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A Cultural Resources Survey for the Proposed Zube Park Detention Basin, HCFCD Project ID L500-01-00-E001 Harris County, Texas

Texas Antiquities Permit No. 6617

Prepared for:

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Abstract

In August 2013, Atkins North America, Inc. (Atkins) archeologists conducted an intensive cultural resources survey of a proposed detention basin (HCFCD unit L500-01-00) adjacent to Zube Park, immediately west of Becker Road, in Harris County, Texas, for the Harris County Flood Control District. The proposed 29-hectare (72-acre) project area is bisected by Little Cypress Creek. The proposed detention basin will be used to provide floodplain mitigation and collect and control stormwater runoff from Little Cypress Creek. The project is located on lands that are currently owned by the Harris County Flood Control District. Thus, the current effort is being conducted under Texas Antiquities Permit No. 6617.

The cultural resources survey followed the Archeological Survey Standards for Texas established by the Texas Historical Commission's Archeology Division. The entirety of the project area was visually inspected for archeological resources, and a total of 50 shovel tests were excavated, exceeding the minimum survey standards for project areas of 200 acres or less established by the Texas Historical Commission. No cultural resources were encountered, and no artifacts were collected or observed during the survey. Due to the absence of cultural materials within the project area, Atkins recommends that construction activities be allowed to proceed without further consultation. All records generated and photographs taken during the survey will be curated at the Texas Archeological Research Laboratory in Austin.

Contents

Figures

I. INTRODUCTION

In August 2013, Atkins North America, Inc. (Atkins) archeologists conducted an intensive cultural resources survey of a proposed detention basin (HCFCD unit L500-01-00) adjacent to Zube Park, immediately west of Becker Road, approximately 1.3 miles north of U.S. Highway (US) 290, in Harris County, Texas, for the Harris County Flood Control District (HCFCD) (Figure 1). The fieldwork was conducted by J. Philip Washington, Darren Schubert, and Dale Norton. Dale Norton acted as Principal Investigator.

The proposed project area is approximately 29 hectares (ha) (72 acres) in area (Figures 2 and 3). The depth of impacts expected to be associated with the construction of the detention basin will not exceed approximately 11 meters (m) (35 feet [ft]) below ground surface. These impact descriptions are based on communication with the HCFCD at the time of the Texas Antiquities Permit application. The proposed detention basin will be used to provide floodplain mitigation and collect and control storm water runoff from Little Cypress Creek during storm events. The proposed project area is located on land that is currently owned by the HCFCD. Thus, the current effort is being conducted under Texas Antiquities Permit No. 6617.

The archeological survey was conducted following the Archeological Survey Standards for Texas established by the Texas Historical Commission (THC). The entirety of the proposed project area was subjected to pedestrian survey for prehistoric and historic archeological resources. Additionally, shovel testing was conducted. The shovel tests were concentrated along Little Cypress Creek, presumably the most likely area to harbor buried archeological sites. The objectives of the survey were to (1) locate any cultural resources within the survey area, (2) delineate the vertical and horizontal extent of any located resources, (3) assess the integrity of each resource, and (4) provide a preliminary evaluation of each site's potential eligibility for listing on the National Register of Historic Places (NRHP) and/or State Antiquities Landmark (SAL) status. The intention of this report is to describe and interpret the results of these investigations and to provide recommendations for the management of any cultural resources recorded within the project area.

The investigation was performed in compliance with the National Historic Preservation Act of 1966 (Public Law [PL] 89-665), as amended in 1974, 1976, 1980, and 1992; the National Environmental Policy Act of 1969 (PL 91-190.83 Stat. 915,42 USC 4321, 1970); and the Antiquities Code of Texas (Texas Natural Resources Code of 1977, Title 9, Chapter 191, as amended); and in accordance with the Procedures of the Advisory Council on Historic Preservation (36 CFR 800), and 13 TAC 26, as well as the guidelines set forth by the Register of Professional Archaeologists and the Council of Texas Archeologists.

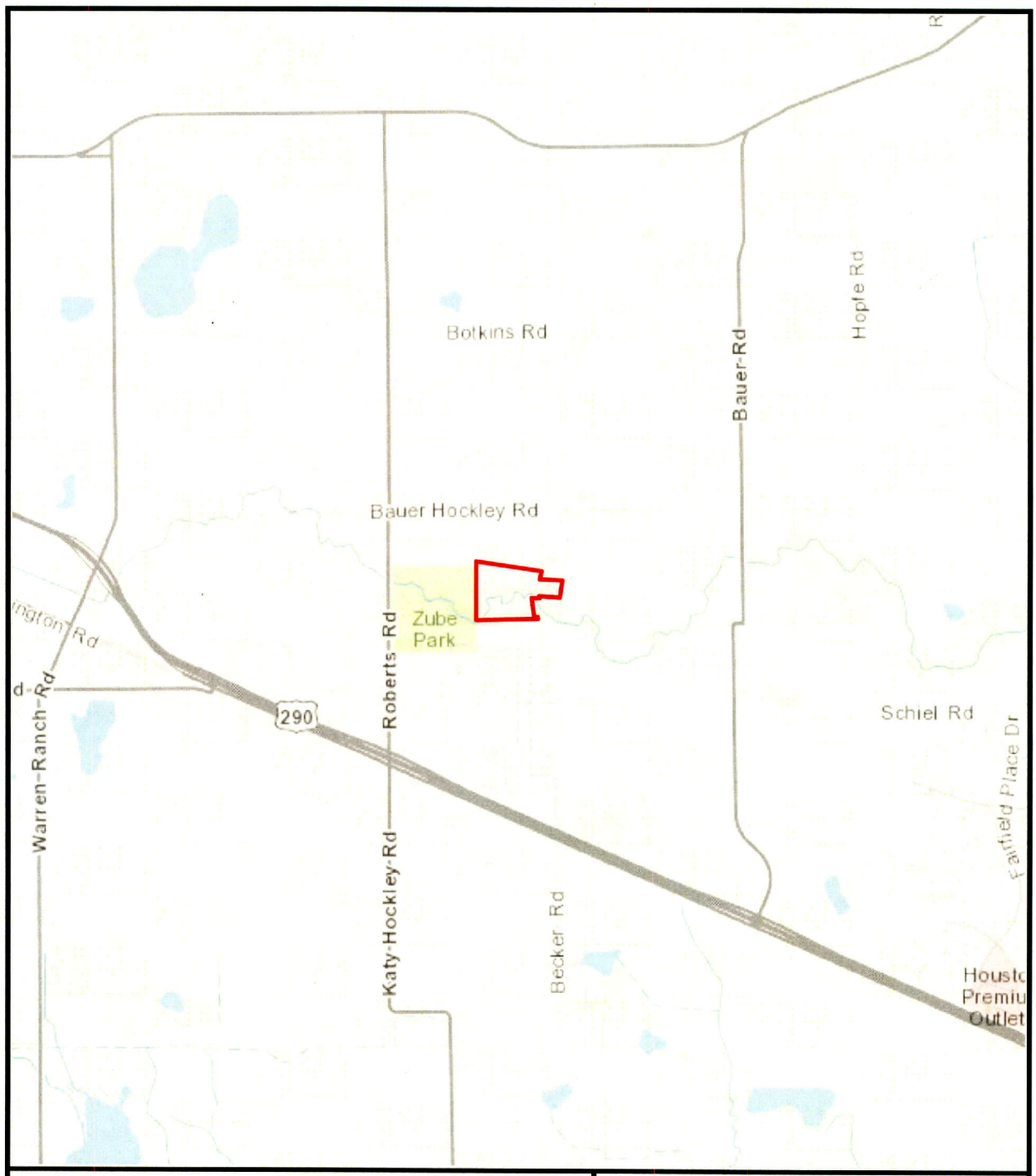

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Figure 1
Project Vicinity Map
HCFCD Project ID L500-01-00-E001
Detention Basin Project
Harris County, Texas

Prepared By: ATKINS/14923	Scale: 1 " = 1 Mile
Job No.: 100035821	Date: Sep 19, 2013

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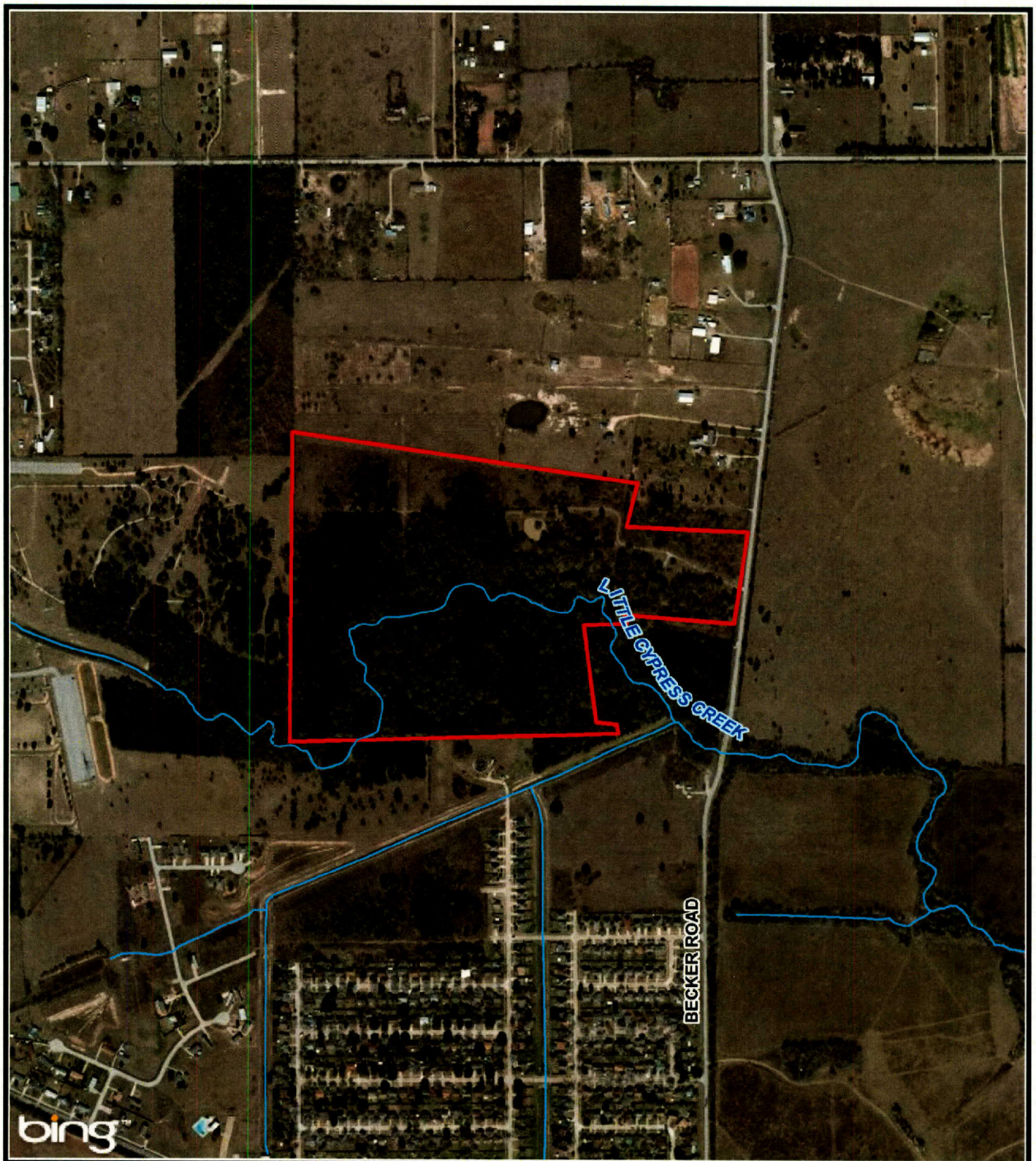

Project Area

Projection: State Plane
Datum: NAD 83
Zone: Texas South Central
Units: Feet
Aerial: Bing Maps Hybrid

0 200 400 Meters

0 500 1,000 Feet

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Figure 2
Aerial Project Location Map
HCFCD Project ID L500-01-00-E001
Detention Basin Project
Harris County, Texas

Prepared By: ATKINS/14923	Scale: 1 " = 1,000 '
Job No.: 100035821	Date: Sep 19, 2013

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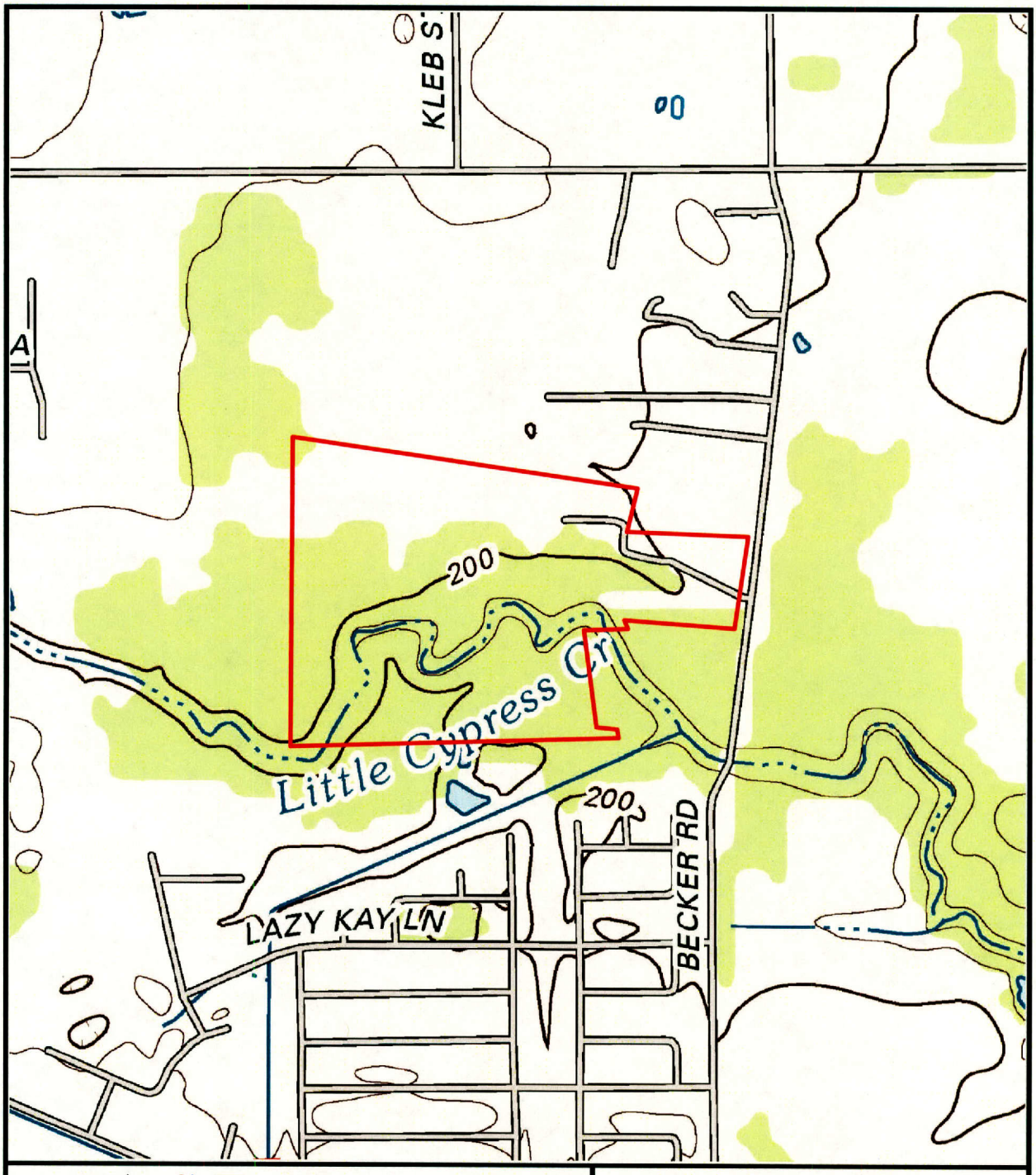

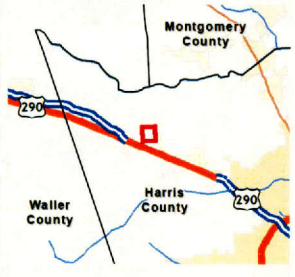

Project Area

Projection: State Plane
Datum: NAD 83
Zone: Texas South Central
Units: Feet
Topo: 7.5 Minute USGS Quad

0 200 400 Meters

0 500 1,000 Feet

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Figure 3
Topographic Project Location Map
HCFCD Project ID L500-01-00-E001
Detention Basin Project
2013 Hockley Quadrangle
Harris County, Texas

Prepared By: ATKINS/14923	Scale: 1 " = 1,000 '
Job No.: 100035821	Date: Sep 19, 2013

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II. ENVIRONMENTAL SETTING

PHYSIOGRAPHY

The proposed project is located in the Gulf Coastal Plain of Texas. This physiographic province ranges in character from a smooth depositional plain bordered by bays and barrier islands along the Gulf of Mexico, to rolling hills extending inland to the Balcones Fault Zone. The plain rises in elevation from sea level to approximately 60 m (197 ft) above mean sea level (amsl) within 160 kilometers (km) (100 miles) of the coastline. Narrow corridor valleys of small streams and broader valleys of larger streams break the generally flat relief of the Gulf Coastal Plain. Salt domes and fault scarps occasionally interrupt this relatively featureless topographic pattern. Some scattered salt domes express surface features as broad mounds with as much as 30 m (98 ft) of relief. Faults are common in the region, but express little or no surface relief (Bureau of Economic Geology [BEG] 1996). The landscape within this physiographic province is characterized as broad, nearly level, and gently sloping coastal prairie with poorly defined drainage patterns.

The majority of the proposed project crosses tracts of agricultural land that have been repeatedly modified over the past century. Landfill and grading has extensively changed the face of the landscape and virtually eliminated the natural contours. Most of the shallow depressions and paleo-meander ridges that once formed the pimple mound topography in the region have been decimated by agriculture and urban development. All of these mechanical impacts greatly reduce the likelihood of encountering historic and prehistoric cultural artifacts in an undisturbed context.

GEOLOGY

The surface geology of the proposed project consists of Wockley fine sandy loams (Natural Resources Conservation Service [NRCS] 1973). These soils are underlain by the Willis formation from which they are largely derived. The age of the Willis Formation is disputed due to the lack of standard datable material including volcanic ash deposits and diagnostic fossilized material. However, based on a probable correlation with the Citronelle Formation, it is generally accepted to have formed at the end of the Pliocene and beginning of the Pleistocene Epochs (Isphording 1971).

WOCKLEY SOILS

The proposed project lies within an area that was once covered in upland pastures and forested areas. Urban and agricultural development in the area has heavily impacted the original landscape, dramatically altering the face of the landscape and eliminating the natural contours and pimple mounds. Historic orthorectified aerial photography from 1943 shows that the entirety of the project area was completely cleared for farming and pastureland with the exception of the central, braided portions of Little Cypress Creek.

According to the *Soil Survey of Harris County, Texas* (Wheeler 1976), Wockley fine sandy loam soils are mapped within the project area. Wockley series soils consist of very deep, somewhat poorly drained, moderately slowly permeable soils. These nearly level upland soils formed in loamy sediments from the Willis Formation of the late Pliocene and early Pleistocene age. Wockley soils may be present in areas with slope ranges from 0 to 1 percent gradient, however they are predominantly found from 0.1 to 0.5 percent gradient (Wheeler 1976). These soils are used mainly as corn or bermudagrass cropland and cattle or goat pastureland. Abbot (2001) identifies the Wockley soils as having low geoarcheological potential, and further notes that upland soils, which predate the Lissie Formation, have no potential for deeply buried deposits.

CLIMATE AND VEGETATION

The survey areas occur completely within the Gulf Prairies and Marshes vegetation region (Hatch et al. 1990). No portion of this proposed project occurs specifically within the Gulf Marshes. The proposed project area lies within the nearly flat plain that extends 48 to 129 km (30 to 80 miles) inland from the Gulf of Mexico. The Gulf Prairies are characterized by nearly level topography with dissected plains having slow surface drainage. Elevation extends from sea level along the coast up to 76 m (250 ft) amsl. Annual precipitation averages 107 centimeters (cm) (48 inches). Mean annual temperature is typically 70 degrees Fahrenheit (Hatch et al. 1990).

The original vegetation types of the Gulf Prairie included tallgrass prairies and post oak (*Quercus stellata*) savannah (Gould 1975). However, the Gulf Prairies experienced extensive conversion to cropland and improved pasture for livestock grazing throughout the twentieth century, especially with the advent of affordable mechanized farm equipment after World War II (Lobpries 1994). Approximately one-third of the Gulf Prairies is now cultivated mainly for rice, sorghum, corn, and improved pasture grasses (Hatch et al. 1990). In the proposed project area, historic orthorectified 1943 aerials indicate that the majority of the area surveyed was cleared and cultivated for agriculture. Furthermore, pedestrian survey revealed multiple modern cattle and goat pens, electrified fences, as well as visible furrows indicating that the area was utilized for agriculture until very recent times.

The project area is typical of the Gulf Prairies region, and evidence that the project area was once cropland or pastureland was observed during the survey and during historic aerial photographic review. In recent decades, the Gulf Prairies have experienced rapidly increasing conversion to suburban and industrial land use. The encroachment of suburban development is demonstrated in the northeast corner of the project area by the modern concrete road and driveway with an associated modern septic tank. Whether or not a house was ever built at this location is unclear, however no remnants of any structure were present in the area. The land in that portion of the proposed project area had been cleared, leveled, and filled for such a purpose. Large spoil piles of mature trees and brush in an advanced state of decomposition were noted to the south of this area

towards Little Cypress Creek and likely represent preparation of the eastern portion of the project area for suburban development that was not completed.

Very little native prairie remains due to urbanization, agricultural activities, and suppression of wildfire (Eubanks 1994; Smeins 1994). These remnants are often characterized by an unusual microrelief topography known as "gilgai" or "mima" mounds (Smeins 1994). While this may be typical of this area, none of these were observed during survey of the proposed project. The only relief that was noted was in the short braided drainages that channel runoff from the fields, and empty into the meanders of Little Cypress Creek. Climax native grasses such as little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), indiangrass (*Sorghastrum nutans*), eastern gamagrass (*Tripsacum dactyloides*), and gulf muhly (*Muhlenbergia capillaries*) dominate these remnant prairie areas. Improved pasture grasses such as bermudagrass (*Cynodon dactylon*) and bahiagrass (*Paspalum notatum*), invaders such as johnsongrass (*Sorghum halepense*), giant ragweed (*Ambrosia trifida*), and Brazilian vervain (*Verbena braziliensis*), and woody species such as eastern baccharis (*Baccharis halimifolia*), Macartney rose (*Rosa bracteata*), and Chinese tallow-tree (*Sapium sebiferum*) have replaced most of these native grasses throughout the remainder of the Katy Prairie. Species such as post oak (*Quercus stellata*), loblolly pine (*Pinus taeda*), live oak (*Quercus virginiana*), water oak (*Quercus nigra*), willow oak (*Quercus phellos*), sugarberry (*Celtis laevigata*), elms (*Ulmus* spp.), and Chinese tallow-tree dominate isolated woods and wooded riparian areas along drainages.

WILDLIFE

The Gulf Prairies region can be divided into several major wildlife habitat types, which coincide with the major vegetative communities present. The major habitat divisions are defined as farmland, forest, rangeland, nonforested wetlands, and forested wetlands. The distribution of habitat types in the area and the activity patterns of many wildlife species result in some overlap of faunal communities. Forest-dwelling species may occasionally occur in open areas around forest stands, and species particular to nonforested habitats may occasionally be found in forested areas. Edge areas, or ecotones, between major habitats are often preferred by wildlife species because of the diversity of food and cover usually provided by the overlap of vegetative communities.

The project area lies within the Austroriparian Biotic Province. Extensive pine and hardwood forests, swamps, marshes, and other hydric communities characterize the Austroriparian Biotic Province. The range of the Austroriparian Biotic Province extends from eastern Texas to the Atlantic coastal plain and as far north as the Dismal Swamp of southeast Virginia (Dice 1943). The western boundary of the Austroriparian Biotic Province is the western boundary of the pine and hardwood forest of the eastern gulf coastal plain. The ecological associations of the Austroriparian Biotic Province extend westward beyond this boundary, in local areas, wherever soil conditions are favorable. At least 47 mammal species, 29 snake species, 10 lizard species, 2 land turtle species, 17

anuran species, and 18 urodele species are known to have occurred in the Austroriparian Biotic Province in recent times (Blair 1950).

III. CULTURAL SETTING

The proposed lies within the southeast Texas Archaeological Region (Kenmotsu and Perttula 1993). Researchers have identified multiple archeological time periods based on material culture remains, which are detailed below.

CHRONOLOGY OF THE SOUTHEAST TEXAS ARCHEOLOGICAL REGION

The first Archeological work in the region was recorded in 1879, followed by sporadic work with limited scope until the Reservoir-Salvage period of 1946–1966, which saw a great increase in archeological investigations and understanding (Guy 1990; Perttula 1993). From that point moving forward, both professional and avocational archeologists have recovered vast amounts of data from across southeast Texas. Certain portions of the archeological region, however, have received more attention and are better understood. The most-detailed archeological work has been done in the coastal zone, from roughly the proposed project area to the southeast (see Ambler 1967, 1970, 1973; Aten 1967, 1983a; Aten and Bollich 2002; Ensor 1998; Gadus and Howard 1990; Hamilton 1988; Hole 1974; Ricklis 1994; Weinstein 1991). The data recovered from these excavations has resulted in a well documented chronological sequence for the coastal zone that focusing on temporal delineation based on ceramic-bearing portions of the sequence. Although fewer data recovery investigations have been conducted in the inland portions of the region from roughly the project area to the north and west, Story (1990) has provided a detailed synthesis of inland research. More recently, an effort has been made to expand our understanding of inland coastal sites (Ensor and Carlson 1991; Hubbard 1999; Moore 1994, 1995; Moore et al. 1996). Five cultural periods have been temporally defined for the Southeast Texas Archeological Region based on the evidence recovered from archaeological investigations in the region conducted in the region for over 100 years: Paleoindian (ca. 11,500–7000 B.C.), Archaic (ca. 7000–500 B.C.), Transitional Archaic/Early Ceramic (ca. 500 B.C.–A.D. 700), Late Prehistoric (ca. A.D. 700–1700), and Historic (A.D. 1528–present). The Archaic can be further subdivided into the Inland Archaic (ca. 8000 B.P.–100 B.C.) and the Coastal Archaic (ca. 4000–500 B.C.). These temporal divisions generally reflect major changes in subsistence and settlement patterns, specific to southeast Texas. These divisions are supported by both stratigraphic and radiometric data.

Paleoindian Period (ca. 11,500–7000 B.C.)

Unfortunately, the Paleoindian period in southeast Texas is not defined well. This is largely due to major worldwide climatic changes beginning about 12,000 years ago that drastically altered the coastline of the Gulf of Mexico. Geological research indicates that during the end of the Pleistocene, the southeast Texas coastline extended approximately 30 to 40 km further seaward of its present location and that rivers in the region cut deep into sediments deposited during previous glaciations periods. The coastline reached its present location between 4,500 and 3,500 years ago (Aten 1983a; Gagliano 1977; Paine and Morton 1986). As a result, Paleoindian populations present in the region

were forced to adapt to the gradual, but significant, worldwide climatic changes that affected the Gulf Coast shoreline in a powerful way. Given the significant rise in sea level, it is likely that the majority of the Paleoindian sites in the region are currently situated offshore, are deeply buried in the terraces of major stream channels, or have been destroyed by Holocene erosion (Aten 1983a; Hester 1980; Howard et al. 1991).

Discrete Paleoindian components have never been excavated in southeast Texas; however, the relatively large number of Paleoindian artifacts recovered from within the region confirms the presence of early man in southeast Texas (Bever and Meltzer 2007). The majority of those Paleoindian artifacts were identified as isolated surface finds and account for the majority of those. Bever and Meltzer (2007) found the highest density of Clovis points (n = 97) recovered on the Texas Gulf Coast come from a single 35-km (22-mile) stretch along McFaddin Beach in south-central Jefferson County. It appears that the artifacts were redeposited from now-submerged offshore sites. Their lack of wear and negligible evidence of abrasion suggest minimal displacement from their original location and suggest that a rich record of early man lies deeply buried, just offshore in the Gulf of Mexico, Clovis points have also been recovered from other counties southeast Texas (Brazoria [n = 1], Fort Bend [n = 2], Galveston [n = 1], Harris [n = 9], Montgomery [n = 8]) (Bever and Meltzer 2007; see also Patterson 1986, 1997). Ricklis notes (2004), that the recovered points were manufactured from relatively high-grade lithic materials that are scarce or absent in southeast Texas, which suggests the widespread movement of both people and materials.

Several other types of well-made lanceolate, parallel-flaked projectile points such as Plainview, Angostura, and early side-notched points have been recovered from surficial and/or disturbed contexts (Hester 1980; McClure and Patterson 1989; Patterson et al. 1992; Wheat 1953). This early lithic technology reflects cultural activities that would typically have occurred in areas farther inland, in an environment characterized by a mixture of deciduous and pine woodlands (Aten 1983a), habitats that would typically support low-density human populations. Perttula (1993), Story (1990), and Ricklis (2004) have synthesized the data from the archeological record, which indicates that the southeast Texas Paleoindian populations were organized around small nuclear family groups or bands, whose adaptive strategies included some mix of hunting and gathering that required a high degree of mobility in order to exploit large areas.

Archaic Period (ca. 7000–500 B.C.)

At the beginning of the Holocene epoch, changes in world climatic conditions resulted in rising sea levels, which in turn caused inland prairies to expand and regional weather patterns to become more viable (Aten 1983a). The regional long-lived period of cultural development ushered in by these changes is defined as the Archaic, which has been further subdivided into Early, Middle, and Late stages based on variations observed in the archeological record that roughly coincide with episodic shifts in the Holocene climate and environment. This regional Archaic sequence can

further be subdivided into distinct coastal and inland manifestations based on the distinctive adaptive strategies reflected in the archeological record (Aten 1983a; Story 1990).

It is generally accepted that the Inland Archaic period in southeast Texas began sometime around 7000 B.C. and lasted until the introduction of pottery around 200 B.C. These early inland Archaic groups continued many of the cultural patterns exhibited by their Paleoindian predecessors, and site density remained low (Aten 1983a; Perttula 1993; Story 1990). Despite a paucity of sites with intact Archaic components, data from the few sites that have been excavated (Hall 1981; Patterson 1980, 1994; Wheat 1953) indicate that early Archaic groups traveled in small bands, maintaining seasonal migration patterns and relying on a generalized projectile point technology to facilitate the hunting and gathering of a variety of faunal and vegetal foodstuffs. Sites that exhibit tight associational data are relatively rare, and those that have been identified are all located on the inland coastal plain where the project area is located (Aten 1983a; Perttula 1993).

During the beginning of the Middle Archaic period, site density on the inland coastal plain remained relatively low; however, sometime between 3000 to 2000 B.C., there is evidence of decreased mobility and increased territoriality within which seasonal settlement and subsistence patterns are more fully developed (Aten 1983a; Perttula 1993; Story 1990). This shift is reflected in the appearance of several Middle to Late Archaic cemetery sites in Fort Bend County and neighboring Austin County (Hall 1981; Patterson 1980; Walley 1955). Middle Archaic lithic assemblages show an increase in the diversity of functional tool types and projectile point styles from earlier lithic assemblages; however, the level of craftsmanship and the use of fine exotic material declined (Perttula 1993; Ricklis 2004; Story 1990). Dart points recovered from Middle Archaic components at the Doering site (Wheat 1953) and the Owen site (Patterson 1980) include Gary, Kent, Bulverde, Pedernales, and Williams points. The presence of the Pedernales and the Williams points suggests extraregional interaction with Central Texas.

By the Late Archaic (ca 1000 B.C.), sea level had stabilized and the modern climatic pattern had settled into place (Aten 1983a). This stabilization brought a notable increase in the frequency of archeological sites in both the coastal and inland areas of the region. In the coastal zone, this shift toward a more mesic climate resulted in the formation of extensive estuarine shallows and increased productivity thereby expanding the ecological basis and stimulating an increase in the human carrying capacity and population growth (Aten 1983; Ricklis 2004). The presence of Late Archaic cemetery sites dating from this period in Brazoria (Wilkinson 1973); Galveston (Aten et al. 1976), and Harris (Aten 1967) counties point to a more complex social organization, and the inclusion of exotic grave goods in burials indicates the presence of a more widespread trade and exchange network (Perttula 1993; Story 1990).

In the inland zone where the project area is located, data from numerous sites reflect Late Archaic populations organized around a general foraging strategy operating on a highly scheduled basis. Sites on the inland coastal prairie were commonly located on the floodplains of major stream

courses within riparian vegetation zones that provided an abundance of food sources such as nuts, seeds, deer, turtle, and fish (Ensor 1987; Ensor and Carlson 1988; Fields et al. 1983, 1986; Freeman and Hale 1978; Howard et al. 1991; Patterson 1980; Shafer 1968). Sites with Late Archaic components, such as those found at the Crawford site (Ensor and Carlson 1988), the Owen site (Patterson 1980), and sites 41MQ4 and 41MQ6 in the Lake Conroe/San Jacinto River Basin (Shafer 1968), provide strong evidence for a significant increase in population, intensive use and reuse of sites, and the possible establishment of territorial identification (Story 1985, 1990). The discovery of a number of formal cemeteries on the inland coastal prairie also provides support for this assumption (Hall 1981; Patterson 1999; Steele and Olive 1990; Story 1985, 1990; Walley 1955).

Lithic assemblages dating from the Late Archaic are distinguished by expanding- and rectangular-stemmed forms such as Palmillas, Ellis, Gary, Kent, and Pontchartrain. Since the latter type derives from western Louisiana and is typically found in northeast Texas along the Red River, the presence of Pontchartrain points in southeast Texas sites also suggests extraregional interactions with Louisiana and far northeast Texas (Fields 1988; Turner and Hester 1993). Strong ties to the coast are evidenced at similar inland sites by the abundance of ornaments and tools made of marine shell (Story 1990).

Transitional Archaic/Early Ceramic Period (ca. 200 B.C.–A.D. 700)

Pottery first appears in the archaeological record around 200 B.C. in southeast Texas. Although the evidence indicates a continuation of many of the same cultural and technological patterns from the preceding Late Archaic period, the introduction of ceramic technology marks a shift in adaptive strategies, signaling a different means of processing, cooking, and/or storing plant and animal resources (Perttula 1993). During the Transitional Archaic/Early Ceramic period, cultural groups adapted to an environment of increasingly differentiated annual cycles. Thus, settlement patterns and subsistence regimes took on increasingly seasonal emphases as groups moved from the occupation of fall/winter shoreline fishing camps to spring/summer hunting camps (Aten 1983a; Perttula 1993; Ricklis 2004). Ceramic technology evolved rapidly, and there is evidence of increased social and demographic complexity among the coastal groups as settlement patterns shifted in response to the integration of these new subsistence regimes (Aten 1983a; Ricklis 2004).

Sometime between A.D. 600 and 700, small, straight, and expanding-stem arrow points appear in the archeological record (for detailed discussions of arrow point chronology see Patterson 1991; Prewitt 1981, 1985, 1995; and Ricklis 2004). Prior to the introduction of this innovative new projectile point style, lithic technology varied, but changes in dart point style were more generalized in that they could be applied to a wide range of resource conditions and applications (Aten 1983a). With the introduction of the bow and arrow, a distinctive hunting technique was incorporated into the subsistence regime, and in southeast Texas, Scallorn points are clear markers of this early Transitional Archaic/Early Ceramic period (Ricklis 1994).

Late Prehistoric Period (ca. A.D. 700–1700)

Chronological divisions for the Late Prehistoric have been defined for both the inland coastal plain (Story 1990) and the coastal margins (Aten 1983a). Story (1990) and Aten (1983a) both see the indigenous late cultures of the Southeast Texas Archeological Region as beginning around A.D. 100 and continuing into the early nineteenth century. There are, however, regional variations in settlement and subsistence patterns and technology that indicate both temporal and spatial differences between the two subregions (Ellis and Ellis 1999; Perttula 1993; Ricklis 2004; Story 1990).

Based on the Galveston Bay ceramic seriation, Aten (1983a: Figure 14.1) defined six chronological periods in the Southeast Texas Archeological Region: Clear Lake (A.D. 100 to 425); Mayes Island (A.D. 425 to 650); Turtle Bay (A.D. 650 to 1000); Round Lake (A.D. 1000 to 1350); Old River (A.D. 1350 to 1700); Orcoquicac (A.D. 1700 to 1810); and Late Historic (A.D. 1810 to 1840(?). Subsequent research has called into question just how fine-grained the Galveston Bay seriation actually is (Ellis and Ellis 1995; Ricklis 1994; Weinstein 1991), suggesting that its usefulness is primarily as a relative sequence and should not be relied upon as an accurate calendrical scale (Ricklis 1994). In addition to this issue, excavations at several stratified, well-dated ceramic-bearing sites have refined the temporal placements of ceramics within the chronology (Ellis and Ensor 1998; Ricklis 1994, 2004; Moore 1995; Winchell and Ellis 1991).

Extensive work at the Eagle's Ridge site (41CH252) in the Wallisville Reservoir area has added significantly to our knowledge of the Early Ceramic period and served to refine the temporal placement of ceramics within the Galveston Bay seriation (Ensor 1998). At the Eagle's Ridge site, more than 14,000 sherds were recovered, and analysis of the stratified and well-dated ceramic assemblage has yielded some of the earliest pottery recovered from relatively secure contexts, effectively pushing the earliest occurrence of ceramics back to sometime around 200 B.C. (Ellis and Ensor 1998). The range and distinct variability of the ceramics recovered at the site suggest that pottery making, while definitely in its early stages, was fairly well established in the region by the beginning of the Clear Lake period. If the assemblage at 41CH252 is broadly representative, ceramics in the coastal zone started out as highly diverse, and the frequency of types found at the Eagle's Ridge site varies significantly from Aten's (1983a) seriation. In addition, a much broader range of decorative styles and motifs was observed on the early period ceramics found at Eagle's Ridge than is commonly found on later period ceramics, and it appears that an early potter's repertoire also included a broad range of technological approaches to paste choice, primary forming, and surface treatment. However, by the A.D. 700s, the range of technological styles had narrowed considerably in the sense that both manufacturing processes and decorative techniques changed to include a smaller suite of technical procedures. This narrower range of technical procedures stabilized into a predominant pattern in which decoration in general (and the range of decorative techniques specifically) was much less common. In general, it appears that the emphasis came to be on the primary and secondary forming stage of the pottery production process and less

on the embellishment of the finished pot. In essence, southeast Texas potters settled on a combination of technical attributes, and they deviated from that overall style relatively little. This is also confirmed by a number of other studies that have explored the regional range of stylistic variability in ceramics (Black 1989; Ellis and Ellis 1995; Ellis and Ensor 1998; Ricklis 1994) and the variability in forming techniques and surface treatment (Ellis 1992, 1994, 1995, 2000; Ellis and Ellis 1996a, 1996b, 1999; Ellis and Ensor 1998; Hamilton 1988; Howard 1990; Winchell and Ellis 1991). Many of the individual technological aspects may have distinct spatial properties (Ellis and Ellis 1999).

One of the more ambitious studies pertaining to variation in inland settlement patterns was undertaken by Moore (1995). Using Story's (1990) Mossy Grove Culture/Tradition, Moore (1995) developed what he termed, the "Mossy Grove Model" of long-term hunter-gatherer adaptation in inland southeast Texas, to look at Ceramic period settlement patterns along stream channels in this area. Using both technological variations in lithic and ceramic data, he tested the hypothesis that social groups in the inland coastal area were organized on the basis of watersheds and that these watersheds marked important social boundaries. Although limited by the availability of technological data, Moore's study yielded viable results that merit further research.

Lithics occur on a more frequent basis at inland sites rather than at coastal sites. Sometime during the early Turtle Bay period (A.D. 650 to 900), dart points and the use of the spear were largely replaced by arrow points in the coastal margin area (Patterson 1995). In the Brazos Delta-West Bay area and on the inland coastal plain, Gary and Kent dart points continued to be used during the early portions of the Late Prehistoric, and Scallorn arrow points appear to have been used simultaneously. Perdiz points come to dominate the later part of the Late Prehistoric period (Ensor 1990; Patterson 1995; Story 1990; Ricklis 2004).

Historic (A.D. 1528—present)

Contact period sites in southeast Texas (ca. A.D. 1500–1800) are difficult to identify because they often resemble Late Prehistoric sites (Patterson 1995; Tunnell and Ambler 1967). Historic Indian period sites are more easily identified by the presence of glass, metal artifacts, gunflints, and some European ceramics (Aten 1983a; Ensor and Carlson 1988, Patterson 1995); however, bulbar stemmed and Guerrero arrow points are useful for identifying Historic period aboriginal sites (Hudgins 1986; Patterson 1995; Ricklis 1994, 2004).

Most of what is known of the geography and early inhabitants of southeast Texas comes from the written accounts of early Spanish, French, and English explorers. The earliest and best account of the indigenous groups living along the upper Texas coast comes from the chronicles of Alvár Núñez Cabeza de Vaca, a Spanish shipwreck survivor who landed on Galveston Island in 1528 (Pupo-Walker 1993). For seven years Cabeza de Vaca lived and traveled along the Texas coast from Galveston Bay to Corpus Christi Bay and onto the Coastal Plains, interacting with many of the

distinct cultural groups living in the region. The chronicles of Cabeza de Vaca, as well as information from other archival sources, indicate that these early coastal people were part of numerous politically, culturally, and/or linguistically distinct groups that shared certain resource-based territory.

Using the large body of ethnohistoric information and accumulated archeological data, Aten (1983a) reconstructed native group territories from the time of first contact until the nineteenth century. According to Aten's research, the region was originally populated by four linguistically distinct groups (see Aten 1983a; Glass 1989; Hamilton 1988; Newcomb 1961; Story 1990): (1) several Karankawa-speaking groups whose territory encompassed the Brazos Delta-West Bay area and extended southward down the central coast; (2) several Akokisa groups whose territory occupied a sizeable portion of the region from Galveston Bay northward toward the Spring Creek and San Jacinto River drainages; (3) several Atakapa groups whose territory extended from the Neches River westward into Louisiana; and (4) the Bidai, who occupied territory in the Conroe-Livingston area. Over the next three centuries, French, Spanish, and Anglo explorers, missionaries, soldiers, and settlers encountered these Native American groups with devastating effects. After 1700, European settlement in the region severely disrupted the indigenous groups, and by the late 1800s, most of the indigenous Indians in the region had been displaced or disappeared entirely.

Historic Indian sites are distinguished by the presence of European and nonaboriginal American trade goods that date from the sixteenth through mid-nineteenth centuries. Debris on historic Indian sites indicates a continuing nomadic hunting and gathering existence (Aten 1983a; Tunnell and Ambler 1967).

In 1824 families moved to the Brazos River area responding to Stephen F. Austin's advertisements. In the same year the Baron de Bastrop, a state land commissioner, arrived and issued 29 titles to settlers. Pioneers including Nathaniel Lynch, William Scott, and John R. Harris, chose sites along Buffalo Bayou, the San Jacinto River, and the San Jacinto estuary. In 1826, John R. Harris laid out Harrisburg on his league where Brays Bayou joined Buffalo Bayou, opening a general store. He also built a saw and grist mill at the site. His brothers captained vessels between there and New Orleans and even Tampico. By 1833 Austin's colonization effort ended and 23 more families secured titles elsewhere in the county. Harrisburg was an established port of entry for immigrants and freight destined for the upper Brazos River communities of San Felipe and Washington. The final stage of development under the Mexican system occurred on December 30, 1835, when the General Council set the boundaries of Harrisburg Municipality.

Harrisburg Municipality was the home of both President David G. Burnet and Vice President Lorenzo de Zavala of the new Republic of Texas. They were elected by the delegates at Washington on March 16, 1836. The republic's officials were forced to evacuate Harrisburg by steamboat to Lynchburg and subsequently Galveston Island on April 12 as a result of Santa Anna's advance via the Brazos River. Harrisburg municipality was the scenario of a constant stream of refugees from

the upper Brazos settlements en route to the United States. Santa Anna and his troops reached Harrisburg on April 14 where they continued their tactic of looting Texian settlements and burning them before moving on. The battle of San Jacinto took place on April 20 and 21, where General Sam Houston and the Texian army soundly defeated the main force of General Antonio Lopez de Santa Anna at the San Jacinto River in what is now Harris County. The Mexican dictator was captured, and agreed to withdraw his army south of the Rio Grande River. Whether or not the General intended to break this agreement and return is unclear. What is certain is that this battle left the Mexican Army in disarray, and their retreat in an attempt to regroup resulted in disaster as they became mired in the seasonally inundated areas of southeast Texas (Dimmick 2006). These hindrances and lack of organized leadership resulted in the birth of the Republic of Texas with the Rio Grande as the southern boundary.

The First Congress of the Republic of Texas formed Harrisburg County on December 22, 1836, making the city of Houston the county seat and national capital. At the time, Harrisburg County encompassed the territory of the old municipality plus Galveston Island. The modern boundaries were established in May 1838 and the name was changed in December 1939 to Harris County in honor of John R. Harris.

Early settlers in Harris County were mainly farmers and ranchers from the southern United States. These were followed by a number of German and French immigrants that arrived in the 1840s. Both groups included city-dwelling artisans, merchants, and farmers, some Catholic, some Protestant. Contrary to popular belief, few Mexican prisoners chose to remain in Harris County when President Sam Houston released them on April 21, 1837; few Mexican families lived in Houston in the 1880s. It was the economic opportunities offered by the Houston Ship Channel and the railroads combined with the unsettled political conditions following the Mexican Revolution that later brought Mexicans to Houston.

The development of Harris County as an industrial power began in 1911 with the formation of the Harris County Ship Channel Navigation District. The existing channel was deepened in 1914 by the United States Army Corps of Engineers and by 1918 petroleum refineries and other industries were established in the area. The success of the ship channel in attracting industry caused a surge in population. In 1930, Harris County had 359,328 residents and surpassed Dallas and Bexar Counties by more than 100,000 people and has remained the most populous county in Texas.

IV. PREVIOUS INVESTIGATIONS

RECORDS REVIEW

Atkins conducted a records search to locate recorded cultural resources within the proposed project area and the vicinity of the project area. The site files at the Texas Archeological Research Laboratory (TARL) and the THC Restricted-Access Online Archeological Sites Atlas were consulted for locations of previously recorded cultural resources including properties listed in the NRHP, sites designated as SALs, Official Texas Historical Markers, and for records of previously conducted cultural resources surveys near the project area.

The TARL files indicated that two previous archeological surveys have been conducted within 800 m (0.5 mile) of the proposed project area. The U.S. Environmental Protection Agency (EPA) conducted a survey in 1986, though no other information concerning this survey was available. Archeological site 41HR574 appears to have been identified during the EPA survey, as the site form date is consistent with the date of that survey. Site 41HR574 is approximately 700 m (2,300 ft) southeast of the current project area (Appendix). The site is also known as the Becker House. Recorded in 1986 by Cultural Resource Services, Inc., 41HR574 has been identified as a farmstead complex dating from 1916 to 1965. The site was documented as being approximately 80 percent intact but was determined not to be potentially eligible for listing in the NRHP and not recommended as a SAL. No further work was recommended for this site. No impacts resulting from this project are anticipated for 41HR574.

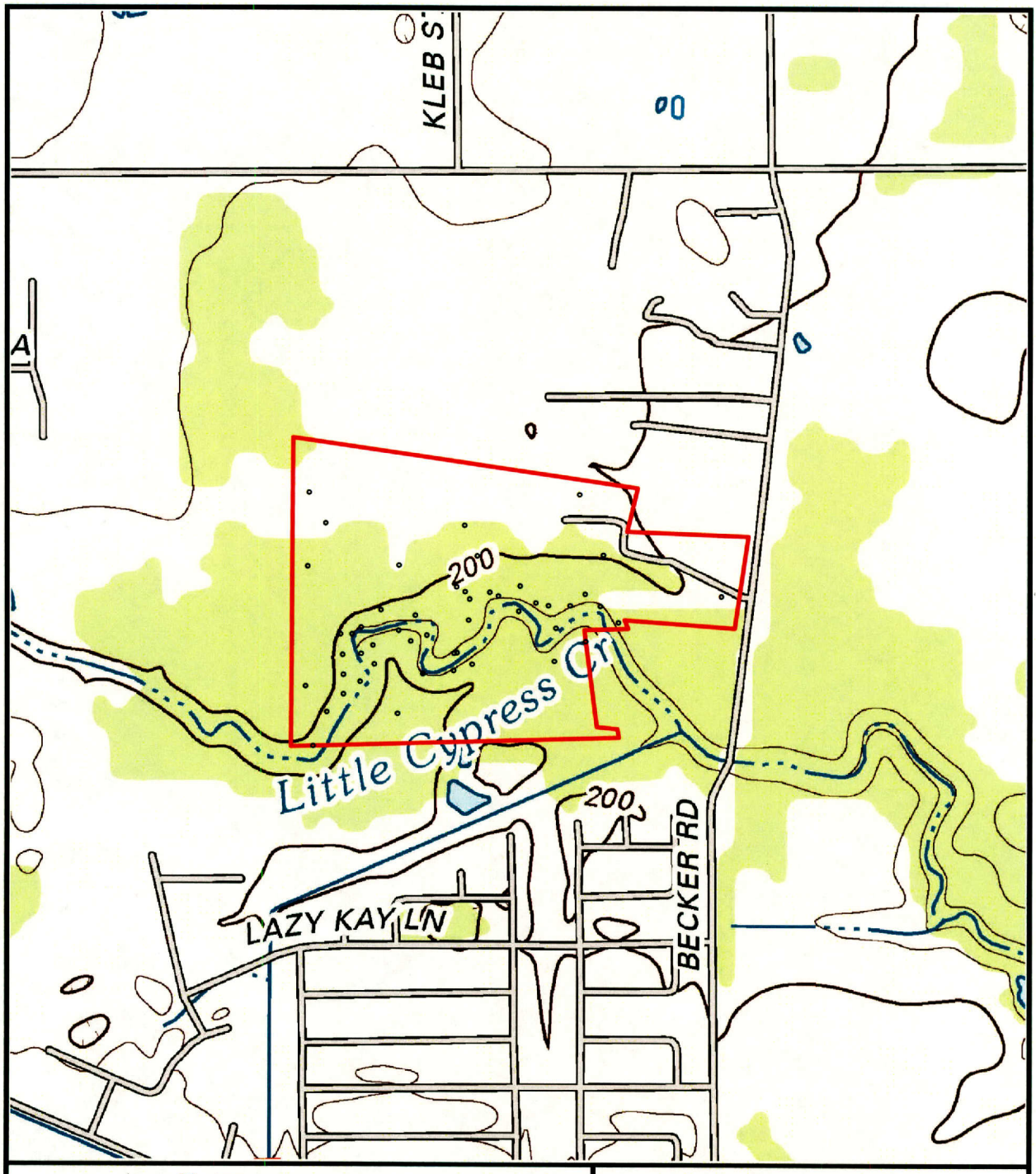
A second survey was conducted by HRA Gray and Pape for a detention basin, access road, two parking lots, and three drainage channels associated with the development of Zube Park. The survey areas investigated were approximately 175 to 200 m west of the proposed Zube Park Detention Basin. The survey did not result in the identification of any new cultural resources and no further work was recommended (Hughey and Turner 2006).

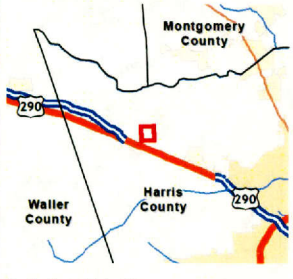
No other previously recorded cultural resource sites, locations of properties listed in the NRHP, sites designated as SALs, Official Texas Historical Markers, or records of previously conducted cultural resource surveys were found in the records search.

V. FIELD METHODOLOGY

Atkins' field methods followed the Archeological Survey Standards for Texas established by the THC (2002). The investigations included a 100 percent pedestrian survey of the project area in 30-m (98.43-ft) intervals augmented with judgmentally placed shovel testing where ground surface visibility was reduced to less than 30 percent. All shovel tests were conducted on property owned by the HCFCD. Shovel tests were excavated to a depth where pre-Holocene sterile substrates were encountered, when possible. Because the soils are identified as having a low geoarcheological surface potential and are Pliocene in age, shovel tests were generally shallow in nature. However, there was some recent alluvium present adjacent to Little Cypress Creek. Therefore, shovel test frequencies were increased in areas adjacent to the creek. All excavated soil matrices were screened through 6.3-millimeter (¼-inch) mesh hardware cloth.

A total of 50 shovel tests were excavated within the proposed detention basin project area. The shovel tests were approximately 30 x 30 cm and excavated by natural strata where possible, or in intervals not exceeding 10 cm. The locations of shovel tests are depicted on Figure 4. The following information was recorded on Atkins shovel test logs: location, maximum depth, and the number of soil strata. For each soil stratum, thickness, texture, color, and the presence or absence and nature of cultural materials was recorded. No artifacts were observed or collected. The shovel tests were backfilled upon completion.





Projection: State Plane
Datum: NAD 83
Zone: Texas South Central
Units: Feet
Topo: 7.5 Minute USGS Quad

Project Area
Negative Shovel Test

0 200 400 Meters
0 500 1,000 Feet

ATKINS

Figure 4
Shovel Test Locations
HCFCD Project ID L500-01-00-E001
Detention Basin Project
2013 Hockley Quadrangle
Harris County, Texas

Prepared By: ATKINS/14923	Scale: 1 " = 1,000 '
Job No.: 100035821	Date: Sep 19, 2013

File: N:\Clients\G_H\HCFCD\100035821_Zube_Park_Det_Basin\geo\a_figure4_rev.mxd

VI. RESULTS OF INVESTIGATIONS

The archeological survey included a 100 percent pedestrian survey of the proposed detention basin for historic and prehistoric cultural material. The pedestrian survey was augmented with shovel tests judgmentally-placed by the archeologists. Much of the project area has been disturbed by recent agricultural activities. These activities are evident on aerial photographs dating to 1943, as well as by the occasional remnant furrows observed during the survey left by agricultural machinery in recent history, which has likely destroyed any archeological sites.

The proposed Zube Park Detention Basin survey area consisted of 29 ha (72 acres) of densely overgrown fallow pastureland and fallow former cropland with Little Cypress Creek winding east to west across the bottom third of the survey area (see Figure 4, Figure 5). It is covered with juvenile oaks, loblolly pine, elm, hackberry, Chinese tallow, and cedar forming the canopy. Mature oaks and cedars are widely scattered within the project area. The understory consists of extremely dense yaupon, dewberry, muscadine, and various scrub plants. Remnants of furrows may be seen on the ground across the project area where visibility is greater than 30 percent, on both sides of Little Cypress Creek. Modern cattle fences and pens with electrified fence sections regularly bisect the area north of Little Cypress Creek.

Figure 5. Project area crossing Little Cypress Creek, facing west.

A modern concrete road north of the creek travels west from Becker Road approximately 150 m (493 ft) into the project area, at which point the road turns into a two-track dirt path that covers the remaining width of the proposed project area (646 m or 2,120 ft). At the end of the concrete portion of the road, a driveway runs south for approximately 30 m (98 ft), with no house or structure at the end of the driveway (Figure 6). This area is covered in modern tire and trash dumping areas, although no remnants of any structures are present. A modern, concrete septic tank with a collapsed lid, exposing modern, blue PVC plumbing pipe, which emanates from an unknown location, is located approximately 4.5 m (14.76 ft) from the end of the driveway.

Figure 6. Modern driveway with trash piles, facing south.

Overall, the project area appears to have been disturbed by agricultural and modern dumping activities. Thus, the Principal Investigator determined that the best potential for buried, undisturbed archeological sites was adjacent to Little Cypress Creek. For this reason, shovel tests were largely located within 50 m (164.04 feet) of the creek, with the rest of the proposed detention basin being pedestrian surveyed for historic standing structures or cultural resources.

Fifty shovel tests were excavated to depths ranging from 25 to 100 cm (9.84 to 39.37 inches) below surface with an overall average depth of 55 cm (21.65 inches) below surface. Soil profiles encountered during the shovel testing were largely characterized by densely packed, light brownish-gray (10YR 6/2) fine sandy loam with ferrous concretions and few to zero very small cobbles or pebbles underlain by densely packed, pale brown (10YR 6/3) silty clay loam with 20

percent yellow (10YR 7/8) and reddish-brown (2.5YR 5/4) mottles. All shovel tests proved negative for cultural resources, and no historic structures, features, or artifacts were observed during the survey.

VII. CONCLUSIONS AND RECOMMENDATIONS

The entirety of the project area consists of fallow agricultural land and modern road development that has been repeatedly modified over the past century. Landfill and grading has extensively changed the face of the landscape and virtually eliminated the natural contours and pimple mounds evident on historical aerials. Most of the shallow depressions and paleo-meander ridges that once formed the pimple mound topography in the region have been decimated by agriculture and urban development, including those that may have once been in the project area. All of these mechanical impacts greatly reduce the likelihood of encountering historic and prehistoric cultural artifacts in an undisturbed context.

The only previously recorded site within 800 m (0.5 mile) of the project area is site 41HR574, located approximately 700 m (2,300 ft) southeast of the project area. This site is known as the Becker House and will not be impacted in any way by the proposed project.

Atkins archeologists did not encounter any cultural resources during this survey of the proposed project in Harris County, Texas. The lack of cultural materials recorded may be attributed to disturbance caused by previous agricultural activities, modern residential development, and Pliocene-aged soils within the project area. Due to the absence of cultural materials within the areas surveyed and disturbance across the survey areas caused by agriculture, road construction, and drainage, Atkins recommends that construction activities within the project area be allowed to proceed without further consultation.

If, during construction, previously unrecorded cultural resources are encountered, all activities at that location should be halted and a qualified cultural resources specialist should be contacted to assess the findings and to provide a course of action for the newly discovered cultural remains.

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Appendix

Project Location Map
(not for public disclosure)

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