



INDEX OF TEXAS ARCHAEOLOGY

Open Access Gray Literature from the Lone Star State

Volume 2015

Article 205

2015

Cultural Resources Survey For A Proposed Detention Pond For The City Of Richmond, In Fort Bend, County, Texas

Rachel Perrine

David Treichel

Follow this and additional works at: <https://scholarworks.sfasu.edu/ita>



Part of the [American Material Culture Commons](#), [Archaeological Anthropology Commons](#), [Environmental Studies Commons](#), [Other American Studies Commons](#), [Other Arts and Humanities Commons](#), [Other History of Art, Architecture, and Archaeology Commons](#), and the [United States History Commons](#)

[Tell us](#) how this article helped you.

This Article is brought to you for free and open access by the Center for Regional Heritage Research at SFA ScholarWorks. It has been accepted for inclusion in Index of Texas Archaeology: Open Access Gray Literature from the Lone Star State by an authorized editor of SFA ScholarWorks. For more information, please contact cdsscholarworks@sfasu.edu.

Cultural Resources Survey For A Proposed Detention Pond For The City Of Richmond, In Fort Bend, County, Texas

Creative Commons License



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/)

HRA Gray & Pape

CULTURAL RESOURCES SURVEY FOR A PROPOSED DETENTION POND FOR THE CITY OF RICHMOND, IN FORT BEND COUNTY, TEXAS

*Lead Agency:
City of Richmond, Texas
Texas Antiquities Permit #7110*

Prepared for:

*Bio-West, Inc.
1018 Frost Street
Rosenberg, Texas 77471*

Prepared by:

*HRA Gray & Pape, LLC
110 Avondale Street
Houston, Texas 77006*



APRIL 10, 2015

**CULTURAL RESOURCES SURVEY FOR A PROPOSED
DETENTION POND FOR THE CITY OF RICHMOND,
IN FORT BEND COUNTY, TEXAS**

Lead Agency:

City of Richmond, Texas

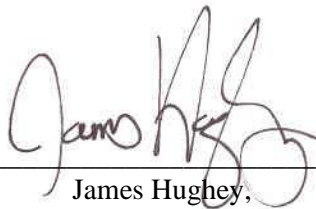
Texas Antiquities Permit #7110

Prepared for:

Bio-West, Inc.
1018 Frost Street
Rosenberg, Texas 77471
Contact: Andrew Boswell

Prepared by:

Rachel Perrine
and
David Treichel

A handwritten signature in dark ink, appearing to read "James Hughey", is written over a horizontal line.

James Hughey,
Principal Investigator

ABSTRACT

HRA Gray & Pape, LLC, of Houston, Texas conducted an intensive pedestrian cultural resources survey on approximately 3.72 hectares (9.2 acres) of property proposed for the construction of a detention pond in the City of Richmond, Fort Bend County, Texas.

The goals of the survey were to determine if the proposed undertaking 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 assess the presence of previously unidentified buried archaeological resources within the Project's Area of Potential Effects. All fieldwork and reporting activities were completed in compliance with state law and guidelines (the Antiquities Code of Texas). Survey and site identification followed Texas Antiquities Code standards; HRA Gray & Pape, LLC. secured a Texas Antiquities Permit (number 7110) prior to the completion of fieldwork as the Project area is located on property-owned by the City of Richmond.

The Area of Potential Effects for this Project is defined as the entire approximately 3.72-hectare (9.2-acre) Project area, composed primarily of a channelized drainage ditch with wooded areas adjacent to the margins of the Project area. Field investigations consisted of a combination of pedestrian survey and subsurface testing, resulting in the excavation of a total of 4 shovel tests in an area that appeared to include intact soils. In addition, a total of 3 backhoe trenches were excavated within the Project area to investigate deeply buried Holocene deposits and evaluate the potential for deeply buried archaeological deposits. HRA Gray & Pape, LLC. also focused attention on the adjacent Morton Cemetery and potential impacts to marked and unmarked burials within the fenced area of the cemetery property in designing its fieldwork methods for the Project; however, following consultation with Bio-West staff, the Project boundary has been amended to exclude the fenced cemetery property and is depicted in its final amended configuration in the following report.

No newly recorded historic or prehistoric cultural resources were identified during the survey. Therefore, HRA Gray & Pape, LLC. recommends no further cultural resources work within the surveyed Project area.

TABLE OF CONTENTS

| | |
|--|-----|
| ABSTRACT..... | i |
| TABLE OF CONTENTS..... | ii |
| LIST OF FIGURES | iii |
| LIST OF TABLES..... | iii |
| | |
| 1.0 INTRODUCTION..... | 1 |
| 1.1 Project Description..... | 1 |
| 1.2 Organization of the Report..... | 3 |
| 1.3 Acknowledgements..... | 3 |
| | |
| 2.0 NATURAL SETTING | 4 |
| 2.1 Physiography and Geomorphology..... | 4 |
| 2.2 Soils..... | 4 |
| 2.3 Natural Environment..... | 5 |
| 2.3.1 Flora and Fauna..... | 5 |
| 2.3.2 Climate..... | 6 |
| 2.4 Land Use | 6 |
| | |
| 3.0 CULTURAL HISTORY | 7 |
| 3.1 Prehistoric Setting..... | 7 |
| 3.2 Fort Bend County History..... | 9 |
| | |
| 4.0 METHODOLOGY | 11 |
| 4.1 Site File and Literature Review | 11 |
| 4.2 Field Methods | 11 |
| 4.2.1 Intensive Pedestrian Survey | 11 |
| 4.2.2 Deep Testing | 12 |
| 4.2.3 Site Definition..... | 12 |
| | |
| 5.0 RESULTS OF INVESTIGATIONS..... | 13 |
| 5.1 Results of Site File and Literature Review | 13 |
| 5.1.1 Previously Recorded Surveys | 13 |
| 5.1.2 Previously Recorded Cultural Resources..... | 14 |
| 5.2 Results of Field Investigations..... | 16 |
| | |
| 6.0 CONCLUSIONS AND RECOMMENDATIONS..... | 22 |
| | |
| 7.0 REFERENCES | 23 |

LIST OF FIGURES

| | |
|---|----|
| Figure 1. Project Area Location in Fort Bend County, Texas. | 2 |
| Figure 2. Overview of the Project Area with Field Survey Results and Representative Photographs..... | 17 |
| Figure 3. Trench 1 Profile..... | 19 |
| Figure 4. Trench 2 Profile..... | 20 |
| Figure 5. Trench 3 Profile..... | 21 |

LIST OF TABLES

| | |
|---|----|
| Table 1. Previously Recorded Area and Linear Surveys within 1.6 kilometer (1 mile) of the Proposed Project area in Fort Bend County, Texas | 13 |
| Table 2. Previously Recorded Cultural Resources within 1.6 kilometer (1 mile) of the Proposed Project area in Fort Bend County, Texas | 14 |

1.0 INTRODUCTION

This report presents the results of intensive cultural resources survey and deep testing conducted by HRA Gray & Pape, LLC. (HRA Gray & Pape), of Houston, Texas for the construction of a proposed detention pond on behalf the City of Richmond, Texas, under contract with Bio-West of Rosenberg, Texas. The project (Project) area is located in Fort Bend County north of the central business district of Richmond, adjacent to historic Morton Cemetery, and west of North Second Street and the Brazos River (Figure 1). The property is owned by the City of Richmond. It is our understanding that no federal or state agencies are directly involved with the current project as designed and that all fieldwork has been completed at the request of the City of Richmond. All work was performed under Texas Antiquities Permit Number 7110.

The goals of the investigation were to determine if project construction would affect any previously identified historic properties as defined by Section 106 or State Antiquities Landmarks (SAL), and to establish whether or not previously unidentified cultural resources were located within the Area of Potential Effects (APE). All fieldwork and reporting activities were completed with reference to State laws and guidelines (the Antiquities Code of Texas). Survey and site identification followed Texas Antiquities Code (TAC) standards provided in 13 TAC 26.5(35), 13 TAC 26.5 (35), 13 TAC 26.20(1), and 13 TAC 26.20(2). This report follows accepted standards set forth by the Texas Historical Commission (THC) and the Council of Texas Archeologists (CTA).

1.1 *Project Description*

Project plans call for the construction of a detention pond encompassing approximately 3.72 hectares (9.2 acres) in size directly adjacent to Morton Cemetery in Richmond and is located within the *Richmond, TX* United States Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 1). The Project area is located directly north of the central business district of Richmond and surrounded by commercial, residential, and municipal development (Google, Inc. 2014a; Nationwide Environmental Title Research, LLC [NETR] 2014). The Project area is located 200 meters (656 feet) west of a large bend in the Brazos River while the northern, western, and eastern portions of the APE largely form a contoured drainage that empties into the nearby river. Most areas immediately bordering the drainage are wooded, but otherwise the APE is largely open with maintained grass. There are no structures or other built improvements within the APE but it is bordered by residential areas to the northwest, the Morton Cemetery to the northeast, undeveloped parcels to the southeast, and municipal buildings and improvements, including a small recently-constructed park to the immediate south and the Fort Bend County Jail to the southwest. The Project area roughly forms an inverted “T” shape and is bounded to the east by North Second Street while the southern margin of the Project area parallels Preston Street, separated by approximately 81 meters (265 feet).

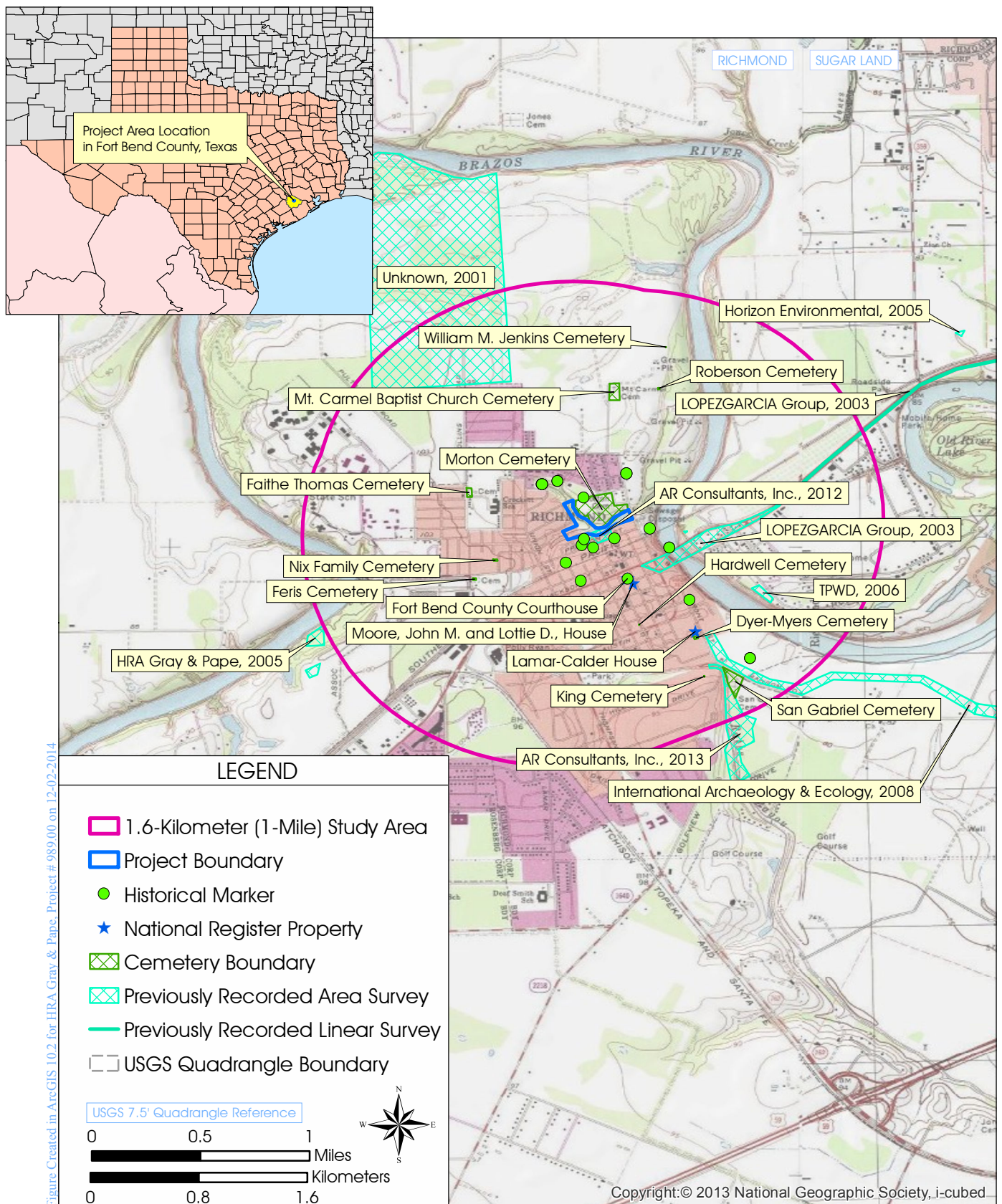


Figure Created in ArcGIS 10.2 for HRA Gray & Pape, Project # 989.00 on 12-02-2014

Project Area Location in Fort Bend County, Texas

Figure 1

1.2 Organization of the Report

This report is organized into 7 numbered chapters. Chapter 1.0 provides an overview of the project. Chapter 2.0 presents an overview of the environmental setting and geomorphology of the Project area. Chapter 3.0 presents a discussion of the cultural context associated with the Project area. Chapter 4.0 presents the methodology developed for this investigation. The results of this investigation are presented in Chapter 5.0. Chapter 6.0 presents a summary of the work conducted and provides management recommendations. A list of all work references throughout the report is presented in Chapter 7.0.

1.3 Acknowledgements

Crew Chief Rachel Perrine conducted site file research prior to fieldwork mobilization. Fieldwork was conducted on December 23, 2014 by Field Director David Treichel and Senior Project Archaeologist T. Arron Kotlensky, working under the supervision of Principal Investigator Jim Hughey. Fieldwork required approximately 16 person hours to complete. Rachel Perrine and David Treichel prepared the report. Duncan Hughey created report graphics. The report was edited and produced by Jessica Bludau.

2.0 NATURAL SETTING

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 Fort Bend 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 downcutting and variations in the sediment load capacity of the region's rivers. Locally, Fort Bend 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 1982; Van Siclen 1991), units relevant to the study of long-term human occupation in modern-day Fort Bend County include the Beaumont Formation, generally believed to predate human occupation in the region, the so-called "Deweyville Terraces", stratigraphically positioned between the Beaumont and Recent deposits. Quaternary Beaumont Formation underlies the Project area (Barnes 1982). These deposits are made up of clay, silt, and sand. This includes stream channel, point bar, natural levee, back swamp, and mud flat deposits (Barnes 1982). Gilgae, a succession of microbasins and microknolls in generally level areas or microvalleys and microridges parallel to the slope are common microfeatures.

The date of deposition for the Deweyville Terraces is not known. However, Abbott (2001:16) among others believes the north-south oriented terraces aggraded during the Late Pleistocene from overbank deposition of rivers and streams including the ancient Brazos River prior to the beginning of the Holocene. Abbott suggests that aggradation ended by approximately 20,000 years before present (B.P.) (Abbott 2001:106). However, meanders of rivers including the Brazos cut valleys through these terraces regularly during the Holocene and then abandoned them. This process leaves large, flat, open, and well drained areas favored for campsites. While all depositional facies other than channels have the potential to preserve archaeological sites, behaviorally, human activity favors well drained, sandy channel-proximal localities over floodbasin muds (Abbott 2001:126). Other Recent or Holocene deposits on the Gulf Plain typically result from overbank flooding of extant streams, eolian transport including dune formation, and infilling of marshes.

2.2 Soils

The central part of Fort Bend County associated with the cities of Richmond and Rosenberg is underlain by Lake Charles-Bernard soils association, defined by clayey soils. Agricultural uses of these soils are predominantly cotton, rice, and livestock productions (Oakes 1960:4). Three soil series were identified within the Project area. These include Lake Charles clay (La), Lake Charles clay (Lb), and Kenney loamy fine sand (Ke). All of these soils are classified as having low to moderate geoarchaeological potential for containing intact archaeological deposits

(Abbott 2001:23; United States Department of Agriculture [USDA] Natural Resources Conservation Service [NRCS] Soil Science Division [SSD] 2014).

Lake Charles clay (La) is found on broad, level to nearly-level coastal plains and is the most commonly encountered soil series in Fort Bend County (Oakes 1960; USDA NRCS SSD 2014). The parental material of Lake Charles clay is clayey fluviomarine deposits derived from the Beaumont Formation of Pleistocene age. With a 0 to 1% slope, Lake Charles Clay is moderately well drained. A typical profile consists of very dark gray slightly acidic clays from the ground surface to 86 centimeters (34 inches) in depth, followed by dark gray clay mottled with reddish yellow and light yellowish brown clays from 86 to 178 centimeters (34 to 70 inches) in depth. These gray clays are underlain by parent material of yellowish-red calcareous clay at depths of 1.5 to 2.4 meters (3 to 8 feet) below ground surface (Oakes 1960; USDA NRCS SSD 2014).

Lake Charles clay (Lb), 2 to 5% slopes, is also found on broad, level to nearly-level coastal plains and has parental material of clayey fluviomarine deposits derived from the Beaumont Formation of Pleistocene age (Oakes 1960; USDA NRCS SSD 2014). It is moderately well drained. It differs from Lake Charles clay (La), 0 to 1% slopes, in that it has a progressively thinner A horizon of very dark gray and mottled dark gray clays as the slope increases, which can span from the ground surface to depths ranging between 13 and 114 centimeters (5 and 46 inches) depending on the degree of the slope. The dark gray clays are followed by the parental material of yellowish-red calcareous clay (Oakes 1960; USDA NRCS SSD 2014).

Kenney loamy fine sand (Ke) is composed of light-colored deep sands found in gently sloping to sloping uplands (Oakes 1960; USDA NRCS SSD 2014). With a 0 to 2% slope, Kenney loamy fine sand is well drained. It derives from thick beds of loamy and sandy sediments. A typical profile consists of pale brown loose loamy fine sand from ground surface to 137 centimeters (54 inches), followed by mottled very pale brown and red sandy clay loam from 137 to 213 centimeters (54 to 84 inches) below ground surface. The underlying mottled red and white acidic sandy clay loam appears around 213 centimeters (84 inches) below ground surface (Oakes 1960; USDA NRCS SSD 2014).

2.3 Natural Environment

2.3.1 Flora and Fauna

Native vegetation specific to the region is found near the current Project area, which 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 flux 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. Commonly identified trees include water oak, pecan, various elms, cedar, oaks, sweetgum, Chinese tallow, and mulberry. Honeysuckle, dewberry, ragweed, yaupon, and blackberry are common, as are indian grass and bluegrasses and various types of briars and vines (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 various turtle species. Black bear and bison were present occasionally in the past (Abbott 2001).

2.3.2 Climate

Fort Bend County's close 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), and are often accompanied by equally high humidity. Although winter temperatures can reach into the low 30s (degrees Fahrenheit), 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 even 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 (Mowery et al. 1960).

2.4 Land Use

Based on historic and modern aeriels provided by Google Earth and historic topographic maps, the Project APE appears to have undergone severe land modification and large portions appear to be disturbed, most likely during the channelizing of the current drainage. According to historic topographic maps and aerial imagery, several structures, including a church, were located adjacent to the southern and western parts of the APE in the 1950s through at least the 1970s (NETR 2014; USGS 2014). By 1995, no significant structures remained within the Project area (Google, Inc. 2014b). According to topographic imagery, the drainage in the APE was channelized or altered to act as a water detention area in the southeastern part of the property adjacent to North Second Street (USGS 2014).

3.0 CULTURAL HISTORY

3.1 *Prehistoric Setting*

Most sites near the coast between the Brazos River and Sabine Lake consist of middens found in estuaries or exposed in cutbanks along streams (Aten 1983; Patterson and Hudgins 1985). These middens usually contain faunal material as well as cultural remains such as lithic tools and pottery. Inland sites are less likely to consist of middens and are more similar to generalized open campsites. In both areas, sites are found near stream channels.

Addicks Reservoir was one of the earliest projects conducted in the area (Wheat 1953). The research done during that project initialized the formation of the Galveston Bay Focus and the development of a cultural sequence of the region based on lithics and ceramics (Aten 1983). Aten (1983) and Story (1990) have aptly described the cultural context of the upper coastal region. This information is merged with the archaeological data here to give a complete picture of life on the Upper Texas Coast.

Along the Upper Texas Coast, the Paleo-Indian period begins around 12,000 B.P. and ends near 9,000 B.P. (Aten 1983; Story 1990). This period is poorly represented in the archaeological evidence for the region (Aten 1983) and no sites for this period have been verified. Isolated artifacts include Clovis, Angostura, Scottsbluff, Meserve, Plainview, and Golondrina point types (Aten 1983). Sites from this stage would be either buried by alluvium or found in upland sites.

The Transitional Archaic period begins about 9,000 B.P. and ends around 7,500 B.P. (Aten 1983; Story 1990). This stage is also poorly represented in the archaeological work in the area but isolated finds of Bell/Calf Creek, Early-Side Notched, and Early Expanding Stemmed dart points are attributed to this time period. The Archaic stage is thought to include a shift towards a diet more geared towards plant processing but still includes hunting. Plant processing technology seen during the entire Archaic period includes stone-lined hearths and baking pits as well as milling tools (Story 1990). Groups began to travel over less of the landscape and population density seems to have risen.

Beginning at 7,500 B.P. and spanning 2,500 years (Aten 1983), the Early Archaic period in this region has not been well documented. The sites may have been destroyed or deeply buried (Aten 1983; Story 1990). In situ Early Archaic remains have been found at the Addicks Reservoir as well as other localities in the area (Story 1990). Points from this period include Bell, Carrollton, Trinity, Wells, and Early Stemmed. It is possible that the Carrollton, Trinity, and Wells points continued to be used into the middle Archaic (Patterson 1996).

The Middle Archaic period (5,000 to 3,000 B.P.) reveals the earliest surviving shell middens (Aten 1983). These middens often contain remains of shellfish, such as oysters and estuarine clams, faunal material from terrestrial and aquatic vertebrates, and the earliest known human burials in the region (Aten 1983). Characteristic projectile points include Bulverde, Williams, Lange, and Pedernales types.

The Late Archaic lasted from 3,000 to 2,000 B.P. and shows evidence for population increase (Aten 1983). By 2,500 B.P., the climate in this area was essentially like the modern climate. Ground stone artifacts made from materials from southwestern Arkansas and found in context with human burials in cemeteries such as the Ernest Witte Site indicate the possibility of trade (Hall 1981). Projectile points differ from earlier periods in that they are corner-notched or expanding-stemmed forms, such as the Kent, Ellis, and Pontchartrain types. Other types can be found, such as the un-notched Pamillas. These types are thought to precede the Gary type, which can be found into the Late Prehistoric (Story 1990). During the Late Archaic, more utilitarian biface tools are prevalent as well as are bone tools. Late Archaic assemblages are very similar to the early part of the Late Prehistoric stage (Aten 1983).

The transition from the Late Archaic stage to the Late Prehistoric is indicated by the introduction of ceramics into the assemblage (Aten 1983). Cultural shifts during the Late Prehistoric include the possible adoption of a more sedentary lifestyle and major technological changes, such as sandy paste ceramics and late in the stage, the bow and arrow (Story 1990). The cultural tradition during the Late Prehistoric along the Upper Gulf Coast has been designated as Woodland. Story (1990) has suggested the use of the term Mossy Grove Tradition to define cultural patterns of the region. The Trinity River seems to be a dividing line in this tradition with cultures east of the river being more similar to those in Louisiana than to those west of Galveston Bay. The eastern tradition also seems to have begun earlier than that in the west, beginning about 2,000 B.P. and lasting 600 years (Aten 1983; Story 1990).

Story (1990) splits the Mossy Grove Tradition into 5 distinct time intervals on the coast, while noting that only 2 are found inland. Aten (1983) defined these intervals for the area between the Brazos River and Galveston Bay as the Clear Lake (1,850 to 1,525 B.P.), Mayes Island (1,525 to 1,300 B.P.), Turtle Bay (1,300 to 950 B.P.), Round Lake (950 to 600 B.P.), and Old River (600 to 250 B.P.) periods based on ceramic styles. Only the Round Lake period is recognized by Aten for the West Bay-Brazos Delta due to the low artifact class diversity compared to areas east of Galveston Bay as well as a time discrepancy in which equivalent periods are later in time than those to the east (Aten 1983).

Early ceramics from this area are similar to Tchefuncte period wares found near Sabine Lake and into Louisiana and include sandy paste varieties such as Mandeville Plain, Goose Creek Plain (Anahuac variety), and Tchefuncte Plain (Aten 1983; Story 1990). These early sites appear similar to pre-ceramic sites due to the low number of ceramic sherds found. The appearance of sandy paste and sand-tempering occurs about 1,900 B.P. with the O'Neal Plain (variety Conway) being a good example (Aten 1983). Rocker-stamped decorations, a distinctive marker for this period, are uncommon in the West Bay-Brazos Delta, as are incised wares (Aten 1983).

The Mayes Island period brought about the introduction of the bow and arrow, which was probably used along with the atlatl until the historic period (Aten 1983; Story 1990). The arrow points during this period included both notched and expanding-stemmed forms (Aten 1983; Story 1990).

Ceramic indicators for the Turtle Bay period include Goose Creek red-filmed along with other decorated ceramics, all of which are rare in the West Bay-Brazos Delta area. At the beginning of the Round Lake period, the earliest use of grog or large crushed ceramic particles as tempering agents is seen. Typical varieties include Baytown Plain (variety San Jacinto) and San Jacinto Incised. Along with these types, a reduction in Goose Creek types is seen. Aten (1983) describes this period as having an increase in population due to the larger number of sites in more specialized locations.

During the Old River period, a resurgence of Goose Creek ceramics is seen as the Baytown types decrease in popularity. Contact with Europeans begins near the end of this period, but visible changes in material culture are not seen until about A.D. 1750 along with a rapid decline in population (Story 1990).

3.2 Fort Bend County History

The settlement within future Fort Bend County began in 1820s as part of general colonization of Texas by Anglo-Americans and under patronage by Mexican government in an effort to populate the area. With support from Baron Bastrop the land was granted by the Mexican government to Moses Austin. Moses Austin died in 1821 never seeing his newly obtained grant. His son, Stephen Fuller Austin, took over “the venture” in Texas. Governor Martinez, impressed with young Austin, offered him to choose the site for the future colony. After several considerations young Austin picked fertile lands between the Colorado and Brazos rivers in the Texas southern coastal plains (Ott 2014; Hardin 2014).

The mouth of the Colorado River was chosen as an entry and rendezvous point for the Austin colonists. One of the colonist groups with William W. Little in charge set sail in 1821 from New Orleans on a thirty-ton schooner *Lively*. Erroneously, the schooner landed at the Brazos River instead of the Colorado. A small party continued 144 kilometers (90 miles) up the Brazos to a bend in the river. In November of 1822, a blockhouse was built that eventually became known as “Old Fort”. Other members of Stephen F. Austin Old Three Hundreds followed shortly after. A small community that came to be referred to as Fort Settlement and Fort Bend grew around the blockhouse (Wharton 1939; Leffler 2014b; Long 2014). Of the 297 original grants given to Stephen F. Austin, 53 were situated in the future Fort Bend County (Hardin 2014).

On December 29, 1837 Fort Bend County was established from parts of Austin, Brazoria, and Harrisburg counties. The town of Richmond, which had been incorporated in May of that same year, was voted the county seat by the citizens of the new county on January 13, 1838 (Leffler 2014b; Hardin 2014). Richmond was home to many well-known Texas pioneers, including Mirabeau B. Lamar and Jane Long who are buried there in historic Morton Cemetery (Leffler 2014a,b). The town became a shipping and market center for the cotton plantations in the Fort Bend County area, and during the mid-nineteenth century it was the center of the “cattle empire” growing in the region between the Brazos and Colorado Rivers (Leffler 2014b).

The economy of Fort Bend in the nineteenth century focused on cotton, sugar, corn, and livestock production. In the 1890s, a one million dollar sugar refinery was constructed at Sugar Land. The county also contains substantial amounts of oil, gas, and sulfur deposits, which have played a major role in the economic development of the area (Hardin 2014).

4.0 METHODOLOGY

4.1 Site File and Literature Review

Background review and literature research were conducted prior to fieldwork mobilization. The background literature search included a review of previously conducted cultural resource surveys in the vicinity of the proposed Project area, and of any historic document pertaining to the history of the area. This information was primarily obtained by reviewing records through the online Texas Archeological Sites Atlas, maintained by the THC, by reviewing available articles, pertaining to the history of the area, from the Handbook of Texas Online maintained by Texas State Historical Association, and by reviewing original land grant documents maintained by Texas General Land Office. Results of the research then were used to prepare an overview history of the area and to provide an understanding of the contextual framework of Fort Bend County prehistory and history.

Site file research was performed in order to identify all previously recorded archaeological sites within a 1.6-kilometer (1-mile) study radius of the Project areas (Figure 1), and any recorded historic structures eligible for the National Register of Historic Places (NRHP) listing located adjacent to the Project area. Site file research was done by reviewing records maintained by the Texas Archeological Research Laboratory in Austin, Texas, and by consulting on-line research archives maintained by the THC.

Historic topographic and aerial maps were reviewed in order to identify any historic structures that might be located close to or within the Project area. Topographic maps were downloaded from the Perry Castañeda online library collection, and aerial imagery was provided by Google Earth. Historic maps of Texas and Texas counties were reviewed in order to better understand the history of the region and to identify any potential historic trails and important historic sites located or crossing the Project areas. Historic maps were accessed through the Portal to Texas History website, and through the Texas Government Land Office (GLO) online map collection. Additionally, the Texas GLO website was used to review original land grants within the Project area.

4.2 Field Methods

4.2.1 Intensive Pedestrian Survey

All shovel tests measured at least 30 centimeters (12 inches) in diameter. Vertical control of each shovel test was maintained by excavating in arbitrary 10-centimeter (4-inch) levels. One wall of each shovel test was profiled and the walls and floor of each shovel test were inspected for color or texture change potentially associated with the presence of cultural features. Descriptions of soil texture and color followed standard terminology and soil color charts (Munsell 2005). Additional information concerning the encountered soils such as mottling, disturbance, and moisture level was recorded on standardized forms for each excavation. Whenever possible, shovel tests were excavated into sterile subsoil. All friable soils were screened through 0.64-centimeter (0.25-inch) wire mesh, while soils with high clay content were hand sorted.

Any historic and archaeological features noted during the pedestrian walkover, subsurface test, and surface finds were to be recorded with a Global Positioning System (GPS) and drawn on the field maps additionally provided to the survey crew.

If historic standing structures within or immediately adjacent to the Project areas had been located, each would have been photographed during the survey and their locations plotted on field maps with GPS points collected. General characteristics of each resource would have been documented on standardized forms.

4.2.2 Deep Testing

Deep testing was also performed within the APE in arbitrary locations chosen by the archaeologist based on the topography within the APE and the soils encountered during shovel testing in order to test for deeply buried paleosols and cultural deposits. Trenches were approximately 4 meters (13 feet) long, 1.25 meters (4 feet) wide, and up to 2 meters (6.5 feet) deep. A backhoe equipped with a smooth-bladed bucket and operated by an experienced operator was used for the excavation of these trenches. Soil was removed in a controlled fashion so that any evidence of buried cultural materials could be identified and recorded. Samples of the excavated soils were screened for cultural material during the excavation process. Descriptions of soil texture and color followed standard terminology and the Munsell (2005) soil color charts. A long-axis profile of each excavation trench was documented with a measured profile drawing and digital photography, with all field data recorded on standardized field forms. All deep testing trenches were backfilled after completion of documentation. The excavated deep tests were placed on field maps and points were taken at each corner with GPS if the strength of the signal permitted recording of data at sub-meter accuracy.

4.2.3 Site Definition

Site delineation and assessment in accordance with Section 106 was not required for this project, as the survey did not uncover any evidence of archaeological sites within the APE. If sites had been identified, HRA Gray & Pape would have followed a specific procedure for site definition. All newly identified sites would be delineated within the Project area with additional shovel tests completed at a 10-meter (32.8-foot) interval in 4 cardinal directions. All sites would be photographed and mapped with scale drawings and geospatial data collected with sub-meter accurate GPS hardware. HRA Gray & Pape generally relies on the excavation of 2 consecutive negative shovel tests in each cardinal direction from positive tests to delineate distinct site boundaries. Sites would only be delineated within the Project APE.

5.0 RESULTS OF INVESTIGATIONS

The primary goals of the investigation were to determine if any previously identified cultural resources or National Register properties were located within or immediately adjacent to the APE and within a 1.6-kilometer (1-mile) radius of the Project area; to determine if any previous cultural resource investigations had been conducted in or near the Project APE; to determine whether or not any previously unidentified and intact cultural resources were present within the Project area by conducting an intensive pedestrian survey; and to provide management recommendations based on the research and survey activities.

5.1 Results of Site File and Literature Review

The following discussion summarizes results of the site file and background literature review initiated prior to field mobilization. According to historic topographic maps and aerial imagery, several structures, including a church, were located within and bordering the southern and western parts of the APE in the 1950s through at least the 1970s (NETR 2014; USGS 2014). By 1995, few structures remained within the tract (Google, Inc. 2014b). According to topographic imagery, the drainage in the APE was channelized or altered to act as a water detention area in the southeastern part of the property adjacent to North Second Street (USGS 2014). A large culvert grate presumably associated with the hydrographic alterations to the area is currently located with the APE directly adjacent to the street.

5.1.1 Previously Recorded Surveys

A total of 8 previous cultural surveys have been recorded within the 1.6-kilometer (1-mile) study area, 1 of which crosses into the southern section of the APE. This previous survey was conducted in 2012 by AR Consultants, Inc. and consisted of an intensive pedestrian cultural resources survey of a 1-hectare (2.5-acre) tract proposed for the construction of a gazebo and amphitheater adjacent to Preston Street (Hall and Coleman 2012). This 2012 survey area slightly overlaps with the southern boundary of the current Project area and includes a small part of the APE. The tract is owned by the City of Richmond, and AR Consultants, Inc. conducted the survey on the city's behalf. All work was performed under Texas Antiquities Permit Number 6310 (Hall and Coleman 2012). No archaeological sites or intact historic structures were identified during the survey, despite the fact that several houses existed within the survey area between the 1920s and the 1950s. Thus, AR Consultants, Inc. recommended no further cultural resource work. A complete list of the other 7 surveys performed within the study area is located on Table 1 below.

Table 1. Previously Recorded Area and Linear Surveys within 1.6 kilometer (1 mile) of the Proposed Project area in Fort Bend County, Texas

| Survey Type | Investigating Firm/ Agency | Field Work Date | TAC Permit Number | Report Author(s) | Sponsoring Agency | Report at THC | Figure |
|-------------|----------------------------|-----------------|-------------------|----------------------|--|---------------|--------|
| Area | Unknown | 2001 | N/A | N/A | City of Richmond | N/A | 1 |
| Area | LOPEZGARCIA Group | 2003 | 3087 | Charles Neel, et al. | Texas Department of Transportation (TxDOT) | 2004 | 1 |

| | | | | | | | |
|--------|-------------------------------------|------|------|-----------------------------|---|------|---|
| Linear | LOPEZGARCIA Group | 2003 | 3087 | Charles Neel, et al. | TxDOT | 2004 | 1 |
| Area | HRA Gray & Pape | 2005 | N/A | James G. Foradas | Texas Water Development Board (TWDB) | 2005 | 1 |
| Area | Texas Parks and Wildlife (TPWD) | 2006 | 4100 | Marianne Marek | TPWD | 2006 | 1 |
| Area | International Archaeology & Ecology | 2008 | 4828 | Robert d'Aigle | Fort Bend County Levee Improvement District | 2008 | 1 |
| Area | AR Consultants, Inc. | 2012 | 6310 | Molly Hall and Nick Coleman | City of Richmond | 2012 | 1 |
| Area | AR Consultants, Inc. | 2013 | 6435 | Cody Davis, et al. | Fort Bend County Drainage District | 2013 | 1 |

5.1.2 Previously Recorded Cultural Resources

A total of 19 previously recorded cultural resources are located within the 1.6-kilometer (1-mile) study radius. These include 2 archaeological sites, 11 cemeteries, 4 structures, and 2 historical markers. Two resources were located adjacent to the current survey APE: the Randal Jones house site historical marker and the Fort Bend County Jail. Refer to Table 2 below for a list of the sites.

Table 2. Previously Recorded Cultural Resources within 1.6 kilometer (1 mile) of the Proposed Project area in Fort Bend County, Texas

| Trinomial/Resource Number | Resource Type/Name | Temporal Affiliation | Size (meters) | Material Recorded | Environmental Setting | Depth of deposit | NRHP or SAL Status/Recommendations |
|---|------------------------------|----------------------|---------------|-------------------|-----------------------|------------------|------------------------------------|
| William M. Jenkins Cemetery/ FB-C066 | Cemetery/Gravesite | 1857 | 2.4 x 2.4 | N/A | Rural | N/A | None |
| Roberson Cemetery/ FB-C113 | Cemetery | 1860-1945 | 12 x 12 | N/A | Rural | N/A | None |
| Mt. Carmel Baptist Church Cemetery/ FB-C034 | Cemetery | Undetermined | 62 x 122 | N/A | Rural | N/A | None |
| Morton Cemetery/ FB-C031 | Cemetery | 1825-Present | 274 x 369 | N/A | Suburban, | N/A | None |
| Faith Thomas Cemetery/ FB-C076 | Cemetery | Undetermined | 66 x 32 | N/A | Urban | N/A | None |
| Randall Jones house site | Historical Marker | 1820s to Unknown | N/A | N/A | Urban | N/A | None |
| Fort Bend County Jail | Structure/ Historical Marker | 1890s-1950s | N/A | N/A | Urban | N/A | None |
| McNabb House | Structure/ Historical Marker | 1850s-1970s | N/A | N/A | Urban | N/A | Listed on NRHP |

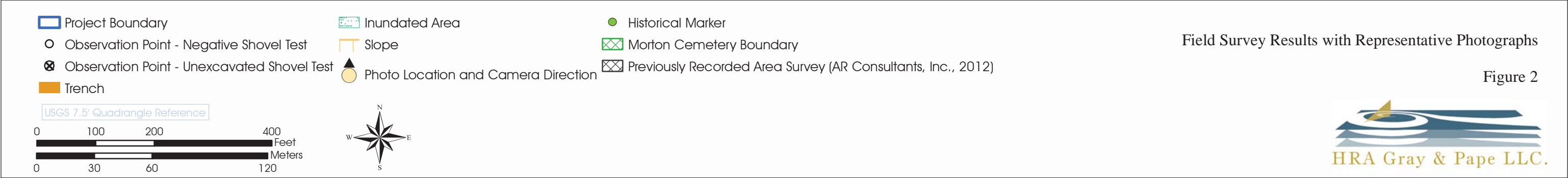
| Trinomial/ Resource Number | Resource Type/ Name | Temporal Affiliation | Size (meters) | Material Recorded | Environmental Setting | Depth of deposit | NRHP or SAL Status/ Recommend ations |
|---|------------------------------------|---|--------------------------|---|---|--|---|
| Nix Family Cemetery/ FB-C102 | Cemetery | 1900-1975 | 10 x 27 | N/A | Suburban | N/A | None |
| Feris Cemetery/ FB-C033 | Cemetery | 1860-1975 | 18 x 21 | N/A | Urban | N/A | None |
| 41FB244 | Archaeolo gical Site | Unknown | Unknow n | N/A | Urban | Unknown | None |
| Fort Bend County Courthouse | Structure | 1908-Present | N/A | N/A | Urban | N/A | Listed on NRHP |
| John M. and Lottie D. Moore House | Structure | Late Nineteenth century/Early Twentieth century | N/A | N/A | Urban | N/A | Listed on NRHP |
| Lamar- Calder House | Structure | Undetermined | N/A | N/A | Suburban | N/A | Listed on NRHP |
| King Cemetery/ FB-C111 | Cemetery | 1860-1900 | 6 x 6 | N/A | Suburban | N/A | None |
| Hardwell Cemetery/ FB-C085 | Cemetery | Undetermined | 2.4 x 2.4 | N/A | Suburban | N/A | None |
| Dyers- Myers Cemetery/ FB-C071 | Cemetery | Undetermined | 23 x 30.5 | N/A | Suburban | N/A | None |
| Mirabeau B. Lamar Homestead/ 41FB268 | Historic Farmstead | Nineteenth Century | 310 x 100 | Historic glass fragments, glass bottles, historic ceramics, square cut nails, wire nails, fencing staples, chain link, other metal fragments/art ifacts, buttons, brick fragments, mortar oyster shell, faunal material, shotgun and rifle casings | Mostly cleared, frequently flooded pasture in the floodplain of the Brazos River | 50-60 centimeters below surface | Listed SAL; Eligible for NRHP |
| San Gabriel Cemetery/F B-C030 | Cemetery | Undetermined | 152 x 238 | N/A | Suburban | N/A | None |

5.2 Results of Field Investigations

The primary purpose of field investigations was to determine whether or not any previously unidentified, intact, and significant cultural resources were present in the APE and to provide management recommendations based on research and survey activities. A combination of pedestrian walkover survey, shovel testing, and backhoe trenching was performed within the APE (Figure 2). The Project area is largely intersected by a channelized drainage which emptied into the Brazos River. Currently, this area is used for flood control and often fills with water during heavy rains. At the time of survey, the majority of the APE was wet and portions were inundated. Recent flood waters had also flattened vegetation in the bottom of the drainage ditch and left flood debris on the storm grate at the eastern edge of the APE where the drainage passes under North Second Street. Residential neighborhoods are located immediately adjacent to the western boundary of the APE. The home site of Randal Jones, an early settler to the area (denoted by a state historical marker), and the Richmond Police Station/Fort Bend County Jail are located just outside of the southwestern corner of the APE. A recently-built small park area with a gazebo is located just outside of the southern boundary of the APE and the ground surface along this southern boundary has been heavily modified.

The APE for this Project consisted of all property proposed for development, which is encompassed by the property parcel associated with Morton Cemetery. A total of approximately 3.72 hectares (9.2 acres) were surveyed within the boundaries of the proposed detention pond. Survey included a combination of intensive pedestrian and reconnaissance survey and trench excavation within the APE. The current investigation focused on testing for the presence of previously unidentified cultural resources within the Project area and provide management recommendations in the event such resources were discovered. The trench excavations were conducted with the use of a backhoe equipped with a smooth-bladed bucket to determine whether or not excavation of the pond has the potential to affect deeply buried archaeological sites or buried paleosols, assess the potential for the presence of unmarked graves or other features associated with the Morton Cemetery, and previously unrecorded features and deposits associated with the home site of Randall Jones, an early Anglo-American settler to the area. An historical marker denoting the general area of the Jones home site is adjacent to the Project area but not within its boundaries (Figure 1).

The APE is adjacent to the marked burial areas of the Morton Cemetery which is separated from the Project area by a fenceline approximately 30 meters (100 feet) south and west of the cemetery proper. The fenceline generally follows the southern and western edges of the existing treeline that follows the curved northeastern border of the APE, as seen in Figure 2. HRA Gray & Pape did not undertake shovel testing or mechanical excavation north and east of the cemetery fenceline after consultation with Bio-West, Inc. staff and the amendment of the Project boundary to exclude the larger fenced-in portion of the cemetery as a means to minimize impacts to the active portion of the cemetery property. In general, the fenceline is located along the perimeter of a level landform that encompasses the active cemetery burial area, with a slope trending downward to the west and south from the fence. Large disarticulated concrete rubble has been deposited within portions of the this slope, indicating past contouring and infilling, perhaps as erosion control measures. Through pedestrian survey, subsurface testing, and the completion of 2 trench excavations located south and southwest of

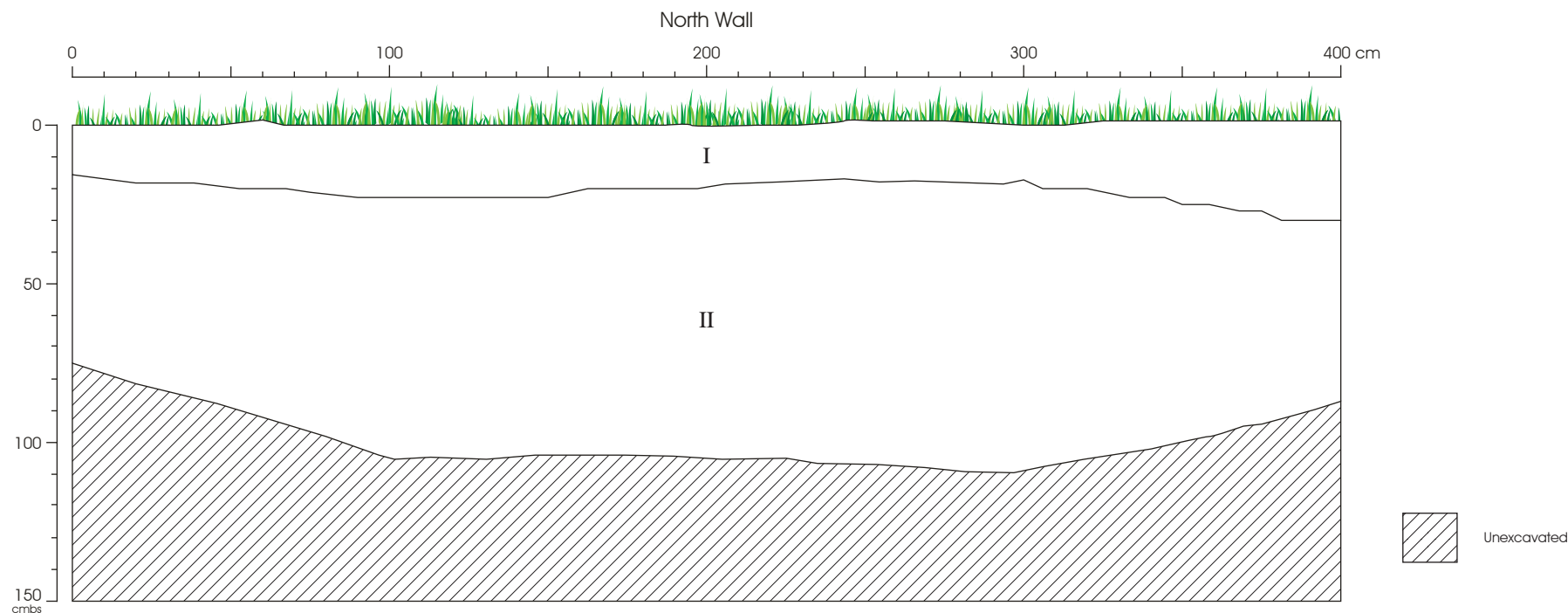


the fenceline, HRA Gray & Pape identified no evidence of marked or unmarked burials south or west of the cemetery fenceline within the APE.

To test the Project APE for the presence of unidentified cultural resources, HRA Gray & Pape personnel completed an intensive pedestrian survey of the Project area. The pedestrian survey revealed that approximately 75% of the Project area is either subject to regular inundation (as was observed in the lower-lying areas within the current drainage) or significantly sloped and banked (with grades at or exceeding 15% in slope), most likely a result of contouring from previous alterations of the drainage, as observed in historic aerial imagery. HRA Gray & Pape deemed these areas to possess low potential for the presence of archaeological deposits. Apart from such areas, HRA Gray & Pape identified the central portion of the Project area as having a higher potential for the presence of near-surface archaeological deposits. In this area, a total of 4 shovel tests were excavated, all of which were negative for cultural material. Shovel tests were placed only on level and dry areas. A typical shovel test profile included a surface layer of very dark brown (10YR 2/2) clay loam that was plastic and moist to a depth of 40 centimeters (16 inches). This was followed by a layer of dark brown (10YR 3/3) clay loam that was dry and very compact to a depth of 70 centimeters (28 inches). This bottom layer also typically contained small iron-oxide concretions indicative of oxidation and reduction (redox) sequences that are further evidence of hydric soils and perennially saturated settings.

During pedestrian survey, a plaque was observed outside of the cemetery fenceline and within the APE. The plaque was partially buried within the top 5 centimeters (2 inches) of soil; no graves were noted in the immediate area of the plaque. Furthermore, the plaque was located in an area of banked ground with large pieces of disarticulated concrete that appeared to be serving as erosion control. Upon closer inspection, the plaque did not bear information relating to a grave or burial plot and thus did not originate from a burial within the cemetery. Pedestrian survey also involved reconnaissance of the portion of the Project area in the vicinity of the Randall Jones house site historical marker; however, much of the area to the north and west of the marker that falls within the Project area contours steeply down into the drainage and towards the recently-constructed public park, areas that were most likely disturbed through the construction of the present channelized drainage and the park itself. Additionally, HRA Gray & Pape did not complete shovel tests in the area along the southern margin of the Project area since this area was recently surveyed by AR Consultants for the City of Richmond in anticipation of the construction of the adjacent park and gazebo.

A total of 3 backhoe trenches were excavated within the APE to test for the presence of deeply buried earlier Holocene or Pleistocene soils (paleosols) that might contain archaeological deposits. Trenches were placed on slightly raised landforms in non-inundated areas. Soils encountered within Trench 1 and Trench 2 were consistent with those mapped for the area (Figure 3 and Figure 4). Trench 3 however contained fill material and was inconsistent with the soils encountered in the other areas within the APE (Figure 5). Modern refuse, including glass, plastics, and non-ferrous metal, were encountered within the top 20 centimeters of soil in a disarticulated state. Unconsolidated sandy soils were encountered at a depth of 150 centimeters (59 inches) below the surface. No prehistoric or historic materials were encountered in these deep tests, nor were deeply buried paleosols observed.

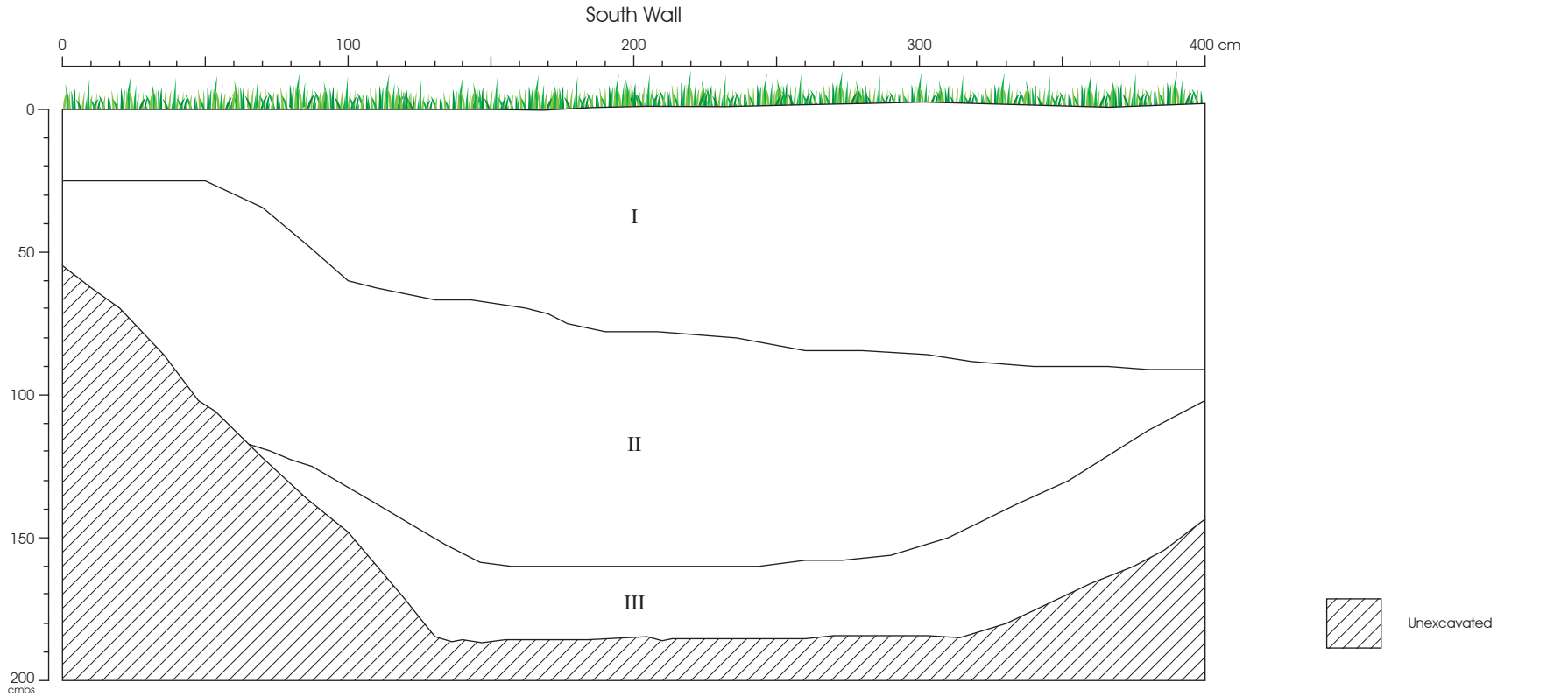


Overview of Trench 1 north wall profile.

- | | | |
|----|---------------|---|
| I | (0-20 cmbs) | 10YR4/1 Dark gray very dense, wet sandy clay; |
| II | (20-110 cmbs) | 7.5YR6/2 Pinkish gray and 7.5YR5/8 yellowish brown mottled clay with dense redox indicators, magnesium oxide and iron oxide staining; |

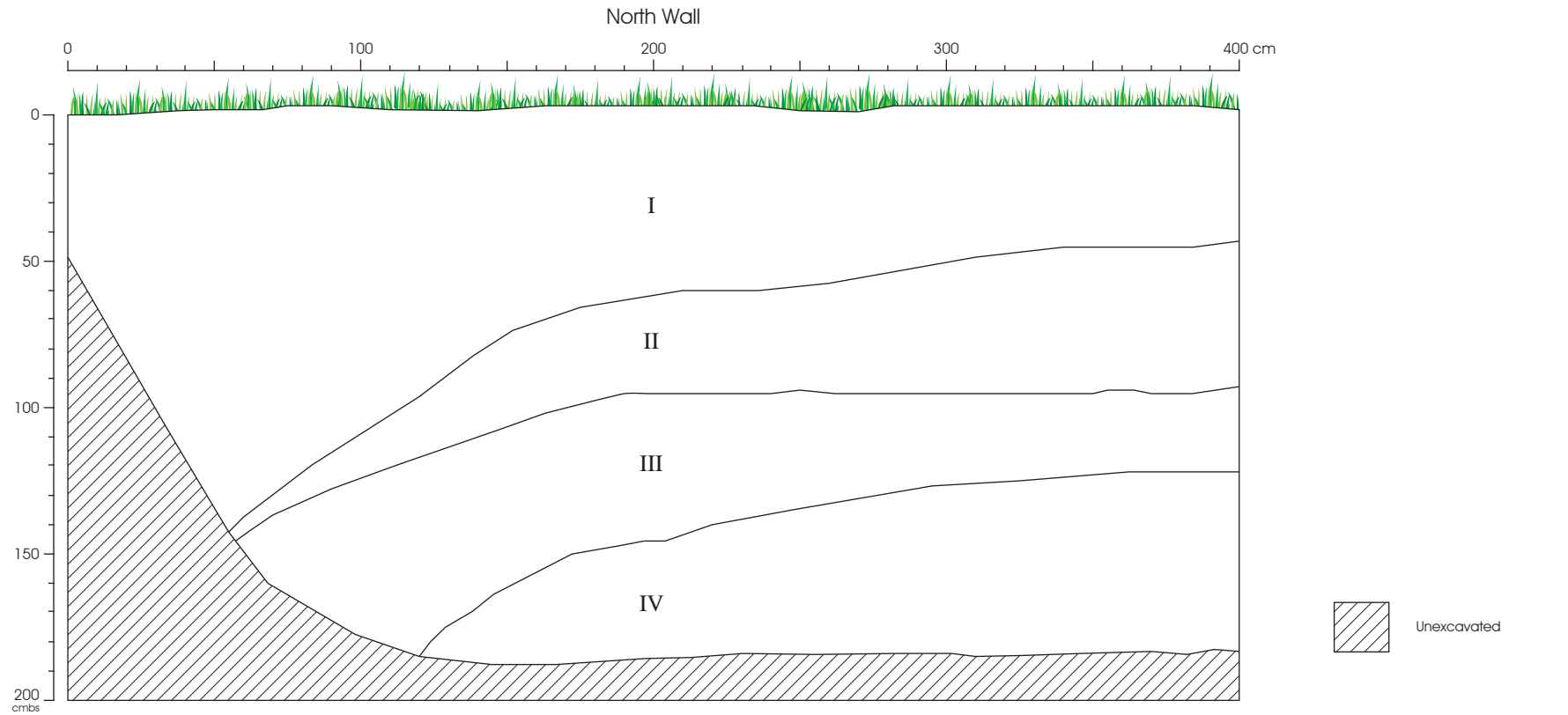
Trench 1 Profile

Figure 3



Overview of Trench 2 south wall profile.

- | | | |
|-----|----------------|--|
| I | (0-80 cmbs) | 7.5YR3/1 Very dark gray silty clay; |
| II | (80-160 cmbs) | 7.5YR3/2 Dark brown clay with 5YR5/6 yellowish red sandstone inclusions; |
| III | (160-185 cmbs) | 7.5YR6/8 Reddish yellow mottled with 5YR5/8 yellowish red clay with calcium carbonate; |



Overview of Trench 3 north wall profile.

| | | |
|-----|----------------|---|
| I | (0-60 cmbs) | 7.5YR3/1 Very dark gray clay; |
| II | (60-100 cmbs) | 10YR5/4 Yellowish brown mottled with 10YR5/6 yellowish brown sandy clay; |
| III | (100-150 cmbs) | 10YR5/4 Yellowish brown sandy clay; |
| IV | (150-190 cmbs) | 10YR6/3 Pale brown loose sand; |

6.0 CONCLUSIONS AND RECOMMENDATIONS

This report presents the findings of a pedestrian survey on an estimated 3.72-hectare (9.2-acre) tract proposed for development in Fort Bend County in the city of Richmond, Texas. The Project area is just north of US-90 alternate, approximately 220 meters (720 feet) west of the Brazos River. The Lead Agency for this project has been identified as the USACE, Galveston District. Survey was completed under Texas Antiquities Permit number 7110.

Prior to fieldwork mobilization, initial investigation consisted of a background literature and site files search to identify the presence of recorded cultural resources in close proximity to the project property. A total of 19 previously recorded cultural resources are located within the 1.6-kilometer (1-mile) study radius including 2 archaeological sites, 11 cemeteries, 4 structures, and 2 historical markers. The Randall Jones house site historical marker and the Fort Bend County Jail are located adjacent to the current APE. Additionally, 8 previous archaeological surveys were performed within the study radius, one of which fell partially within the southern portion of the APE and was associated with the recent construction of a small park and gazebo.

Field investigation consisted of pedestrian walkover survey, shovel testing, and backhoe trenching. As the majority of the land within the APE was sloped, inundated, or displayed signs of significant alteration, shovel testing was limited to those areas with level and intact soils not within the current drainage. All shovel tests were negative for cultural resources and no structures of historic age were observed within or immediately adjacent to the APE. The land within the APE has been previously modified to function as a flood control drainage, emptying into the nearby Brazos River. The Morton Cemetery, located immediately north and east of the APE, will not be impacted by the current Project as Project boundaries have been modified to exclude impacts to the area of the cemetery. No structures, features, or deposits associated with the Randall Jones house site historic marker were observed within the APE through pedestrian survey and subsurface testing. Additionally, no prehistoric cultural materials were encountered during shovel testing or backhoe excavations. In addition, previous construction performed within the APE to channelize the drainage and the presence of sandy fill soils observed in an excavation trench indicate that surface and subsurface conditions have been heavily disturbed. Based on the results of the survey, HRA Gray & Pape recommends no further cultural resources investigations with respect to the current Project design.

7.0 REFERENCES

Abbott, James T.

- 2001 *Houston Area Geoarcheology: A Framework for Archeological Investigation, Interpretation, and Cultural Resource Management in the Houston Highway District.* Texas Department of Transportation, Environmental Affairs Division.

Aten, Lawrence E.

- 1983 *Indians of the Upper Texas Coast.* Academic Press, New York.

Barnes, Virgil E.

- 1982 *Geologic Atlas of Texas, Houston Sheet.* Bureau of Economic Geology, The University of Texas at Austin.

Google, Inc.

- 2014a Google Earth Imagery 2011, 2012, 2013, 2014. Accessed December 2014.

- 2014b U.S. Geological Survey Imagery 1995. Accessed December 2014.

Hall, G. D.

- 1981 *Allen's Creek: A Study in the Prehistory of the Lower Brazos River Valley, Texas.* Research Report 61. Austin: Texas Archeological Survey, University of Texas at Austin.

Hall, Molly and Nick Coleman

- 2012 *An Archaeological Survey of the Proposed Richmond Gazebo Tract, Fort Bend County, Texas.* AR Consultants, Inc., Richardson, TX.

Hardin, Stephen L.

- 2014 *Handbook of Texas Online*, s.v. "Fort Bend"
<http://www.tshaonline.org/handbook/online/articles/uef01>
Published by the Texas State Historical Association (Accessed December 2014)

Leffler, J.

- 2014a *Handbook of Texas Online*, s.v. "Morton Cemetery"
<http://www.tshaonline.org/handbook/online/articles/hfr04>
Published by the Texas State Historical Association (Accessed December 2014).

- 2014b *Handbook of Texas Online*, s.v. "Richmond, TX"

<http://www.tshaonline.org/handbook/online/articles/hfr04>
Published by the Texas State Historical Association (Accessed December 2014).

Long, Christopher

- 2014 *Handbook of Texas Online*, s.v. "Lively"
<http://www.tshaonline.org/handbook/online/articles/etl02>
Published by the Texas State Historical Association (Accessed December 2014).

- Mowery, Irvin C., Gordon S. McKee, Francisco Matanzo, and Everett Francis
1960 Soil Survey of Fort Bend County. Texas United States Department of Agriculture, Soil Conservation Service, Washington, D.C.
- Munsell Soil Color Chart (Munsell Color)
2005 Revised Edition. Macbeth Division of Kollmorgen Instruments Corporation.
National Cooperative Soil Survey Web Soil Survey (NCSS WSS 2011)
- Nationwide Environmental Title Research, LLC (NETR)
2014 Historic Aerials. Available URL: <http://www.historicaerials.com/>. Accessed December 2014
- Oakes, H.
1960 *Soil Survey of Fort Bend County, Texas*. United States Department of Agriculture Soil Conservation Service (USDA-SCS) in cooperation with the Texas Agricultural Experiment Station.
- Ott, Virginia L.
2014 *Handbook of Texas Online*, s.v. "Fort Bend County"
<http://www.tshaonline.org/handbook/online/articles/hcf07>
Published by the Texas State Historical Association (Accessed December 2014).
- Patterson, L. W., and J. D. Hudgins
1985 *Paleo-Indian Occupations in Wharton County, Texas*. Bulletin of the Texas Archeological Society 56.
- Story, Dee Ann
1990 Cultural History of the Native Americans. In *The Archeology and Bioarcheology of the Gulf Coastal Plain: Volume 1*, by Dee Ann Story, Janice A. Guy, Barbara A. Burnett, Martha Doty Freeman, Jerome C. Rose, D. Gentry Steele, Ben W. Olive, and Karl J. Reinhard, pp. 163-366. Arkansas Archeological Survey Research Series, No. 38. Fayetteville, Arkansas.
- United States Department of Agriculture, Natural Resources Conservation Service Soil Survey Division (USDA NRCS SSD)
2014 Soil Series Name Search. Available URL:
<https://soilseries.sc.egov.usda.gov/osdnamequery.asp> (Accessed December 2014).
- United States Geological Survey (USGS)
2014 *Richmond, Texas 7.5-minute Topographic Quadrangles, 1955, 1971, 2010, and 2013*. Available URL: <http://www.usgs.gov/> (Accessed December 2014).
- Van Siclen, D.C.
1991 *Surficial Geology of the Houston Area: An Offlapping Series of Pleistocene (& Pliocene?) Highest Sea Level Fluviodeltaic Sequences*. Transactions of the Gulf Coast

Association of Geological Societies 41:651-666

Wharton, Clarence R.

1939 *History of Fort Bend County*. Fort Bend Museum Association. Eakin Press/Sunbelt Media Inc., Austin, Texas (2001)

Wheat, J.B.

1953 *The Addicks Dam Site: An Archeological Survey of the Addicks Sam Basin, Southeast Texas*. River Basin surveys Papers No. 4, Part 1. Bureau of American Ethnology, Bulletin 154:143-252.