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H445-200113

Prepared for:

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Austin, Texas

Prepared by:

Horizon Environmental Services, Inc.
Austin, Texas

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MANAGEMENT SUMMARY

Horizon Environmental Services, Inc. (Horizon) was selected by ECS Southwest, LP (ECS) on behalf of a private real estate developer to conduct a cultural resources inventory and assessment of potential US Army Corps of Engineers (USACE) jurisdictional areas within a 14.7-hectare (36.4-acre) proposed development tract in Austin, Travis County, Texas. The tract is located at the southeastern corner of Parmer Lane (a.k.a. Farm-to-Market Road [FM] 734) and East Yager Lane, and an unnamed tributary of Harris Branch flows southeastward across the tract.

The proposed undertaking is located on private property and would be privately funded. However, the developer has proposed impacts to the unnamed tributary of Harris Branch that flows across the tract. This water feature potentially meets the criteria for designation as "waters of the US" (WOTUS). As such, construction activities that would impact this jurisdictional feature would be subject to federal permitting by the USACE, Fort Worth District, under Section 404 of the Clean Water Act (CWA). As this is a federal permit, the proposed construction activities within the USACE jurisdictional areas fall under the jurisdiction of Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended.

The purpose of the cultural resources survey was to determine if any cultural resources are located within the Area of Potential Effect (APE). The Area of Potential Effect (APE) associated with USACE jurisdictional features typically consists of the water feature(s) and the associated uplands on opposing banks. This jurisdiction does not extend for a standardized distance in any direction; however, for purposes of the current cultural resources survey and in an attempt to assess the full extent of areas the USACE could determine to fall within their jurisdiction, Horizon utilized an APE extending approximately 182.9 meters (600.0 feet) from the defined edges of proposed impact areas along the jurisdictional stream and associated wetlands. This archeological survey buffer would incorporate approximately 11.8 hectares (29.2 acres) (roughly 80%) of the 14.7-hectare (36.4-acre) tract. While typical profiles of the depth of ground disturbance are not available, subsurface impacts associated with foundation slab and utility construction likely will extend a maximum of 0.8 meter (2.5 feet) below surface based on typical construction practices. Deeper impacts extending to a depth of 3.0 meters (10.0 feet) or more below surface may be expected within the footprints of four proposed storm water detention ponds that would be constructed adjacent to the creek in the northern portion of the project area.

On May 26 to 27, 2020, Horizon archeologist Colene Knaub conducted an intensive cultural resources survey of the Legacy Austin Tract. The survey was conducted under the overall direction of Jeffrey D. Owens, Principal Investigator. The purpose of the survey was to locate any cultural resources that potentially would be impacted by the proposed undertaking. Horizon's archeologist traversed the archeological survey area on foot and thoroughly inspected the modern ground surface for aboriginal and historic-age cultural resources. The survey area consisted of a mix of open pastures covered in dense, ankle- to shin-high grasses, forbs, weeds, and wildflowers with occasional cedar and hackberry saplings and small shrubs and moderately densely forested areas covered in cedar and hackberry trees. Areas adjacent to the tributary of Harris Branch that flows across the tract were typically covered in large pools of standing water. Several small, overgrown piles of gravel are present within the northwestern portion of the project area. These gravels may have been intended for use in some fencing construction projects that appear to have been underway in the relatively recent past but which appear to have been abandoned. Ground surface visibility was generally poor due to dense grass cover (<30%).

In addition to pedestrian walkover, the Texas State Minimum Archeological Survey Standards (TSMASS) require a minimum of two shovel tests per 0.4 hectare (1.0 acre) for projects measuring 10.1 hectares (25.0 acres) or less in size plus one additional shovel test per 2.0 hectares (5.0 acres) beyond the first 10.1 hectares (25.0 acres). As such, a minimum of 51 shovel tests would be required within the current 11.8-hectare (29.2-acre) archeological survey area. Horizon excavated a total of 54 shovel tests, thereby exceeding the TSMASS for a survey area of this size. Shovel testing revealed dense black, olive, and pale olive clay loam sediments often overlying dark gray to pale olive sandy clay at depths of 20.0 to 35.0 centimeters (7.9 to 13.8 inches) below surface. Calcium carbonate concretions were observed within the clayey subsoil in several shovel tests. It is Horizon's opinion that shovel testing was capable of fully penetrating sediments with the potential to contain prehistoric and historic-age cultural resources.

No cultural resources of historic or prehistoric age were observed on the modern ground surface or within any of the shovel tests excavated during the survey. A wooden animal chute, a pile of demolished wood-plank fencing, and a pile of wooden fenceposts were observed scattered throughout the northwestern portion of the project area. The dimensional lumber observed in these piles was untreated and relatively new, and galvanized wire nails and other hardware were observed on the lumber piles and on the animal chute that had not yet rusted, suggesting that these features had been erected relatively recently and are not of historic age.

Based on the results of the survey-level investigations documented in this report, no potentially significant cultural resources would be affected by the proposed undertaking. In accordance with 36 CFR 800.4, Horizon has made a reasonable and good faith effort to identify historic properties within the APE. No cultural resources were identified that meet the criteria for listing on the National Register of Historic Places (NRHP) according to 36 CFR 60.4. Horizon recommends a finding of "no historic properties affected," and no further work is recommended in connection with the proposed undertaking. However, in the event that any human remains or burial objects are inadvertently discovered at any point during construction, use, or ongoing maintenance in the project area, even in previously surveyed areas, all work should cease immediately and the Texas Historical Commission (THC) should be notified of the discovery.

TABLE OF CONTENTS

LIST OF FIGURES

Page

LIST OF TABLES

Page

1.0 INTRODUCTION

Horizon Environmental Services, Inc. (Horizon) was selected by ECS Southwest, LP (ECS) on behalf of a private real estate developer to conduct a cultural resources inventory and assessment of potential US Army Corps of Engineers (USACE) jurisdictional areas within a 14.7-hectare (36.4-acre) proposed development tract in Austin, Travis County, Texas. The tract is located at the southeastern corner of Parmer Lane (a.k.a. Farm-to-Market Road [FM] 734) and East Yager Lane, and an unnamed tributary of Harris Branch flows southeastward across the tract (Figures 1 to 3).

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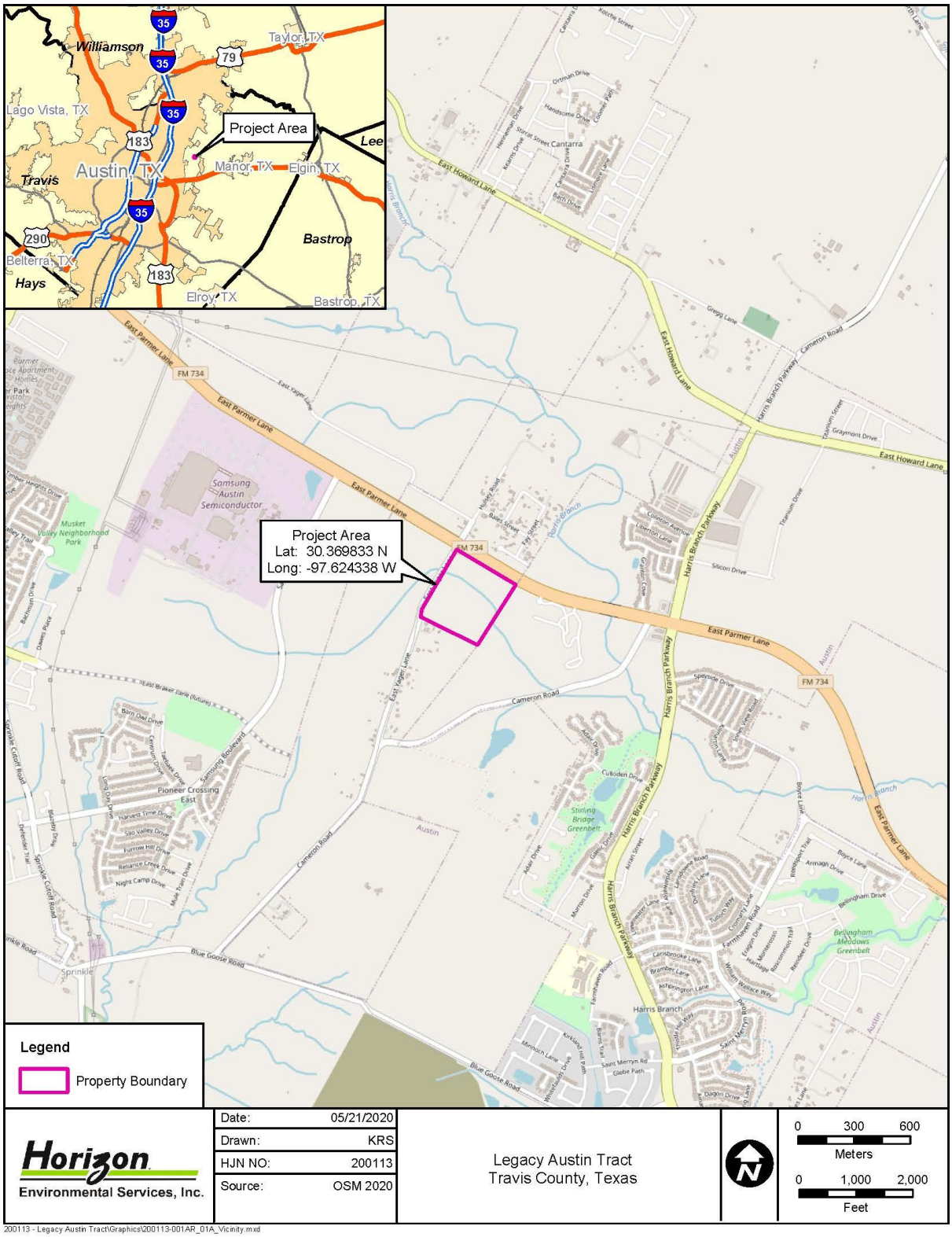

Figure 1. Vicinity Map of Project Area

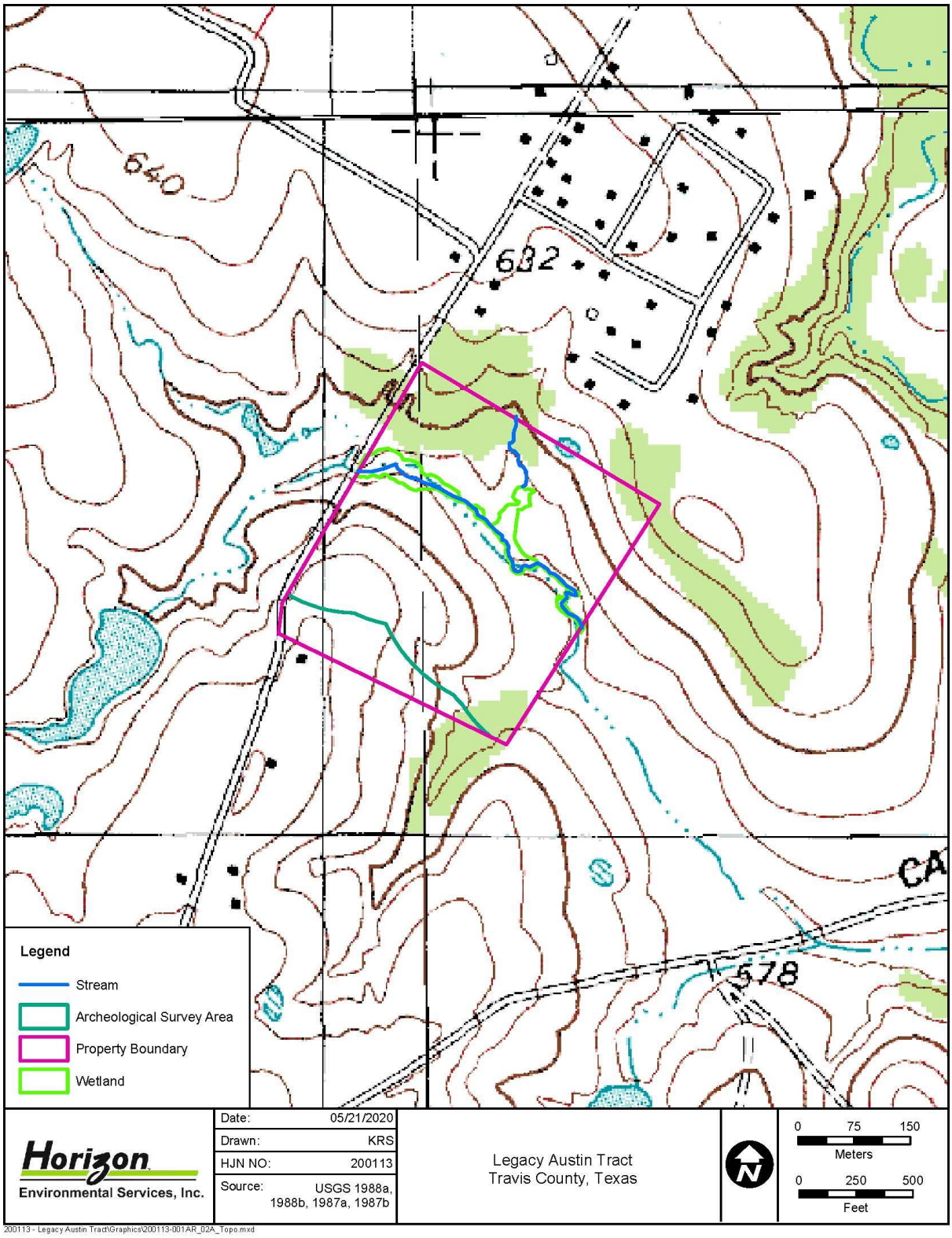

Figure 2. Location of Project Area on USGS Topographic Quadrangle

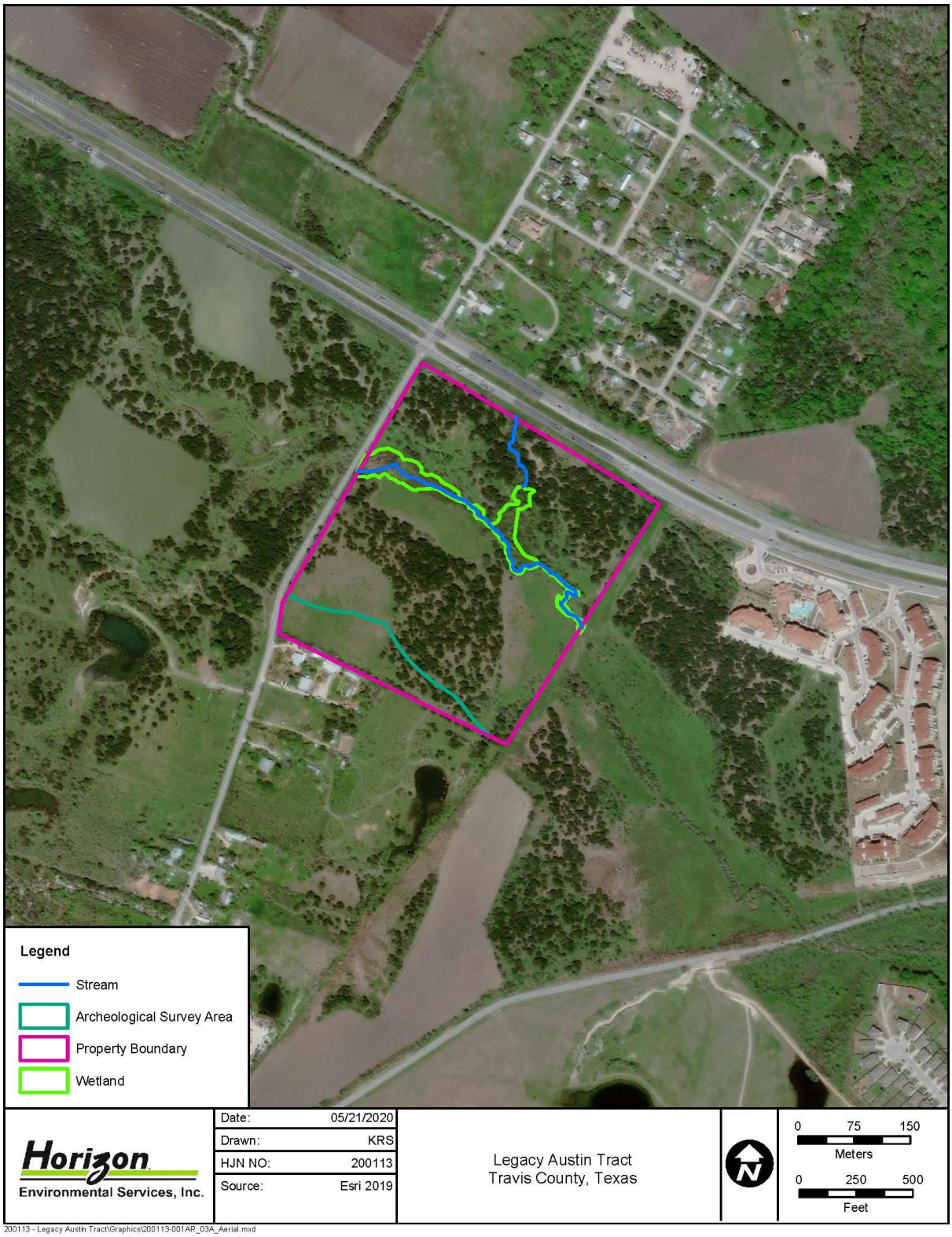

Figure 3. Location of Project Area on Aerial Photograph

On May 26 to 27, 2020, Horizon archeologist Colene Knaub conducted an intensive cultural resources survey of the Legacy Austin Tract. The survey was conducted under the overall direction of Jeffrey D. Owens, Principal Investigator. The purpose of the survey was to locate any cultural resources that potentially would be impacted by the proposed undertaking. The cultural resources investigation consisted of an archival review, an intensive pedestrian survey with shovel testing, and the production of a report suitable for review by the State Historic Preservation Officer (SHPO) in accordance with the Texas Historical Commission's (THC) Rules of Practice and Procedure, Chapter 26, Section 26, and the Council of Texas Archeologists Guidelines for Cultural Resources Management Reports.

Following this introductory chapter, Chapters 2.0 and 3.0 present the environmental and cultural backgrounds, respectively, of the project area. Chapter 4.0 describes the results of background archival research, and Chapter 5.0 discusses cultural resources survey methods. Chapter 6.0 presents the results of the cultural resources survey, and Chapter 7.0 presents cultural resources management recommendations for the project. Chapter 8.0 lists the references cited in the report. Appendix A summarizes shovel test data and Appendix B presents project schematics.

2.0 ENVIRONMENTAL SETTING

2.1 PHYSIOGRAPHY AND HYDROLOGY

The project area is located in northeastern Austin, Travis County, Texas, near the boundary of three significant physiographic provinces—the Blackland Prairie, the Edwards Plateau, and the Gulf Coastal Plain. The Blackland Prairie, within which the project area is situated, is a narrow physiographic zone between the Edwards Plateau to the west and the Gulf Coastal Plain to the east. It is a low, rolling land that extends in a narrow band along the eastern edge of the Balcones fault zone from the Red River Valley in northeastern Texas to the southern edge of the Edwards Plateau. This is an area of low topographic relief and poor drainage in which water often ponds after rainstorms and streams flow at very gentle gradients. The Edwards Plateau and Balcones Escarpment are associated with a great fault system that arcs across Texas to form a distinct boundary between uplands composed primarily of limestone bedrock and lower plains composed mostly of softer rocks. In places, this boundary is marked by an abrupt scarp (the Balcones Escarpment) and in others by a more gradational ramp, but the entire length of this transition zone is a major ecotone in terms of topography, bedrock, hydrology, soil, vegetation, and animal life.

Physiographically, the project area is situated on rolling uplands dissected by a narrowly incised, unnamed tributary of Harris Branch. Elevations within the project area range from approximately 179.8 meters (590.0 feet) above mean sea level (amsl) within the channel of the creek to 192.0 meters (630.0 feet) amsl on the crest of a rolling upland ridge in the southwestern portion of the project area.

Hydrologically, the project area is situated within the Colorado River Basin. The project area is traversed by an unnamed tributary of Harris Branch that flows southeastward across the project area and discharges into Harris Branch proper approximately 0.8 kilometer (0.5 mile) southeast of the project area. Harris Branch flows roughly southeastward and discharges into Gilleland Creek near Manor. Gilleland Creek, in turn, flows southward and discharges into the Colorado River in southeastern Austin. The Colorado River flows southeastward across the Blackland Prairie and the Gulf Coastal Plain, ultimately discharging into the Gulf of Mexico a short distance northeast of Matagorda Bay.

2.2 GEOLOGY AND GEOMORPHOLOGY

The project area is underlain by a thick sequence of Cretaceous-age, sedimentary rock strata. In Travis County, soils formed primarily over sedimentary deposits of Upper Cretaceous age, and soil parent material consists of chalk, marl, limestone, and marly limestone (Fisher 1974). Specifically, the project area is underlain by the Cretaceous-age Navarro and Taylor Groups, Undivided, geological formation (Knt), which consists mostly of silty, calcareous clay with sandstone beds and concretionary masses (USGS 2020). Geomorphologically, the project area is characterized by a mosaic of clayey residuum weathered in situ from underlying chalky bedrock (Table 1; Figure 4) (NRCS 2020). No Holocene-age sediments are mapped within the project area.

2.3 CLIMATE

Evidence for climatic change from the Pleistocene to the present is most often obtained through studies of pollen and faunal sequences (Bryant and Holloway 1985; Collins 1995). Bryant

Table 1. Summary of Mapped Soils within Project Area

NRCS Soil Code	Soil Name	Parent Material	Typical Profile (inches)
AsB	Austin silty clay, 1 to 3% slopes	Residuum weathered from chalk on ridges	0-16: Silty clay (Ap) 16-22: Silty clay (Bw) 22-29: Silty clay (Bk) 29-57: Bedrock (Cr)
FhF3	Ferris-Heiden complex, 8 to 20% slopes, severely eroded	Ferris: Residuum weathered from calcareous shale of the Cretaceous-age Eagleford Shale and Taylor Marl formations on ridges Heiden: Clayey residuum weathered from calcareous shale of the Cretaceous-age Eagleford Shale and Taylor Marl formations on ridges	Ferris: 0-6: Clay 6-36: Clay 36-60: Silty clay Heiden: 0-6: Clay 6-15: Clay 15-50: Clay 50-80: Clay
HeD2	Heiden clay, 5 to 8% slopes	Clayey residuum weathered from mudstone on ridges	0-8: Clay (A1) 8-22: Clay (A2) 22-44: Clay (Bss) 44-80: Clay (CBd)
HnB	Houston Black clay, 1 to 3% slopes	Clayey residuum weathered from calcareous mudstone of Upper Cretaceous age on ridges	0-6: Clay (Ap) 6-70: Clay (Bkss) 70-80: Clay (BCkss)
HnC2	Houston Black clay, 3 to 5% slopes, moderately eroded	Clayey residuum weathered from calcareous mudstone of Upper Cretaceous age on ridges	0-6: Clay (Ap) 6-70: Clay (Bkss) 70-80: Clay (BCkss)

Source: NRCS (2020)

NRCS = Natural Resources Conservation Service

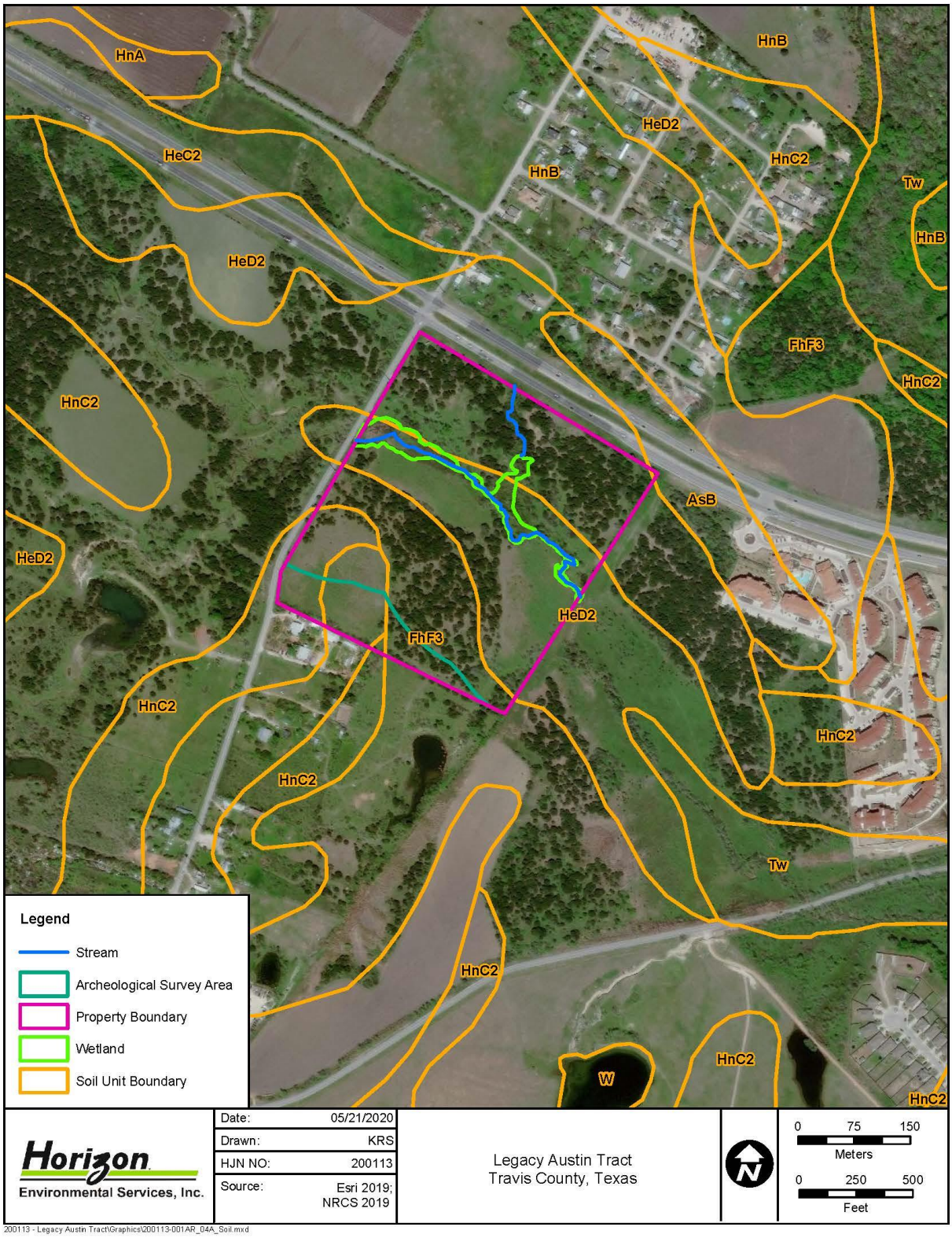

Figure 4. Soils Mapped within Project Area

and Holloway (1985) present a sequence of climatic change for nearby east-central Texas from the Wisconsin Full Glacial period (22,500 to 14,000 B.P.) through the Late Glacial period (14,000 to 10,000 B.P.) to the Post-Glacial period (10,000 B.P. to present). Evidence from the Wisconsin Full Glacial period suggests that the climate in east-central Texas was considerably cooler and more humid than at present. Pollen data indicate that the region was more heavily forested in deciduous woodlands than during later periods (Bryant and Holloway 1985). The Late Glacial period was characterized by slow climatic deterioration and a slow warming and/or drying trend (Collins 1995). In east-central Texas, the deciduous woodlands were gradually replaced by grasslands and post oak savannas (Bryant and Holloway 1985). During the Post-Glacial period, the east-central Texas environment appears to have been more stable. The deciduous forests had long since been replaced by prairies and post oak savannas. The drying and/or warming trend that began in the Late Glacial period continued into the mid-Holocene, at which point there appears to have been a brief amelioration to more mesic conditions lasting from roughly 6000 to 5000 B.P. Recent studies by Bryant and Holloway (1985) indicate that modern environmental conditions in east-central Texas were probably achieved by 1,500 years ago.

Travis County is located within the south-central climatic division. The modern climate is typically dry to subhumid with long, hot summers and short, mild winters. The climate is influenced primarily by tropical maritime air masses from the Gulf of Mexico, but it is modified by polar air masses. Tropical maritime air masses predominate throughout spring, summer, and fall. Modified polar air masses are dominant in winter and provide a continental climate characterized by considerable variations in temperature.

On average throughout the past century, precipitation and temperature in Texas manifest regional clines with mean annual precipitation totals declining fairly regularly from east to west and mean annual temperature declining equally evenly from northwest to southeast (Larkin and Bomar 1983). In Central Texas, climate has fluctuated from subtropical humid to subtropical subhumid. Average annual precipitation totals 81.3 centimeters (32.0 inches) and temperature averages 19°C (67°F) annually, ranging from 36°C (96°F) in August (the warmest month) to 15°C (59°F) in January (the coldest month). During this time, however, drier periods lasting from three to seven years, when total annual rainfall ranged from 30.5 to 63.5 centimeters (12.0 to 25.0 inches), were followed by abnormally wet years with 114.3 to 127.0 centimeters (45.0 to 50.0 inches) of rainfall.

Two annual precipitation peaks, which typically occur in May and September, are associated with frontal storms that form when southward-moving cool air masses collide with warm, moist air masses moving inland from the Gulf of Mexico (Bomar 1983; Carr 1967). The topographic discontinuity along the Balcones Escarpment lies directly in the path of the Gulf storm trace and increases the lift in convective storms to produce extreme amounts of rainfall. Two extreme examples are the excess of 91.4 centimeters (36.0 inches) of rain that fell within an 18-hour period in the vicinity of Thrall, Texas, in September 1921, and the 55.9-centimeters (22.0-inch) deluge that fell in less than three hours near O'Harris, Texas, in May 1935. Lower rainfall amounts are characteristic of winter and late summer. In winter, frontal storms pass so frequently that there is little time for moisture to increase, and prevailing upper-level winds from west to east often dominate over meridional flow, meaning that much of the available moisture is derived from

the Pacific rather than from the Gulf of Mexico. In summer, cool fronts rarely penetrate into the region, and rainfall occurs primarily as localized, thermal convective storms.

2.4 BIOTA

The project area is situated in the southwestern portion of the Texan biotic province (Blair 1950), an intermediate zone between the forests of the Austroriparian and Carolinian provinces and the grasslands of the Kansan, Balconian, and Tamaulipan provinces (Dice 1943). Some species reach the limits of their ecological range within the Texan province. The boundary, characterized as "approximate," between Blair's (1950) Texan and Balconian provinces passes through western Williamson County, northwest of the project area. Rainfall in the Texan province is barely in excess of water need, and the region is classified by Thornwaite (1948) as a C_2 (moist subhumid) climate with a moisture surplus index of from 0 to 20%.

Edaphic controls on vegetation types are important in the Texan biotic province, which is located near the border between moisture surplus and moisture deficiency. Sandy soils support oak-hickory forests dominated by post oak (*Quercus stellata*), blackjack oak (*Q. marilandica*), and hickory (*Carya buckleyi*). Clay soils originally supported a tall-grass prairie, but much of this soil type has been placed under cultivation. Dominant tall-grass prairie species include western wheatgrass (*Agrophyron smithii*), silver beardgrass (*Andropogon saccharoides*), little bluestem (*Andropogon scoparius*), and Texas wintergrass (*Stipa leucotricha*). Major areas of oak-hickory forest include the Eastern and Western Cross Timbers, and major tall-grass prairie areas include the Blackland, Grand, and Coastal prairies. Some characteristic associations of the Austroriparian province occur locally in the Texan province, such as a mixed stand of loblolly pine (*Pinus taeda*) and blackjack and post oak in Bastrop County and a series of peat and bog marshes distributed in a line extending from Leon to Gonzales counties.

The fauna associated with this region are represented by a mixture of species from the Austroriparian, Tamaulipan, Chihuahuan, Kansan, Balconian, and Texan biotic provinces. At least 49 species of mammals occur in the Texan province, including Virginia opossum (*Didelphis virginiana*), eastern mole (*Scalopus aquaticus*), fox squirrel (*Sciurus niger*), desert pocket gopher (*Geomys breviceps*), fulvous harvest mouse (*Reithrodontomys fulvescens*), white-footed mouse (*Peromyscus leucopus*), hispid cotton rat (*Sigmodon hispidus*), eastern cottontail rabbit (*Sylvilagus floridanus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), white-footed mouse (*Peromyscus leucopus*), black-tailed jackrabbit (*Sylvilagus californicus*), ground squirrel (*Citellus tridecemlineatus*), white-tailed deer (*Odocoileus virginiana*), hispid pocket mouse (*Perognathus hispidus*), deer mouse (*Peromyscus maniculatus*), pygmy mouse (*Baiomys taylori*), 9-banded armadillo (*Dasypus novemcinctus*), and jaguar (*Felis onca*).

Both species of *Terrapene* known from the Austroriparian province—eastern box turtle (*T. Carolina*) and desert box turtle (*T. ornata*)—occur in the Texan. Sixteen species of lizards, including seven grassland and nine forest species, are also found, including green anole (*Anolis carolinensis*), eastern fence lizard (*Sceloporus undulates*), common ground skink (*Leiolopisma laterale*), glass snake (*Ophiosaurus ventralis* [grassland species]), collared lizard (*Crotaphytus collaris*), Texas spiny lizard (*Sceloporus olivaceous*), Texas horned lizard (*Phrynosoma cornutum*), and Great Plains skink (*Eumeces obsoletus* [forest species]). Only five species of

urodele fauna are known from this area, including small-mouthed salamander (*Ambystoma texanum*), tiger salamander (*Ambystoma tigrinum*), and eastern lesser siren (*Siren intermedia*), and the Texan province acts as a barrier to urodele distribution between the endemic Balconian province fauna to the west and the Austroriparian fauna to the east.

Anuran fauna is composed primarily of Austroriparian or otherwise widely distributed species, including eastern spadefoot toad (*Scaphiopus holbrookii*), Gulf Coast toad (*Bufo valliceps*), Woodhouse's toad (*Bufo woodhousii*), southern cricket frog (*Acris gryllus*), southern chorus frog (*Pseudacris nigrita*), gray treefrog (*Hyla versicolor*), green treefrog (*Hyla cinerea*), North American bullfrog (*Rana catesbeiana*), northern leopard frog (*Rana pipiens*), and narrow-mouthed toad (*Microhyla carolinensis*). Additional anuran species that fail to cross from the Texan into the Austroriparian province include pacific tree frog (*Pseudacris clarkia*), Strecker's chorus frog (*Pseudacris streckeri*), and striped whipsnake (*Microhyla olivacea*).

Other reptile and amphibian species common to this biotic zone include 6-lined racerunner (*Aspidoscelis sexlineata*), rat snake (*Ptyas mucosus*), eastern hognose snake (*Heterodon platirhinos*), rough green snake (*Opheodrys aestivus*), copperhead (*Agkistrodon contortrix*), western diamondback rattlesnake (*Crotalus atrox*), Blanchard's cricket frog (*Acris crepitans*), diamondback water snake (*Nerodia rhombifer rhombifer*), and Houston toad (*Bufo houstonensis*). Common bird species include northern bobwhite (*Colinus virginianus*), eastern meadowlark (*Sturnella magna*), mourning dove (*Zenaida macroura*), killdeer (*Charadrius vociferus*), field sparrow (*Spizella pusilla*), red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), belted kingfisher (*Ceyrle alcyon*), and mockingbird (*Mimus polyglottos*). Small herds of bison and antelope were common during the late prehistoric and early historic periods, but these species are no longer native to this region (Jurney et al. 1989:13-14).

3.0 CULTURAL BACKGROUND

The project area is located within Prewitt's (1981, 1985) Central Texas Archeological Region. Prewitt (1981, 1985) demarcated the southeastern boundary of the Central Texas Archeological Region at the town of Bastrop in Bastrop County, which borders Travis County on the southeast. The indigenous human inhabitants of Central Texas practiced a generally nomadic hunting and gathering lifestyle throughout all of prehistory, and, in contrast to much of the rest of North America, mobility and settlement patterns do not appear to have changed markedly through time in this region.

3.1 PALEOINDIAN PERIOD (CA. 12,000 TO 8500 B.P.)

The initial human occupations in the New World can now be confidently extended back before 12,000 B.P. (Dincauze 1984; Haynes et al. 1984; Kelly and Todd 1988; Lynch 1990; Meltzer 1989). Evidence from Meadowcroft Rockshelter in Pennsylvania suggests that humans were present in Eastern North America as early as 14,000 to 16,000 years ago (Adovasio et al. 1990), while more recent discoveries at Monte Verde in Chile provide unequivocal evidence for human occupation in South America by at least 12,500 years ago (Dillehay 1989, 1997; Meltzer et al. 1997). Most archeologists have historically discounted claims of much earlier human occupation during the Pleistocene glacial period. However, recent investigations of the Buttermilk Creek Complex in Bell County, Texas, have raised the possibility that a pre-Clovis culture may have been present in North America as early as 15,500 years ago (Waters et al. 2011).

The earliest generalized evidence for human activities in Central Texas is represented by the PaleoIndian period (12,000 to 8500 B.P.) (Collins 1995). This stage coincided with ameliorating climatic conditions following the close of the Pleistocene epoch that witnessed the extinction of herds of mammoth, horse, camel, and bison. Cultures representing various periods within this stage are characterized by series of distinctive, relatively large, often fluted, lanceolate projectile points. These points are frequently associated with spurred end scrapers, gravers, and bone foreshafts. PaleoIndian groups are often inferred to have been organized into egalitarian bands consisting of a few dozen individuals that practiced a fully nomadic subsistence and settlement pattern. Due to poor preservation of floral materials, subsistence patterns in Central Texas are known primarily through the study of faunal remains. Subsistence focused on the exploitation of plants, small animals, fish, and shellfish, even during the PaleoIndian period. There is little evidence in this region for hunting of extinct megafauna, as has been documented elsewhere in North America. Rather, a broad-based subsistence pattern appears to have been

practiced throughout all prehistoric time periods. In Central Texas, the PaleoIndian stage is divided into 2 periods based on recognizable differences in projectile point styles. These include the Early PaleoIndian period, which is recognized based on large, fluted projectile points (i.e., Clovis, Folsom, Dalton, San Patrice, and Big Sandy), and the Late PaleoIndian period, which is characterized by unfluted lanceolate points (i.e., Plainview, Scottsbluff, Meserve, and Angostura).

3.2 ARCHAIC PERIOD (CA. 8500 TO 1200 B.P.)

The onset of the Hypsithermal drying trend marks the beginning of the Archaic period (8500 to 1200 B.P.) (Collins 1995). This climatic trend marked the beginning of a significant reorientation of lifestyle throughout most of North America, but this change was far less pronounced in Central Texas. Elsewhere, the changing climatic conditions and corresponding decrease in the big game populations forced people to rely more heavily upon a diversified resource base composed of smaller game and wild plants. In Central Texas, however, this hunting and gathering pattern is characteristic of most of prehistory. The appearance of a more diversified tool kit, the development of an expanded groundstone assemblage, and a general decrease in the size of projectile points are hallmarks of this cultural stage. Material culture shows greater diversity during this broad cultural period, especially in the application of groundstone technology.

Traditionally, the Archaic period is subdivided into Early, Middle, and Late subperiods. Changes in projectile point morphology are often used as markers differentiating these 3 subperiods, though other changes in material culture occurred as well. Perhaps most markedly, burned rock middens appear during the Middle Archaic subperiod, continuing into the Late Archaic subperiod, and large cemeteries appear during the Late Archaic subperiod. In addition, the increasing density of prehistoric sites through time is often considered to constitute evidence of population growth, though differential preservation probably at least partially accounts for the lower numbers of older sites.

3.3 LATE PREHISTORIC PERIOD (CA. 1200 TO 350 B.P.)

The onset of the Late Prehistoric period (1200 to 350 B.P.) (Collins 1995) is defined by the appearance of the bow and arrow. In Central Texas, pottery also appears during the Late Prehistoric period (though ceramics appear earlier in Southeast Texas). Use of the atlatl (i.e., spearthrower) and spear was generally discontinued during the Late Prehistoric period, though they continued to be used in the inland subregion of Southeast Texas along with the bow and arrow through the Late Prehistoric period (Patterson 1980, 1995; Wheat 1953). In Texas, unifacial arrow points appear to be associated with a small prismatic blade technology. The Late Prehistoric period is generally divided into two phases, the Austin and Toyah phases. Austin phase sites occur earliest to the north, which has led some researchers (e.g., Prewitt 1985) to suggest that the Austin-phase populations of Central Texas were migrants from the north and lack the ceramic industry of the later Toyah phase.

3.4 HISTORIC PERIOD (CA. 350 B.P. TO PRESENT)

The first European incursion into what is now known as Texas was in 1519, when Alonso Álvarez de Pineda explored the northern shores of the Gulf of Mexico. In 1528, Álvar Núñez Cabeza de Vaca crossed South Texas after being shipwrecked along the Texas Coast near Galveston Bay. However, the impact of European settlement did not seriously disrupt native ways of life until after 1700. The first half of the 18th century was the period in which the fur trade and mission system, as well as the first effects of epidemic diseases, began to negatively affect the native culture and social systems. This process is clearly discernable at the Mitchell Ridge site, where burial data suggest population declines and group mergers (Ricklis 1994) as well as increased participation on the part of the Native American population in the fur trade. By the time that heavy settlement of Texas began in the early 1800s by Anglo-Americans, the indigenous Indian population was greatly diminished.

Before the first Spanish explorations of the area, several Native American groups occupied the Edwards Plateau, including the distinct archeological manifestation known as the Toyah Phase and the descendants of the Tonkawa and Jumano (which included sub-groups Cibolo, Gediondo, Machome, and "Those Who Make Bows") (Wade 2003). Post European-contact tribes included the Lipan Apache, Kiowa-Apache, Wichita, and Comanche (Newcomb 1961; Wade 2003). Lesser-known groups and "micro social coalitions" included the Ape, Arame, Bagname, Bobole, Ervipiame, Geniocane, Gueiquesale, Jumee, Mabibit, Manos Priestas, Ocane, Pataguache, Pinanaca, Siano, Teaname, Teroodan, Xaesar, and the Xoman, which all appear in the Spanish records beginning in the mid-18th century (Wade 2003).

In 1691, the first appointed governor of the Spanish province of Texas, Domingo Teran de los Rios, was directed to oversee the Spanish regions of Coahuila, Texas, and New Mexico (Blake 2010). Under the acting orders within the document, entitled *Junta de Hacienda*, prepared by Damian Massanet, Teran was to establish seven missions among the Tejas Caddo Indians as well as investigate a suspected French settlement on the Texas coast (Blake 2010). On May 16, 1691, Teran and his army began their sojourn and departed Monclova, Mexico, for northeastern Texas; they would be the first Europeans to navigate across the area now known as Travis County. As they traversed the central portion of Texas, members of Teran's party named the rivers they crossed as they advanced northeastward (Blake 2010). By 1730, diseases had decimated the local Caddo, who by then had grown weary of the Spaniards. With the advancing French looming on the eastern frontier, the mission system in northeastern Texas was disenfranchised as were the proselytizing efforts directed towards converting the natives to Catholicism. As a result, the Spanish moved three of their missions—San Jose de Los Nazonis, San Francisco de los Neches, and Nuestra Senora de la Purisima Concpecion de los Hainai—closer to the Spanish frontier near Barton Springs in what is now known as Zilker Park in present-day Austin, Texas (Vigness 2010). These missions lasted less than a year, and, in 1731, the Spanish had again moved their missions southward to San Antonio de Bexar and established the San Juan Capistrano mission. The Spanish presence in present-day Travis Country would lay dormant for almost a century.

In 1821, the Spanish government issued Stephen F. Austin's father, Moses Austin, a permit to settle 300 families in central Texas; however, Moses passed away shortly thereafter (Long 2010). Austin followed his father's enterprise and met with the new Mexican commissioner Gaspar Flores de Abrego and was issued colonization titles for rich bottomlands along the Brazos, Colorado, and San Bernard rivers (Long 2010). Each family engaged in farming was to receive 47.3 hectares (117.0 acres) and each ranching family was to receive 1,791.9 hectares (4,428.0 acres) (Long 2010). The majority of the plots were arranged in three groups around San Felipe de Austin, called the "Little Colony," east of the Colorado River and west of the Old San Antonio Road (otherwise known as the historic trail el Camino Real) in present-day Bastrop (Smyrl 2010). A large percentage of Austin's colonists were from the Trans-Appalachian South upper class of literate whites (Louisiana, Alabama, Arkansas, Tennessee, and Missouri) (Long 2010). Many of these colonists were slave owners, and the 443 slaves in the original colony constituted one-fourth of the entire colonial population (Long 2010). This resident slave economy would set the tone for the burgeoning "slave empire in antebellum Texas" (Long 2010). These early settlers included Josiah and Mathias Wilbarger, Reuben Hornsby, Jacob M. Harrell, and John F. Webber (Smyrl 2010). As the Battle of Gonzales erupted in 1835, igniting the Texas Revolution, settlement in the area began to decline, and the besiegement of the Alamo in 1836 prompted the remaining settlers to flee from their homes away from the frontier and front lines of the war with Mexico.

The post-Texas Revolution atmosphere in Central Texas was still hostile for white settlers due to the menace of constant raids by the Comanche Indians. To combat these threats, a series of forts were commissioned in the 1830s that extended from Bastrop northwest to Fort Colorado or Fort Prairie, approximately 8.0 kilometers (5.0 miles) east of present-day Austin (Smyrl 2010). As a part of Stephen F. Austin's second colony, William Barton, along with his wife Stacy Pryor, settled on or near the springs in 1837, which would be named after him (Walsh 2010). Positioned on the northern bank of the Colorado River near the present-day Congress Street Bridge was a split-log stockade and settlement named Waterloo that was erected by Jacob Harrell, who had settled that particular site with his family in 1835 (Hazlewood 2010b). Following a visit from Miraeau B. Lamar in either 1837 or 1838, the site of Waterloo was selected as the capital city of the newly founded Republic of Texas, and General Edward Burleson surveyed the area in 1838 (Hazlewood 2010b). After a five-man commission was appointed in January 1839 to officially designate the site, the name of Waterloo was dropped, and the neophyte Texas Congress chose the name Austin for their new capital (Hazlewood 2010b). The future capital building would be erected on a 3,130.2-hectare (7,735.0-acre) site north of the Colorado River; by August 1839, the first parcels of land were sold to new inhabitants (Hazlewood 2010b). On January 19, 1840, Congress officially changed the name to Austin in honor of Stephen F. Austin. Several days later, Travis County was established in honor of the Alamo martyr, William Barret Travis, in which the city of Austin was designated as the country seat (Smyrl 2010). In February 1840, the reported population of Austin was 856, and the county would see its first election for county officials (Smyrl 2010). Initially, Travis County was appointed an overwhelming 103,599.5 square kilometers (40,000.0 square miles) within its boundaries, however, 11 counties were eventually annexed out of this territory, including Callahan (1858), Coleman (1858), Comal (1846), Gillespie (1848), Hays

(1848), Burnet (1852), Brown (1856), Lampasas (1856), Eastland (1858), Runnels (1858), and Taylor (1858) (Smyrl 2010).

After the second Mexican invasion of Texas in 1842 and during his second term as president of the Republic of Texas, Sam Houston, the hero of the Battle of San Jacinto, hastily called an emergency Texas Congress session (Hazlewood 2010b). In this session, Houston moved the Texas government from Austin, which was on both the front lines of the War with Mexico and the frontier exposed to Native American war parties, to present-day Houston, which he named after himself (Hazlewood 2010b). Afraid that the president had long-term plans with the relocation of the capital to southeastern Texas, the denizens of Austin formed a vigilante committee whose goal it was to protect any attempt to remove the state papers and archives from the town of Austin even if it resulted in bloodshed (Hazlewood 2010a). Houston ordered the Texas Rangers, under the leadership of Colonel Thomas I. Smith and Captain Eli Chandler, to remove the archives but were met with cannon fire and armed resistance from the vigilante Austinites, and the state papers remained in Austin (Hazlewood 2010a). Although the archives remained, President Houston had successfully moved the Texas government to Washington-on-the-Brazos, which included the Congress, high courts, and foreign embassies, from 1842 to 1845 (Christian 2010). In July of 1845, a convention of framers drafted the Constitution of 1845, allowing Texas to be annexed as a state into the US. By October of the same year, the government had returned to Austin, unfortunately this left Washington-on-the-Brazos devoid of any economic and political importance for the rest of the town's history (McKay 2010).

During the late 1840s and early 1850s, the nascent city of Austin and Travis County experienced a wave of formative economic and social growth centered on its newly founded state government and the Greek Revival-style Governor's Mansion completed in 1856. During this time, the construction of grandiose office buildings, hotels, houses, and homesteads, as well as numerous newspapers such as the *Austin Texas Sentinel*, *Austin Daily Texian*, *Weekly Texian*, and *Austin City Gazette*, established the beginning of a burgeoning society that would become Austin (Allen et al. 2010). From 1850 to 1860, the population of Travis County more than doubled from 3,138 (2,336 whites, 791 slaves, and 11 free blacks) to 8,080 (4,931 whites, 3,136 slaves, and 13 free blacks) (Smyrl 2010). The city of Austin had a similar trajectory of growth, from 629 in 1850 to 3,494 in 1860 (Smyrl 2010). During this time, the towns of Pflugerville and Del Valle were settled, and rural post offices were built in smaller communities across the county such as Bluff Springs, Webberville, Merrilltown, Gilleland, Cage's Mill, and Hornsby Bend (Smyrl 2010). An intensification of crop agriculture in Travis County occurred during the 1850s as evidenced by the number of tenable farm acreage that grew from 73,300 acres to 1,363,500 acres; in 1860, 137,700 bushels of corn and 27,900 bushels of wheat were produced as well as 58,000 head of cattle and 11,800 head of sheep (Smyrl 2010).

Most of the earliest schools in Travis County taught informal lessons in homes, churches, or Masonic lodges (Smyrl 2010). In the 1840s, several private centers of education and one-room schoolhouses began to sprout up across the county. Private institutions included the Colorado Female College (1848), Austin Male and Female Academy (1849), Austin Female Academy (1850), and the Austin Collegiate Female Institute (1852) (Smyrl 2010). The educational growth of the county is demonstrated in the following figures: in 1850, the country contained six public

schools for a student population of 183; by 1852, the country contained 19 different common school districts (Smyrl 2010). To meet the needs of the visually and aurally impaired communities, the Texas State Asylum for the Blind in Austin was established in 1856 and the Deaf and Dumb Asylum in 1857 (Smyrl 2010). Several centers for higher education were established in the 1880s, such as The University of Texas (1881), Tillotson Collegiate and Normal Institute (1881), Saint Edward's University (1885), and Samuel Huston College (1890) (Smyrl 2010). Institutions of religious education followed suit with the openings of the Austin Presbyterian Theological Seminary (1902), Texas Wesleyan College Academy (1912), Concordia Lutheran College (1926), and the Episcopal Theological Seminary of the Southwest (1952) (Smyrl 2010). Austin Community College opened its campus doors to students in 1972. The availability and influence of the educational centers in Travis County resulted in a larger percentage of its population growth amid this era when compared to more rural counties. During the 1940s, 20% of Travis Country residents had a high school diploma, and by 1980 over 75% of the population were high school graduates (Smyrl 2010).

The earliest documented churches in Travis Country were the previously mentioned Spanish missions, San Jose de Los Nazonis, San Francisco de los Neches, and Nuestra Senora de la Purisima Concepcion de los Hainai which were moved to the area near present-day Barton Springs in 1730, only to be removed to present-day San Antonio in 1731. After a near century of colonial dormancy, with the early settlers of Travis County came an influx of organized religious institutions, which included Methodists, Presbyterians, Mormons, Catholics, Baptists, Lutherans, and Jews. As early as 1837 or 1838, Methodist circuit riders held services along Gilleland Creek, and Presbyterians established services at a church in Austin in 1839 (Smyrl 2010). Austin saw the emergence of a Baptist Church and a Church of Christ in 1847, its first Jewish synagogue was established in 1876, and a Christian Science congregation was formed in 1889 (Smyrl 2010).

Due to its location along the edge of the frontier, Austin was very much isolated during the 1850s as no railroads or ports were within its immediate vicinity. Goods, resources, and communications were often transported along poorly maintained wagon roads from the nearest commercial hubs of Houston and Port Lavaca to the east and southeast, respectively. In 1852, at the demand of the Texas banking industries, the independent railway line, the Austin Railroad Association, was established to bring a line to the Austin area; however, progress on the line was halted when the Civil War ignited in 1861 (Smyrl 2010). Surprisingly, at the onset of the war, Unionist sentiment was high in Travis Country and citizens voted 704 to 450 against secession from the Union (Smyrl 2010). However, a divide in the community on the issue is evidenced by the fact that several hundred volunteers from Travis Country joined the Confederate cause and were enlisted into various companies such as the Travis Rifles, the Tom Green Rifles, the Capitol Guard, and the Austin City Light Infantry (Smyrl 2010). At the close of the Civil War in 1865, with the arrival of Unionist troops in the county, clashes between the federal soldiers and former Confederate supporters resulted in looting of farms and businesses as well as arrests of as many as 30 citizens per day (Smyrl 2010). Between 1866 and the end of federal military occupation of the Austin area in 1870, around 200 Union troops were employed to regulate the citizens of Travis County. The antebellum period constitutional convention of 1866 occurred in Austin, which agreed to the abolition of slavery, provided certain rights to freedmen, and repudiated all war and civil debt, as did the convention of 1868 to 1869, which sparked great controversy across the

state. In 1867, Austin also saw the removal of Governor James W. Throckmorton, who did not publicly support the 14th Amendment. The Coke-Davis Controversy of 1874 occurred at the state capitol as a result of a gubernatorial election that was defined by fraud and intimidation by both parties.

Throughout the Reconstruction period following the Civil War, Travis County suffered economic destitution and experienced an almost 50% loss in property tax receipts between the years of 1864 and 1866 (Smyrl 2010). Farm and livestock values plummeted between 25 and 40%, and the 14th Amendment abolishing slavery hit slave owners hard. By 1880, Travis County had begun to recover from the post-war economic slump—the population had grown from 13,153 in 1870 to 27,028 in 1870, and farms had increased from 1,256 in 1870 to 1,912 in 1880 (Smyrl 2010). During the 1880s, the intensification of crops such as corn, cotton, wheat, and oats made up nearly half of all improved farmland in the county, and livestock, such as cattle and sheep, made up the rest.

The year 1871 saw the completion of the Houston and Texas Central Railway, and in 1876 the International and Great Northern Railway was finished, initially linking Rockdale and Austin, and then in 1881 linking to Laredo on the Mexican border (Smyrl 2010). Likewise, in 1882, Austin and Burnet were joined with track from the smaller independent line, the Austin and Northwestern Railroad. In 1904, the Missouri, Kansas, and Texas Line arrived at Travis County, benefiting the communities these rail lines ran through, including Austin, Pflugerville, Manor, Oak Hill, and Manchaca (Smyrl 2010).

The African-American population increased by 60% in the year following the Civil War, whereas the white population only grew by 12%, and in 1870 the entire African-American population numbered 4,647 and comprised 35% of the entire population of Travis County; this would be largest percentage of black citizens in the history in the county (Smyrl 2010). Also, during this time, the racially segregated communities of Clarksville, Kincheoville, Masontown, and Wheatville were established by former slaves (Smyrl 2010). During the mid-20th century, Travis County would host up to 42 rural segregated schools for black children, though many were without phones or funding. These African-American citizens founded numerous churches, newspapers, grocery stores, and funeral homes to meet the needs of their marginalized societies. As the population of Travis County grew, so did the African-American population, which steadily increased to 13,299 in 1900 and rose to 22,493 in 1950, 32,270 in 1970, and 63,173 in 1990. However, despite these numbers, the percentage of black residents in relation to the overall population declined due to the rapid increase and booming of other ethnic groups' population numbers (Smyrl 2010). These ethnic groups included a variety of immigrants, including Germans, Swedish, and Mexicans. Due to the civil unrest of the Mexican Revolution from 1910 to 1920, many Mexican citizens and exiles crossed the US border into Texas either legally or illegally seeking refuge from the social and economic disorganization at the time, bringing an influx of religious and cultural influences. By 1930, the Travis County census documented 10,225 people of Hispanic descent, which comprised 13% of the county's total population (Smyrl 2010).

By 1890, 14,575 of the total 36,322 residents of Travis County lived in Austin, which by then was shaping up to be a modern city (Smyrl 2010). Like many other major cities at the time, the burgeoning cities' innovations included a water generated electricity and a trolley system,

albeit racially segregated, as well as hundreds of businesses to suit the needs of a demanding capitalist society. By 1900, the population of Austin had reached 22,000 citizens; however, the majority still lived in isolated farming communities and hamlet where agriculture was the dominant subsistence economy. Cotton, in particular, led the agribusiness staples as the choice crop and remained so for more than 60 years, until it was replaced by maize and animal husbandry (Smyrl 2010).

The increase of improved farmland went from a reported 65,000 acres as documented in the 1890 census to 113,300 acres in the 1900 census, or 30% to 56% of all tenable and improved farmland use (Smyrl 2010). By the late 1920s, the profitability of the cotton industry had begun a slump. Unfortunately, due to the impacts of intense and unwise farming techniques at the time, soil degradation, and the introduction of the boll weevil beetle, production decreased in 1930, and out of 143,000 acres of tenable land, only 19,000 bales of cotton were produced (Smyrl 2010). By the later 1950s cotton fell below its 1890 production and by 1980, cotton was an extremely marginalized crop, constituting only 8% of the total cropland harvested in Travis County (Smyrl 2010). To alleviate the throes of the agricultural depression, crop diversification was encouraged as well as a shift away from cotton to an adoption of animal husbandry, as many farmers took to alternate crops such as maize and wheat, as well as livestock such as sheep and goat. For instance, records indicate that head of cattle in the county almost doubled from 1920 to 1950 (32,000 to 51,000), and sheep wool production went from 23,600 pounds in 1920 to 127,800 pounds by 1959 (Smyrl 2010). Mohair, a fabric made of the silky hair of the angora goat that is typically mixed with sheep wool, became an agricultural staple of the economy in Travis County by 1959 when goats produced 183,600 pounds of mohair (Smyrl 2010). Overall half of the improved land by the late 1960s was focused on coastal and alfalfa hay and an important exotic crop, sorghum, a cheaper alternative to sugar, as well as a fodder for animal food and an ingredient to alcoholic fermentation (Smyrl 2010). Over the course of 40 years, farm tenancy had gained momentum and hit its stride in 1930 where farm tenants worked “2/3 of the 3,642 farms”; however, by the onset of the 1930s the total number of farms fell to 1,000 (Smyrl 2010). This tendency is a resultant from a variety of factors including a monopolization of farms by larger corporations to the implications of the economic setbacks caused by the Great Depression, droughts, as well as a large shift away from cotton and other staple crops occurred.

As rural communities and other cities around Austin were impacted firsthand by an immediate economic deterioration caused by the stock market crash of 1929, the subsequent Great Depression did not affect the state capitol until the early mid-1930s. This was likely due to the fact that Austin did not have as many manufacturing jobs like other major cities, such as Houston or Dallas, at the time (Hughes 1999). Regardless, unemployment and hardship were commonplace, leading to the introduction of the Federal Emergency Relief Act and the Texas Rehabilitation and Relief Commission, both passed in 1933. Direct work relief was doled out to the unemployed through President Franklin D. Roosevelt’s New Deal programs, such as the Civilian Conservation Corps (CCC), Works Progress Administration (WPA), National Youth Administration (NYA), and Public Works Administration (PWA). The CCC employed more than 50,000 Texans and emphasized natural resources, archeology, forest and soil conservation, and the construction of recreational parks, including 31 state parks in Texas alone (Procter 2010). In the city of Austin, employment was maintained through the WPA, and the Lower Colorado River

Authority (LCRA), the City of Austin, and AISD borrowed millions of dollars from the WPA and PWA for the construction of various structures and edifices that are still used today (Hughes 1999). These include the City Hall of Austin, multiple fire stations and a city-wide fire alarm system, municipal water treatment and sewage facilities, road and bridge improvements, and the construction of a new library and tower on The University of Texas campus (Hughes 1999). Additionally, the CCC worked on the land donated by Andrew Zilker, which would become Zilker Park, as well as on improvements around Barton Springs (Hughes 1999). The WPA lent $178 million in funds to the state of Texas by 1939, and federal funds were channeled into construction projects improving the Robert/Mueller Municipal Airport, sidewalks on Sixth Street, and a bathhouse at the Deep Eddy swimming pool. Also launched at the time was an initiative to compile of oral histories, entitled Texas Slave Narratives, in which participants interviewed and recorded surviving ex-slaves (Hughes 1999). Another major construction project during the 1930s and 1940s was the erection of a series of dams on the Colorado River within Travis County that formed Lake Austin, Lake Travis, Lake Buchanan, Lake Lyndon B. Johnson, Inks Lake, and Lake Marble Falls (Smyrl 2010). The Austin Dam was completed in 1893 but collapsed during a flood in 1900, and four more floods would devastate the city until 1924 (McCune 2000). In response to the need for a flood relief system and to generate hydroelectric power, the LCRA began construction of the Marshall Ford Dam in 1937, with the final stages of completion occurring in May 1942 (McCune 2000).

In the 1950s, Travis County was known as one of the forefronts for the civil rights movement. Four years before, the US Supreme Court ruled segregation in schools unconstitutional in the benchmark case *Brown v. Board of Education of Topeka*, the Supreme Court ruled in favor in the *Sweatt v. Painter* case, and The University of Texas at Austin was the first southern university to admit African-Americans as undergraduates. However, it was not until 1962 that The University of Texas would admit any African-American graduate or Ph.D. students or integrate all of its facilities (Smyrl 2010). It would take a year after *Brown v. Board* in 1955 for all public schools in Travis County to integrate their students. The stigmatized Mexican-Americans also suffered the effects of racism with the underground “Juan Crow” laws and their exclusion from certain businesses, jobs, and opportunities such as holding political offices in Texas. However, in the late 1960s and early 1970s, the tides of social justice turned in favor of integrating non-whites in the public sphere. In 1966, civil rights leader Barbara Jordan was the first African-American woman to be elected to the Texas Senate after Reconstruction and, later, the first southern African-American woman to become elected into the US House of Representatives. In 1968, Wilhelmina Delco was the first African-American to be elected to public office in Austin, holding a position on the board of trustees for the Austin Independent School Board. In 1971, Berl Handcox was the first African-American on the Austin city council; Handcox was known for his environmental advocacy toward regulating water and wastewater facilities. In 1970, the first Mexican-American to be elected to public office in Austin, Richard Moya, became the County Commissioner, and in 1974 Gonzalo Barrientos was elected to the Texas House of Representatives.

In addition to an economy based almost solely on state government, universities, and rural agriculture, Travis Country saw the emergence and establishment of the high-tech industry in the early 1950s with the formation of Texas Instruments Company in 1951 and Tracor, Inc. in 1955.

Both businesses paved the way for companies of that ilk to choose Austin as their base of operations. In 1967, computer conglomerate International Business Machines (IBM) opened an Austin branch, and in 1974 Motorola developed an Austin campus to fabricate semiconductors, unofficially establishing the state capitol as a high-tech hub. In the 1980s, the technical prowess of Austin was strengthened by the addition of major computer-based corporations Microelectronics and Computer Technology Corporation in 1983, Dell Computers in 1984, and Sematech in 1988. The jobs provided by these high-tech companies added to the urban population of Austin, which by 1980 was 345,890.

At the turn of the century in 1900, most of the citizens in Travis County lived near or around the city of Austin. During the 1970s and 1980s, residential subdivisions around Lake Travis were made available, which enabled a trend of moving to the outskirts of the Austin city limits. At the same time, Austin was experiencing a record-breaking annualized growth rate that peaked between 1983 and 1986. By 1990, Lago Vista, Jonestown, Briarcliff, Lakeway, and Pflugerville all became alternates to living in the city of Austin. Concerns of degrading and unbalancing the natural environment around Lake Travis from residential growth were prevalent, as were concerns of depleting the groundwater districts upon which Travis and Hays counties were dependent. To address these concerns, the Texas Legislature enacted the Edwards Aquifer Authority, a regulatory agency that oversees the groundwater. Grassroots advocacy groups such as the Texas Conservation Alliance, The Nature Conservancy, and the Hill Country Conservancy all focus on balancing the effects of progress and mitigating negative effects on the diverse natural ecosystems Texas has to offer. In 1987, after the Stock Market crashed, Travis County, like the rest of Texas, suffered a major economic downturn. However, the conversion of the Bergstrom Air Force Base into the Austin-Bergstrom International Airport in the early 1990s added to the growth and prosperity to the region. By 1990, the population of Travis County had reached 576,407, expanded to 812,280 in 2000, and by 2010, the county would be home to 1,030,539 residents.

From the end of the Reconstruction period to the present day, Travis County has been predominately a liberally voting county in presidential election. With exceptions in 1896, 1928, 1952, 1956, 1972, 1984, and 2000, every other election since 1880 has preferred Democratic or Green Party presidential candidate. Only 27.1% of the county voted Republican in the last (2018) election. In the previous four years, (2015-2018), there have been Democratic and liberal campaign contributions totaling $27,350,270. Furthermore, Travis County residents are staunchly Democrats in state and local elections, placing value on individual freedom, equal rights, equal opportunity, mutual responsibility, good stewardship, economic security, and justice. Today, the Austin city council is composed of 10 members representing 10 districts, including seven women, one African-American, and three Hispanics. Boards and commissions include a Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) Quality of Life Advisory Commission, Zero Waster Advisory Commission, Commission for Women, Commission on Veterans Affairs, Hispanic/Latino Quality of Life Resource Advisory Commission, Human Rights Commission, Music Commission, and a Low-Income Consumer Advisory Task Force.

4.0 ARCHIVAL RESEARCH

Prior to initiating fieldwork, Horizon personnel reviewed the THC's online *Texas Archeological Sites Atlas* (TASA) and *Texas Historic Sites Atlas* (THSA), the National Park Service's (NPS) online *National Register Information System* (NRIS), and the Texas State Historical Association's (TSHA) *The Handbook of Texas Online* for information on previously recorded archeological sites and previous archeological investigations conducted within a 1.6-kilometer (1.0-mile) radius of the archeological survey area. Based on this archival research, 13 previously recorded archeological sites and one cemetery are located within a 1.6-kilometer (1.0-mile) radius of the project area (Figure 5; Table 2) (THC 2020). All of the known cultural resources are located well beyond the boundaries of the current project area and would not be disturbed as a result of the proposed undertaking. No previously documented cultural resources, including any historic properties listed on or considered eligible for listing on the National Register of Historic Places (NRHP) or for designation as State Antiquities Landmarks (SALs) are located within the project area.

Examination of historical US Geological Survey (USGS) topographic maps dating from 1956 to the present and aerial photographs dating from 1952 to the present indicate that no standing structures of historic age have been present within the project area since at least the mid-20th century. The project area has been used primarily for agricultural purposes, and portions of the project area were covered in cultivated fields from the mid-20th century until the late 1990s, at which time it appears the land was left fallow and has become increasingly densely overgrown.

While aboriginal cultural resources are commonly encountered in deep alluvial sediments adjacent to major streams in Central Texas, the relative antiquity of the pre-Holocene-age uplands and soils that characterize the project area suggests that any cultural resources would be constrained to the modern ground surface or in shallowly buried, disturbed contexts that lack integrity. Intact, buried aboriginal archeological deposits may occur within alluvial sediments near major streams, though no Holocene-age alluvial sediments are mapped within the project area. Historic-age cultural resources may be encountered in virtually any physiographic setting but are most common in urban settings and in rural environments suitable for agriculture. The absence of historic-age structures on historical imagery suggests that the project area has low potential to contain historic-age architectural or archeological resources.

SENSITIVE ARCHEOLOGICAL SITE LOCATION DATA OMITTED

Figure 5. Locations of Known Cultural Resources within 1.0 Mile of Project Area

Table 2. Summary of Known Cultural Resources within 1.0 Mile of Project Area

Site No./Name	Site Type	NRHP/SAL Eligibility Status[1]	Distance/Direction from Project Area	Potential to be Impacted by Project?
Archeological Sites				
41TV88	Aboriginal cemetery (Late Prehistoric)	Undetermined	0.5 mile north-northeast	No
41TV89	Aboriginal lithic scatter (possibly Archaic)	Undetermined	0.6 mile north-northeast	No
41TV1325	Historic-age homesite (late 19th to early 20th centuries)	Undetermined	0.8 mile north	No
41TV1326	Historic-age homesite (late 19th to early 20th centuries)	Undetermined	0.7 mile north	No
41TV1327	Historic-age domestic debris scatter (19th century); Aboriginal lithic scatter (undetermined prehistoric)	Undetermined	0.5 mile north-northeast	No
41TV1737	Historic-age homesite (early 20th century)	Determined ineligible	0.6 mile north	No
41TV1738	Aboriginal campsite (undetermined prehistoric)	Determined ineligible	0.6 mile north	No
41TV1409	Historic-age homesite (late 19th to early 20th centuries)	Undetermined	0.3 mile east	No
41TV1410	Historic-age homesite (late 19th to early 20th centuries)	Undetermined	0.9 mile southeast	No
41TV1418	Historic-age farmstead (late 19th to late 20th centuries)	Undetermined	0.4 mile east	No
41TV1419	Historic-age domestic debris scatter (late 19th to mid-20th centuries)	Undetermined	0.9 mile northeast	No
41TV1420	Historic-age homesite (late 19th to early 20th centuries)	Undetermined	0.7 mile southeast	No
41TV1421	Historic-age homesite (late 19th century)	Undetermined	0.5 mile east	No
Cemeteries				
Boyce Family Cemetery (TV-C202)	Cemetery	Historic Texas Cemetery		No

[1] *Determined eligible/ineligible* = Site determined eligible/ineligible by SHPO
Recommended eligible/eligible = Site recommended as eligible/ineligible by site recorder and/or sponsoring agency but eligibility has not been determined by SHPO
Undetermined = Eligibility not assessed or no information available

NRHP National Register of Historic Places

SAL State Antiquities Landmark

SHPO State Historic Preservation Office

5.0 SURVEY METHODOLOGY

On May 26 to 27, 2020, Horizon archeologist Colene Knaub conducted an intensive cultural resources survey of the Legacy Austin Tract. The survey was conducted under the overall direction of Jeffrey D. Owens, Principal Investigator. The purpose of the survey was to locate any cultural resources that potentially would be impacted by the proposed undertaking. Horizon's archeologist traversed the archeological survey area on foot and thoroughly inspected the modern ground surface for aboriginal and historic-age cultural resources. The survey area consisted of a mix of open pastures covered in dense, ankle- to shin-high grasses, forbs, weeds, and wildflowers with occasional cedar and hackberry saplings and small shrubs and moderately densely forested areas covered in cedar and hackberry trees. Areas adjacent to the tributary of Harris Branch that flows across the tract were typically covered in large pools of standing water. Several small, overgrown piles of gravel are present within the northwestern portion of the project area. These gravels may have been intended for use in some fencing construction projects that appear to have been underway in the relatively recent past but which appear to have been abandoned. Ground surface visibility was generally poor due to dense grass cover (<30%). Representative photographs of the project area at the time of the survey are presented in Figures 6 to 13.

In addition to pedestrian walkover, the Texas State Minimum Archeological Survey Standards (TSMASS) require a minimum of two shovel tests per 0.4 hectare (1.0 acre) for projects measuring 10.1 hectares (25.0 acres) or less in size plus one additional shovel test per 2.0 hectares (5.0 acres) beyond the first 10.1 hectares (25.0 acres). As such, a minimum of 51 shovel tests would be required within the current 11.8-hectare (29.2-acre) archeological survey area. Horizon excavated a total of 54 shovel tests, thereby exceeding the TSMASS for a survey area of this size (Figure 14). In general, shovel tests measured approximately 11.8 inches (30.0 centimeters) in diameter, and all sediments were screened through 0.25-inch (6.35-millimeter) hardware cloth. The Universal Transverse Mercator (UTM) coordinates of all shovel tests were determined using Collector for ArcGIS data collection software based on the North American Datum of 1983 (NAD 83). Shovel testing revealed dense black, olive, and pale olive clay loam sediments often overlying dark gray to pale olive sandy clay at depths of 20.0 to 35.0 centimeters (7.9 to 13.8 inches) below surface. Calcium carbonate concretions were observed within the clayey subsoil in several shovel tests. It is Horizon's opinion that shovel testing was capable of fully penetrating sediments with the potential to contain prehistoric and historic-age cultural resources.

Figure 6. Typical View of Northern Portion of Project Area (Facing East)

Figure 7. Typical View of Southern Portion of Project Area (Facing West)

Figure 8. Harris Branch Tributary in Eastern Portion of Project Area (Facing South)

Figure 9. Harris Branch Tributary in Central Portion of Project Area (Facing Northwest)

Figure 10. Harris Branch Tributary in Western Portion of Project Area (Facing East)

Figure 11. View of Unnamed Tributary in Northern Portion of Project Area (Facing South)

Figure 12. View of Wetlands Adjacent to Harris Branch Tributary (Facing South)

Figure 13. Typical View of Gravel Pile within Project Area (Facing North)

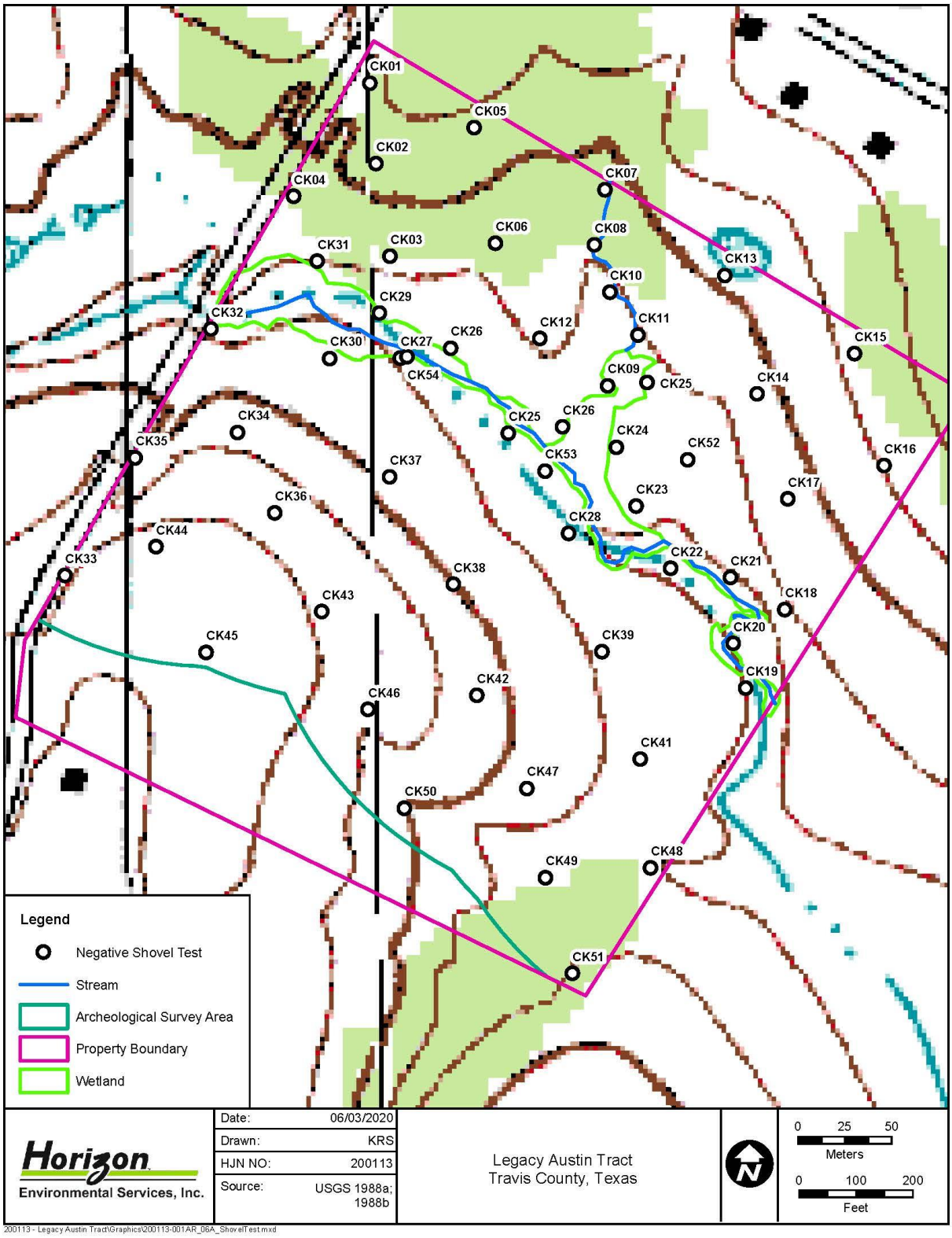

Figure 14. Location of Shovel Tests Excavated within Project Area

During the survey, field notes were maintained on terrain, vegetation, soils, landforms, survey methods, and shovel test results. Digital photographs were taken, and a photographic log was maintained. Horizon employed a non-collection policy for cultural resources. Diagnostic artifacts (e.g., projectile points, ceramics, historic materials with maker's marks) and non-diagnostic artifacts (e.g., lithic debitage, burned rock, historic glass, and metal scrap) were to be described, sketched, and/or photo-documented in the field and replaced in the same location in which they were found. As no cultural resources of historic or prehistoric age were observed during the survey, the collection policy was not enacted.

The survey methods employed during the survey represented a "reasonable and good-faith effort" to locate significant archeological sites within the project area as defined in 36 CFR 800.3.

6.0 RESULTS OF INVESTIGATIONS

On May 26 to 27, 2020, Horizon archeologist Colene Knaub conducted an intensive cultural resources survey of the Legacy Austin Tract. The survey was conducted under the overall direction of Jeffrey D. Owens, Principal Investigator. The purpose of the survey was to locate any cultural resources that potentially would be impacted by the proposed undertaking. Horizon's archeologist traversed the archeological survey area on foot and thoroughly inspected the modern ground surface for aboriginal and historic-age cultural resources. The survey area consisted of a mix of open pastures covered in dense, ankle- to shin-high grasses, forbs, weeds, and wildflowers with occasional cedar and hackberry saplings and small shrubs and moderately densely forested areas covered in cedar and hackberry trees. Areas adjacent to the tributary of Harris Branch that flows across the tract were typically covered in large pools of standing water. Several small, overgrown piles of gravel are present within the northwestern portion of the project area. These gravels may have been intended for use in some fencing construction projects that appear to have been underway in the relatively recent past but which appear to have been abandoned. Ground surface visibility was generally poor due to dense grass cover (<30%).

In addition to pedestrian walkover, the TSMASS require a minimum of two shovel tests per 0.4 hectare (1.0 acre) for projects measuring 10.1 hectares (25.0 acres) or less in size plus one additional shovel test per 2.0 hectares (5.0 acres) beyond the first 10.1 hectares (25.0 acres). As such, a minimum of 51 shovel tests would be required within the current 11.8-hectare (29.2-acre) archeological survey area. Horizon excavated a total of 54 shovel tests, thereby exceeding the TSMASS for a survey area of this size. Shovel testing revealed dense black, olive, and pale olive clay loam sediments often overlying dark gray to pale olive sandy clay at depths of 20.0 to 35.0 centimeters (7.9 to 13.8 inches) below surface. Calcium carbonate concretions were observed within the clayey subsoil in several shovel tests. It is Horizon's opinion that shovel testing was capable of fully penetrating sediments with the potential to contain prehistoric and historic-age cultural resources.

No cultural resources of historic or prehistoric age were observed on the modern ground surface or within any of the shovel tests excavated during the survey. A wooden animal chute, a pile of demolished wood-plank fencing, and a pile of wooden fenceposts were observed scattered throughout the northwestern portion of the project area (Figures 15 to 17). The dimensional lumber observed in these piles was untreated and relatively new, and galvanized wire nails and other hardware were observed on the lumber piles and on the animal chute that had not yet rusted, suggesting that these features are relatively recently and are not of historic age.

Figure 15. Modern Cattle Chute Observed within Project Area (Facing South)

Figure 16. Debris Pile Containing Modern Wooden Fencing (Facing Northwest)

Figure 17. Debris Pile Containing Modern Wooden Fenceposts (Facing Northwest)

7.0 SUMMARY AND RECOMMENDATIONS

7.1 CONCEPTUAL FRAMEWORK

The archeological investigations documented in this report were undertaken with three primary management goals in mind:

- Locate all historic and prehistoric archeological resources that occur within the designated survey area.
- Evaluate the significance of these resources regarding their potential for inclusion in the NRHP.
- Formulate recommendations for the treatment of these resources based on their NRHP evaluations.

At the survey level of investigation, the principal research objective is to inventory the cultural resources within the project area and to make preliminary determinations of whether or not the resources meet one or more of the pre-defined eligibility criteria set forth in the state and/or federal codes, as appropriate. Usually, management decisions regarding archeological properties are a function of the potential importance of the sites in addressing defined research needs, though historic-age sites may also be evaluated in terms of their association with important historic events and/or personages. Under the NHPA, archeological resources are evaluated according to criteria established to determine the significance of archeological resources for inclusion in the NRHP.

Analyses of the limited data obtained at the survey level are rarely sufficient to contribute in a meaningful manner to defined research issues. The objective is rather to determine which archeological sites could be most profitably investigated further in pursuance of regional, methodological, or theoretical research questions. Therefore, adequate information on site function, context, and chronological placement from archeological and, if appropriate, historical perspectives is essential for archeological evaluations. Because research questions vary as a function of geography and temporal period, determination of the site context and chronological placement of cultural properties is a particularly important objective during the inventory process.

7.2 ELIGIBILITY CRITERIA FOR INCLUSION IN THE NATIONAL REGISTER OF HISTORIC PLACES

Determinations of eligibility for inclusion in the NRHP are based on the criteria presented in 36 CFR §60.4(a-d). The four criteria of eligibility are applied following the identification of relevant historical themes and related research questions:

> The quality of significance in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> a. [T]hat are associated with events that have made a significant contribution to the broad patterns of our history; or,
>
> b. [T]hat are associated with the lives of persons significant in our past; or,
>
> c. [T]hat embody the distinctive characteristics of a type, period, or method of construction, or that represent a significant and distinguishable entity whose components may lack individual distinction; or,
>
> d. [T]hat have yielded, or may be likely to yield, information important in prehistory or history.

The first step in the evaluation process is to define the significance of the property by identifying the particular aspect of history or prehistory to be addressed and the reasons why information on that topic is important. The second step is to define the kinds of evidence or the data requirements that the property must exhibit to provide significant information. These data requirements in turn indicate the kind of integrity that the site must possess to be significant. This concept of integrity relates both to the contextual integrity of such entities as structures, districts, or archeological deposits and to the applicability of the potential database to pertinent research questions. Without such integrity, the significance of a resource is very limited.

For an archeological resource to be eligible for inclusion in the NRHP, it must meet legal standards of eligibility that are determined by three requirements: (1) properties must possess significance, (2) the significance must satisfy at least one of the four criteria for eligibility listed above, and (3) significance should be derived from an understanding of historic context. As discussed here, historic context refers to the organization of information concerning prehistory and history according to various periods of development in various times and at various places. Thus, the significance of a property can best be understood through knowledge of historic development and the relationship of the resource to other, similar properties within a particular period of development. Most prehistoric sites are usually only eligible for inclusion in the NRHP under Criterion D, which considers their potential to contribute data important to an understanding of prehistory. All four criteria employed for determining NRHP eligibility potentially can be brought to bear for historic sites.

7.3 SUMMARY OF INVENTORY RESULTS

On May 26 to 27, 2020, Horizon archeologist Colene Knaub conducted an intensive cultural resources survey of the Legacy Austin Tract. The survey was conducted under the overall

direction of Jeffrey D. Owens, Principal Investigator. The purpose of the survey was to locate any cultural resources that potentially would be impacted by the proposed undertaking. Horizon's archeologist traversed the archeological survey area on foot and thoroughly inspected the modern ground surface for aboriginal and historic-age cultural resources. The survey area consisted of a mix of open pastures covered in dense, ankle- to shin-high grasses, forbs, weeds, and wildflowers with occasional cedar and hackberry saplings and small shrubs and moderately densely forested areas covered in cedar and hackberry trees. Areas adjacent to the tributary of Harris Branch that flows across the tract were typically covered in large pools of standing water. Several small, overgrown piles of gravel are present within the northwestern portion of the project area. These gravels may have been intended for use in some fencing construction projects that appear to have been underway in the relatively recent past but which appear to have been abandoned. Ground surface visibility was generally poor due to dense grass cover (<30%).

In addition to pedestrian walkover, the TSMASS require a minimum of two shovel tests per 0.4 hectare (1.0 acre) for projects measuring 10.1 hectares (25.0 acres) or less in size plus one additional shovel test per 2.0 hectares (5.0 acres) beyond the first 10.1 hectares (25.0 acres). As such, a minimum of 51 shovel tests would be required within the current 11.8-hectare (29.2-acre) archeological survey area. Horizon excavated a total of 54 shovel tests, thereby exceeding the TSMASS for a survey area of this size. Shovel testing revealed dense black, olive, and pale olive clay loam sediments often overlying dark gray to pale olive sandy clay at depths of 20.0 to 35.0 centimeters (7.9 to 13.8 inches) below surface. Calcium carbonate concretions were observed within the clayey subsoil in several shovel tests. It is Horizon's opinion that shovel testing was capable of fully penetrating sediments with the potential to contain prehistoric and historic-age cultural resources.

No cultural resources of historic or prehistoric age were observed on the modern ground surface or within any of the shovel tests excavated during the survey. A wooden animal chute, a pile of demolished wood-plank fencing, and a pile of wooden fenceposts were observed scattered throughout the northwestern portion of the project area. The dimensional lumber observed in these piles was untreated and relatively new, and galvanized wire nails and other hardware were observed on the lumber piles and on the animal chute that had not yet rusted, suggesting that these features had been erected relatively recently and are not of historic age.

7.4 MANAGEMENT RECOMMENDATIONS

Based on the results of the survey-level investigations documented in this report, no potentially significant cultural resources would be affected by the proposed undertaking. In accordance with 36 CFR 800.4, Horizon has made a reasonable and good faith effort to identify historic properties within the APE. No cultural resources were identified that meet the criteria for listing on the NRHP according to 36 CFR 60.4. Horizon recommends a finding of "no historic properties affected," and no further work is recommended in connection with the proposed undertaking. However, in the event that any human remains or burial objects are inadvertently discovered at any point during construction, use, or ongoing maintenance in the project area, even in previously surveyed areas, all work should cease immediately and the THC should be notified of the discovery.

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APPENDIX A:

Shovel Test Data

Table A-1. Shovel Test Summary Data

ST No.	UTM Coordinates[1]		Depth (cmbs)	Soils	Artifacts
	Easting	Northing			
CK01	632099	3360811	0-20	Olive sandy clay loam	None
			20-30+	Pale olive clay loam	None
CK02	632103	3360767	0-25	Olive sandy clay loam	None
			25-35+	Pale olive clay loam	None
CK03	632110	3360718	0-20	Olive sandy clay loam	None
			20-25+	Pale olive clay loam	None
CK04	632059	3360750	0-20	Olive sandy clay loam	None
			20-30+	Pale olive clay loam	None
CK05	632155	3360787	0-15+	Olive sandy clay loam	None
CK06	632167	3360725	0-20+	Olive sandy clay loam	None
CK07	632225	3360753	0-20	Olive sandy clay loam	None
			20-30+	Pale olive clay loam	None
CK08	632220	3360724	0-35	Olive sandy clay loam	None
			35-45+	Pale olive clay loam	None
CK09	632227	3360648	0-30	Olive sandy clay loam	None
			30-40+	Pale olive clay loam	None
CK10	632228	3360698	0-15	Reddish-brown clay loam	None
			15-25+	Pale olive clay loam	None
CK11	632243	3360676	0-20	Black sandy clay	None
			20-30+	Very dark gray sandy clay	None
CK12	632191	3360674	0-27	Black sandy clay	None
			27-40+	Very dark gray sandy clay	None
CK13	632290	3360708	0-25	Olive clay loam	None
			25-35+	Pale olive clay loam	None
CK14	632307	3360645	0-20	Olive clay loam	None
			20-30+	Pale olive clay loam	None
CK15	632360	3360666	0-20	Olive clay loam	None
			20-30+	Pale olive clay loam	None
CK16	632375	3360606	0-30	Olive clay loam	None
			30-40+	Pale olive clay loam	None
CK17	632324	3360588	0-15	Olive clay loam	None
			15-25+	Pale olive clay loam	None
CK18	632322	3360529	0-20	Black sandy clay	None

Table A-1. Shovel Test Summary Data (cont.)

ST No.	UTM Coordinates[1]		Depth (cmbs)	Soils	Artifacts
	Easting	Northing			
			20-40+	Very dark gray sandy clay	None
CK19	632301	3360487	0-25	Black sandy clay	None
			25-35+	Very dark gray sandy clay	None
CK20	632301	3360487	0-15+	Black clay	None
CK21	632295	3360511	0-10+	Black clay	None
CK22	632293	3360546	0-5+	Black clay	None
CK23	632261	3360551	0-25	Black sandy clay	None
	632243	3360584	25-35+	Very dark gray sandy clay	None
CK24	632232	3360616	0-25	Black sandy clay	None
			25-40+	Very dark gray sandy clay	None
CK25	632248	3360651	0-25	Black sandy clay	None
			25-35+	Very dark gray sandy clay	None
CK26	632203	3360627	0-20	Olive clay loam	None
			20-30+	Pale olive clay loam	None
CK27	632174	3360623	0-10+	Olive clay	None
CK28	632143	3360669	0-25	Black sandy clay	None
			25-35+	Very dark gray sandy clay	None
CK29	632105	3360688	0-40	Olive sandy clay	None
			40-50+	Pale olive clay	None
CK30	632078	3360663	0-35	Olive sandy clay	None
			35-45+	Pale olive clay	None
CK31	632072	3360716	0-20	Black sandy clay	None
			20-30+	Very dark gray sandy clay	None
CK32	632015	3360679	0-25	Black sandy clay	None
			25-35+	Very dark gray sandy clay	None
CK33	631937	3360547	0-40	Black sandy clay	None
			40-50+	Very dark gray sandy clay	None
CK34	632029	3360624	0-20	Black sandy clay	None
			20-30+	Very dark gray sandy clay	None
CK35	631974	3360610	0-25	Black sandy clay	None
			25-35+	Very dark gray sandy clay	None
CK36	632049	3360581	0-25	Black clay loam	None
			25-40+	Very dark gray clay loam	None

Table A-1. Shovel Test Summary Data (cont.)

ST No.	UTM Coordinates[1]		Depth (cmbs)	Soils	Artifacts
	Easting	Northing			
CK37	632111	3360600	0-30	Black clay loam	None
			30-40+	Very dark gray clay loam with $CaCO_3$ concretions	None
CK38	632145	3360543	0-10	Black clay loam	None
			10-30+	Very dark gray clay loam	None
CK39	632224	3360506	0-40	Black clay loam	None
			40-50+	Very dark gray clay loam	None
CK40	632260	3360487	0-10	Black clay loam	None
			10-30+	Very dark gray clay loam	None
CK41	632245	3360449	0-25	Black clay loam	None
			25-35+	Very dark gray clay loam with $CaCO_3$ concretions	None
CK42	632157	3360483	0-30	Black clay loam	None
			30-40+	Very dark gray clay loam	None
CK43	632074	3360528	0-30	Black clay loam	None
			30-40+	Very dark gray clay loam	None
CK44	631985	3360563	0-10+	Olive clay loam	None
CK45	632012	3360506	0-10+	Olive clay loam	None
CK46	632099	3360475	0-35	Olive clay loam	None
			35-45+	Pale olive clay loam with $CaCO_3$ concretions	None
CK47	632184	3360433	0-5+	Olive clay loam	None
CK48	632250	3360391	0-10+	Olive clay loam	None
CK49	632194	3360385	0-5+	Olive clay loam	None
CK50	632118	3360423	0-10+	Olive clay loam	None
CK51	632208	3360334	0-25	Olive clay loam	None
			25-35+	Pale olive clay loam	None
CK52	632270	3360609	0-30	Olive clay loam	None
			30-40+	Pale olive clay loam	None
CK53	632194	3360603	0-15	Black clay loam	None
			15-25+	Very dark gray clay loam	None
CK54	632120	3360665	0-10	Black clay loam	None
			10-20+	Very dark gray clay loam	None

[1] All UTM coordinates are located in Zone 14 and utilize the North American Datum of 1983 (NAD 83).

$CaCO_3$ = Calcium carbonate

cmbs = Centimeters below surface
ST = Shovel test
UTM = Universal Transverse Mercator

APPENDIX B:

Project Development Schematics