Volume 2017 Article 113

2017

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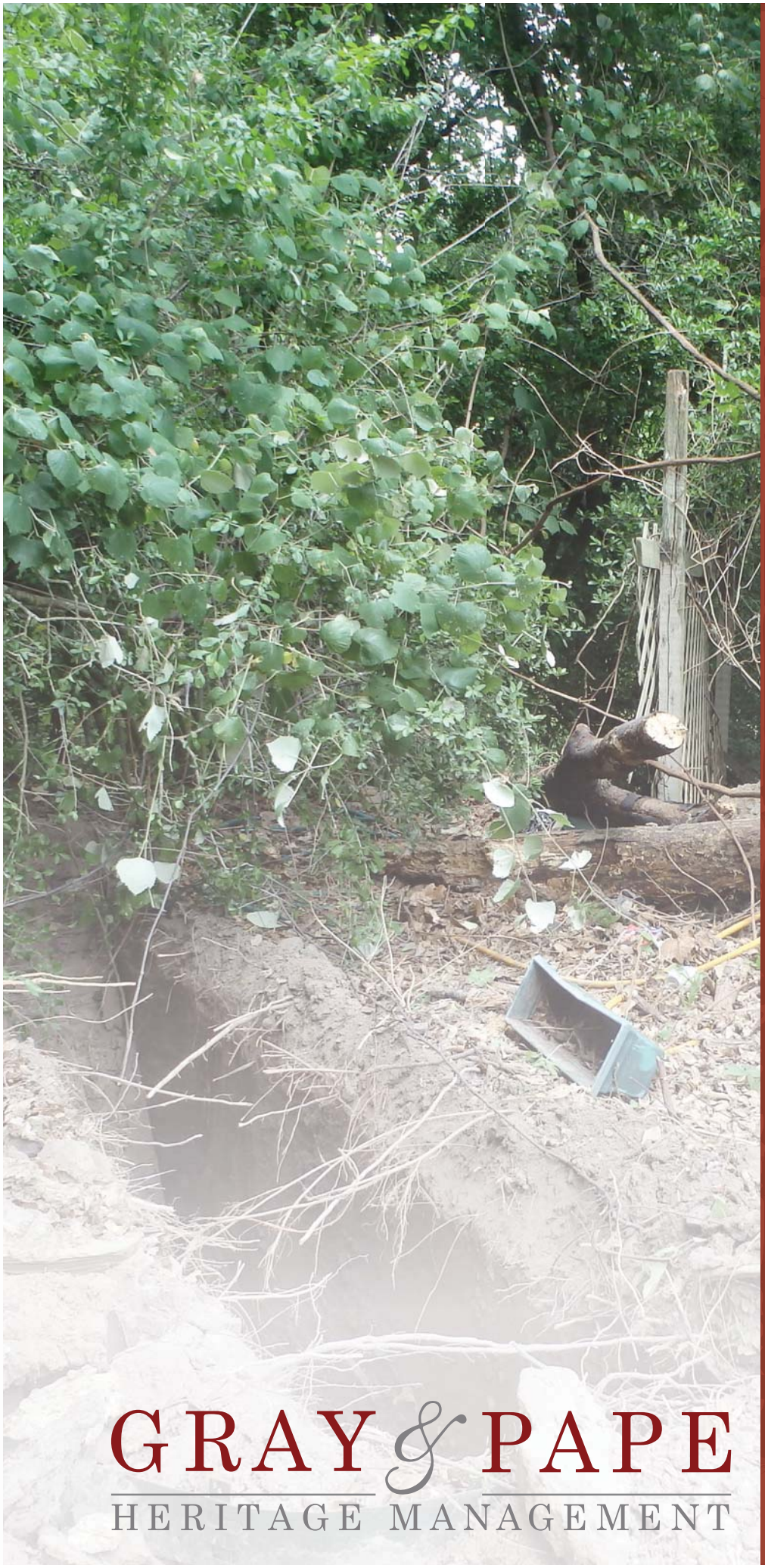

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Texas Antiquities Code Permit Number 8014

PUBLIC COPY

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GRAY & PAPE
HERITAGE MANAGEMENT

August 1, 2017

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Project No. 17-70709.001

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ABSTRACT

In 2016, Gray & Pape, Inc., of Houston, Texas, performed a preliminary archaeological and historical desktop assessment of 22.2-kilometers (13.8 miles) proposed for the West Harris County Regional Water Authority, Second Source Transmission Line Project – Segment 3 Alignment, in Harris County, Texas. The conclusion of that study was that most of the project's Area of Potential Effects occurred within areas that had previously been disturbed by the construction of roads, parking lots, and artificial drainages. Gray & Pape, Inc. recommended that only the areas on either side of Buffalo Bayou warranted further investigation due to the potential for intact deeply buried soils and the proximity of three previously recorded prehistoric sites to the Area of Potential Effects. The Texas Historical Commission concurred with that recommendation. Through consultation with the Texas Historical Commission, Gray & Pape, Inc. developed a plan for conducting deep testing at the bore pit workspace locations where the project is proposed to be installed by means of horizontal directional drilling under Buffalo Bayou. Each bore pit workspace measures approximately 15 by 9 meters (50 by 30 feet), for a total of 0.02 hectares (0.06 acres) investigated for the project.

The goals of the survey were to determine if the proposed project would affect any previously identified archaeological sites as defined by Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), and to establish whether or not previously unidentified buried archaeological resources were located within the project's Area of Potential Effects. Portions of the Area of Potential Effects are on property owned by Harris County Flood Control District, a political subdivision of the state, and thus a Texas Antiquities Permit (Permit Number 8014) was required prior to the commencement of fieldwork. All fieldwork and reporting activities were completed with reference to state and federal guidelines.

Fieldwork took place on May 10, 2017, and consisted of pedestrian surface inspection and deep testing via mechanical trenching. A total of two trenches were excavated, one within the Area of Potential Effects of each proposed bore pit location. In both trenches, potential Holocene-age soils were shown to be extremely shallow and likely disturbed.

No artifacts or cultural features were encountered during the course of the survey, and no new archaeological sites were identified. No negative impacts on any previously-identified sites are anticipated from the proposed project. Based on these results, Gray & Pape, Inc. recommends that no further cultural work be required and that the project be cleared to proceed as planned. As required under the provisions of Texas Antiquities Code Permit 8014, all project records are housed at the Center for Archaeological Studies at Texas State University, San Marcos, Texas.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

In 2016, Berg-Oliver Associates, Inc. (Berg-Oliver), of Houston, Texas, contracted with Gray & Pape, Inc. (Gray & Pape), of Houston, Texas, to perform a preliminary archaeological and historical desktop assessment of 22.2 kilometers (13.8 miles) proposed for the West Harris County Regional Water Authority (WHCRWA) Second Source Transmission Line Project – Segment 3 Alignment, in Harris County, Texas. The conclusion of that study was that most of the project's Area of Potential Effects (APE) occurred within areas that had previously been disturbed by the construction of roads, parking lots, and artificial drainages. Gray & Pape recommended that only the areas on either side of Buffalo Bayou warranted further investigation (Kotlensky 2016; Appendix A). In consultation with the Texas Historical Commission (THC), Gray & Pape developed a plan for conducting deep testing at the bore pit workspace locations where the project is proposed to be installed by means of horizontal directional drilling (HDD) under Buffalo Bayou.

The goals of the survey were to determine if the proposed project would affect any previously identified archaeological sites as defined by Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (36 CFR 800), and to establish whether or not previously unidentified buried archaeological resources were located within the project's APE. Portions of the APE are on property owned by Harris County Flood Control District (HCFCD), a political subdivision of the state, as such, a Texas Antiquities Permit (Permit Number 8014) was required prior to the commencement of fieldwork. All fieldwork and reporting activities were completed with reference to state (the Antiquities Code of Texas) and federal (NHPA) guidelines.

1.1 Project Overview

The APE includes the locations for two HDD bore pits on either side of Buffalo Bayou (Figure 1-1). Both HDD locations are on the *Hedwig Village, TX* United States Geological Survey (USGS) 7.5-minute topographic quadrangle map (USGS 1982). HDD bore pit locations possessed a footprint of approximately 15 by 9 meters (50 by 30 feet); however, these will likely be reduced to physical constraints observed in the field. The proposed HDD bore pit north of Buffalo Bayou is approximately 200 meters (656 feet) east of where Wilcrest Drive crosses Buffalo Bayou and 48 meters (158 feet) north of the bayou. The proposed HDD bore pit south of Buffalo Bayou is approximately 200 meters (656 feet) west-northwest of the intersection of Wilcrest Drive and Lakeside Forest Lane, and is 230 meters (760 feet) south of the bayou.

1.2 Report Organization

This report is organized into seven numbered chapters. Chapter 1.0 provides an overview of the project. Chapter 2.0 presents an overview of the environmental setting and geomorphology. Chapter 3.0 presents a discussion of the cultural context and history associated with the project area. Chapter 4.0 presents the research design and methods developed for this investigation. The results of this investigation are presented in Chapter 5.0. Chapter 6.0 presents the investigation summary and provides recommendations based on the results of field survey. A list of literary references cited in the body of the report is provided in Chapter 7.0.

1.3 Acknowledgements

Fieldwork was conducted on May 10, 2017 by Senior Principal Investigator Tony Scott and Crew Chief Michael Quennoz. Jim Hughey and T. Arron Kotlensky served as Principal

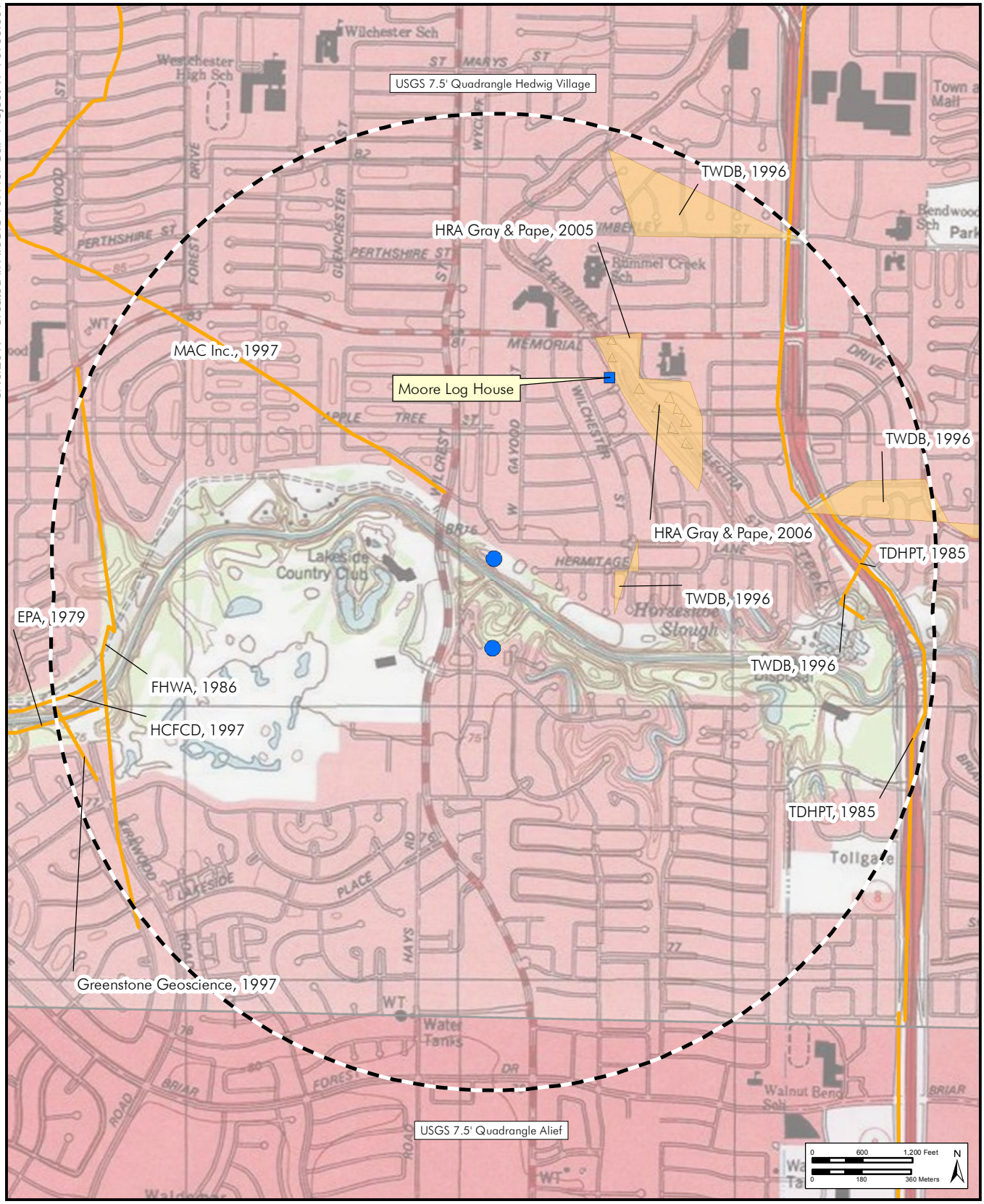

Figure 1-1
Project area location in Harris County, Texas.

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- Project Bore Locations
- Study Radius (1-km/1-mi.)
- Previously Recorded Area Survey
- Previously Recorded Linear Survey
- Historical Marker
- Cemetery Boundary
- USGS Quadrangle Boundary

Investors. The backhoe operator was Mr. Darrell Farmer of JNM Services, Inc. of Magnolia, Texas. Fieldwork required approximately 16 person hours to complete. Mr. Quennoz prepared the report. Tony Scott produced report graphics. The report was edited and produced by Jessica Bludau.

2.0 ENVIRONMENTAL CONTEXT

2.1 Physiography and Geomorphology

The Texas Coastal Plain makes up part of the larger Gulf Coastal Plain, a low, level-to-gently sloping region extending from Florida to Mexico. The Texas Coastal Plain reaches as far north as the Ouachita uplift in Oklahoma, and as far west as the Balcones escarpment in central Texas. The basic geomorphological characteristics of the Texas coast and associated inland areas, which includes Harris County, resulted from depositional conditions influenced by the combined action of sea level changes from glacial advance in the northern portions of the continent, and subsequent down cutting and variations in the sediment load capacity of the region's rivers. Locally, Harris County is underlain by relatively recent sedimentary rocks and unconsolidated sediments ranging in age from the Miocene to Holocene (Abbott 2001; Van Siclen 1991).

Although older geologic units have been identified in the region (Abbott 2001; Barnes 1992; Van Siclen 1991), units relevant to the study of long-term human occupation in modern-day Harris County include the Beaumont Formation, generally believed to predate human occupation in the region, and the so-called "Deweyville" terraces, positioned stratigraphically between the Beaumont and Recent deposits. These terraces date to between one hundred thousand to four thousand years ago, and are characterized as consisting "of up to three inset fluvial terraces… (distinguished by the presence of) …large looping meander scars…" indicative of watercourses capable of fluvial action and discharge markedly greater than that seen today (Abbot 2001;16). Overlaying these deposits may be relatively thick or thin Holocene deposits, laid down in the Harris County area by alluvial or eolian factors, or potentially, marshy environments.

Topographic relief is the result of down cutting of sediments from fluvial action associated with the many rivers, bayous, and creeks within and around Harris County. Major drainages include the Brazos River to the west, the Colorado River to the north, and San Jacinto River to the east. Creeks and bayous that border or dissect Harris County include Spring and Cypress creeks to the north, Cedar Bayou to the east, Buffalo Bayou in central Harris County, and Clear Creek, Brays Bayou, and Keegans Bayou to the south.

2.2 Soils

Mapped soils for the APE consist of the Hatliff-Pluck-Kian complex, which consists of three major contributing soil series (Hatliff, Pluck, Kian) and two smaller contributing series (Simelake, Cowmarsh) that make up less than 3 percent of the total soil complex. This complex is located primarily along the margins of Buffalo Bayou in Harris County, Texas.

The Hatcliff series, comprising 38 percent of the complex, consists of very deep, well drained soils that formed in loamy alluvial deposits during the Holocene Epoch. Such soils are found on natural levees and point bars. From ground surface to approximately 8 centimeters (3 inches) is a brown (10YR 5/3) fine sandy loam. From approximately 8 to 74 centimeters (3 to 29 inches) below surface is a yellowish brown (10YR 5/4) fine sandy loam that is underlain to a depth of 105 centimeters (41 inches) below surface by a brown (7.5YR 4/4) fine sandy loam. Between 105 and 190 centimeters (41 and 75 inches) below surface is a pale brown (10YR 6/3) loamy fine sand. A brown (7.5YR 4/4) loamy sand extends to 203 centimeters (80 inches) below surface (Soil Survey Staff, Natural Resources Conservation

Service, United States Department of Agriculture [SSS NRCS USDA] 2017). Hatliff soils have high geoarchaeological potential (Abbott 2001).

The Pluck series, comprising 35 percent of the Hatliff-Pluck-Kian complex, consists of very deep, poorly drained soils that formed in loamy alluvial deposits during the Holocene Epoch. Such soils are found in meandering channels of creeks and streams. From the surface to approximately 15 centimeters (6 inches) is a grayish brown (10YR 5/2) fine sandy loam. From approximately 15 to 53 centimeters (6 to 21 inches) below surface is a light brownish gray (10YR 6/2) loam. The underlying soils consist of a light gray (2.5Y7/2) loam, that extends to a depth of 203 centimeters (80 inches) (SSS NRCS USDA 2017).

The Kian series, comprising 24 percent of the Hatliff-Pluck-Kian complex, consists of very deep, poorly drained soils that formed in loamy alluvial deposits during the Holocene Epoch. Such soils are found in meandering channels of creeks and streams. From ground surface to approximately 8 centimeters (3 inches) is a brown (10YR 4/3) loam. Between 8 and 41 centimeters (3 and 16 inches) below surface is a brown (10YR 5/3) loam, underlain by a light brownish gray (10YR 6/2) fine sandy loam to a depth of 123 centimeters (27 inches) below the surface. From approximately 123 to 181 centimeters (27 to 71 inches) below surface is a light brownish gray (10YR 6/2) loamy sand. Finally, a light brownish gray (2.5Y6/2) sand extends to 203 centimeters (80 inches) below the surface (SSS NRCS USDA 2017).

2.3 Natural Environment

2.3.1 Flora and Fauna

Present-day Harris County is located near the western edge of the Austroriparian biotic province, and is situated in the Upland Prairies and Woods subregion of the Gulf Coast Prairies and Marshes Region (Abbott 2001). Evidence from pollen analysis in Central Texas suggests that, at least during the Late Pleistocene, the area may have been populated by vegetative species that were tolerant of a cold weather environment. Climactic fluctuation during the Holocene would eventually result in a gradual trend towards warmer weather, similar to that seen today (Abbott 2001).

Late Pleistocene flora may have included populations of spruce, poplar, maple, and pine (Holloway 1997), in an oak woodland environment that would eventually transition to an oak savanna in the late Holocene (Abbott 2001). Fauna during this time would include currently present species such as white-tailed deer and various smaller game, as well as bison, and, in localized areas, pronghorn sheep and the American alligator (Abbott 2001).

The modern vegetative community associated with this region consists of a diverse collection of primarily deciduous trees and undergrowth (Abbott 2001). Modern land alteration activities, especially those associated with agriculture, have resulted in the removal of native plant species from the area. Identified trees may include water oak, pecan, various elms, cedar, oaks, sweetgum, and mulberry, to name a few. Honeysuckle, dewberry, yaupon, and blackberry are common, as are indiangrass and bluegrasses (Abbott 2001).

The modern faunal community includes mammals such as deer, squirrel, opossum, raccoon, skunk and various small rodents, numerous bird species, and reptiles including the Texas rat snake, the western cottonmouth, the kingsnake, and turtle species (Abbott 2001).

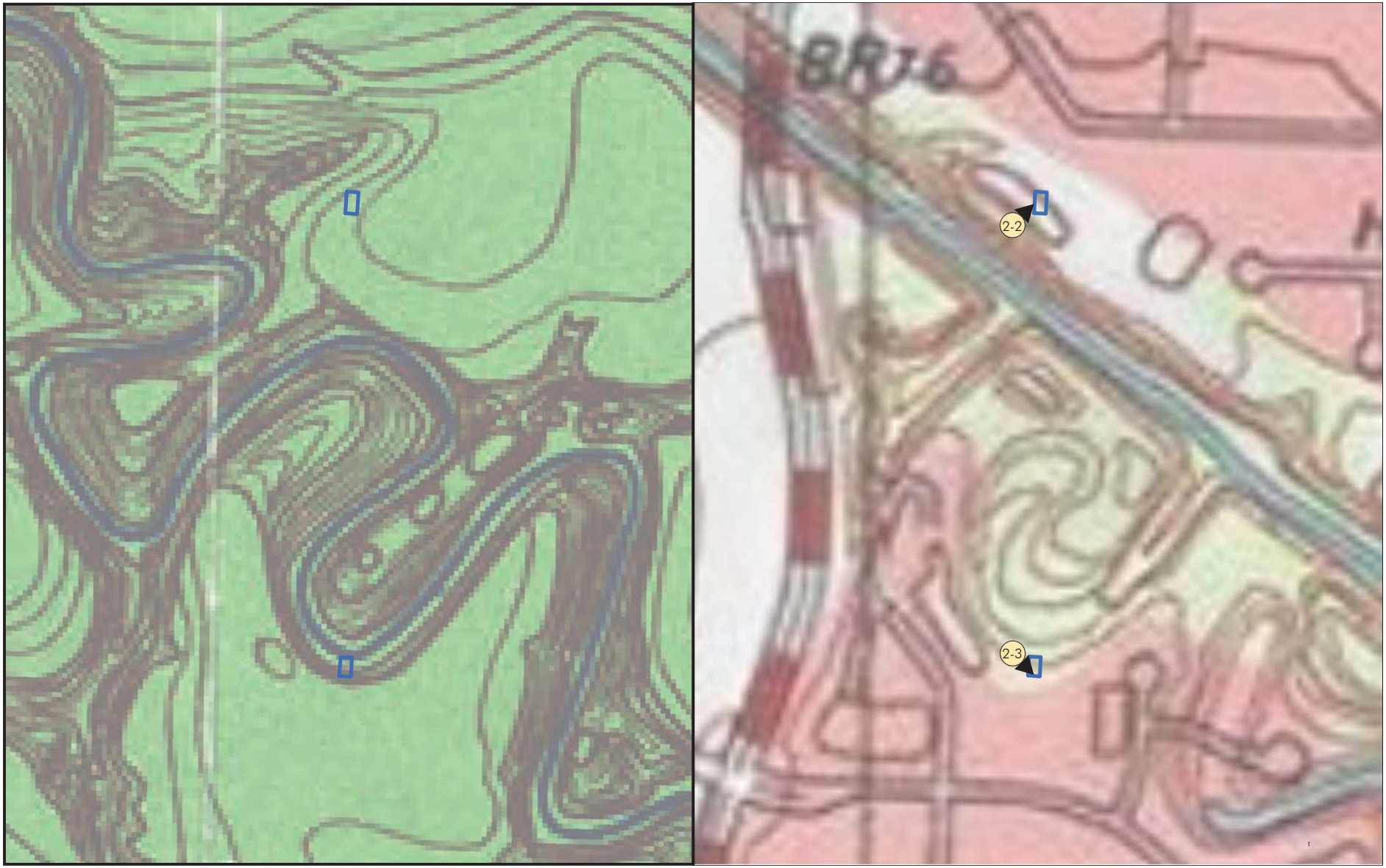
2.3.2 Climate

Harris County's proximity to the Gulf of Mexico tends to influence the temperature, rainfall, and relative humidity of the region. Winds

usually trend from the southeast or east, except during winter months when high-pressure systems can bring in polar air from the north. Average temperatures in the summer can reach well into the 90s degrees Fahrenheit (30s degrees Celsius), and are often accompanied by equally high humidity. Although winter temperatures can reach into the low 30s degrees Fahrenheit (0 degrees Celsius), below freezing temperatures usually occur on only a few days out of every year, and are typically restricted to the early morning hours. Rainfall is evenly distributed throughout the year, with an average monthly distribution ranging from between 43 centimeters (17 inches) to trace amounts; rainfall comes primarily from thunderstorms, which tend to be heavy but of short duration (Wheeler 1976:2).

2.4 Land Use

The locations of the proposed bore workspaces lie along a section of Buffalo Bayou that was channelized by the United States Army Corps of Engineers (USACE) around 1953 to improve floodwater movement to Galveston Bay (Buffalo Bayou Partnership 2004). The remnant channel path still exists in the location but has been severely modified as a result of the cutting and filling that took place during channelization (Figure 2-1). The bayou banks were reportedly cleared of vegetation by scraping and replaced by grasses and landscaping (Buffalo Bayou Partnership 2004). The proposed location of the north bore pit is within one such modified area that is currently part of a manicured park landscape near the Buffalo Bayou Bike Trail. A utility corridor is immediately to the east of the APE (Figure 2-2). The proposed location of the south bore pit is located along the southern bank of the former bayou path between a utility corridor and an apartment complex. The bank here is extremely eroded and appears to have been reinforced multiple times with different materials including wooden beams and fencing and concrete rip rap. The adjacent utility corridor also doubles as a hike and bike trail that runs between Lakeside Forest Lane and Buffalo Bayou. Local residents also appear to be using the workspace area for relaxation (Figure 2-3).



Project location overlaid on circa 1915 (left) and 1999 (right) topographic maps

Project Bore Workspaces

Photo Location, Bearing, and Corresponding Figure Number

0 0.1 0.2 Kilometers

0 0.05 0.1 Miles

N

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Figure 2-1

Figure 2-2. North bore pit location. View is to the northeast.

Figure 2-3. South bore pit location. View is to the southeast.

3.0 CULTURAL CONTEXT

3.1 Prehistoric Context

Traditionally, Southeast Texas has been viewed as a buffer zone between cultural regions in prehistoric times. Patterson (1995) describes the archaeological record in this area as being an interface between the Southern Plains and the Southeast Woodlands. Shafer (1975) and Aten (1984) have categorized the Post-Archaic archaeological record of this region as Woodland. Though this categorization is not meant to literally invoke the exact cultural patterns and chronology of the Woodlands culture found to the east.

The Southeast Texas region is divided into inland and coastal margin subregions, which have archaeologically distinctive subsistence patterns, settlement patterns, and artifact types. Ethnic affiliations for the region are not entirely clear. In part, this is a function of the dynamic nature of this region in which a number of cultural traditions met and diffused. Archaeological and historic evidence suggests that some groups exploited inland resources year-round, while other groups spent parts of the year both inland and on the coast. Aten (1983) has defined the Brazos Delta-West Bay, Galveston Bay, and Sabine Lake archaeological areas and suggests that they may correlate with the Historic territories of the Coco, Akokisa, and Atakapa groups, respectively. Similarly, historic reconstructions of the inland subregion suggest a number of possible group affiliations (Story 1990). The historic economic inland/coastal cycle of the Akokisa, which stretched from Galveston Bay to the San Jacinto River basin, may mean that archaeological materials in the Lake Conroe area are affiliated with this group. Alternately, these remains may be associated with the Bidais who occupied territory immediately to the north of the Akokisa groups.

Based on aspects of material culture, researchers have identified six archaeological time periods associated with Native Americans in the Southeast Texas region; in general, these include the Paleoindian, Archaic (with Early, Middle, and Late subdivisions), Ceramic, Late Prehistoric, Protohistoric, and Historic Indian. Archaeologists within the region agree on the general framework of cultural time periods, while disagreeing on the temporal boundaries of these periods. Patterson's (1995) chronology, for example, includes Early Paleoindian (10,000-8,000 BC.), Late Paleoindian (8,000-5,000 B.C.), Early Archaic (5,000-3,000 B.C.), Middle Archaic (3,000-1,500 B.C.), Late Archaic (1,500 B.C.-A.D. 100), Early Ceramic (A.D. 100-A.D. 600), Late Prehistoric (A.D. 600 to 1500), Protohistoric (A.D. 1500 to 1700), and the Historic Indian (A.D. 1700 to 1800) periods. In contrast, Ensor (1995) offers a Southeast Texas chronology that includes Paleoindian (10,000 to 8000 B.C.), Early Archaic (8000 to 5000 B.C.), Middle Archaic (5000 to 1000 B.C.), Late Archaic (1000 B.C. to A.D. 400), Early Ceramic (A.D. 400 to 800), and Late Ceramic (A.D. 800 to 1750). The chronologies developed by researchers are based primarily on changes in projectile point technologies within the region and the introduction of pottery. It is generally recognized that a broad-based hunting and gathering lifestyle was utilized throughout all time periods.

3.1.1 Paleoindian Period

Evidence is sparse for Paleoindian habitation, and much of what is known about the period in the area comes from a compilation of materials gathered from the state of Texas and North America. At the close of the Pleistocene, large game hunters crossed the Bering Strait, and within a few millennia had penetrated into South America (Culberson 1993; Newcomb 1961). The Paleoindian people traveled in

small bands (Culberson 1993) and were mega-fauna hunter-gatherers with the bulk of their meat protein derived from mammoths, mastodons, giant bison, and giant sloths. These groups carried with them an easily recognizable stone tool material culture, though little is known about their wooden or bone tools and clothing types. The later Folsom Culture developed a very efficient toolkit that was apparently designed to be portable leading to theories that these people were following buffalo herds across the plains. However, the widespread use of Folsom technology suggests that the technology spread beyond the area for which it was initially designed. Isolated Paleoindian artifacts found across southeastern Texas include Clovis, Angostura, Scottsbluff, Meserve, Plainview, and Golondrina point types (Aten 1983).

3.1.2 Archaic Period

With the retreat of the glaciers (the Hypsithermal period), the mega-fauna upon which the Paleoindian peoples depended gradually became extinct. This shift in food supply is seen as the pivotal transition point between the Paleo and Archaic periods (Biesaart et al. 1985; Culberson 1993; Newcomb 1961). There are three progressive stages recognizable during the Archaic period: the Early, Middle, and Late.

Much of what is known about the Early Archaic peoples indicates that they were small, isolated bands of hunter-gatherers that remained in relatively restricted regions (Aten 1984). With the loss of the mega-fauna as a food source, the Early Archaic peoples adopted the hunting of smaller game such as bison and deer and increased their reliance on foraging (Culberson 1993). The material record fits the transitional makeup of this period because there was a dramatic shift from the large spear points of the Paleoindian period to a reliance on smaller dart-type points. Diagnostic designs for this period are Dalton, San Patrice, Angostura, Golondrina, Merserve, Scottsbluff, Wells, Hoxie, Gower, Uvalde, Martindale, Bell, Andice, Baird, and Taylor (Turner and Hester 1993). These points were more crudely made than their Paleo precursors but remain designed for use on a spear shaft.

The Middle Archaic period saw the largest growth in technology and in the number of stone tools utilized. Specialized tools appeared for the milling of wild plant foodstuffs (Culberson 1993) along with a large assortment of tools for food preparation and procurement. Gravers, scrapers, axes and choppers, knives, drills and polished stone tools, also known as ground stone tools, began to appear in large quantities (Newcomb 1961). Diagnostic points such as Gary, Kent, Palmillas, Nolan, Travis, Belvedere, Pedernales, Marshall, Williams, and Lange dominate the spectrum of dart points from the Middle Archaic period (Turner and Hester 1993; see also the Edwards Plateau Aspect [Newcomb 1961]). The advent of the atlatl also seems to be placed within this period (Culberson 1993).

The Late Archaic period saw a dramatic increase in the population densities of Native American groups. Human habitation of areas rich in diverse flora and fauna intensified, as did the variety of materials and artifacts (Culberson 1993; Aten 1984). Late Archaic peoples began relying heavily on foraging tubers, berries, and nuts and hunting small game such as deer, rabbits, and raccoons, as well as fish and shellfish, and birds. Groups became socially more complex than earlier periods, and the result was an increasing intercommunication with neighboring groups. Culberson (1993:55) states that a "Lapidary Industry" developed in which stone artifacts were made from exotic materials (jasper, hematite, quartz, shale, slate, etc.) acquired from sources great distances away. These materials were fashioned into an increasingly complex array of household goods such as celts, plummets, banner stones, mortars and pestles, and pendants; also during this period,

there was an increase in the occurrence of sandstone bowls (Culberson 1993). Diagnostic points of this period are difficult to distinguish from those of the Middle Archaic. Gary and Kent points remain prevalent in southeast Texas, while other points such as Marcos, Montell, San Gabriel, Mahomet, Fairland, and Castroville also appear at times (Turner and Hester 1993).

3.1.3 Ceramic and Late Prehistoric Periods

The Archaic period in southeast Texas ends with the adoption of ceramic technology at the beginning of the Ceramic period. Patterson (1995) places the beginning of the Early Ceramic period on the Texas coast from 100-600 A.D. Aten (1983) placed the appearance of pottery in the Galveston Bay area approximately 100 A.D. The ceramic chronology of the inland areas parallels that of the coast; however, it does not manifest until several centuries later. The inland areas generally lack the earliest ceramic types present in the coastal region as well as some of the later ceramic types (Aten 1983; Story 1990). As a result of trade networks or stylistic/manufacturing influences, it appears that ceramic traits moved from the coast to the inland areas and from the east to the west (Aten 1983).

The transitional period between Late Archaic and Woodland-Late Prehistoric is a period marked by an intensification of group dynamics across Texas. The advent of the bow and arrow is believed by most (Aten 1984; Culberson 1993; Newcomb 1961) to be from this period, though some may place it later. Fishing, bison hunting, and the collection of wild flora intensifies beyond the level of the Late Archaic period during this stage, but there is no sufficient data to demonstrate the initial advent of sedentary agricultural. The diagnostic points of this period are Catahoula, Friley, Alba, and Bonham (Turner and Hester 1993).

During this period, there is a shift to the almost total use of arrow points such as Perdiz and, later, Scallorn, and a wide variety of ceramic types. According to Aten (1984), there are as many as 18 different types of pottery from this period currently identified for the east Texas Coast alone based on temper, paste, and design.

Goose Creek and other sandy paste pottery types are often recovered from Ceramic period and Late Prehistoric sites throughout southeast Texas. Goose Creek appears in Aten's coastal chronology to greater or lesser extents in nearly every period, particularly Mayes Island, Turtle Bay, Round Lake, and the later Orcoquisac periods. Because of the predominance of sandy paste pottery across the region, Story (1990) has suggested the Mossy Grove Tradition as an encompassing cultural tradition for the area. Other ceramic forms that occur in the region include grog-tempered, stamped, and bone-tempered pottery (Patterson 1996).

3.1.4 Protohistoric to Post-Contact Periods

It is during this period that peoples known today as the Caddo, Attakapans, and Bidai, to name a few, are identifiable both culturally and materially. This is mostly due to the historical sources of the seventeenth through the nineteenth centuries that aid in the reconstruction of the past cultures in the area. In order to better understand the complexity of the region's cultures, researchers turn to historical sources to get an understanding of the peoples who first occupied the southeast Texas. Hernando De Soto encountered the Native Americans of the region during his expedition in 1542 (Hudson 1976); it was the first recorded meeting with the Caddo peoples. The first expeditions by La Salle in 1687, and the subsequent settlement in the eighteenth century by Europeans, continued to document the presence of Native American groups in the area (Aten 1984). French traders and Spanish missionaries encountered the Hasinai, also

known as the Neches Angelina, who became allies of the Spanish against the western Apache tribes (Newcomb 1961). The later historical sources identify the Hasinai as one of the two main groups in the area of eastern Texas that fall under the Caddo culture (the primary culture that dominated the Piney Woods area), the other of which is the Kadohadacho (La Vere 1998; Gregory 1986).

The loose cultural group, known as the Attakapans, dominated the majority of the land north of present-day Harris County in what is now Montgomery County. Their language group extended from the Gulf coast to the Trinity and San Jacinto Rivers, and they had much in common with the coastal group known as the Karankawa (Aten 1984). The Attakapans were subdivided into regional groups. The Akokisas dwelled primarily on the shores of the Trinity and San Jacinto Rivers. The Patiris group occupied the land north of the San Jacinto valley. The Bidai group dominated the Trinity Valley, and to their north was the small group known as the Deadoso. Most of what is known about the Attakapans culture comes from the early accounts of the French explorer DeBellise. They are described as primarily hunter-gatherer groups who relied somewhat on agriculture and fishing (Sjoberg 1951).

In the seventeenth and eighteenth centuries, the Spanish and French used the Native American groups as pawns in the two nations' quest to settle the area (Newcomb 1961). Most destructive for all native groups in the region was the influx of European diseases. When Anglo-American settlers began moving into the area in mass around the 1850s, disease and warfare had decimated the groups to near extinction.

3.2 Historical Context

The lands that would become Harris County comprised the southeastern border of Austin's Colony. In July 1824, 29 titles were granted to lands in future Harris County, with an additional 23 grants made between 1828 and 1833. These original grants concentrated mainly on the watercourses of the region. The early settlers in the region were mostly whites from the southern United States and slaves of African ancestry (Henson 2010).

In 1826, the first town site in the area, Harrisburgh, was established at the confluence of Buffalo Bayou and Brays Bayou, and by the 1830s had become the major port of entry for the region and a transportation hub. Roads ran northwest to the Brazos communities of San Felipe and Washington, east to the ferry landing that crossed the San Jacinto, and west paralleling Brays Bayou to the Oyster Creek Community near present day Stafford in Fort Bend County (Henson 2010).

Under Mexican authority the area surrounding Harrisburg (as it came to be spelled by 1832) was known as the San Jacinto District. The district stretched east from Lynchburg on the San Jacinto River west to the location of present day Richmond, and from Clear Creek in the south to Spring Creek in the north. After the Texas Revolution, Harrisburg County was formed December 22, 1836, and encompassed this same territory with the addition of Galveston Island. The county was renamed Harris in December 1839 to honor John Richardson Harris, an early pioneer who had established Harrisburg. The modern boundaries of Harris County were established in 1838 (Henson 2010).

The founding of the city of Houston by Augustus and John Allen was announced in a newspaper advertisement in August 1836. The brothers managed to convince the delegates of the first Texas Congress to establish the yet-to-be-built Houston as the first, albeit temporary (1837-1840), capital of Texas. In 1837, Houston also became the seat of Harrisburg County. The town was laid out on a grid plan with streets running parallel and perpendicular to Buffalo Bayou near the confluence of White Oak Bayou. The town grew rapidly from 12 inhabitants and one log cabin in January of

1837 to 1500 people and 100 houses four months later. In the 1840s, large numbers of white German and French immigrants settled in Harris County. The Hispanic presence in the region was relatively sparse prior to an influx of immigrants following the Mexican Revolution (Henson 2010).

Initially, the city was not segregated, and slaves lived scattered throughout the city's neighborhoods. There was a separate social structure for the whites and subordinate blacks, which continued beyond the Civil War and Emancipation. Schools, churches, and businesses continued to be segregated, and by the end of the nineteenth century, residential segregation was also present. Separate white, black, and later Hispanic, neighborhoods divided the city (Henson 2010).

By the mid-nineteenth century, Houston and Harris County had become a center of commerce. Products were imported into the Texas hinterland through Houston after being offloaded from ocean going ships in Galveston. Exports included agricultural products such as cotton, corn, and cow hides. The town became a railroad hub with six railways spreading from 80.5 to 160.9 kilometers (50 to 100 miles) to the northwest, east, west, south, and southeast. In 1873, Houston joined the national rail network when the Houston and Texas Central reached Denison (Henson 2010).

Twentieth century Harris County was driven by the twin developments of the growth of the petroleum industry and excavation of the Houston Ship Channel which turned the area into a major port of entry (Henson 2010).

4.0 FIELD METHODOLOGY

This cultural resources investigation was designed to identify and assess new and already recorded cultural resources that may be impacted by the proposed project. Desktop assessment and modeling were performed prior to initiating field investigations in order to better understand cultural, environmental, and geological settings. Results of the desktop assessment were then used to develop the field methodology.

4.1 Site File and Literature Review

Site file research was initiated by reviewing records maintained by the Texas Archeological Research Laboratory (TARL) in Austin, Texas and by consulting online research archives maintained by the THC. Site file research resulted in a listing of all archaeological sites within 1.6 kilometers (1 mile) of the project area and all historic structures eligible for the National Register of Historic Places (NRHP) listing located adjacent to the project APE. Documentary research including historic maps, USGS topographic maps, historic aerials, and land grants was conducted in order to provide an understanding of the development and history of the project area, the surrounding area, and southeast Texas in general. This research then was used to prepare an overview history of the area and to provide an understanding of the contextual framework of local prehistory and history.

4.2 Field Methods

4.2.1 Deep Testing

As the locations for the APE for the HDD bore pits were considered areas with potential for more deeply buried intact cultural resources, deep testing, via trenching was carried out. Trenches were excavated by mechanical means and measured at least 140 centimeters (4.5 feet) in width, 4.57 meters (15 feet) in length and 2 meters (6.5 feet) deep. Vertical control was maintained by carefully scraping in 10 to 20-centimeter (4 to 8-inch) levels. One wall of each trench was profiled and the walls and floors of each trench were photographed and inspected for color, texture, inclusions and disturbances in an effort to identify any possible cultural features.

The locations of all deep testing trenches excavated during the survey were recorded with a sub-meter accurate global positioning system (GPS) data collector and recorded on field maps. Digital photography aided documentation of the existing conditions of the project area and fieldwork methods, with photograph locations recorded on field maps and logged with a GPS unit.

4.3 Curation

No diagnostic or non-diagnostic artifacts were collected in the course of the current survey. As a project permitted through the THC, however, Gray & Pape submitted project records to the Center of Archaeological Studies at Texas State University.

5.0 RESULTS OF INVESTIGATIONS

5.1 Result of Site File and Literature Review

A site file and background search has previously been carried out by Gray & Pape for the entire 22.2-kilometer (13.8-mile) length of the Second Source Transmission Line Project – Segment 3 Alignment (Kotlensky 2016; Appendix A). Only background surrounding the current APE of the Buffalo Bayou HDD bore pits will be discussed here. A search of the Texas Archeological Sites Atlas, maintained by the THC determined that no National Register properties or cemeteries are located within the APE or the 1.6-kilometer (1-mile) study radius around the project area. One historical marker occurs within the study radius. The Moore Log House, located 0.8 kilometers (0.5 miles) northeast of the APE, is a recorded Texas Historic Landmark (THC 2017). The same research identified that nine previous cultural resource surveys had been conducted, and 19 archaeological sites had been recorded within the study radius of the project area.

5.1.1 Previously Recorded Surveys

According to a search of the Texas Archeological Sites Atlas, maintained by the THC, at least 10 previous surveys have been conducted within a 1.6-kilometer (1-mile) study radius of the project area (Table 5-1). None of the previous surveys overlap with the current APE.

5.1.2 Previously Recorded Archaeological Sites

According to a search of the Texas Archeological Sites Atlas, maintained by the THC, 19 archaeological sites have been previously recorded within a 1.6- kilometer (1-mile) study radius of the project area (Table 5-2). None of the sites are located within the current APE. However, three sites are recorded as being within 150 meters of the southern APE: 41HR217, 41HR272, 41HR311 (Figure 5-1).

Site 41HR217 was recorded as a 15-meter (50-foot) diameter prehistoric surface scatter on the former bank of a former meander of Buffalo Bayou. Cultural material collected included one shell fragment, one potsherd, one flint flake, and one flint flake with retouching (Patterson 1972). The site as mapped on the Texas Archeological Sites Atlas would have been approximately 48 meters (160 feet) east of the southern APE. This area is currently occupied by several residences (Google, Inc. 2017). However, a review of the site map drawn by Patterson actually places the site further to the northeast (Figure 5-1).

Site 41HR272 was recorded as a prehistoric surface scatter of unknown size on the former bank of an abandoned meander of Buffalo Bayou. Cultural material collected included a flint flake, a retouched flint flake, and natural sandstone (Patterson 1974). The site as mapped on the Texas Archeological Sites Atlas would have been approximately 62 meters (200 feet) northwest of the southern APE. This area is currently a narrow strip between an apartment complex and abandoned channel of Buffalo Bayou (Google, Inc. 2017). However, a review of the site map drawn by Patterson actually places the site further to the north (Figure 5-1).

Site 41HR311 was recorded as a prehistoric surface scatter of unknown size on a natural ridge between two abandoned meanders of Buffalo Bayou. Cultural material collected included two chert cores, one pottery sherd, and quartzite and flint pebbles (Patterson 1976). The site as mapped on the Texas Archeological Sites Atlas would have been approximately 150 meters (490 feet) northwest of the southern APE. This area is

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Trench placement within the project workspaces and nearby previously recorded archaeological sites mapped according to Patterson (1972).

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Figure 5-1

Table 5-1. Previously recorded surveys within 1.6 kilometers of the APE, Harris County, Texas.

Survey Type	TAC Permit #	Investigating Firm/ Agency	Field Work Date	Report Author	Sponsoring Agency	Report at THC
Area	1641	Texas Water Development Board (TPWD)	02/1996	N/A	TPWD	N/A
Area	3853	HRA Gray & Pape	07/2005	Foradas	HCFCD	10/11/2005
Area/Testing	3993	HRA Gray & Pape	04/2006	Foradas	HCFCD	12/11/2006
Linear	N/A	Environmental Protection Agency (EPA)	10/1979	N/A	EPA	N/A
Linear	N/A	Texas Department of Highway and Public Transportation (TDHPT)	03/1985	N/A	TDHPT	N/A
Linear	N/A	Federal Highway Administration (FHWA)	07/1986	N/A	FHWA	N/A
Linear	1641	TPWD	02/1996	N/A	TPWD	N/A
Linear	1820	Moore Archeological Consulting	05/1997	Meyers	HCFCD	4/01/1998
Linear	N/A	HCFCD	05/1997	N/A	HCFCD	N/A
Linear	1707	Greenstone Geoscience	08/1997	Hubbard	TPWD	N/A

Table 5-2. Previously recorded archaeological sites within 1.6 kilometers of the project area Harris County, Texas.

Trinomial	Resource Type	Recorder(s) and Date	NRHP Status
41HR109	Late Archaic Campsite	Worthington and Neyland 1956 Prikryl 1998	Undetermined
41HR110	Lithic Scatter	Worthington and Neyland 1956 Prikryl 1998	Ineligible
41HR111	Unknown	Worthington and Neyland 1956	Unknown
41HR112	Unknown	Worthington and Neyland 1957	Unknown
41HR113	Unknown	Worthington and Neyland 1957	Unknown
41HR217	Possible Campsite	Patterson 1972	Unknown
41HR272	Possible Campsite	Patterson 1974	Unknown
41HR293	Prehistoric Campsite	Patterson 1975	Eligible
41HR294	Possible Campsite	Patterson 1975	Ineligible
41HR295	Possible Campsite	Patterson 1975	Ineligible
41HR296	Possible Campsite	Patterson 1975	Unknown
41HR311	Possible Campsite	Patterson 1976	Unknown
41HR323	Possible Campsite	Patterson 1977	Ineligible

Trinomial	Resource Type	Recorder(s) and Date	NRHP Status
41HR745	Early Ceramic or Late Prehistoric Campsite	Patterson 1993	Eligible
41HR788	Possible Campsite	Sanchez et al 1996	Undetermined
41HR809	Unknown	Unknown	Eligible
41HR810	Unknown	Unknown	Ineligible
41HR811	Unknown	Unknown	Eligible
41HR826	Possible Campsite	Prikryl 1998	Undetermined

currently occupied by an apartment complex (Google, Inc. 2017). However, a review of the site map drawn by Patterson actually places the site further to the north and east (Figure 5-1).

5.2 Results of Field Investigations

Pedestrian survey did not identify any cultural material on the surface within the APE or the immediate surrounding area. Pedestrian survey also revealed that both the north and south APEs had been heavily impacted by previous development or modification. In the case of the northern APE, the workspace abuts a paved hike and bike trail to the south, and the entire surrounding area consisted of a leveled and manicured park landscape. Two oak trees are within the workspace and an existing utility corridor passes immediately to the east (Figure 5-2).

The southern APE abuts the western edge of the same utility corridor and an apartment complex located immediately to the west. Two buried fiber optic cables pass just to the south of the APE. The north of the APE abuts the slope of the former path of Buffalo Bayou. This slope had been heavily modified in attempts at preventing erosion, including the installation of wooden fencing and the dumping of concrete rubble. Also present were several modifications made by local residents, including the pouring of a cement foundation for a now missing bench (Figure 5-3), the dumping of gravel and numerous garden and landscape installations. Due to the high level of surface disturbance at both locations and the narrow physical limits of the workspace no shovel testing was conducted.

Figure 5-2. Overview of north APE. View is to the northwest.

Figure 5-3. Disturbed surface conditions at the south APE. View is to the north.

5.2.1 Deep Testing Results

In order to test for deeply buried intact cultural resources, deep testing via mechanical trenching was carried out using a backhoe equipped with a 0.6-meter (2-foot) wide smooth bladed bucket. One trench was excavated within each workspace (Figure 5-1). Trenches measured 0.6 meters (2 feet) in width and approximately 4.57 meters (15 feet) in length, and were excavated to a depth determined to be below the base of Holocene age soils.

Trench 1 produced a profile consistent with a landform that has been scraped and leveled (Figure 5-4). The top 30 centimeters (12 inches) were a grayish brown (10YR 5/2) loamy sand with light gray (10YR 7/2) sand and dark yellowish brown ((10YR 4/4) clay inclusions. Between 30 and 40 centimeters (12 and 16 inches) was a light gray (10YR 7/2) fine sand. This was underlain by a slightly mottled, dark yellowish brown (10YR 4/4 and 10YR 4/6), very compact clay which extended to 100 centimeters (40 inches) below the surface. Extending to approximately 170 centimeters (67 inches) below the surface was a gray (10YR 6/1) compact clay with extensive yellowish red (5YR 4/6) ferrous stains. A diffuse boundary at approximately 170 centimeters (67 inches) gave way to a gray (10YR 6/1) clay with very little ferrous staining. From 190 centimeters (75 inches) to the base of the trench at 210 centimeters (83 inches) below the surface was a light gray (10YR 7/1) extremely compact clay with calcium carbonate nodules up to 3 centimeters (1 inch) in diameter. No cultural materials or features were observed during excavation of Trench 1.

The profile observed in Trench 1 appears to match that of the Cowmarsh series, one of the soils of the Hatliff-Pluck-Kian complex that is mapped for the area (SSS NRCS USDA 2017). However, the presence of the disturbed Strat I and the anomalous Strat II suggest that the land form has been heavily graded and leveled, removing the original upper strata. This would be consistent with historical aerial imagery from 1953 taken during the channelization of Buffalo Bayou (Google, Inc. 2017).

Trench 2 consisted of 15 centimeters (6 inches) of dark gray (10YR 4/1) sandy loam. This was underlain by a dark grayish brown (10YR 4/2) sandy clay that extends to 110 centimeters (43 inches) below the surface. From 110 to 170 centimeters (43 to 67 inches) below the surface at the base of the trench was a gray (10YR 6/1) and brownish yellow (10YR 6/6) mottled, blocky, compact clay (Figure 5-5). No cultural materials or features were observed during excavation of Trench 2.

The profile observed in Trench 2 most closely resembles that of the Simelake series, which comprises a small percentage of the Hatliff-Pluck-Kian complex that is mapped for the area (SSS NRCS USDA 2017). This is a somewhat poorly drained soil formed from Holocene deposits of clayey alluvium. According to the soils series description, trenching reached well into the subsoil, specifically the Bssg2 Horizon.

I: (0-30 cmbs) 10YR 5/2 Grayish brown sandy silt loam with with 10YR 7/2 light gray sand and 10YR4/4 dark yellowish brown clay inclusions;

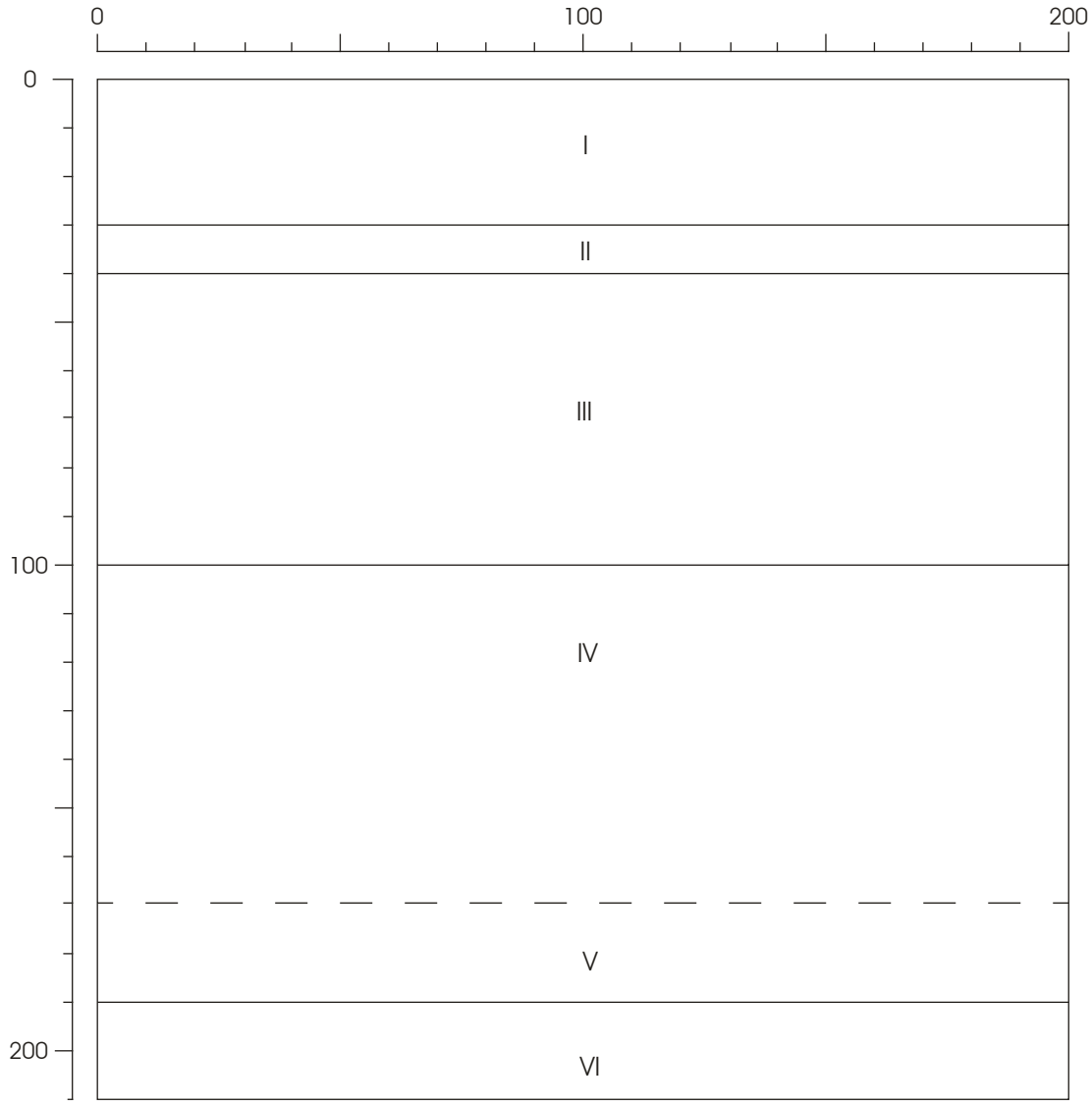
II: (30-40 cmbs) 10YR 7/2 light gray fine sand;

III: (40-100 cmbs) Mottled 10YR 4/4 - 4/6 dark yellowish brown and very compact clay;

IV: (100-170 cmbs) 10YR 6/1 gray compact clay with extensive 5YR 4/6 yellowish red ferrous stains;

V: (170-190 cmbs) 10YR 6/1gray clay with very little ferrous staining;

VI: (190-210 cmbs) 10YR 7/1 light gray extremely compact clay with calcium carbonate nodules up to 3 centimeters (1 inch) in diameter.

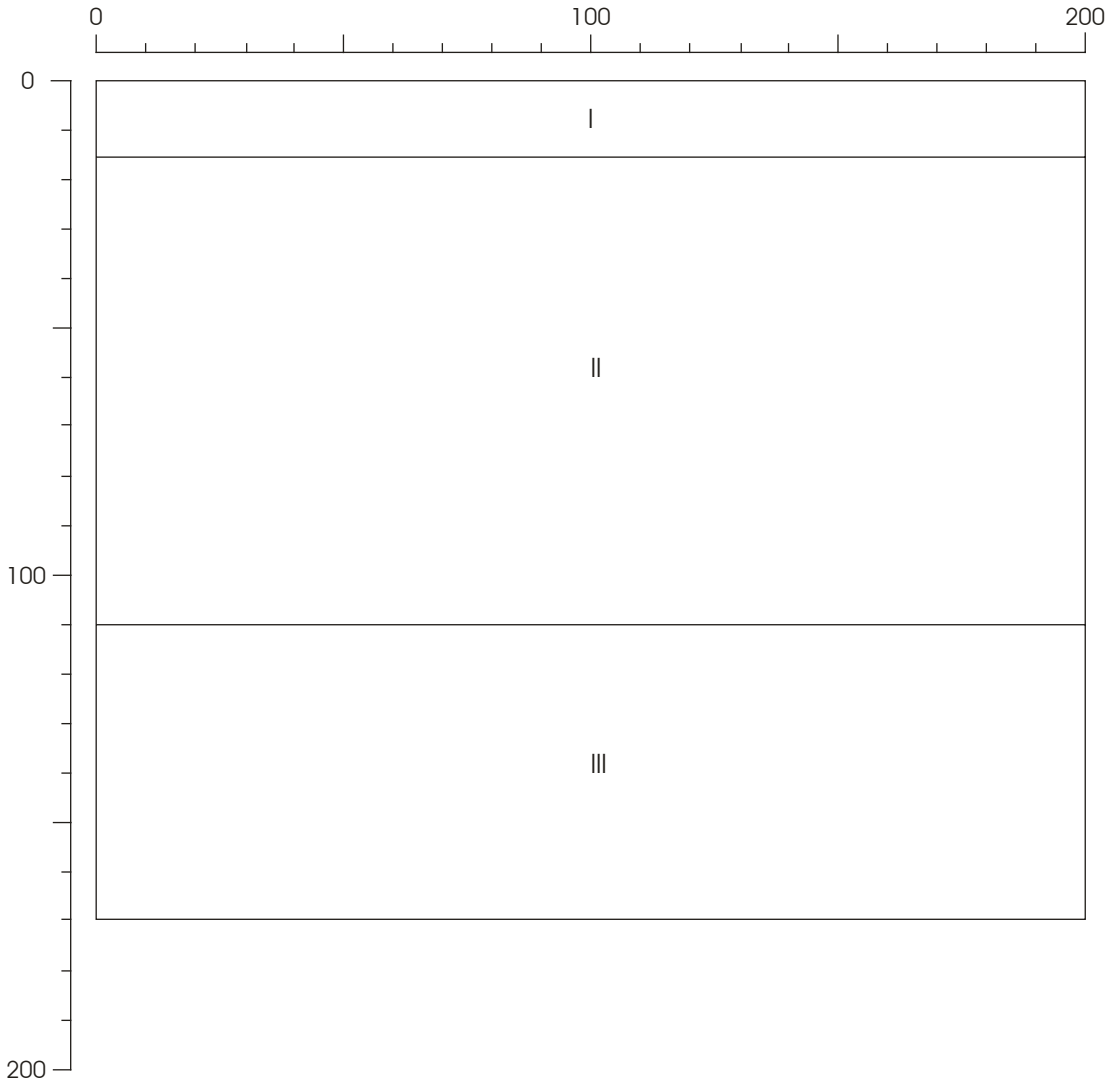


West wall profile of Trench 1.

I: (0-15 cmbs) 10YR 4/1 dark gray sandy loam;

II: (15-110 cmbs) 10YR 4/2 dark grayish brown sandy clay;

III: (40-100 cmbs) 10YR 6/1 gray and 10YR 6/6 brownish yellow mottled, blocky, compact clay.



West wall profile of Trench 2.

6.0 CONCLUSIONS AND RECOMMENDATIONS

In 2016, Berg-Oliver of Houston, Texas, contracted with Gray & Pape, of Houston, Texas, to perform a preliminary archaeological and historical desktop analysis of 22.2-kilometers (13.8 miles) proposed for the WHCRWA Second Source Transmission Line Project – Segment 3 Alignment, in Harris County, Texas. The conclusion of that study was that most of the project's APE occurred within areas that had previously been disturbed by the construction of roads, parking lots, and artificial drainages. Gray & Pape recommended that only the areas on either side of Buffalo Bayou warranted further investigation, to which the THC agreed (Kotlensky 2016; Appendix A). In consultation with the THC, Gray & Pape developed a plan for conducting deep testing at the proposed HDD bore pit locations where the project will be installed under Buffalo Bayou.

The goals of the survey were to determine if the proposed project would affect any previously identified archaeological sites as defined by Section 106 of the NHPA of 1966, as amended (36 CFR 800), and to establish whether or not previously unidentified buried archaeological resources were located within the project's APE. Portions of the APE are on property owned by the HCFCD, a political subdivision of the state, and thus a Texas Antiquities Permit (Permit Number 8014) was required prior to the commencement of fieldwork. All fieldwork and reporting activities were completed with reference to state (the Antiquities Code of Texas) and federal (NHPA) guidelines.

Fieldwork took place on May 10, 2017 and consisted of pedestrian surface inspection and deep testing via mechanical trenching. A total of two trenches were excavated, one within each bore pit workspace location. Observations of both trench profiles resulted in the determination that potential Holocene age soils had either been removed or disturbed during bayou channelization as in the case of Trench 1, or were relatively shallow as in the case of Trench 2. Both trenches were negative for cultural materials.

No artifacts or cultural features were encountered during the course of the survey, and no new archaeological sites were identified. No negative impacts on any previously identified sites are anticipated from the proposed project. Based on these results, Gray & Pape recommends that no further cultural work be required and that the project be cleared to proceed as planned.

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APPENDIX A

PREVIOUS AGENCY CORRESPONDENCE

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