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Intensive Cultural Resources Survey for the Vail Divide Southern Extension Storm Water Detention Pond Project, Bee Cave, Travis County, Texas

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Intensive Cultural Resources Survey for the Vail Divide Southern Extension Storm Water Detention Pond Project, Bee Cave, Travis County, Texas

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Intensive Cultural Resources Survey for the Vail Divide Southern Extension Storm Water Detention Pond Project, Bee Cave, Travis County, Texas

By:

Jeffrey D. Owens and Jesse O. Dalton



Texas Antiquities Permit No. 9492
H154-200093

Prepared for:



Lake Travis ISD
Austin, Texas

Prepared by:



Horizon Environmental Services, Inc.
Austin, Texas

July 2020

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Vail Divide Southern Extension
Storm Water Detention Pond Project,
Bee Cave, Travis County, Texas**

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Texas Antiquities Permit No. 9492

July 2020

MANAGEMENT SUMMARY

Horizon Environmental Services, Inc. (Horizon) was selected by Malone/Wheeler, Inc. on behalf of the Lake Travis Independent School District (LTISD) to conduct an intensive cultural resources inventory and assessment for the proposed construction of an approximately 0.4-hectare (1.0-acre) storm water detention pond. The proposed storm water detention pond would be located off the northwestern side of Hamilton Pool Road (a.k.a. Farm-to-Market Road [FM] 3238) near its intersection with the future right-of-way (ROW) of Vail Divide in western Bee Cave, Travis County, Texas. For purposes of the cultural resources survey, the project area is considered to consist of the entire 0.4-hectare (1.0-acre) storm water detention pond footprint. The proposed undertaking is being sponsored by LTISD, a political subdivision of the state of Texas; as such, the project falls under the jurisdiction of the Antiquities Code of Texas. At this time, no federal permits, funding, or licenses have been identified for the project. As the project represents a publicly sponsored undertaking with the potential to impact potentially significant cultural resources, the project sponsor was required to perform a cultural resources inventory and assessment of the project area.

On June 24, 2020, Horizon archeological technician Jacob Lyons, under the overall direction of Jeffrey D. Owens, Principal Investigator, performed an intensive cultural resources survey of the project area to locate any cultural resources that potentially would be impacted by the proposed undertaking. The survey was conducted under Texas Antiquities Permit No. 9492. Horizon's archeologist traversed the 0.4-hectare (1.0-acre) project area and thoroughly inspected the modern ground surface for aboriginal and historic-age cultural resources. The project area is situated on a limestone upland overlooking an unnamed tributary of Hickson Hollow. The project area has been heavily disturbed from prior construction, use, and maintenance of a gravel parking lot, a circular animal pen, several cinder block walls, and a well associated with a business (Bee Cave Acupuncture) that was formerly housed in a residential-style structure just northwest of the project area. Vegetation consisted of live oak, Ashe juniper, acacia, Roosevelt weed, prickly pear cactus, planted ornamental bamboo, and medium-high grasses. Visibility of the modern ground surface ranged from poor to good (30 to 60%) depending on the density of vegetative ground cover. Limestone gravels associated with a former parking lot that occupied most of the project area from the early 2000s until 2010, when the nearby structure that housed the Bee Cave Acupuncture business was abandoned, cover much of the project area. Exposures of limestone bedrock and gravels are present on the modern ground surface in the eastern corner of the project area, which was less disturbed by construction associated with the acupuncture business.

In addition to pedestrian walkover, the Texas State Minimum Archeological Survey Standards (TSMASS) call for excavation of 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) above 10.1 hectares (25.0 acres). As such, a minimum of two shovel tests would be required within the current 0.4-hectare (1.0-acre) project area. Horizon excavated a total of seven shovel tests during the survey, thereby exceeding the TSMASS requirements for a project area of this size. The pedestrian survey and shovel testing revealed heavily disturbed sediments containing abundant gravels from the former parking lot. Native sediments underlying the parking lot gravels and in less disturbed portions of the project area consist of shallow deposits of gravelly dark brown to pale yellowish-brown marly clay loam overlying either pale gray marly sandy clay or limestone bedrock at depths ranging from 5.0 to 35.0 centimeters (1.9 to 13.8 inches) below surface. It is Horizon's opinion that shovel testing was capable of fully penetrating sediments with the potential to contain archeological deposits.

No cultural resources of prehistoric or historic age were observed on the modern ground surface or within any of the shovel tests excavated within the project area. Prior to the mid-1990s, the project area was characterized by an undeveloped, lightly wooded scrubland setting. Between 1995 and 2002, a large house was constructed just outside the northwestern corner of the project area. It is unknown if this house initially served as a residence, but by the early 2000s the structure was utilized as a commercial storefront for Bee Cave Acupuncture. At that time, the project area itself was devegetated and graded, and a circular cattle pen, various linear cinder block wall features, a water pump and network of polyvinyl chloride water pipes, and gravel driveways were added. In addition, a stock pond was created to the east of the project area in the eastern corner of the overall parcel. Between 2003 and 2005, the gravel driveways were expanded into a large gravel parking lot that covered most of the project area. The Bee Cave Acupuncture business moved to its current location on Bee Cave Parkway just north of the intersection of State Highway (SH) 71 in 2010, and the original structure has remained unoccupied ever since. All of the cultural features observed within the project area are modern.

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 project area. No cultural resources were identified that meet the criteria for listing on the NRHP according to 36 CFR 60.4 or for designation as SALs according to 13 TAC 26. Horizon recommends a finding of "no historic properties affected," and no further archeological work is recommended in connection with the proposed undertaking. However, human burials, both prehistoric and historic, are protected under the Texas Health and Safety Code. 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 in the vicinity of the inadvertent discovery, and the Texas Historical Commission (THC) should be notified immediately. Following completion of the project, project records will be prepared for permanent curation at the Texas Archeological Research Laboratory (TARL).

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1.0 INTRODUCTION

Horizon Environmental Services, Inc. (Horizon) was selected by Malone/Wheeler, Inc. on behalf of the Lake Travis Independent School District (LTISD) to conduct an intensive cultural resources inventory and assessment for the proposed construction of an approximately 0.4-hectare (1.0-acre) storm water detention pond. The proposed storm water detention pond would be located off the northwestern side of Hamilton Pool Road (a.k.a. Farm-to-Market Road [FM] 3238) near its intersection with the future right-of-way (ROW) of Vail Divide in western Bee Cave, Travis County, Texas. For purposes of the cultural resources survey, the project area is considered to consist of the entire 0.4-hectare (1.0-acre) storm water detention pond footprint (Figures 1 to 3).

The proposed undertaking is being sponsored by LTISD, a political subdivision of the state of Texas; as such, the project falls under the jurisdiction of the Antiquities Code of Texas. At this time, no federal permits, funding, or licenses have been identified for the project. As the project represents a publicly sponsored undertaking with the potential to impact potentially significant cultural resources, the project sponsor was required to perform a cultural resources inventory and assessment of the project area.

On June 24, 2020, Horizon archeological technician Jacob Lyons, under the overall direction of Jeffrey D. Owens, Principal Investigator, performed an intensive cultural resources survey of the project area to locate any cultural resources that potentially would be impacted by the proposed undertaking. The survey was conducted under Texas Antiquities Permit No. 9492. The cultural resources investigation consisted of an archival review, an intensive pedestrian survey of the project area, 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 (CTA) 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.

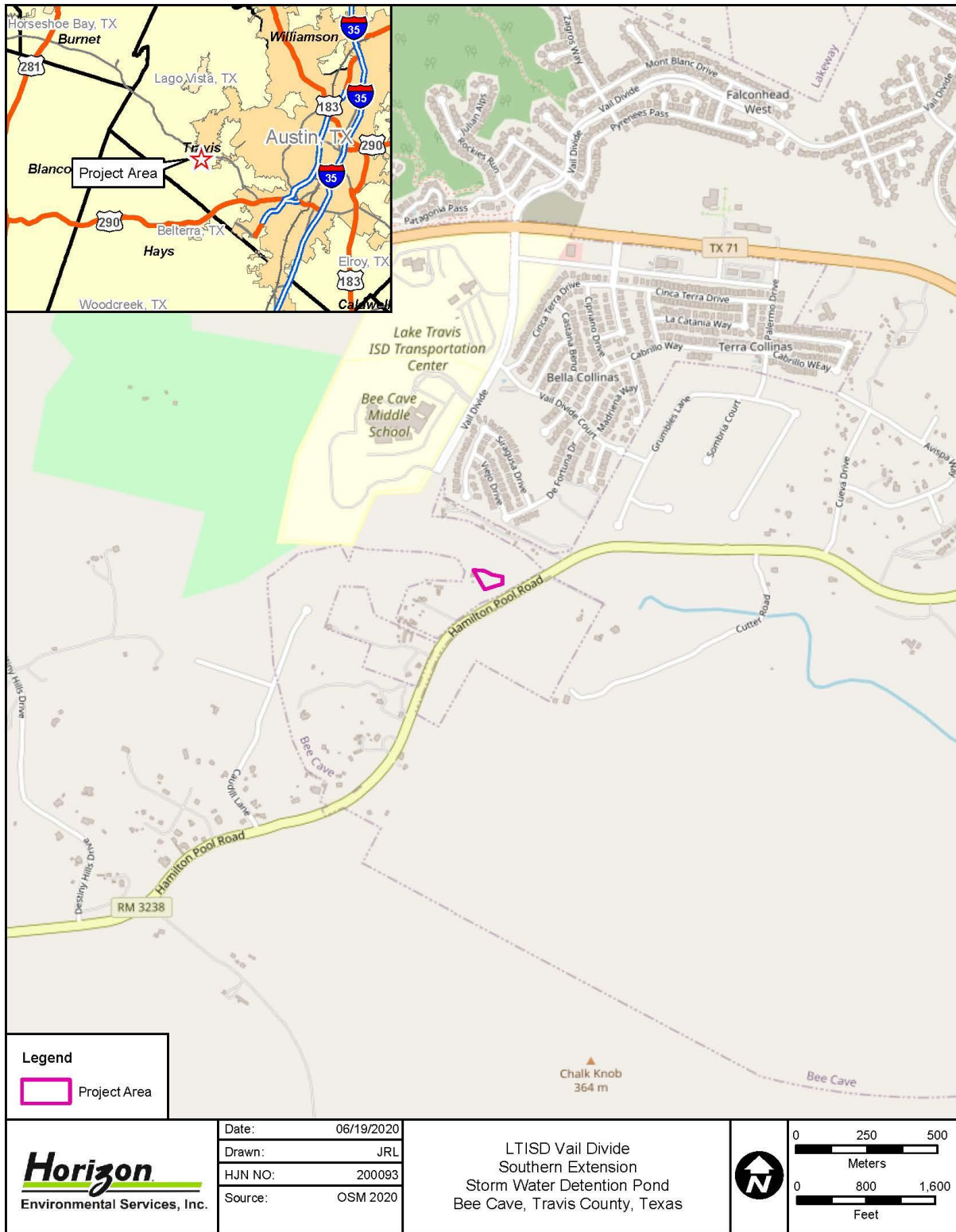
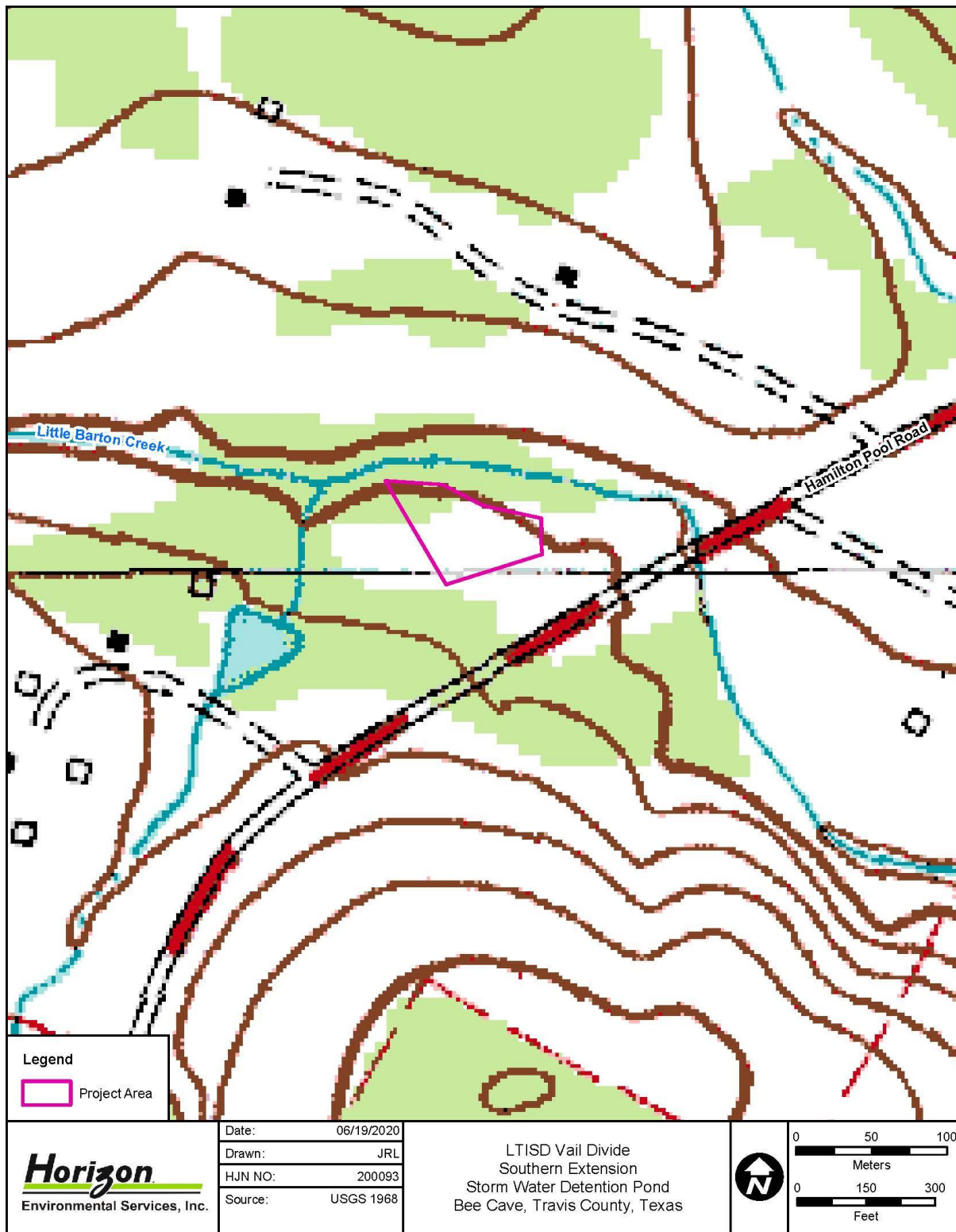


Figure 1. Vicinity Map of Project Area



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Figure 2. Location of Project Area on USGS Topographic Quadrangle



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Figure 3. Location of Project Area on Aerial Photograph

2.0 ENVIRONMENTAL SETTING

2.1 PHYSIOGRAPHY AND HYDROLOGY

The project area is located in southwestern Travis County in Central Texas near the boundary of two significant physiographic provinces—the Edwards Plateau and the Blackland Prairie. The Blackland Prairie, the narrow physiographic zone situated between the Edwards Plateau to the west and the Gulf Coastal Plain to the east, 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. The project area is situated in the Balcones Canyonlands on a limestone upland that slopes down to the north toward an unnamed tributary of Hickson Hollow. Elevations within the project area range from 304.8 to 306.3 meters (1,000.0 to 1,005.0 feet) amsl.

Hydrologically, the project area is situated within the Colorado River basin. The project area is located in an upland setting adjacent to an unnamed tributary of Hickson Hollow, which flows eastward just beyond the northern project area boundary and discharges into Hickson Hollow a short distance east of the project area. Hickson Hollow flows a short distance eastward and combines with Spillman Hollow to form Little Barton Creek. Little Barton Creek flows generally eastward, discharging into Barton Creek proper east of Bee Cave. Barton Creek flows generally eastward to its confluence with the Colorado River in southwestern Austin. The Colorado River, in turn, 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.

2.1.1 Geology and Geomorphology

The project area is underlain by a thick sequence of Cretaceous-age, sedimentary rock strata. Major geologic units that crop out in the vicinity of the project area include the Edwards

Limestone Formation, Glen Rose Formation (upper and lower parts), Pecan Gap Chalk, and Austin Chalk. Specifically, the project area is underlain by the Glen Rose Formation (Kgr[u]), which consists of thick deposits of limestone, dolomite, and marl (USGS 2020).

The project area is characterized by a single soil unit—Volente silty clay loam, 1 to 8% slopes (VoD) (Table 1; Figure 4) (NRCS 2020). This soil unit is composed of mixed calcareous clayey colluvium and/or alluvium derived from limestone bedrock. The soils that compose the upland settings within the project area consist of thin veneers of gravelly sediment overlying clayey subsoils and limestone bedrock. No alluvial sediments of Holocene age are mapped within the project area.

2.1.2 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 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

Table 1. Summary of Mapped Soils within Project Area

NRCS Soil Code	Soil Name	Parent Material	Typical Profile (inches)
VoD	Volente silty clay loam, 1 to 8% slopes	Calcareous clayey colluvium and/or alluvium derived from limestone on ridges	0-22: Silty clay loam (A) 22-36: Silty clay (BA) 36-46: Silty clay (Bw) 46-59: Clay loam (Ck)

Source: NRCS (2020)

NRCS = Natural Resources Conservation Service

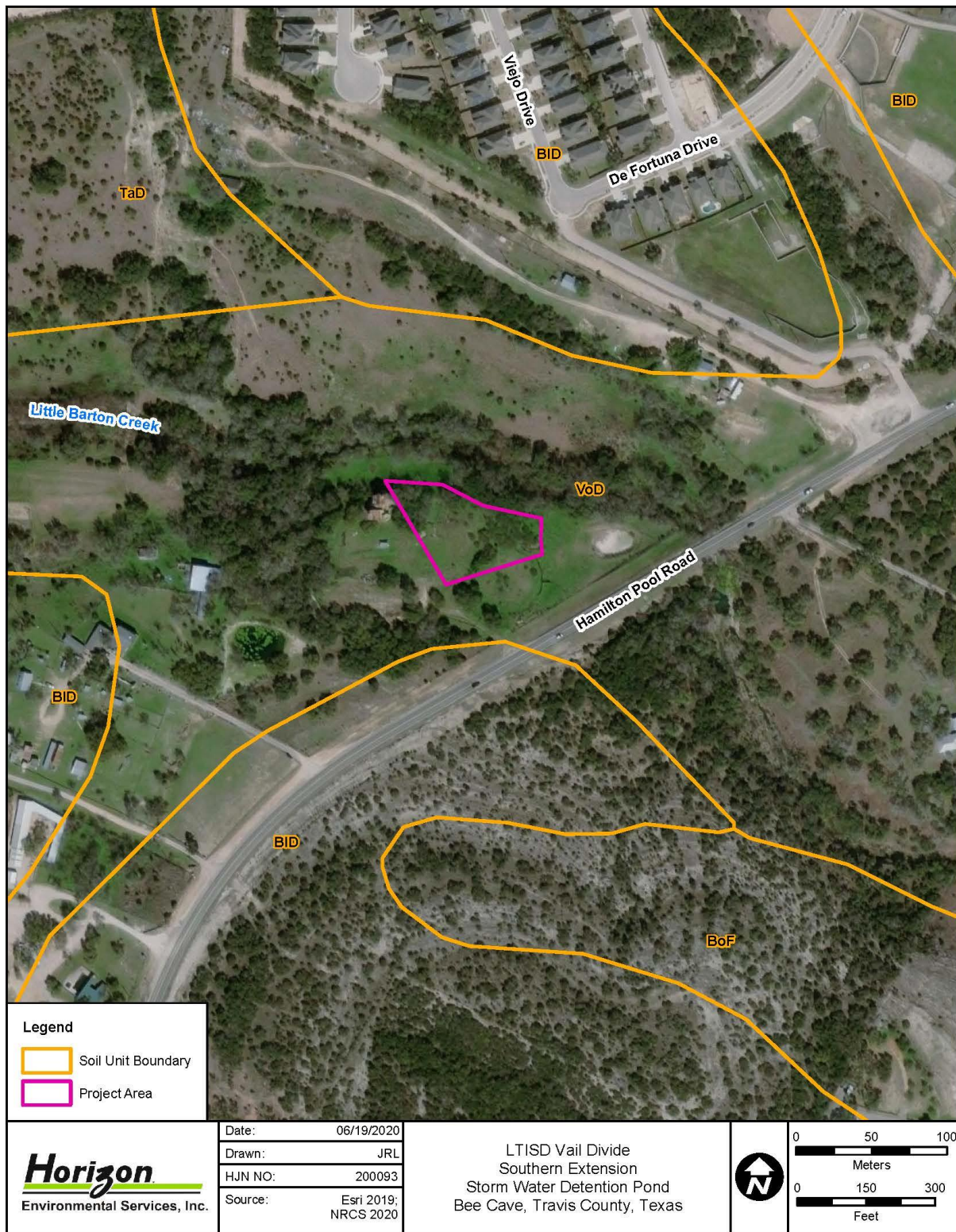


Figure 4. Soils Mapped within Project Area

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°Celsius (°C) (67°Fahrenheit [°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-cm (22.0-inches) 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.

2.1.3 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 C₂ (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 (*Agropyron 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, as well as 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*), ground squirrel (*Citellus tridecemlineatus*), white-tailed deer (*Odocoileus virginiana*), hispid pocket mouse (*Perognathus hispidus*), deer mouse (*Peromyscus maniculatus*), black-tailed jackrabbit (*Lepus californicus*), 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 province. 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).

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 (*Leiopisma laterale*), and glass snake (*Ophiosaurus ventralis* [grassland species]), as well as 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 six-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*).

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 his 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, graters, 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 two 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, Ervipame, Geniocane, Gueiquesale, Jume, 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 Concepcion 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 Burlinson 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, Merriltown, 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 County 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 County 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 County 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 County 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 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, eight previously recorded archeological sites are located within a 1.6-kilometer (1.0-mile) radius of the project area (Table 2; Figure 5) (THC 2020). The previously recorded archeological sites consist of aboriginal campsites and lithic scatters dating primarily to undetermined prehistoric timeframes, though two sites have temporally diagnostic artifacts dating from the Early Archaic to Late Prehistoric periods. No previously recorded historic-age sites are located within the archival review area. 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. No previous cultural resources surveys have been conducted within the project area, though numerous prior surveys have been conducted in the immediately surrounding area.

Examination of historical US Geological Survey (USGS) topographic maps dating from 1956 to the present and aerial photographs dating from 1932 to the present indicate that no structures of potentially historic age have been present within the project area since at least the mid-20th century (NETR 2020). Between 1995 and 2002, a large house was constructed just outside the northwestern corner of the project area. It is unknown if this house initially served as a residence, but by the early 2000s the structure was utilized as a commercial storefront for Bee Cave Acupuncture. At that time, the project area was devegetated and graded, and a circular cattle pan, various linear wall features, a well pump and array of polyvinyl chloride (PVC) water pipes, and a network of gravel driveways were added. In addition, a stock pond was created to the east of the project area in the eastern corner of the overall parcel off of FM 3238. Between 2003 and 2005, the gravel driveways were expanded into a large gravel parking lot that covered most of the project area. The Bee Cave Acupuncture business moved to its current location on Bee Cave Parkway just north of the intersection of State Highway (SH) 71 in 2010, and the original structure near the project area has remained unoccupied ever since. A telephone call to Bee

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?
<i>Archeological Sites</i>				
41TV189	Aboriginal lithic scatter (undetermined prehistoric)	Undetermined	0.6 mile west	No
41TV268	Aboriginal lithic scatter (undetermined prehistoric)	Determined ineligible within investigated area	0.3 mile east	No
41TV271	Aboriginal burned rock midden and lithic scatter (undetermined prehistoric)	Determined ineligible within investigated area	1.0 mile southwest	No
41TV560	Aboriginal lithic scatter (Archaic to Late Prehistoric)	Undetermined	1.0 mile east-southeast	No
41TV2328	Aboriginal lithic scatter (Early to Late Archaic)	Determined ineligible	0.5 mile northwest	No
41TV2329	Aboriginal lithic scatter (undetermined prehistoric)	Determined ineligible	0.7 mile north	No
41TV2413	Aboriginal lithic scatter (undetermined prehistoric)	Determined ineligible within investigated area	0.9 mile east	No
41TV2537	Aboriginal lithic scatter (undetermined prehistoric)	Determined ineligible within investigated area	0.4 mile north	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

Cave Acupuncture confirmed that the house adjacent to the project area was their original business location.

In Central Texas, aboriginal cultural resources are commonly encountered adjacent to rivers, streams, and springs as well in upland settings, particularly those in which natural exposures of chert-bearing limestone crop out. 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

SENSITIVE ARCHEOLOGICAL SITE LOCATION INFORMATION OMITTED

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

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.

5.0 SURVEY METHODOLOGY

On June 24, 2020, Horizon archeological technician Jacob Lyons, under the overall direction of Jeffrey D. Owens, Principal Investigator, performed an intensive cultural resources survey of the project area to locate any cultural resources that potentially would be impacted by the proposed undertaking. The survey was conducted under Texas Antiquities Permit No. 9492. Horizon's archeologist traversed the 0.4-hectare (1.0-acre) project area and thoroughly inspected the modern ground surface for aboriginal and historic-age cultural resources. The project area is situated on a limestone upland overlooking an unnamed tributary of Hickson Hollow (Figures 6 to 8). The project area has been heavily disturbed from prior construction, use, and maintenance of a gravel parking lot, a circular animal pen, several cinder block walls, and a well associated with a business (Bee Cave Acupuncture) that was formerly housed in a residential-style structure just northwest of the project area. Vegetation consisted of live oak, Ashe juniper, acacia, Roosevelt weed, prickly pear cactus, planted ornamental bamboo, and medium-high grasses. Visibility of the modern ground surface ranged from poor to good (30 to 60%) depending on the density of vegetative ground cover. Limestone gravels associated with a former parking lot that occupied most of the project area from the early 2000s until 2010, when the nearby structure that housed the Bee Cave Acupuncture business was abandoned, cover much of the project area (Figures 9). Exposures of limestone bedrock and gravels are present on the modern ground surface in the eastern corner of the project area, which was less disturbed by construction associated with the acupuncture business.

In addition to pedestrian walkover, the Texas State Minimum Archeological Survey Standards (TSMASS) call for excavation of 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) above 10.1 hectares (25.0 acres). As such, a minimum of two shovel tests would be required within the current 0.4-hectare (1.0-acre) project area. Horizon excavated a total of seven shovel tests during the survey, thereby exceeding the TSMASS requirements for a project area of this size (Figure 10). 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). The pedestrian survey and shovel testing revealed heavily disturbed sediments containing abundant gravels from the former parking lot. Native sediments underlying the parking lot gravels and in less disturbed portions of



Figure 6. Overview of Project Area (Facing South)



Figure 7. Overview of Project Area (Facing West)



Figure 8. View Along Edge of Terrace Adjacent to Little Barton Creek (Facing East)



Figure 9. Former Parking Lot Gravels Observed on Modern Ground Surface

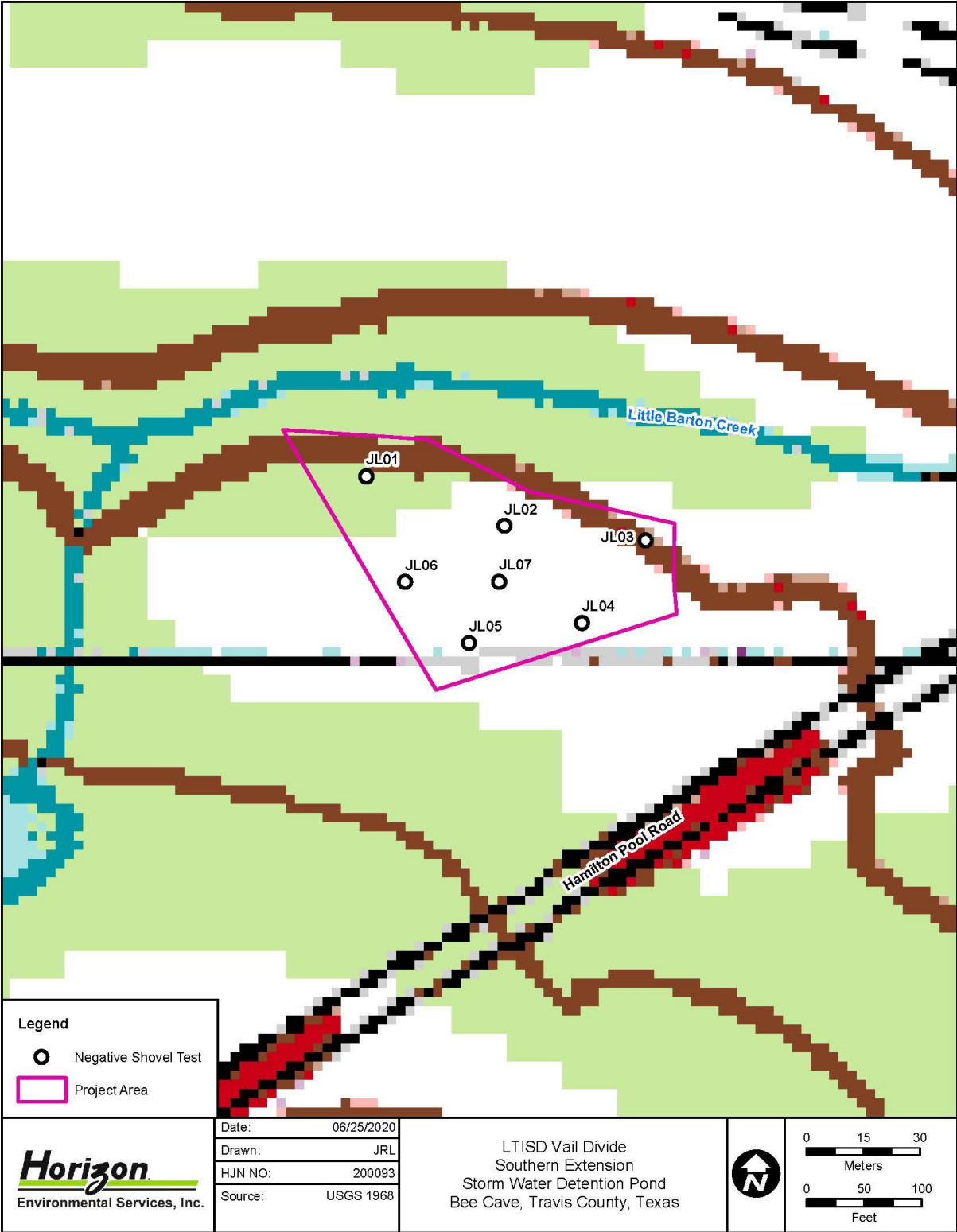


Figure 10. Locations of Shovel Tests Excavated within Project Area

the project area consist of shallow deposits of gravelly dark brown to pale yellowish-brown marly clay loam overlying either pale gray marly sandy clay or limestone bedrock at depths ranging from 5.0 to 35.0 centimeters (1.9 to 13.8 inches) below surface. It is Horizon's opinion that shovel testing was capable of fully penetrating sediments with the potential to contain archeological deposits.

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. Following completion of the project, project records will be prepared for permanent curation at the Texas Archeological Research Laboratory (TARL).

6.0 RESULTS OF INVESTIGATIONS

On June 24, 2020, Horizon archeological technician Jacob Lyons, under the overall direction of Jeffrey D. Owens, Principal Investigator, performed an intensive cultural resources survey of the project area to locate any cultural resources that potentially would be impacted by the proposed undertaking. The survey was conducted under Texas Antiquities Permit No. 9492. Horizon's archeologist traversed the 0.4-hectare (1.0-acre) project area and thoroughly inspected the modern ground surface for aboriginal and historic-age cultural resources. The project area is situated on a limestone upland overlooking an unnamed tributary of Hickson Hollow. The project area has been heavily disturbed from prior construction, use, and maintenance of a gravel parking lot, a circular animal pen, several cinder block walls, and a well associated with a business (Bee Cave Acupuncture) that was formerly housed in a residential-style structure just northwest of the project area (Figure 11). Vegetation consisted of live oak, Ashe juniper, acacia, Roosevelt weed,



Figure 11. View of Project Area on 2009 Google Earth Aerial Imagery

prickly pear cactus, planted ornamental bamboo, and medium-high grasses. Visibility of the modern ground surface ranged from poor to good (30 to 60%) depending on the density of vegetative ground cover. Limestone gravels associated with a former parking lot that occupied most of the project area from the early 2000s until 2010, when the nearby structure that housed the Bee Cave Acupuncture business was abandoned, cover much of the project area. Exposures of limestone bedrock and gravels are present on the modern ground surface in the eastern corner of the project area, which was less disturbed by construction associated with the acupuncture business.

In addition to pedestrian walkover, the TSMASS call for excavation of 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) above 10.1 hectares (25.0 acres). As such, a minimum of two shovel tests would be required within the current 0.4-hectare (1.0-acre) project area. Horizon excavated a total of seven shovel tests during the survey, thereby exceeding the TSMASS requirements for a project area of this size. The pedestrian survey and shovel testing revealed heavily disturbed sediments containing abundant gravels from the former parking lot. Native sediments underlying the parking lot gravels and in less disturbed portions of the project area consist of shallow deposits of gravelly dark brown to pale yellowish-brown marly clay loam overlying either pale gray marly sandy clay or limestone bedrock at depths ranging from 5.0 to 35.0 centimeters (1.9 to 13.8 inches) below surface. It is Horizon's opinion that shovel testing was capable of fully penetrating sediments with the potential to contain archeological deposits.

No cultural resources of prehistoric or historic age were observed on the modern ground surface or within any of the shovel tests excavated within the project area. Prior to the mid-1990s, the project area was characterized by an undeveloped, lightly wooded scrubland setting. Between 1995 and 2002, a large house was constructed just outside the northwestern corner of the project area (Figure 12). It is unknown if this house initially served as a residence, but by the early 2000s the structure was utilized as a commercial storefront for Bee Cave Acupuncture. At that time, the project area itself was devegetated and graded, and a circular cattle pen, various linear cinder block wall features, a water pump and network of polyvinyl chloride water pipes, and gravel driveways were added (Figures 13 to 14). In addition, a stock pond was created to the east of the project area in the eastern corner of the overall parcel. Between 2003 and 2005, the gravel driveways were expanded into a large gravel parking lot that covered most of the project area (see Figure 11). The Bee Cave Acupuncture business moved to its current location on Bee Cave Parkway just north of the intersection of SH 71 in 2010, and the original structure has remained unoccupied ever since. All of the cultural features observed within the project area are modern.



Figure 12. Modern House Located Northwest of Project Area (Facing West)



**Figure 13. Rock Piles and Cinder Block Wall with Modern Breaker Box and Gas Valve
(Facing East-Southeast)**



**Figure 14. Cinder Block Wall with Modern Water Valve and PVC Piping
(Facing Southwest)**

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 and for designation as SALs.
- Formulate recommendations for the treatment of these resources based on their NRHP and SAL 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 and the Antiquities Code of Texas, archeological resources are evaluated according to criteria established to determine the significance of archeological resources for inclusion in the NRHP and for designation as SALs, respectively.

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 ELIGIBILITY CRITERIA FOR LISTING AS A STATE ANTIQUITIES LANDMARK

The criteria for determining the eligibility of a prehistoric or historic cultural property for designation as an SAL are presented in Chapter 191, Subchapter D, Section 191.092 of the Antiquities Code of Texas, which states that SALs include:

Sites, objects, buildings, artifacts, implements, and locations of historical, archeological, scientific, or educational interest including those pertaining to prehistoric and historical American Indians or aboriginal campsites, dwellings, and habitation sites, their artifacts and implements of culture, as well as archeological sites of every character that are located in, on, or under the surface of any land belonging to the State of Texas or to any county, city, or political subdivision of the state are state antiquities landmarks and are eligible for designation.

For the purposes of assessing the eligibility of a historic property for designation as an SAL, a historic site, structure, or building has historical interest if the site, structure, or building:

1. [W]as the site of an event that has significance in the history of the United States or the State of Texas;
2. [W]as significantly associated with the life of a famous person;
3. [W]as significantly associated with an event that symbolizes an important principle or ideal;
4. [R]epresents a distinctive architectural type and has value as an example of a period, style, or construction technique; or,
5. [I]s important as part of the heritage of a religious organization, ethnic group, or local society.

The Antiquities Code of Texas establishes the THC as the legal custodian of all cultural resources, historic and prehistoric, within the public domain of the State of Texas. Under Part II of Title 13 of the Texas Administrative Code (13 TAC 26), the THC may designate a historic building, structure, cultural landscape, or non-archeological site, object, or district as an SAL if it meets at least one of following criteria:

- A. [T]he property is associated with events that have made a significant contribution to the broad patterns of our history, including importance to a particular cultural or ethnic group;
- B. [T]he property is associated with the lives of persons significant in our past;
- C. [T]he property embodies the distinctive characteristics of a type, period, or method of construction, represents the work of a master, possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction;
- D. [T]he property has yielded, or may be likely to yield, information important in Texas culture or history.

Furthermore, the THC may designate an archeological site as an SAL if the site meets one or more of the following criteria:

1. [T]he site has the potential to contribute to a better understanding of the prehistory and/or history of Texas by the addition of new and important information;
2. [T]he site's archeological deposits and the artifacts within the site are preserved and intact, thereby supporting the research potential or preservation interests of the site;
3. [T]he site possesses unique or rare attributes concerning Texas prehistory and/or history;
4. [T]he study of the site offers the opportunity to test theories and methods of preservation, thereby contributing to new scientific knowledge; or,
5. [T]he high likelihood that vandalism and relic collecting has occurred or could occur, and official landmark designation is needed to ensure maximum legal protection, or alternatively further investigations are needed to mitigate the effects of vandalism and relic collecting when the site cannot be protected.

7.4 SUMMARY OF INVENTORY RESULTS

On June 24, 2020, Horizon archeological technician Jacob Lyons, under the overall direction of Jeffrey D. Owens, Principal Investigator, performed an intensive cultural resources survey of the project area to locate any cultural resources that potentially would be impacted by the proposed undertaking. The survey was conducted under Texas Antiquities Permit No. 9492. Horizon's archeologist traversed the 0.4-hectare (1.0-acre) project area and thoroughly inspected the modern ground surface for aboriginal and historic-age cultural resources. The project area is situated on a limestone upland overlooking an unnamed tributary of Hickson Hollow. The project area has been heavily disturbed from prior construction, use, and maintenance of a gravel parking lot, a circular animal pen, several cinder block walls, and a well associated with a business (Bee Cave Acupuncture) that was formerly housed in a residential-style structure just northwest of the project area. Vegetation consisted of live oak, Ashe juniper, acacia, Roosevelt weed, prickly pear cactus, planted ornamental bamboo, and medium-high grasses. Visibility of the modern ground surface ranged from poor to good (30 to 60%) depending on the density of vegetative ground cover. Limestone gravels associated with a former parking lot that occupied most of the project area from the early 2000s until 2010, when the nearby structure that housed the Bee Cave Acupuncture business was abandoned, cover much of the project area. Exposures of limestone bedrock and gravels are present on the modern ground surface in the eastern corner of the project area, which was less disturbed by construction associated with the acupuncture business.

In addition to pedestrian walkover, the TSMASS call for excavation of 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) above 10.1 hectares (25.0 acres). As such, a minimum of two shovel tests would be required within the current 0.4-hectare (1.0-acre) project area. Horizon excavated a total of seven shovel tests during the survey, thereby exceeding the TSMASS requirements for a project area of this size. The pedestrian survey and shovel testing revealed heavily disturbed sediments containing abundant gravels from

the former parking lot. Native sediments underlying the parking lot gravels and in less disturbed portions of the project area consist of shallow deposits of gravelly dark brown to pale yellowish-brown marly clay loam overlying either pale gray marly sandy clay or limestone bedrock at depths ranging from 5.0 to 35.0 centimeters (1.9 to 13.8 inches) below surface. It is Horizon's opinion that shovel testing was capable of fully penetrating sediments with the potential to contain archeological deposits.

No cultural resources of prehistoric or historic age were observed on the modern ground surface or within any of the shovel tests excavated within the project area. Prior to the mid-1990s, the project area was characterized by an undeveloped, lightly wooded scrubland setting. Between 1995 and 2002, a large house was constructed just outside the northwestern corner of the project area. It is unknown if this house initially served as a residence, but by the early 2000s the structure was utilized as a commercial storefront for Bee Cave Acupuncture. At that time, the project area itself was devegetated and graded, and a circular cattle pen, various linear cinder block wall features, a water pump and network of polyvinyl chloride water pipes, and gravel driveways were added. In addition, a stock pond was created to the east of the project area in the eastern corner of the overall parcel. Between 2003 and 2005, the gravel driveways were expanded into a large gravel parking lot that covered most of the project area. The Bee Cave Acupuncture business moved to its current location on Bee Cave Parkway just north of the intersection of State Highway (SH) 71 in 2010, and the original structure has remained unoccupied ever since. All of the cultural features observed within the project area are modern.

7.5 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 project area. No cultural resources were identified that meet the criteria for listing on the NRHP according to 36 CFR 60.4 or for designation as SALs according to 13 TAC 26. Horizon recommends a finding of "no historic properties affected," and no further archeological work is recommended in connection with the proposed undertaking. However, human burials, both prehistoric and historic, are protected under the Texas Health and Safety Code. 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 in the vicinity of the inadvertent discovery, and the THC should be notified immediately. Following completion of the project, project records will be prepared for permanent curation at TARL.

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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			
JL01	596547	3353250	0-5	Gravelly dark brown clay loam	None
			5+	Limestone bedrock	None
JL02	596584	3353237	0-10	Pale yellowish-brown marly sandy clay loam	None
			10+	Construction gravels	None
JL03	596621	3353233	0-25	Rocky pale brown marly clay loam	None
			25+	Limestone bedrock	None
JL04	596604	3353211	0-35	Gravelly coarse reddish-brown sandy loam	None
			35-40+	Rocky pale gray marly sandy clay	None
JL05	596574	3353206	0-15	Rocky pale brown marly clay loam	None
			15-30+	Dark brown marly clay	None
JL06	596557	3353222	0-10	Gravelly pale brown marly clay loam	None
			10-15+	Heavily eroded limestone bedrock	None
JL07	596582	3353222	0-25	Rocky pale brown marly clay loam	None
			25+	Limestone bedrock	None

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

cmbs = Centimeters below surface

ST = Shovel test

UTM = Universal Transverse Mercator