thus, this day became known as "Juneteenth" and has been celebrated by Texas African Americans since (Campbell 2003:268).

Lawlessness became a problem during the 1880s, and central Texas counties experienced a period of "mob rule." Citizens formed an anti-mob organization, but competing groups conducted essentially open warfare. After several people were killed, the Texas Rangers were dispatched to the area and order was eventually restored (Murphy 2010).

Recovery during this period was gradual but was assisted by a diverse agricultural economy, particularly cattle. In the 1870s, several major cattle trails heading to markets passed through central Texas. One invention that had an effect on Texas and its economy during this time was barbed wire. Barbed wire, first demonstrated in 1871, enabled ranchers to alter land and cattle control to a less-intrusive, more profitable plan, and brought additional commerce and trade to central and South Texas (NRHP 1976). Although barbed wire was one of the largest influences on Texas in general, the most influential "invention" on the region was the railroad. The railroads effectively served as a means of transportation and generally bolstered growth in the economies, to varying degrees, of the region.

Throughout the early twentieth century, trade, transportation, and tourism continued to bring economic prosperity to the region. The establishment of military facilities (e.g., Fort Sam Houston) and the activity surrounding World War I and World War II kept the railway system active, and commercial activity in the east prospered.

Throughout the remainder of the twentieth century, the population in central Texas increased, largely attributable to expansion and commercial opportunities in urban and rural areas. The construction of public highways and automobiles facilitated the commuting of central Texas citizens to urban employment.

BACKGROUND AND HISTORIC MAP REVIEW

SWCA performed a cultural resources background review on February 21, 2019, to determine if the Project area has been previously surveyed for cultural resources or if any cultural resources have been

recorded within or near the Project area. To conduct this review, an SWCA archaeologist reviewed the relevant U.S. Geological Survey (USGS) 7.5-minute quadrangle maps on the THC's Texas Historic Sites Atlas (Atlas) online-restricted archaeological sites database (THC 2019). These sources provided information on the nature and location of previously conducted archaeological surveys, previously recorded cultural resources sites, sites designated as SALs, Official Texas Historical Markers, Recorded Texas Historic Landmarks, cemeteries, and local neighborhood surveys. To perform the historic map review, SWCA consulted historical USGS topographic maps available on USGS (2019) and Stoner System Maps (Stoner Maps) (ca. 1930–1940). These sources contain information on potential historic resources and the general history of development in the Project area. Note that previous cultural resources investigations listed on the Atlas are limited to projects under purview of the ACT and National Historic Preservation Act, as amended; therefore, the Atlas does not necessarily list all previous work conducted within a specific area. In addition, completed projects under these regulations may not be posted to the Atlas due to a delay between the completion of fieldwork and the completion of reports.

The background literature review determined that three previously conducted cultural resources investigations intersect the Project area (Figure 4; Table 2). In 2007, the San Antonio River Authority sponsored a linear survey along Graytown Road that intersects IH-10 and a portion of the Project alignment. Applied Archeological Sciences, Inc. recorded four archaeological sites during the investigation for the proposed Graytown Road Wastewater Treatment Plant, including three surficial prehistoric campsites (i.e., 41BX1730, 41BX1732, and 41BX1735) and one historic farmstead (41BX1731). None of the sites identified during the investigation were deemed eligible for listing on the National Register of Historic Places (NRHP) or for designation as a SAL (Schroeder 2007), nor did they extend into the CPS Energy proposed Project area. In 2007, The University of Texas at San Antonio Center for Archaeological Research (UTSA-CAR) conducted a survey of portions of Loop 1604 and IH-10 on behalf of the Federal Housing Administration. UTSA-CAR recorded sites 41BX1692 and 41BX1693 but made no NRHP or SAL eligibility determination for those sites at the time (Thompson et al. 2008). Site 41BX1693 is located within the proposed Project ROW and is discussed in more detail below. Two additional cultural resources investigations were conducted within 300 feet (91.4 m) of the Project alignment (see Table 2). In 2003, a linear survey was conducted by the Texas Water Development Board along the northern ROW of IH-10 and intersecting portions of the Project alignment. No information regarding the results of this investigation is available on the Atlas (THC 2019). In 2016, SWCA conducted cultural resources monitoring for the IH-10 at Graytown Road project under the CPS Energy 2016 Annual Permit. No new cultural resources and no evidence of previously identified site 41BX1693 was observed. SWCA recommended no further work for the area (Ward et al. 2017).

Three additional cultural resources investigations have occurred within 1.0 mile (1.6 km) of the Project alignment (Table 3). In 1979, the U.S. Environmental Protection Agency conducted a small area survey approximately 0.74-mile (1.2-km) north of the Project alignment near the intersection with Loop 1604 but no additional information regarding the results of this investigation is available on the Atlas (THC 2019). In 1999, Paul Price Associates conducted a small area survey 0.1-mile (0.2-km) south of the Project alignment near the intersection with Graytown Road on behalf of the San Antonio River Authority. The investigation resulted in the identification of sites 41BX1316, 41BX1317, 41BX1318, 41BX1319, and 41BX1320 (Kotter 1999). In 2014, Cox McLain Environmental Consultants conducted a large area survey 0.5-mile (0.8-km) southwest of the Project alignment along Martinez Creek Dam No. 1 on behalf of the San Antonio River Authority to survey the proposed borrow pit locations for dam rehabilitation. Although 18 backhoe trenches were excavated during the investigation, no cultural materials were identified and no further work was recommended for the area (Green 2014).

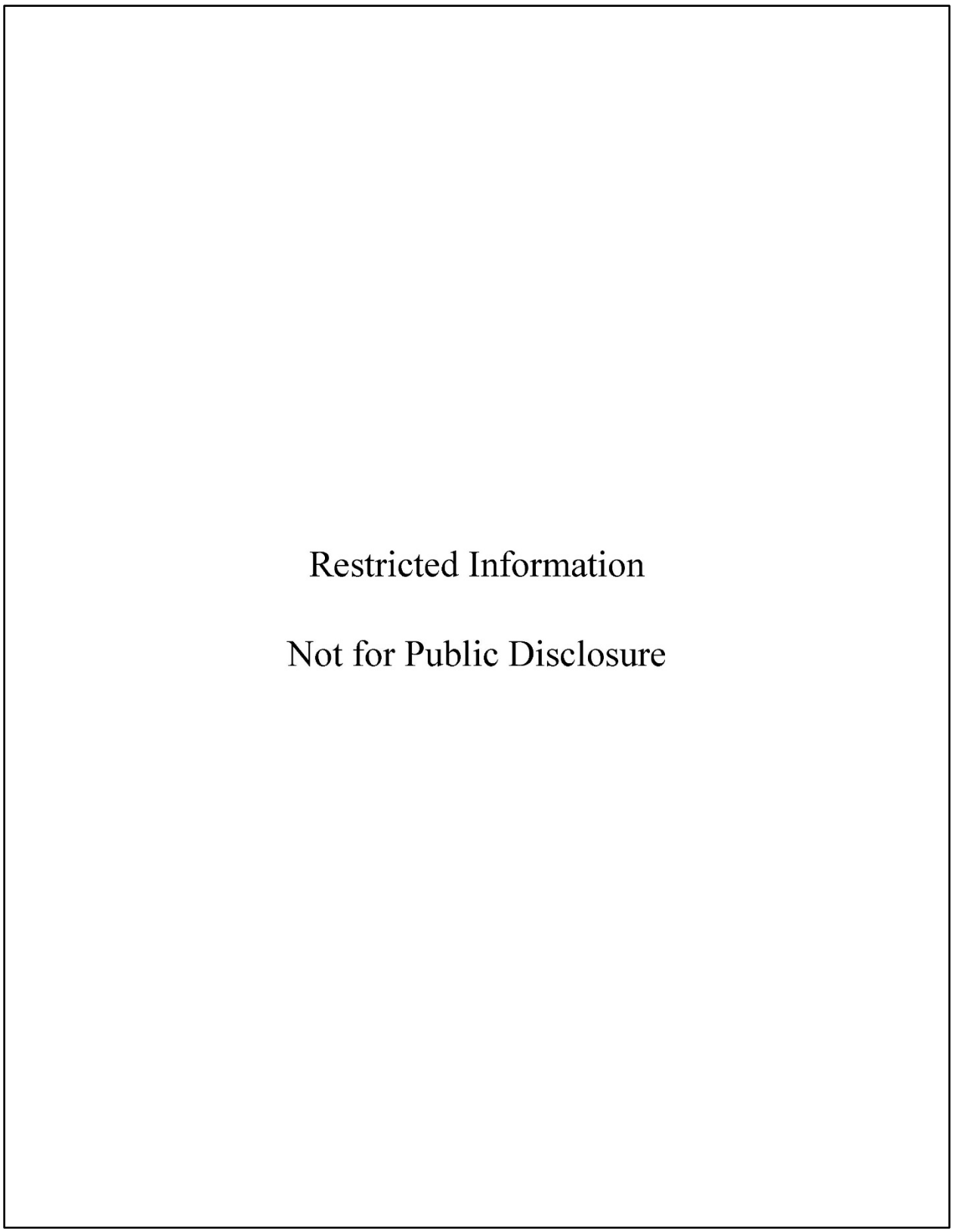

Figure 4. Cultural background review results map.

Table 2. Previously Conducted Cultural Resource Investigations within 300 Feet of the Project Area

Year of Investigation	Type	Project	Sponsoring Agency/ Author	ACT Permit No.	Investigation Summary/Results
2003	Survey	Texas Water Development Board	Texas Water Development Board/Davis et al.	3042	Linear survey along Interstate Highway (IH) 10. Intersects and parallels the Project alignment for 241 m (690 feet) north of IH-10 frontage road. Investigating firm: Texas Water Development Board. No additional information available on the Atlas (Davis et al 2003).
2007	Survey	Graytown Road Wastewater Treatment Plant Project	San Antonio River Authority/ Eric Schroeder	4503	Linear survey intersecting the Project alignment near Graytown Road. Investigating firm: Applied Archeological Sciences, Inc. Four sites recorded during the survey, including three surficial prehistoric campsites (41BX1730, 41BX1732, and 41BX1735) and one historic farmstead (41BX1731). None of the sites were considered eligible for NRHP listing or SAL designation. No further work recommended (Schroeder 2007).
2007	Survey	Loop 1604 Survey Project	Federal Housing Administration/ Thompson et al.	4182	Encompasses the Project alignment just west of the intersection with Graytown Road to the intersection with Loop 1604 and the northern terminus of the Project alignment. Linear survey of Loop 1604 from Military Drive West to FM 1346 and IH-10 East from Pfiel Road to Foster Road. Investigating firm: UTSA-CAR. Recorded sites 41BX1692 and 41BX1693. (Thompson et al. 2008).
2016	Survey	IH 10 at Graytown Road Project	CPS Energy/Ward et al.	7541	Encompasses the Project alignment west of Salitrillo Creek. No new cultural resources were recorded and no evidence of previously recorded site 41BX1693 was observed. Investigating firm: SWCA Environmental Consultants. No further work recommended (Ward et al. 2017).

Table 3. Cultural Resource Investigations within 1.0 Mile of the Project Area

Year of Investigation	Investigation Type	Project	Sponsoring Agency/ Author	ACT Permit No.	Investigation Summary/Results
1979	Survey	—	U.S. Environmental Protection Agency	—	Small area survey 0.74-mile (1.2-km) north of the Project alignment near the intersection with Loop 1604. No additional information available on the Atlas (THC 2019).
1999	Survey	Intensive Archaeological Survey of the Martinez Tracts III & IV	San Antonio River Authority (SARA)/ Kotter and Jones	2174	Small area survey 0.1-mile (0.2-km) south of the Project alignment near the intersection with Graytown Road. Investigating firm: Paul Price Associates. Recorded sites 41BX1316, 41BX1317, 41BX1318, 41BX1319, and 41BX1320. No additional information available on the Atlas (THC 2019).
2014	Survey	SARA Martinez Dams	SARA/ Melissa M. Green	6905	Large area survey 0.5-mile (0.8-km) southwest of the Project alignment along Martinez Creek Dam No. 1. Investigating firm: Cox McLain Environmental Consultants. Survey of proposed borrow pit locations for dam rehabilitation. Backhoe trenching did not identify any cultural materials. No further work recommended (Green 2014).

Only one previously recorded cultural resource is plotted within 300 feet (91 m) of the Project alignment. The Project alignment directly intersects site 41BX1693, a prehistoric site of unknown occupation span that was initially recorded in 2006 during the Loop 1604 East survey conducted by UTSA-CAR (Table 4). The observed assemblage comprised a surface-to-subsurface deposit of fire-cracked rock (FCR) and debitage. The site was identified through backhoe trenching and its total areal extent is unknown. UTSA-CAR noted that the upper 2 feet (0.6 m) of cultural deposits were disturbed by past agricultural plowing activities. The SAL eligibility of the site is considered undetermined (Thompson et al. 2008). SWCA revisited a portion of the site in 2016 during cultural resources monitoring and did not identify any evidence of 41BX1693 within select utility replacement locations (see Table 2). SWCA recommended site 41BX1693 as ineligible for the NRHP and no avoidance strategy or further work was recommended (Ward et al. 2017).

Table 4. Known Cultural Resources within 300 Feet of the Project Area

Site	Site Type	Description
41BX1693	Prehistoric	Included within the proposed Project alignment. Site identified through backhoe trenching. Cultural assemblage includes fire-cracked rock and debitage. Surficial to subsurface deposit. Upper 2 feet (0.6 m) of site disturbed by plowing. Undetermined eligibility for the NRHP (THC 2019).

Twenty-two (22) additional cultural resources are located within 1.0-mile (1.6-km) of the Project alignment (Table 5). These resources include two cemeteries (i.e., 41BX2054 and BX-C033). Neither cemetery is registered as a Historic Texas Cemetery, although SWCA recommended avoidance for a project near the Allen Cemetery (41BX2054), which contains two marble headstones in an overgrown and neglected plot (THC 2019). Three resources are prehistoric campsites (i.e., 41BX1692, 41BX1732, and 41BX1317) containing surficial to subsurface deposits of FCR, debitage, and a limited number of lithic tools. These sites, which have been severely impacted by mechanized agricultural plowing and livestock grazing, were not considered eligible for the NRHP (THC 2019). Five multicomponent sites (i.e., 41BX2013, 41BX1881, 41BX1730, 41BX1883, and 41BX1882) are present within 1.0-mile (1.6-km) of the Project alignment. These sites generally include structures associated with early-twentieth-century farmsteads and lithic scatters. Again, the sites have been heavily impacted by agricultural pursuits and no further archaeological work was recommended at these locales (THC 2019). Four sites are considered prehistoric lithic scatters (i.e., 41BX2053, 41BX1318, 41BX2052, and 41BX1316). Although sites 41BX1318, 41BX2052, and 41BX2053 have been severely impacted by agricultural activity, site 41BX1316 has the potential to be listed as a SAL (THC 2019). Five historic farmsteads (i.e., 41BX2014, 41BX1794, 41BX1795, 41BX1731, and 41BX1320) are also located within 1.0-mile (1.6-km) of the Project alignment. These sites include aboveground structures that generally date to the early twentieth century; however, no further work is recommended for any of the sites (THC 2019). Two additional prehistoric sites (41BX1792 and 41BX1793) and one historic site (41BX2107) are also located within 1.0-mile (1.6-km) of the Project alignment. These sites have also been heavily impacted by plowing, and no further work was recommended for the sites (THC 2019).

The historical map review using the Stoner Maps (ca. 1930–1940) depict the Project area paralleling the current IH-10 highway (which was not built at the time). According to Stoner Map Book 4 (pp. 1024 and 1025), the Project area is within or adjacent to parcels of land owned by G.A. Boeck, B. Reimann, F. Schroeder, R. H. Weichold, E. Stanush, F. Behrenz, O. Voges, M. Boeck, L. Achterberg, H. Schwartz, E. Rhode, F. Siebold, E. Mayer, J. Bolton, and E. Harlohs. Land parcel photographs from Stoner Maps indicate that the Project area and its vicinity were largely covered in scrub brush, trees, and grass with intermittent plowed agricultural fields. By the 1950s, most of the land parcels transitioned into plowed agricultural fields. Historical aerial photographs and topographic maps illustrate up to 11 potentially

historic structures within proximity to the Project area. The current general setting of the Project area consists of commercial and residential development surrounded by agricultural fields.

Table 5. Known Cultural Resources within 1.0 Mile of the Project Area

Site	Site Type	Description
BX-C-033	Gates of Heaven Cemetery	640 feet (195 m) west of the Project alignment near the intersection with Loop 1604. Not listed as a Historic Texas Cemetery (THC 2019).
41BX1316	Prehistoric Lithic Scatter	0.9-mile (1.4-km) south of the Project alignment near the intersection with Scenic Lake Drive. Cultural assemblage includes debitage, two scrapers, a tested cobble, three cores, and fire-cracked rock. Site consists of a surficial to subsurface deposit. Site has potential to be listed as a SAL, but NRHP eligibility is undetermined (THC 2019).
41BX1317	Prehistoric Campsite	0.6-mile (1-km) south of the Project alignment near the intersection with Graytown Road. Cultural assemblage consists of a scraper, debitage, two bifaces, and one core. Site consists of a surficial to subsurface deposit. No further work recommended. Site ineligible for NRHP listing (THC 2019).
41BX1318	Prehistoric Lithic Scatter	0.5-mile (0.8-km) south of the Project alignment near the intersection with Graytown Road. Cultural assemblage includes debitage, a core, and a single milk glass shard. Surficial to subsurface deposit. Site possesses little to no research value. Site ineligible for NRHP listing (THC 2019).
41BX1320	Historic Farmstead	0.3-mile (0.5-km) southwest of the Project alignment near the intersection with Loop 1604. Site includes two cisterns, three sheds, a large outbuilding, and a pile of Groesbeck red bricks associated with a twentieth-century rural farmstead. Site consists of a surficial deposit. No further work recommended. Site ineligible for NRHP listing (THC 2019).
41BX1692	Prehistoric Campsite	0.7-mile (1.2-km) west of the Project alignment near the intersection with Boenig Drive. Cultural assemblage includes fire-burned rock and debitage. Site consists of a surficial to subsurface deposit. Percentage of site intact is unknown. No determination was made for listing on the NRHP (THC 2019).
41BX1730	Multicomponent	0.3-mile (0.5-km) north of the Project alignment near the intersection with Scenic Lake Drive. Cultural assemblage consists of debitage, fire-cracked rock, historic ceramic sherds, glass, a railroad spike, and a nail. Site consists of a surficial to subsurface deposit. Site disturbed by plowing. Site ineligible for NRHP listing (THC 2019).
41BX1731	Historic Farmstead	0.4-mile (0.6-km) southwest of the Project alignment near the intersection with Loop 1604. Site includes a historic farmstead with domicile and outbuildings. Cultural assemblage consists of a foundation to pier and beam style home, chicken coop, and wooden outhouse present. Site consists of a surficial deposit. Site ineligible for NRHP listing (THC 2019).
41BX1732	Prehistoric Campsite	0.8-mile (1.3-km) south of the Project alignment near the intersection with Graytown Road. Cultural assemblage includes fire-cracked rock, debitage, mussel shell, and one biface. Very little of the site is estimated to remain intact due to plowing and livestock grazing. No further work recommended (THC 2019).
41BX1792	Prehistoric	0.9-mile (1.4-km) south of the Project alignment near the intersection with Scenic Lake Drive. Cultural assemblage consists of fire-cracked rock, debitage, and lithic tools scattered throughout a plowed field. Site consists of a surficial to subsurface deposit. Less than 50% of site remains intact. No further work recommended (THC 2019).
41BX1793	Prehistoric	0.9-mile (1.4-km) south of the Project alignment near the intersection with Scenic Lake Drive. Cultural assemblage consists of a scatter of fire-cracked rock and debitage located in a plowed field. Less than 50% of site remains intact. No further work recommended (THC 2019).
41BX1794	Historic Farmstead	0.8-mile (1.3-km) south of the Project alignment near the intersection with Scenic Lake Drive. Site includes a domicile, barn, and stock pond that date to the early to mid-twentieth century. Less than 50% of site remains intact due to bulldozing and impending construction. No further work recommended (THC 2019).
41BX1795	Historic Farmstead	0.3-mile (0.5-km) south of the Project alignment near the intersection with Scenic Lake Drive. Site includes a domicile and several outbuildings dating to the early to mid-twentieth century. Less than 60% of site remains intact. No further work recommended (THC 2019).

Site	Site Type	Description
41BX1881	Multicomponent	0.4-mile (0.7-km) west of the Project alignment near the intersection with Boenig Road. Cultural assemblage consists of debitage; fire-burned rock; and mid-twentieth-century farmstead with historic-age bottles, wire nails, amethyst and milk glass. Approximately 50% to 60% of site remains intact. No further work recommended (THC 2019)
41BX1882	Multicomponent	0.6-mile (1.0-km) southwest of the Project alignment near the intersection with Boenig Drive. Mid-1900s historic feature complex and prehistoric lithic scatter. Site includes two cisterns, several foundations, and multiple trash piles. Site consists of a surficial deposit. Estimated 15% to 25% of site remains intact. No further work recommended (THC 2019).
41BX1883	Multicomponent	0.3-mile (0.5-km) southwest of the Project alignment near the intersection with Boenig Drive. Cultural assemblage consists of historic glass, ceramic sherds, bricks, agricultural implements, debitage, and one lithic blade. Site consists of a surficial to subsurface deposit. Estimated 5% of site remains intact. No further work recommended (THC 2019).
41BX2013	Multicomponent	0.4-mile (0.6-km) northeast of the Project alignment near the intersection with Boenig Drive. Cultural assemblage consists of debitage, fire-burned rock, and an early-twentieth-century farmstead complex and associated historic-age artifact scatter. Site consists of a surficial deposit and no excavations were conducted. Approximately 10% of site remains intact. No further work or avoidance strategy recommended (THC 2019).
41BX2014	Historic Farmstead	377.6 feet (115.1 m) north of the Project alignment near the intersection with Boenig Drive. Site includes a domicile and several outbuildings dating to the early to mid-twentieth century. About 85% of the site remains intact and in good condition. No further work recommended, and no avoidance strategy recommended (THC 2019).
41BX2052	Prehistoric Lithic Scatter	0.4-mile (0.6-km) southwest of the Project alignment near the intersection with Boenig Drive. Cultural assemblage includes debitage, tested cobbles, cores, and fire-cracked rock. Historic glass and ceramic sherds also present. Site consists of a surficial to subsurface deposit. Approximately 10% of site remains intact due to agricultural plowing. No further work recommended (THC 2019).
41BX2053	Prehistoric Lithic Scatter	0.4-mile (0.6-km) southwest of the Project alignment near the intersection with Boenig Drive. Cultural assemblage includes debitage, tested cobbles, cores, and fire-burned rock. Approximately 10% of site remains intact due to agricultural clearing. No further work recommended (THC 2019).
41BX2054	Allen Cemetery	500 feet (153 m) west of the Project alignment near the intersection with Boenig Road. Private family cemetery dedicated in 1964. Includes two marble headstones and a scatter of cut brick (THC 2019). Site largely neglected and overgrown. Estimated 40% remains intact. Avoidance recommended (THC 2019).
41BX2107	Historic	0.7-mile (1.1-km) northwest of the northern terminus of the Project alignment. Site includes surficial historic and modern trash scatter. Outbuilding present. Estimated 30% of site remains intact. Site ineligible for NRHP listing (THC 2019).

FIELD METHODS

SWCA's investigation consisted of an intensive pedestrian survey augmented with shovel testing within the Project area. Archaeologists examined the ground surface and substantial exposures for cultural resources. The subsurface investigation consisted of systematic shovel testing. Shovel tests typically consist of a 30-centimeter (cm) diameter hole excavated to a depth of 1-m unless soil characteristics or bedrock precluded reaching that depth. For linear project areas, the THC survey standards minimally require 16 shovel tests per mile with transects spaced at 98.4-foot (30-m) intervals along the 100-foot- (30.5-m-) wide survey corridor. For a project of this length, 3.44 miles (5.53 km), 55 shovel tests were required. SWCA exceeded the minimum requirement by excavating 91 shovel tests. An additional nine shovel tests were planned, but unexcavated due to a variety of factors. If encountered, aboveground resources were photographed, measured, and explored as much as possible with consideration to land access constraints to make recommendations for proper resource management (i.e., avoidance, non-avoidance, or further work).

SWCA archaeologists employ both metric (centimeters and meters) and English (inches and feet) units of measurement when conducting investigations within a project area. In compliance with archaeological standard practices, investigations such as shovel tests, auger probes, and backhoe trenches are recorded using metric units. Prehistoric archaeological resources, such as campsites, features, and artifacts, are also recorded using metric units, whereas historic resources, such as farmsteads and associated historic features, are recorded using English units.

SWCA primarily utilized systematic shovel testing throughout the entire Project area. The amount of shovel tests decreased depending on the level of previous disturbances and the nature of the soils. SWCA did not conduct shovel testing in areas where impervious substrates (i.e., asphalt, concrete, compact gravel, and/or caliche) were present, within 5 m of any paved/graveled road edges, within 5 m of any identified/marked buried utility markers, or where evidence of extensive ground surface disturbance was observed. Shovel tests were excavated in approximately 20-cm arbitrary levels to culturally sterile deposits or compact soils, whichever came first.

Archaeologists screened the matrix through ¼-inch mesh. The location of each shovel test was plotted using a hand-held submeter accurate global positioning system (GPS) receiver and was recorded on appropriate project forms in SWCA's field tablets. SWCA conducted a non-collection survey; artifacts, encountered were tabulated, analyzed, and documented in the field, but not collected. Following the review and acceptance of the final cultural resources report, all records and photographs will be curated with the UTSA-CAR, per requirements of the ACT in accordance with the CTA guidelines.

FIELD SURVEY RESULTS

On February 25, 2019, and March 12–14, 2019, SWCA archaeologists conducted an intensive pedestrian survey augmented with shovel testing of the portion of the Project area requiring survey under the ACT permit. The total survey area is approximately 3.4 miles (5.5 km) in length, of which 1.6 miles (2.5 km) was previously surveyed. The remaining portion of the Project area requiring investigation encompasses 22.9 acres (9.3 ha). Field survey result maps can be found in Appendix A. The survey began at the western end of the Project alignment along a cut and maintained ROW directly west of Loop 1604. Field personnel then continued in an easterly direction through a fallow field north of IH-10. Lastly, the survey concluded with an approximately 2-km stretch north, paralleling Graytown Road. SWCA archaeologists visually examined the Project area and documented mixed settings including a fallow agricultural field, patches of woodland areas ranging from light to medium density and cleared sloping roadsides (Figures 5 and 6). The vegetation within the Project area consists of mesquite, oak, scrub and underbrush, and short to medium grasses. Previous impacts and disturbances to the Project area include erosion, vegetation clearing, fence lines, road construction, utilities, agricultural plowing, and drainage infrastructure along the roads (Figure 7).

SWCA personnel excavated a total of 91 shovel tests with highly variable ground surface visibility, ranging from 0 to 99 percent, with deposits predominately composed of clay and clay loam. Archaeologists attempted an additional nine shovel tests, but were unable to successfully complete these tests due to a variety of factors outlined in the shovel test results included in Appendix B. A light surface scattering of cobbles can be seen in the plowed, fallow agricultural fields, while tall grasses and modern debris are mostly found along the roadside settings. Shovel tests excavated within the Project area typically contained very dark brown (10YR 2/2) to black (2.5Y 2/0) clays. Shovel tests contained at least 5 percent gravels and cobbles, increasing in density when disturbed backfill was encountered. Shovel test excavations recorded clay loam generally within the first 0 to 25 cm below surface (cmbs) overlying predominantly clay deposits to a depth of 60 cmbs (Figure 8). The average shovel test terminated at archaeological sterile subsoil.

Figure 5. Overview of tall grasses along the western portion of the survey area.

Figure 6. Overview of the eastern portion of the Project area located west of Graytown Road with short grasses and sparse shrubs, facing north.

Figure 7. Example of previous impacts and disturbances to the Project area, facing south.

Figure 8. Typical shovel test profile throughout Project area, plan view.

SWCA revisited site 41BX1693 and extended the boundary both east and west. Additionally, SWCA recorded one archaeological site (41BX2277) during the survey. Site 41BX2277 is primarily a surficial lithic artifact scatter with one artifact located below surface. Lastly, of the 91 shovel test excavations for this Project area, SWCA personnel observed cultural material in only four shovel tests (Appendix B). These cultural resources are discussed further below.

Site 41BX1693 (Revisit)

Site 41BX1693 is a previously recorded prehistoric site of unknown temporal association that was initially observed in 2006 during the Loop 1604 East Survey conducted by UTSA-CAR and revisited in 2016 by SWCA during cultural resources monitoring for the CPS Energy 2016 Annual Permit (see Table 2). The original site boundary is 500 m south of Graytown Road and just north of IH-10 on the west bank of Salitrillo Creek (Figure 9). The site is located within a plowed field, in a floodplain with black clay loam deposits. Initial investigations observed cultural FCR and debitage present on the surface and to depths of 1.3 feet (40.0 cm) below surface as identified during the UTSA-CAR trenching efforts. No artifacts were seen in the lower stratum of the backhoe trench, which began 2.6 feet (80.0 cm) below surface (Thompson et al. 2008). The 2016 investigation did not observe any evidence of 41BX1693 due to the limited project scope associated with utility pole and anchor replacement (Ward et al. 2017).

Site 41BX1693 was revisited by SWCA archaeologists on February 25 and March 12, 2019. Field personnel completed a pedestrian survey supplemented by intensive shovel testing efforts along the corridor. SWCA planned 47 shovel tests (i.e., CR004–006, DK001–017, DK024, DK027, DK030–032, DK034–037, DK039, and LV004–020) within the prior boundary of the site and within the vicinity of the site. SWCA completed a total of 43 shovel tests during the site delineation. Shovel tests DK014-DK016 and LV014 could not be excavated due to their disturbances and gravels encountered along the edge of the ROW. Positive subsurface excavations include DK002 (one primary flake), LV011 (one secondary flake), and LV012 (one non-diagnostic biface).

Figure 9. Photograph recorded on west bank of Salitrillo Creek facing IH-10 to the south, east of 41BX1693.

SWCA field personnel extended the boundary of site 41BX1693 approximately 12 m to the northeast and 32 m to the southwest (Figure 10). Site 41BX1693 is situated in a plowed agricultural field resulting in a ground surface visibility of 100 percent (Figures 11 and 12). All artifacts were photographed and tabulated in the field and left at the site in accordance with SWCA's non-collection methodology (Figures 13–15). Artifacts observed at the site include primary flakes (n=20-30), secondary flakes (n=30-50), tertiary flakes (n=30-50), modified flakes (n=1), non-diagnostic biface (n=1), potentially notched non-diagnostic biface (n=1), and tested cobbles/cores (n=7). The potentially notched biface is too rough and fragmented to accurately identify and does not provide significant research utility (see Figure 15).

The soil present within the site boundary consists of Tinn and Frio soils, which have 0 to 1 percent slope and accumulate in flood-prone areas, as well as Houston Black clay deposits, which have a 1 to 3 percent slope (NRCS 2019). Subsurface excavations observed clay from 0 to 60 cmbs, where testing was terminated due to compact dense sediments (Figure 16). Soils ranged in color from light yellowish-brown (10YR 6/4) clay loam within the top 30 cmbs and transitioned into very dark gray (10YR 3/1) clay to 60 cmbs. Sub-rounded to rounded cobbles and pebbles were present in most of the units, occurring in light density of 0 to <20 percent. SWCA recovered all subsurface artifacts from 0 to 1 foot (0-30 cm) below surface, confirming the observations of the original investigators.

Overall, the frequency and condition of artifacts observed across the site, the generally surficial nature of the deposits, and the lack of temporally diagnostic artifacts or features, indicate that the site contains low research potential beyond its locational information. Due to the plowed disturbance and nature of the lithic artifact scatter present at 41BX1693, it is the professional opinion of SWCA that the portion of 41BX1693 within the Project area is not eligible for designation as a SAL and that no further cultural resources investigations are warranted within the Project area, as currently defined.

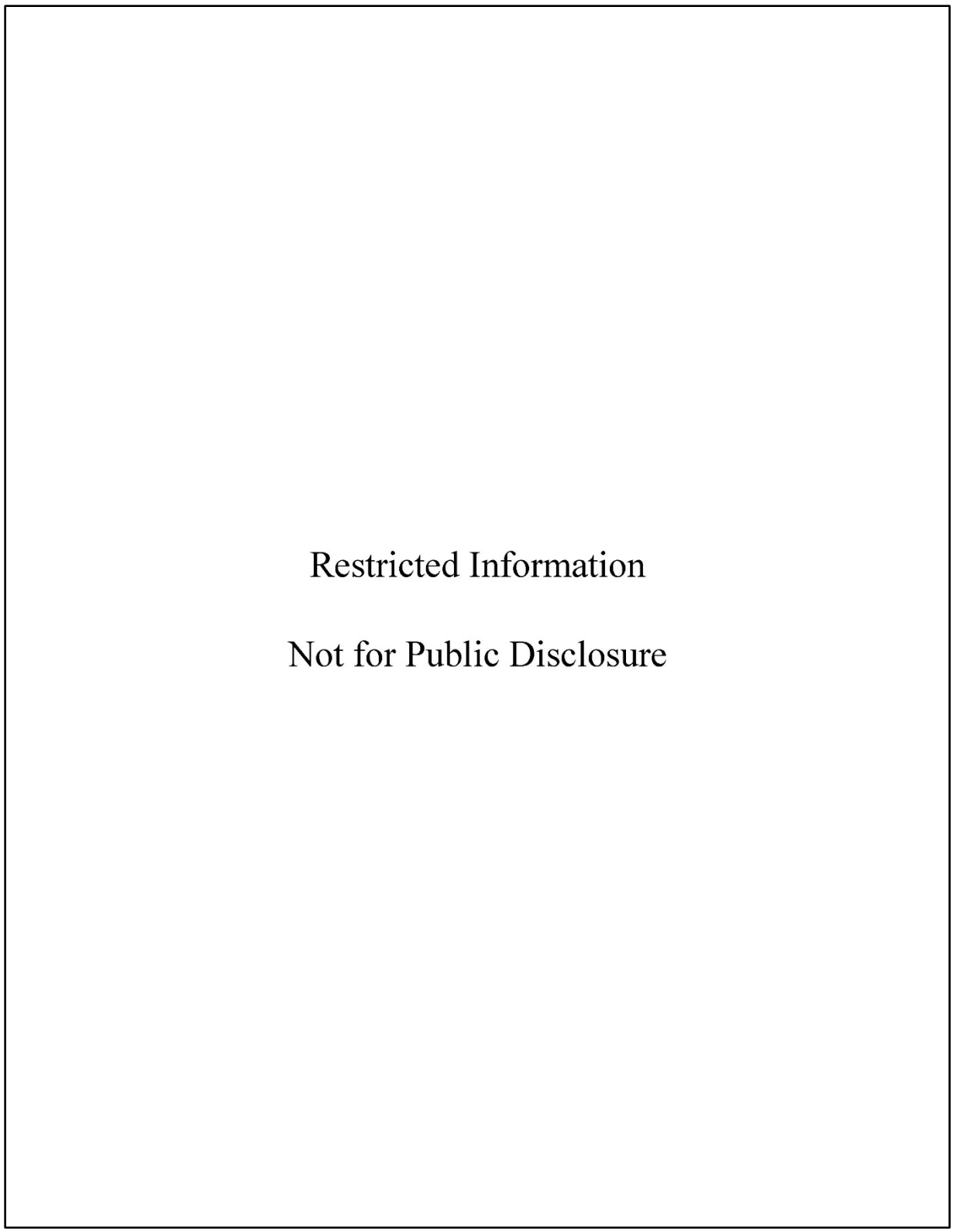

Figure 10. Site 41BX1693 revisit and overview.

Figure 11. Site 41BX1693 overview of plowed field.

Figure 12. Site 41BX1693 southern boundary by IH-10.

Figure 13. Secondary flake assemblage representation, Site 41BX1693.

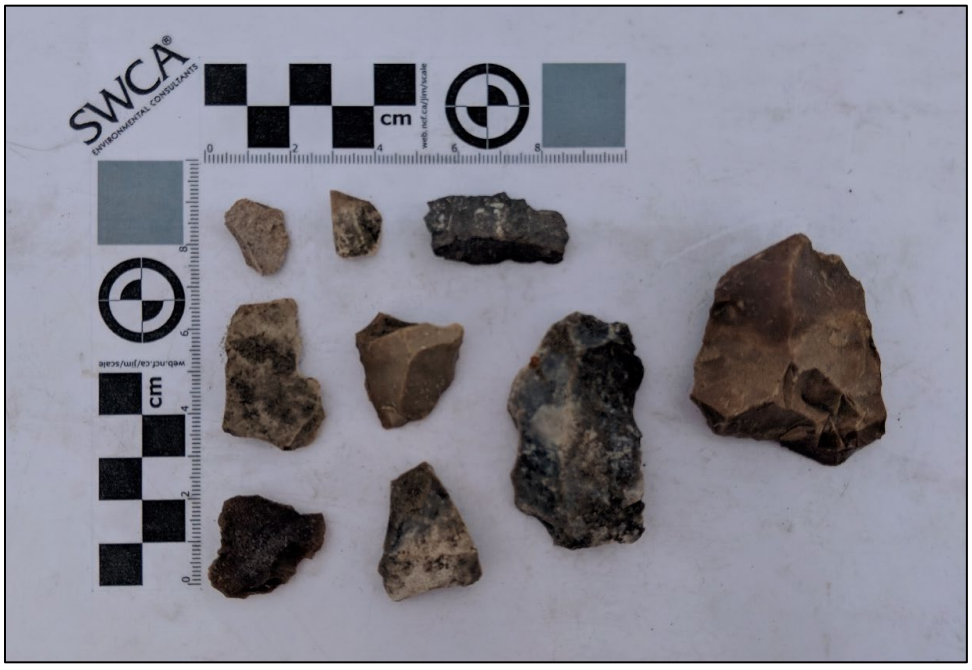

Figure 14. Tertiary flake assemblage representation, Site 41BX1693.

Figure 15. Biface assemblage for Site 41BX1693 (biface on right has potential notch).

Figure 16. Shovel test profile within site 41BX1693 boundary.

Site 41BX2277

Site 41BX2277 is predominantly a surficial lithic artifact scatter of an undetermined prehistoric archaeological period located approximately 522 m north of IH-10, paralleling Graytown Road (Figure 17). The southern extent of the site is 60 m north-northwest of a small drainage and extends 56 m in length. The width of the site is 17 m at its maximum, extending east to west. Additionally, the site is situated on a northwest-trending upslope with an unnamed drainage situated to the south (Figures 18 and 19). Archaeological deposits present at the site include lithic debitage, tested cobbles, and a light scattering of FCR observed with a low ground surface visibility of 10 percent.

SWCA archaeologists recorded site 41BX2277 from March 13 to 14, 2019. Field personnel completed a pedestrian survey supplemented by intensive shovel testing efforts along the Project area. During the survey, the investigators observed an isolated find, which was then delineated, and a low frequency of FCR, debitage, and tested cores/cobbles were further observed on the surface. SWCA conducted additional subsurface excavations to determine the extent of the lithic artifact scatter. One shovel test (LV042) resulted in a positive find of a tertiary flake at 5 cmbs. This positive shovel test was further delineated and confined east to west by the boundary of the Project area. SWCA excavated a total of 15 shovel tests, which includes DK025–026, DK041–046, LV027–f028, and LV041, LV042, LV044, and LV045. Shovel tests LV040 and LV043 would have been placed in Graytown Road; therefore, these two tests could not be excavated. Based on the location of the site, density of artifacts, and extent of the artifact scatter, the site likely extends beyond the Project area to the northwest and artifacts recovered in the site appear to have been redeposited downslope from their primary context to the west.

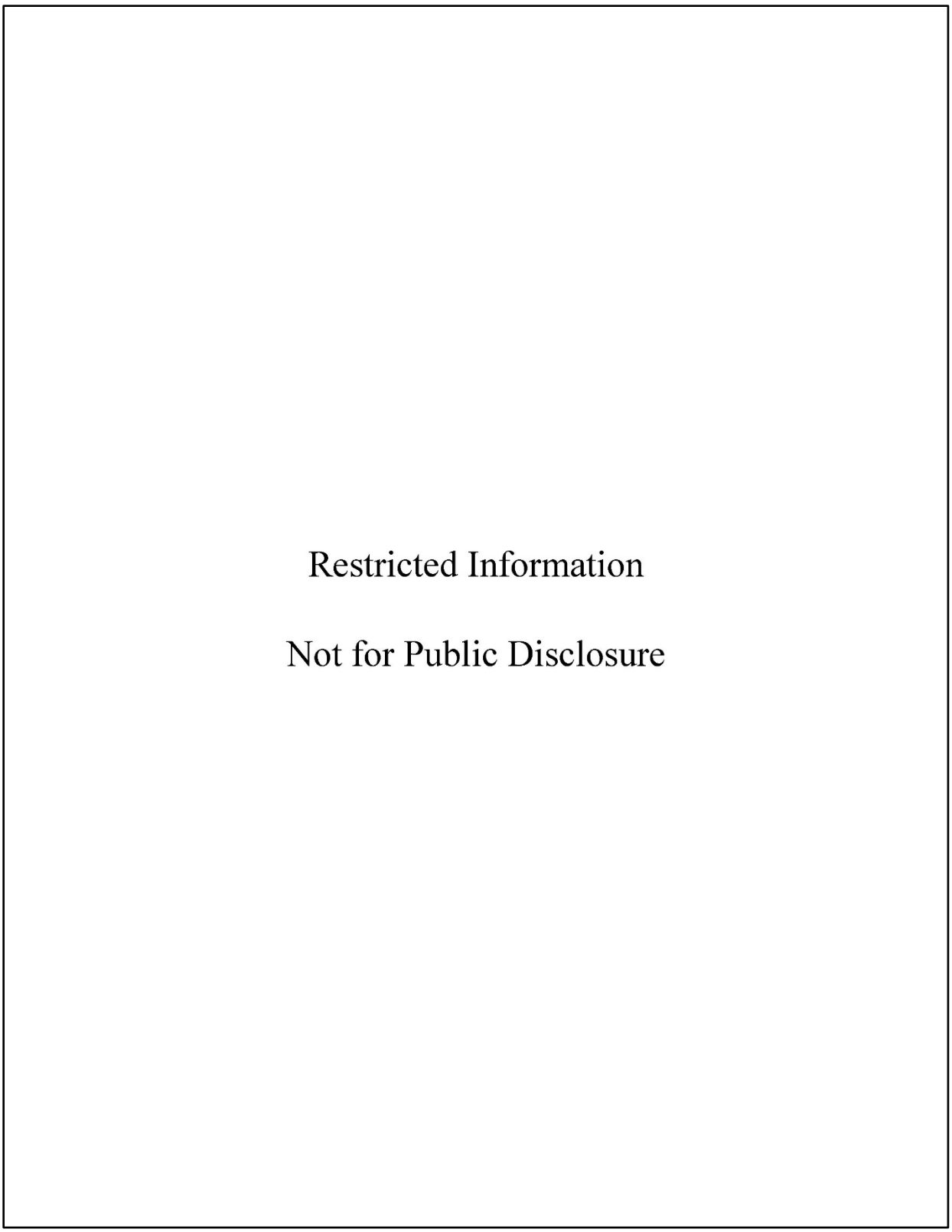

Figure 17. Site 41BX2277 overview

Figure 18. Site 41BX2277 overview with unnamed drainage in foreground, facing north.

Figure 19. Site 41BX2277, facing northwest.

All artifacts observed at the site were photo-documented and tabulated in the field and then left at the site in accordance with SWCA's non-collection methodology. Artifacts observed at the site include primary flakes (n=1), secondary flakes (n=4), tertiary flakes (n=1), modified flakes (n=4), tested cobbles/cores (n=4), and FCR (n=3) (Figures 20 and 21). According to the NRCS (2019), the soil present within the site boundary consists of the Heiden-Ferris complex, which has a 3 to 5 percent slope and has been severely eroded. Subsurface excavations observed clay from 0 to 40 cmbs where testing was terminated due to compact, dense sediments (Figure 22). Soils ranged in color from very dark gray (10YR 3/1) to black (2.5Y 2/0). Sub-rounded to rounded cobbles were present in every shovel test occurring in light density of 5 to 10 percent.

Overall, the low frequency of artifacts observed across the site, the surficial limitation of the deposits, and the lack of temporally diagnostic artifacts or features, indicates that the site contains low research potential beyond its locational information. The site contains an assemblage typical for short-term lithic manufacturing activities. Similar sites are ubiquitous across the south Texas region. Due to the common nature of the lithic scatter present at 41BX2277, it is the professional opinion of SWCA that the portion of site 41BX2277 within the Project area is not eligible for designation as a SAL and that no further cultural resource investigations are warranted within the Project area, as currently defined.

Figure 20. Example of flake assemblage from 41BX2277.

Figure 21. Example of tested cobble assemblage from 41BX2277.

Figure 22. Shovel test profile within site 41BX2277 boundary.

SUMMARY AND RECOMMENDATIONS

At the request of CPS Energy, SWCA conducted an intensive cultural resources survey for the Interstate Highway 10 / Loop 1604 to FM 1518 Project. The proposed construction activities involve the installation of a steel supply gas main in eastern Bexar County, Texas. The Project area is located parallel to Interstate 10 between Loop 1604 and Graytown Road, with sections also paralleling Loop 1604 and Graytown Road.

Most of the Project area falls within the city limits and extraterritorial jurisdiction of San Antonio, Texas, spanning 3.44 miles (5.53 km), encompassing approximately 41.68 acres. Approximately 1.55 miles (2.5 km) of the Project area was previously surveyed. As a part of this investigation, SWCA surveyed the remaining 1.89 miles (3.03 km), encompassing 22.9 acres (9.3 ha). As such, the ACT applies as the Project's activities will involve more than 5 acres and/or 5,000 cubic yards of land disturbance, or may potentially affect known archaeological sites. The cultural resources investigation was conducted under ACT Permit No. 8395.

The SWCA archaeological investigation consisted of a thorough background literature and records review. The field investigation consisted of an intensive pedestrian survey augmented by shovel testing, resulting in 98 subsurface shovel tests. During the investigation, SWCA revisited one prehistoric-age archaeological site (41BX1693) and recorded one prehistoric-age archaeological site (41BX2277). All investigations followed standards and guidelines of the THC's minimum archaeological survey standards for such projects.

In 2006, UTSA-CAR identified site 41BX1693 as a prehistoric site of unknown occupation that was initially observed during the Loop 1604 East Survey. The site is located within an agricultural field and floodplain with black clay loam deposits. Initial investigations observed cultural FCR and debitage present on the surface and subsurface within the plow zone, as identified during the UTSA-CAR trenching efforts. In 2016, SWCA conducted cultural resources monitoring for the CPS Energy 2016 Annual Permit within the previously recorded site boundary and did not observe any evidence of 41BX1693 due to the limited scope of utility pole replacement. During the currently defined investigation, SWCA revisited 41BX1693 and extended the site boundary approximately 12 m to the northeast and 32 m to the southwest. Artifacts observed during the site revisit consist of flakes, modified lithics, non-diagnostic bifaces, and tested cobbles/cores. SWCA did not document any cultural features or temporally diagnostic artifacts. The portion of 41BX1693 within the Project area does not possess research potential beyond its locational data and does not warrant designation as a SAL.

Site 41BX2277 is a surficial lithic artifact scatter of an undetermined prehistoric archaeological period located north of IH-10, paralleling Graytown Road. The site is situated on a gentle slope towards a drainage. Archaeological deposits observed at the site include lithic debitage, tested cobbles, and a light scatter of FCR. SWCA did not document any cultural features or diagnostic artifacts. It is SWCA's professional opinion that the portion of site 41BX2277 within the Project area does not possess research potential beyond its locational data and does not warrant designation as a SAL.

In accordance with the ACT, SWCA has made a reasonable and good faith effort to identify cultural resources within the Project area. No archaeological sites or above-ground historic resources were identified within the Project area that may meet the criteria for designation as a SAL according to 13 Texas Administrative Code 26.10. SWCA recommends no additional cultural resources investigations within the Project area, as currently defined.

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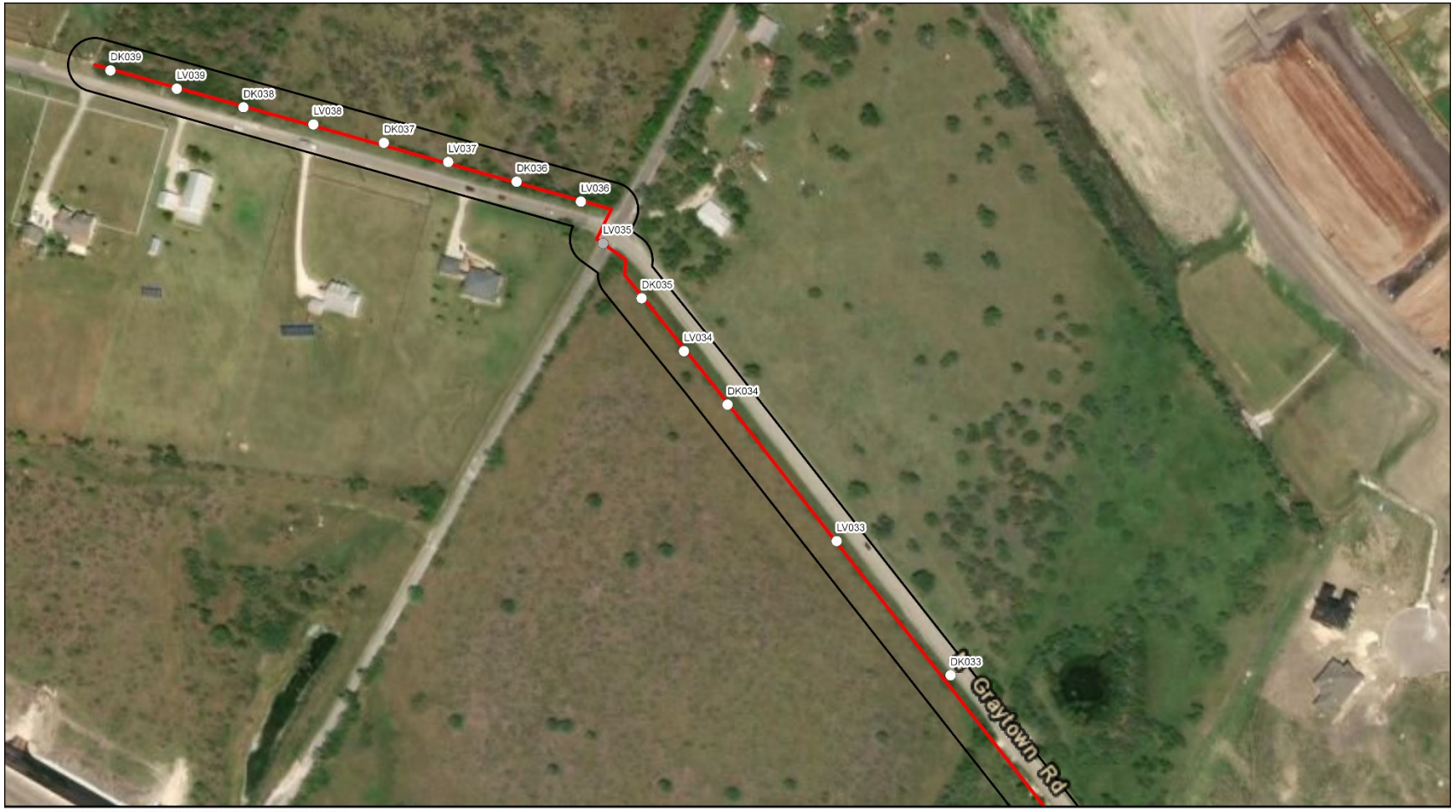
Appendix A

Survey Result Maps



SWCA ENVIRONMENTAL CONSULTANTS

IH-10
LOOP 1604 TO FM 1518
SURVEY RESULTS MAP
BEXAR COUNTY, TEXAS

Page 1 of 7

Proposed Alignment
Survey Area
Negative Shovel Test
Not Excavated Shovel Test

1:3,600
Created By: J. Kainer
Project Number: 46093
Date: 5/3/2019

0 220 440 Feet
0 40 80 120 Meters

SWCA ENVIRONMENTAL CONSULTANTS

IH-10
LOOP 1604 TO FM 1518
SURVEY RESULTS MAP
BEXAR COUNTY, TEXAS

Page 2 of 7

Proposed Alignment
Survey Area
Negative Shovel Test

1:3,600
Created By: J. Kainer
Project Number: 46093
Date: 5/3/2019

0 220 440 Feet
0 40 80 120 Meters

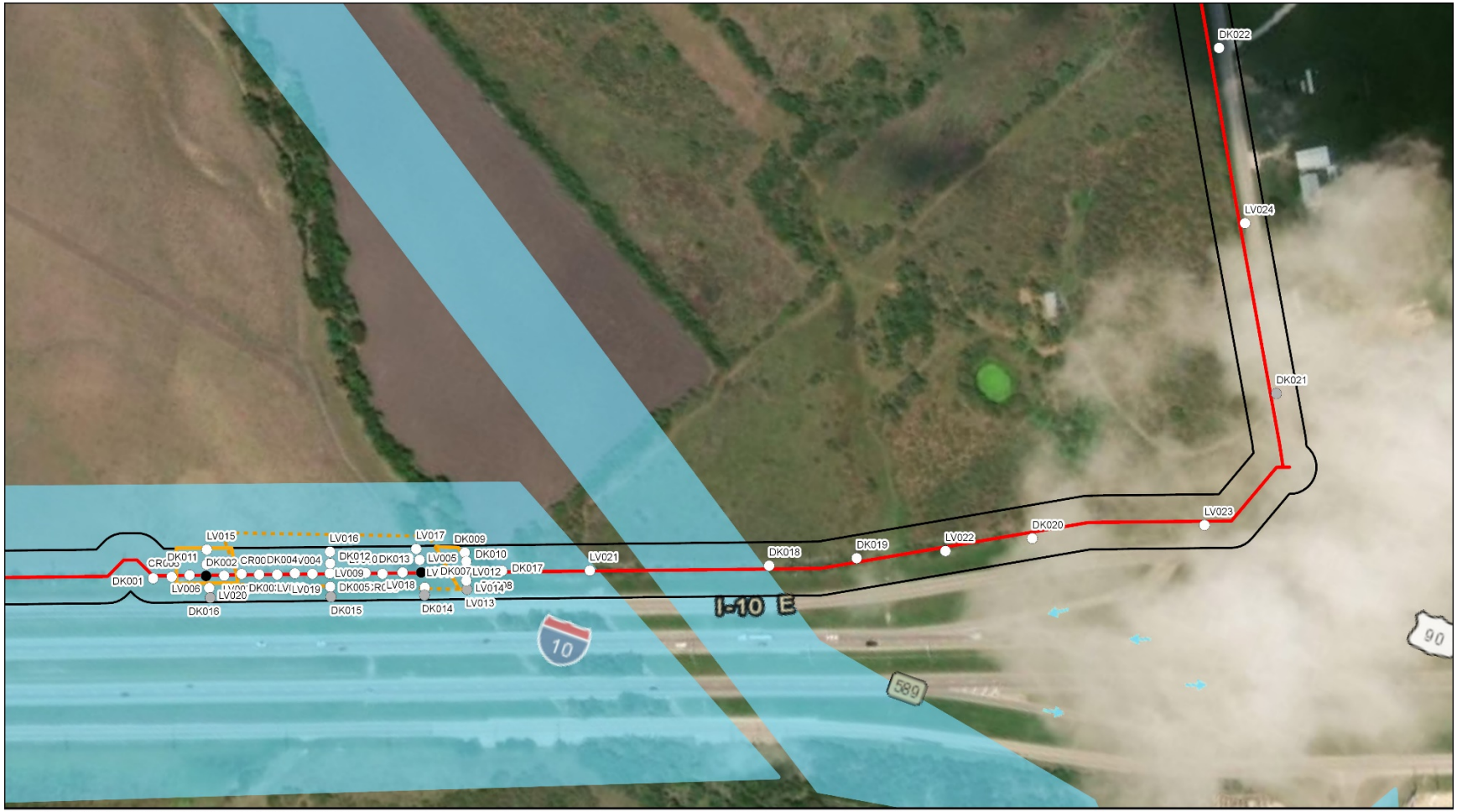
SWCA ENVIRONMENTAL CONSULTANTS

IH-10
LOOP 1604 TO FM 1518
SURVEY RESULTS MAP
BEXAR COUNTY, TEXAS
Page 3 of 7

Proposed Alignment
Survey Area
Negative Shovel Test
Not Excavated Shovel Test
Positive Shovel Test
Revisit Site Boundary

1:3,600
Created By: J. Kainer
Project Number: 46093
Date: 5/3/2019

0 220 440 Feet
0 40 80 120 Meters



SWCA ENVIRONMENTAL CONSULTANTS

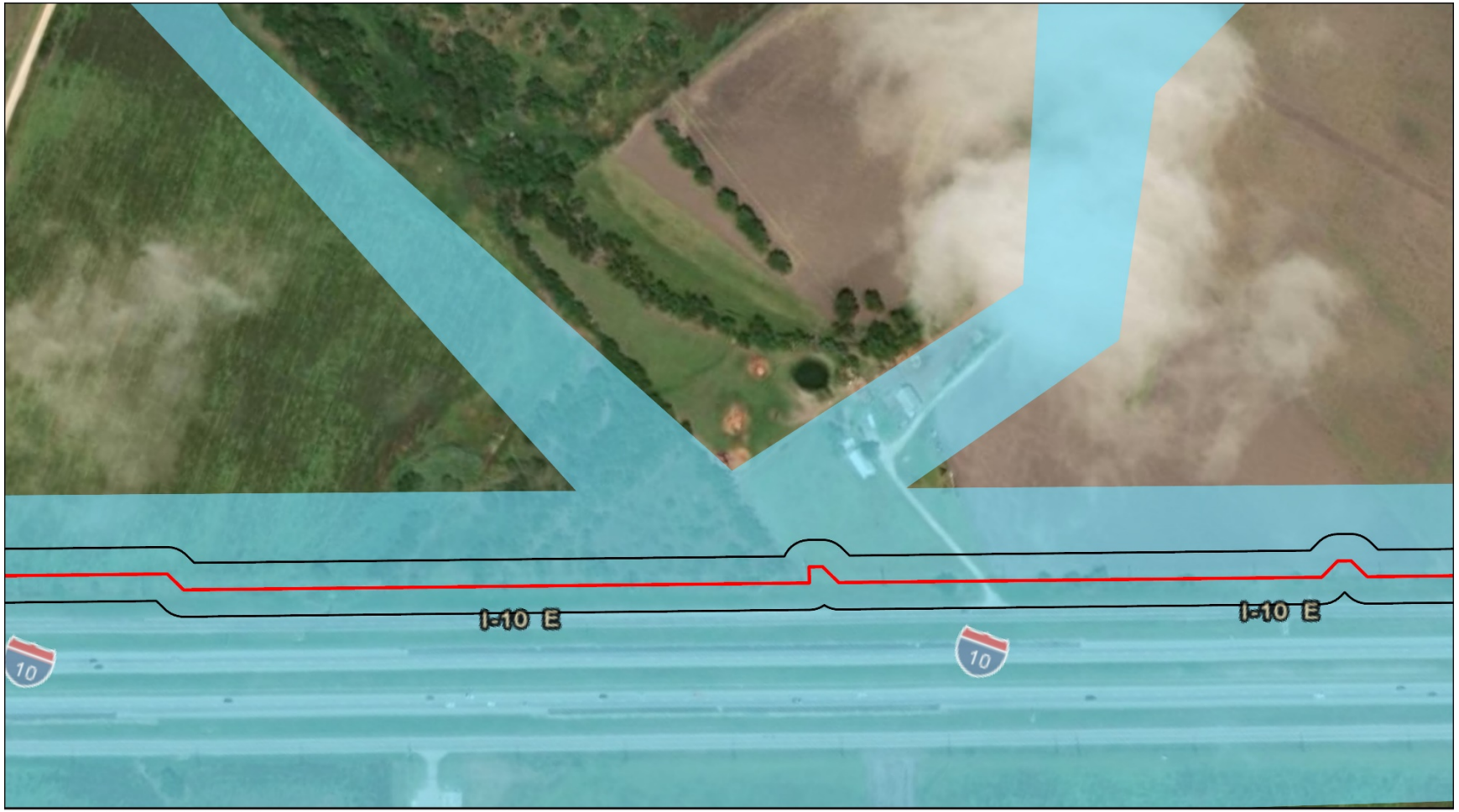
IH-10
LOOP 1604 TO FM 1518
SURVEY RESULTS MAP
BEXAR COUNTY, TEXAS

Page 4 of 7

- Proposed Alignment
- Survey Area
- Negative Shovel Test
- Not Excavated Shovel Test
- Positive Shovel Test
- ATLAS Site Boundary
- Revisit Site Boundary
- Previously Surveyed Area

1:3,600
Created By: J. Kainer
Project Number: 46093
Date: 5/3/2019

0 220 440 Feet
0 40 80 120 Meters



SWCA ENVIRONMENTAL CONSULTANTS

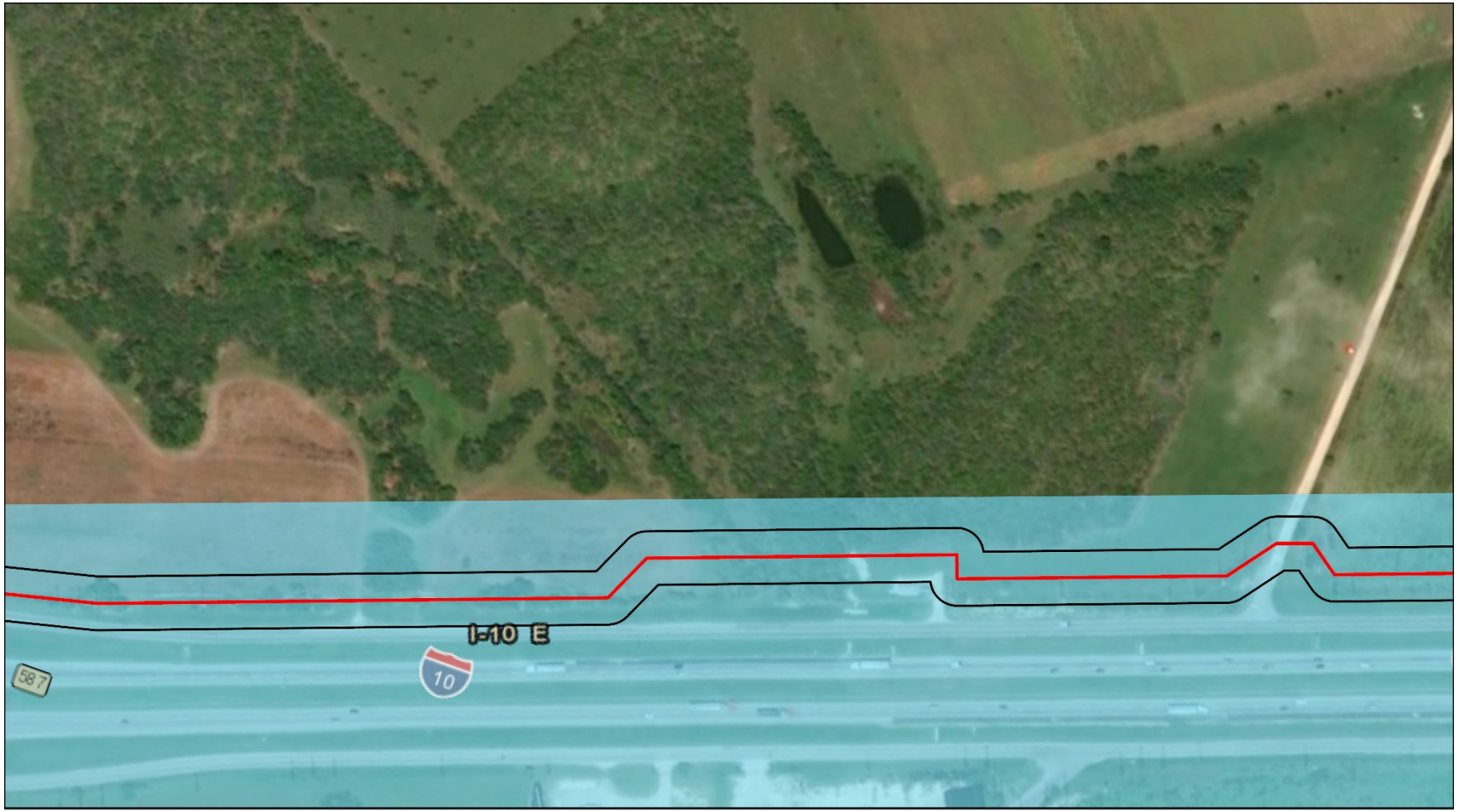
IH-10
LOOP 1604 TO FM 1518
SURVEY RESULTS MAP
BEXAR COUNTY, TEXAS

Page 5 of 7

Proposed Alignment
Survey Area
Previously Surveyed Area

1:3,600
Created By: J. Kainer
Project Number: 46093
Date: 5/3/2019

0 220 440 Feet
0 40 80 120 Meters



SWCA ENVIRONMENTAL CONSULTANTS

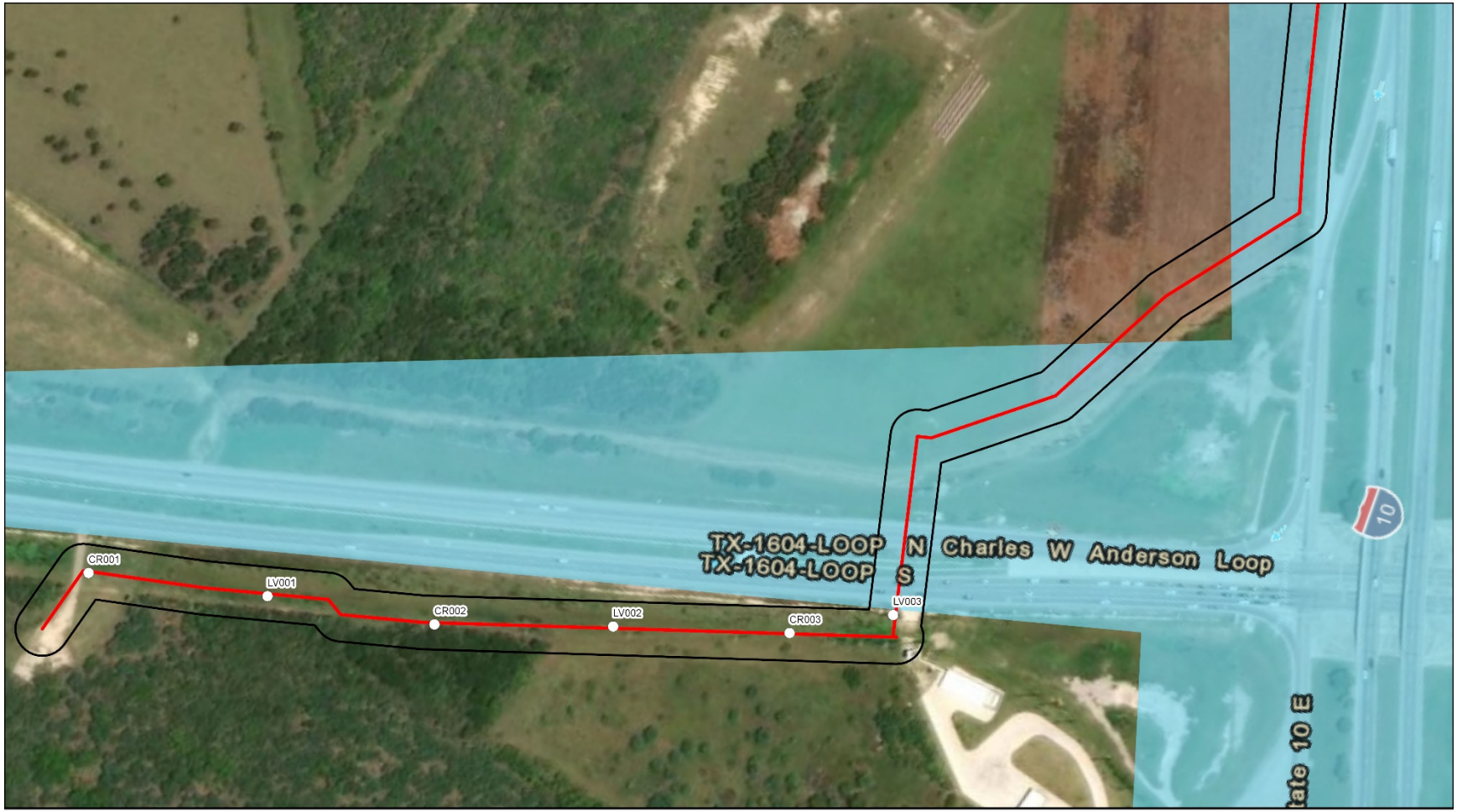
IH-10
LOOP 1604 TO FM 1518
SURVEY RESULTS MAP
BEXAR COUNTY, TEXAS

Page 6 of 7

Proposed Alignment
Survey Area
Previously Surveyed Area

1:3,600
Created By: J. Kainer
Project Number: 46093
Date: 5/3/2019

0 220 440 Feet
0 40 80 120 Meters



SWCA ENVIRONMENTAL CONSULTANTS

IH-10
LOOP 1604 TO FM 1518
SURVEY RESULTS MAP
BEXAR COUNTY, TEXAS

Page 7 of 7

Proposed Alignment
Survey Area
Negative Shovel Test
Previously Surveyed Area

1:3,600
Created By: J. Kainer
Project Number: 46093
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0 220 440 Feet
0 40 80 120 Meters

Appendix B

Shovel Test Data

Table B1. Shovel Test Data

Shovel Test No.	Site	Depth (cmbs)	Munsell Value	Soil Color	Soil Texture	Inclusions	Negative/ Positive	Comments/ Reason for Termination
CR001	NA	0-5	10YR 3/3	Dark brown	Clay loam	-	Negative	No cultural material encountered.
		5-20	10YR 5/6	Yellowish brown	Clay	>20% calcium carbonate, gravels, large rock frags	Negative	No cultural material encountered. Terminated at compact soil.
CR002	NA	0-40	10YR 2/2	Very dark brown	Clay	>20% gravels, large rock frags	Negative	No cultural material encountered. Terminated at compact soil.
CR003	NA	0-60	10YR 2/2	Very dark brown	Clay loam	10-20% gravels	Negative	No cultural material encountered. Terminated at compact soil.
CR004	41BX1693	0-35	10YR 3/2	Very dark grayish brown	Clay loam	-	Negative	No cultural material encountered.
		35-55	2.5Y 4/2	Dark grayish brown	Clay	>20% calcium carbonate, mottles, pebbles	Negative	No cultural material encountered. Terminated at basal clay.
CR005	41BX1693	0-40	10YR 3/2	Very dark grayish brown	Clay loam	-	Negative	No cultural material encountered.
		40-60	2.5Y 4/2	Dark grayish brown	Clay	>20% calcium carbonate, mottles, pebbles	Negative	No cultural material encountered. Terminated at basal clay.
CR006	41BX1693	0-40	10YR 3/2	Very dark grayish brown	Clay loam	-	Negative	No cultural material encountered.
		40-60	2.5Y 4/2	Dark grayish brown	Clay	>20% calcium carbonate, mottles, pebbles	Negative	No cultural material encountered. Terminated at basal clay.
DK001	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK002	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Positive	1: Flake (primary). Terminated at basal clay.
DK003	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK004	41BX1693	0-20	5Y 5/2	Olive gray	Clay loam	1-5%, none	Negative	No cultural material encountered. Terminated at basal clay.
DK005	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK006	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK007	41BX1693	0-25	10YR 3/1	Very dark gray	Clay loam	5-10% cobbles	Negative	No cultural material encountered. Terminated at basal clay.

Shovel Test No.	Site	Depth (cmbs)	Munsell Value	Soil Color	Soil Texture	Inclusions	Negative/ Positive	Comments/ Reason for Termination
DK008	41BX1693	0-30	5Y 3/1	Very dark gray	Clay	1-5% wild onions	Negative	No cultural material encountered. Terminated at compact soil.
DK009	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	10-20% cobbles	Negative	No cultural material encountered. Terminated at compact soil.
DK010	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	10-20% cobbles	Negative	No cultural material encountered. Terminated at compact soil.
DK011	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK012	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK013	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK014	41BX1693	No Dig	-	-	-	-	Negative	No dig. Concrete from road construction.
DK015	41BX1693	No Dig	-	-	-	-	Negative	No dig. Concrete from road construction.
DK016	41BX1693	No Dig	-	-	-	-	Negative	No dig. Concrete from road construction.
DK017	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK018	NA	0-35	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK019	NA	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK020	NA	0-10	10YR 3/1	Very dark gray	Clay loam	-	Negative	No cultural material encountered. Terminated at construction fill.
DK021	NA	-	-	-	-	-	Negative	No dig. Exposed road construction fill.
DK022	NA	0-10	10YR 3/1	Very dark gray	Clay loam	-	Negative	No cultural material encountered. Terminated at construction fill.
DK023	NA	-	-	-	-	-	Negative	No dig. Exposed road construction fill.
DK024	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK025	41BX2277	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK026	41BX2277	0-35	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.

Shovel Test No.	Site	Depth (cmbs)	Munsell Value	Soil Color	Soil Texture	Inclusions	Negative/ Positive	Comments/ Reason for Termination
DK027	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK028	NA	0-35	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK029	NA	0-25	10YR 3/1	Very dark gray	Clay	10-20%, cobbles	Negative	No cultural material encountered. Terminated at compact soil.
DK030	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK031	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK032	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK033	NA	0-10	10YR 3/1	Very dark gray	Clay	>20%, gravels	Negative	No cultural material encountered. Terminated at roadside fill.
DK034	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK035	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK036	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK037	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK038	NA	0-25	10YR 3/1	Very dark gray	Clay loam	10-20%, cobbles, gravels	Negative	No cultural material encountered. Terminated at compact soil.
DK039	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK040	NA	0-10	10YR 3/3	Dark brown	Clay loam	1-5%, none	Negative	No cultural material encountered.
		10-35	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK041	41BX2277	0-35	10YR 3/1	Very dark gray	Clay	5-10%, cobbles	Negative	No cultural material encountered. Terminated at compact soil.
DK042	41BX2277	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.

Shovel Test No.	Site	Depth (cmbs)	Munsell Value	Soil Color	Soil Texture	Inclusions	Negative/ Positive	Comments/ Reason for Termination
DK043	41BX2277	0-35	10YR 3/1	Very dark gray	Clay	5-10%, cobbles	Negative	No cultural material encountered. Terminated at compact soil.
DK044	41BX2277	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK045	41BX2277	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
DK046	41BX2277	0-30	10YR 3/1	Very dark gray	Clay	1-5%, none	Negative	No cultural material encountered. Terminated at compact soil.
LV001	NA	0-30	10YR 2/2	Very dark brown	Silt loam	>20% cobbles, gravels, pebbles	Negative	No cultural material encountered. Terminated at disturbed unit and large rock at 30cmbs.
LV002	NA	0-20	10YR 3/1	Very dark gray	Clay loam	1-5% cobbles, gravels	Negative	No cultural material encountered.
		20-50	10YR 3/1	Very dark gray	Silty clay	10-20% gravels	Negative	No cultural material encountered. Terminated at large rock at bottom of unit that could not be pried out or dug beyond.
LV003	NA	0-30	10YR 2/1	Black	Loam	>20% large rock frags, asphalt, cement concretions, and limestone chunks	Negative	No cultural material encountered. Terminated at disturbance from road
LV004	41BX1693	0-10	10YR 4/2	Dark grayish brown	Silty clay loam	5-10%, pebbles, roots	Negative	No cultural material encountered.
		30-40	10YR 4/1	Dark gray	Clay	10-20%, calcium carbonate	Negative	No cultural material encountered.
		10-20	10YR 3/1	Very dark gray	Silty clay	1-5%, cobbles, rootlets	Negative	No cultural material encountered.
		20-30	10YR 4/1	Dark gray	Silty clay	1-5%, cobbles	Negative	No cultural material encountered.
		40-50	10YR 4/1	Dark gray	Clay	>20%, calcium carbonate	Negative	No cultural material encountered. Terminated at compact soil.
LV005	41BX1693	0-10	10YR 4/2	Dark grayish brown	Silty clay	10-20%, pebbles, roots ranging in size from 1-5 cm	Negative	No cultural material encountered.
		10-35	10YR 3/1	Very dark gray	Silty clay	>20%, large roots	Negative	No cultural material encountered. Terminated at compact soil.
LV006	41BX1693	0-40	10YR 3/1	Very dark gray	Clay	-	Negative	No cultural material encountered. Terminated at compact soil.
LV007	41BX1693	0-40	10YR 3/1	Very dark gray	Clay	-	Negative	No cultural material encountered. Terminated at compact soil.

Shovel Test No.	Site	Depth (cmbs)	Munsell Value	Soil Color	Soil Texture	Inclusions	Negative/ Positive	Comments/ Reason for Termination
LV008	41BX1693	0-20	2.5Y 5/3	Light olive brown	Clay	10-20%, mottles	Negative	No cultural material encountered. Terminated at basal clay.
LV009	41BX1693	0-40	10YR 3/1	Very dark gray	Clay	5-10%, pebbles	Negative	No cultural material encountered. Terminated at compact soil.
LV010	41BX1693	0-40	10YR 3/1	Very dark gray	Clay	1-5%, pebbles	Negative	No cultural material encountered. Terminated at compact soil.
LV011	41BX1693	0-10	10YR 3/1	Very dark gray	Clay	5-10%, cobbles, gravels, pebbles	Positive	1: Flake (secondary)
		10-20	10YR 3/1	Very dark gray	Clay	5-10%, cobbles, gravels	Negative	No cultural material encountered. Terminated at large rock and large root.
LV012	41BX1693	0-10	10YR 3/1	Very dark gray	Clay	5-10%, gravels, pebbles	Positive	1: Biface
		10-30	10YR 3/1	Very dark gray	Clay	10-20%, mottles	Negative	No cultural material encountered. Terminated at basal clay.
LV013	41BX1693	-	-	-	-	-	Negative	No dig. On cement embankment adjacent to road
LV014	41BX1693	0-30	10YR 6/4	Light yellowish brown	Sand	>20%, cobbles, gravels	Negative	No cultural material encountered. Terminated at disturbed construction backfill.
LV015	41BX1693	0-20	2.5Y 5/3	Light olive brown	Clay	10-20%, mottles	Negative	No cultural material encountered. Terminated at basal clay.
LV016	41BX1693	0-30	10YR 3/1	Very dark gray	Clay	>20%, cobbles, gravels, large rock frags	Negative	No cultural material encountered. Terminated at compact soil.
LV017	41BX1693	0-20	2.5Y 5/3	Light olive brown	Clay	10-20%, mottles	Negative	No cultural material encountered. Terminated at basal clay.
LV018	41BX1693	0-30	10YR 6/4	Light yellowish brown	Sand	>20%, cobbles, gravels	Negative	No cultural material encountered. Terminated at disturbed construction backfill.
LV019	41BX1693	0-30	10YR 6/4	Light yellowish brown	Sand	>20%, cobbles, gravels	Negative	No cultural material encountered. Terminated at disturbed construction backfill.
LV020	41BX1693	0-30	10YR 6/4	Light yellowish brown	Sand	>20%, cobbles, gravels	Negative	No cultural material encountered. Terminated at disturbed construction backfill.
LV021	NA	0-40	2.5Y 3/0	Very dark gray	Clay loam	5-10%, cobbles, gravels, organic matter and small cobbles	Negative	No cultural material encountered. Terminated at compact soil.

Shovel Test No.	Site	Depth (cmbs)	Munsell Value	Soil Color	Soil Texture	Inclusions	Negative/ Positive	Comments/ Reason for Termination
LV022	NA	0-10	10YR 3/1	Very dark gray	Clay loam	>20%, fire ants and a fiber optic cable buried	Negative	No cultural material encountered. Terminated at fire ants and buried cable. attempted to move shovel test twice and still covered in fire ants.
LV023	NA	0-20	10YR 5/4	Yellowish brown	Sandy clay	>20%, cobbles, large rock frags, mottles	Negative	No cultural material encountered. Terminated at disturbed construction fill.
LV024	NA	0-20	10YR 5/4	Yellowish brown	Sandy clay	>20%, cobbles, large rock frags, mottles	Negative	No cultural material encountered. Terminated at disturbed construction fill.
LV025	NA	0-20	10YR 5/4	Yellowish brown	Sandy clay	>20%, cobbles, large rock frags, mottles	Negative	No cultural material encountered. Terminated at disturbed construction fill.
LV026	NA	0-30	10YR 3/1	Very dark gray	Clay	1-5%, gravels, large rock frags	Negative	No cultural material encountered.
		30-40	10YR 4/2	Dark grayish brown	Clay	>20%, cobbles, gravels, pebbles	Negative	No cultural material encountered. Terminated at basal clay.
LV027	41BX2277	0-40	10YR 3/1	Very dark gray	Clay	5-10%, cobbles	Negative	No cultural material encountered. Terminated at compact soil.
LV028	41BX2277	0-40	10YR 3/1	Very dark gray	Clay	5-10%, cobbles	Negative	No cultural material encountered. Terminated at compact soil.
LV029	NA	0-30	10YR 3/1	Very dark gray	Clay	10-20%, cobbles	Negative	No cultural material encountered. Terminated at compact soil.
LV030	NA	0-50	10YR 3/1	Very dark gray	Clay	5-10%, cobbles	Negative	No cultural material encountered. Terminated at compact soil.
LV031	NA	0-40	10YR 3/1	Very dark gray	Clay	1-5%, cobbles	Negative	No cultural material encountered. Terminated at compact soil.
LV032	NA	0-10	10YR 3/2	Very dark grayish brown	Clay loam	>20%, asphalt	Negative	No cultural material encountered. Terminated at encountered paved surface.
LV033	NA	0-45	10YR 3/1	Very dark gray	Clay	5-10%, pebbles	Negative	No cultural material encountered. Terminated at compact soil.
LV034	NA	0-45	10YR 3/1	Very dark gray	Clay	5-10%, pebbles	Negative	No cultural material encountered. Terminated at compact soil.
LV035	NA	-	-	-	-	-	Negative	No dig. In a ditch adjacent to a paved road.
LV036	NA	0-30	10YR 3/2	Very dark grayish brown	Clay loam	>20%, gravels	Negative	No cultural material encountered. Terminated at disturbed construction backfill.

Shovel Test No.	Site	Depth (cmbs)	Munsell Value	Soil Color	Soil Texture	Inclusions	Negative/ Positive	Comments/ Reason for Termination
LV037	NA	0-25	10YR 3/2	Very dark grayish brown	Clay loam	1-5%, roots and decaying vegetation	Negative	No cultural material encountered.
		25-40	10YR 3/1	Very dark gray	Clay	-	Negative	No cultural material encountered. Terminated at compact soil.
LV038	NA	0-10	10YR 3/2	Very dark grayish brown	Clay loam	>20%, gravels, modern litter/trash	Negative	No cultural material encountered. Terminated at disturbed.
LV039	NA	0-30	10YR 3/2	Very dark grayish brown	Clay loam	5-10%, gravels, roots and decaying vegetation	Negative	No cultural material encountered.
		30-45	10YR 3/1	Very dark gray	Clay	-	Negative	No cultural material encountered. Terminated at compact soil.
LV040	41BX2277	-	-	-	-	-	Negative	No Dig. In the middle of a paved road.
LV041	41BX2277	0-40	2.5Y 2/0	Black	Clay	1-5%, cobbles	Negative	No cultural material encountered. Terminated at compact soil.
LV042	41BX2277	0-20	2.5Y 2/0	Black	Clay	1-5%, cobbles	Positive	1: Flake (tertiary) [In a low small drainage with only one artifact recovered 5 cmbs]
		20-40	2.5Y 2/0	Black	Clay	1-5%, cobbles	Negative	No cultural material encountered. Terminated at compact soil.
LV043	41BX2277	-	-	-	-	-	Negative	No dig. In the middle of a paved road.
LV044	41BX2277	0-5	10YR 3/2	Very dark grayish brown	Loam	>20%, gravels	Negative	No cultural material encountered. Terminated at disturbed and compact.
LV045	41BX2277	0-30	2.5Y 2/0	Black	Clay	1-5%, cobbles	Negative	No cultural material encountered. Terminated at compact soil.
LV046	41BX2277	0-30	2.5Y 2/0	Black	Clay	1-5%, cobbles	Negative	No cultural material encountered. Terminated at compact soil.