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Intensive Cultural Resources Survey of the 55.4-acre Rosser Quarry Expansion, Scurry, Kaufman County, Texas

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HJN 170084 AR

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Austin, Texas

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MANAGEMENT SUMMARY

On August 23, 2017, Horizon Environmental Services, Inc. (Horizon) conducted a cultural resources inventory survey and assessment for the proposed 22.4-hectare (55.4-acre) Rosser Quarry expansion in Scurry, Kaufman County, Texas. The currently undeveloped tract is located west of Rosser, Texas, between the Trinity River, approximately 270.0 meters (885.8 feet) to the west, and the existing Rosser Quarry to the east. Three US Army Corps of Engineer (USACE) jurisdictional "Waters of the US" (WOUS) are present within the southeastern portion of the project area. These consisted of two ephemeral branches of an unnamed tributary of the Trinity River as well as one excavated pond feature. Although the proposed work area would be located on private property and would be privately funded, the proposed impacts to the three jurisdictional water features would require permitting by the USACE under Section 404 of the Clean Water Act (CWA). As this is a federal permit, the proposed construction activities within the USACE jurisdictional areas fall under the jurisdiction of Section 106 of the National Preservation Act (NHPA) of 1966, as amended.

Lattimore Materials contracted with Horizon to conduct an intensive cultural resources survey of the proposed project area in compliance with the regulations of Section 106 of the NHPA. The purpose of the survey was to determine if any cultural resources were located within the project area, and, if so, to determine their eligibility for inclusion in the National Register of Historic Places (NRHP). Current USACE guidance calls for conducting cultural resources surveys on the banks and adjacent uplands of WOUSs, which are typically defined as a 100.0-meter (328.0-foot) buffer surrounding of the jurisdictional feature. Thus, for purposes of the current cultural resources survey, the Area of Potential Effect (APE) would be considered to extend 100.0 meters (328.0 feet) surrounding the edges of the three jurisdictional features in the southeastern corner of the overall project area. However, as the physiographic setting of the project area on the floodplain of the Trinity River suggested a high potential for previously undocumented cultural resources, Horizon conducted an intensive cultural resources survey of the entire 55.4-acre (22.4-hectare) project area, including the area immediately surrounding the three jurisdictional water features.

Horizon staff archeologists Briana Nicole Smith and Stephanie Mueller, under the overall direction of Jeffrey D. Owens, Principal Investigator, performed an intensive cultural resources survey of the project area on August 23, 2017, to locate any cultural resources that potentially would be impacted by the proposed undertaking. Horizon's archeologists traversed the project

area on foot and thoroughly inspected the modern ground surface for aboriginal and historic-age cultural resources. In addition to pedestrian walkover, the Texas State Minimum Archeological Survey Standards (TSMASS) require a minimum of 1 shovel test per 2.0 acres (0.8 hectare) for tracts between 4.5 and 40.5 hectares (11.0 and 100.0 acres) in size. As such, a minimum of 28 shovel tests would be required within the 22.4-hectare (55.4-acre) project area. Horizon excavated a total of 28 shovel tests, thereby meeting the TSMASS for a project area of this size. In addition, four trenches were excavated using a trackhoe with a 1.8-meter- (6.0-foot-) wide bucket in the vicinity of the USACE jurisdictional tributaries and pond in the southeastern portion of the project area. The trenches were excavated in order to assess the potential for deeply buried cultural resources and the presence of buried paleosols, such as the West Fork paleosol known from farther to the north within the Trinity River basin.

Shovel testing revealed dense clay soils that were impenetrable with shovels past an average depth of 30.0 centimeters (11.8 inches) below surface. The four trenches excavated within the southeastern portion of the project area revealed deep alluvial sediments consisting of dense clay overlying sandy clay and sandy clay loam to depths of 5.0 to 5.5 meters (16.4 to 18.0 feet) below surface. Ground surface visibility was low throughout the project area due to dense undergrowth vegetation that has developed subsequent to past vegetation-clearing events. Tall ragweed, greenbrier, and poison ivy covered the majority of the project area as well as occasional clusters of mesquite, oak, and cottonwood trees.

No cultural resources, prehistoric or historic-age, were documented on the modern ground surface or within any of the shovel tests or trackhoe trenches excavated within the project area. Furthermore, no evidence of subsurface paleosols was observed in any of the four trackhoe trenches. While shovel testing was not capable of fully penetrating Holocene-age floodplain deposits within the broader project area, all of the deep, clayey alluvial deposits observed in the four trackhoe trenches were culturally sterile, and the stratigraphy observed in trench wall profiles did not suggest any clear boundaries between strata that suggest that stabilized land surfaces were present for any prolonged period of time during the accretion of the floodplain alluvial fills.

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

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1.0 INTRODUCTION

On August 23, 2017, Horizon Environmental Services, Inc. (Horizon) conducted a cultural resources inventory survey and assessment for the proposed 22.4-hectare (55.4-acre) Rosser Quarry expansion in Scurry, Kaufman County, Texas (Figures 1 and 2). The currently undeveloped tract is located west of Rosser, Texas, between the Trinity River, approximately 270.0 meters (885.8 feet) to the west, and the existing Rosser Quarry to the east. Three US Army Corps of Engineer (USACE) jurisdictional "Waters of the US" (WOUS) are present within the southeastern portion of the project area. These consisted of two ephemeral branches of an unnamed tributary of the Trinity River as well as one excavated pond feature. Although the proposed work area would be located on private property and would be privately funded, the proposed impacts to the three jurisdictional water features would require permitting by the USACE under Section 404 of the Clean Water Act (CWA). As this is a federal permit, the proposed construction activities within the USACE jurisdictional areas fall under the jurisdiction of Section 106 of the National Preservation Act (NHPA) of 1966, as amended.

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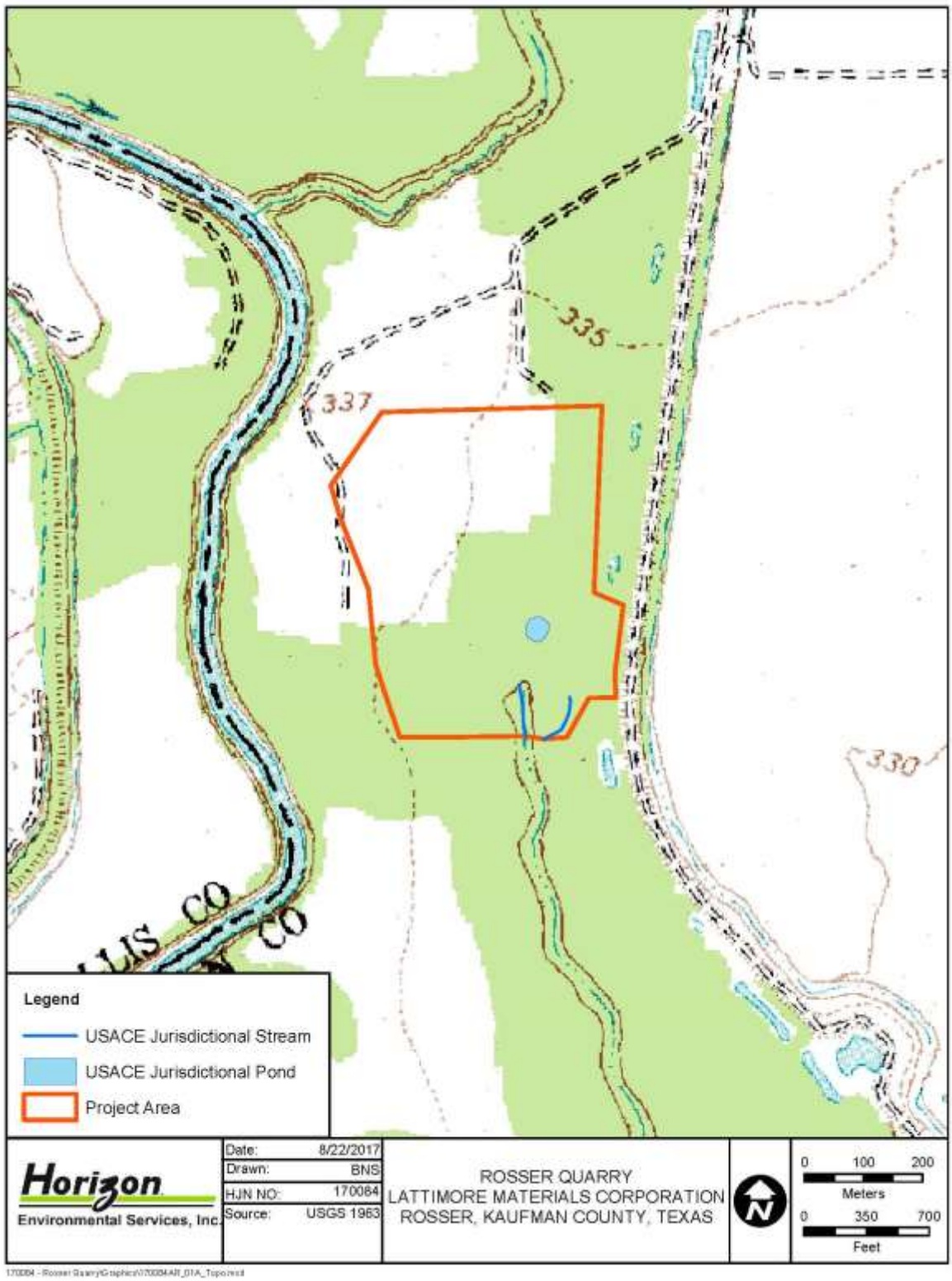

Figure 1. Location of Project Area on USGS Topographic Map

Figure 2. Location of Project Area on Aerial Photograph

of an archival review, an intensive pedestrian survey of the proposed project area with shovel testing and trackhoe trenching, and the production of a report suitable for review by the State Historic Preservation Officer (SHPO) in accordance with the Texas Historical Commission's (THC) Rules of Practice ad Procedure, Chapter 26, Section 27, and the Council of Texas Archeologists (CTA) Guidelines for Cultural Resources Management Reports.

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

2.0 ENVIRONMENTAL SETTING

2.1 PHYSIOGRAPHY AND HYDROLOGY

The project site is located approximately 3.3 kilometers (2.1 miles) west of the city of Rosser in western Kaufman County, Texas. The project area is situated within the eastern floodplain of the Trinity River, located approximately 270.0 meters (885.8 feet) to the west. Kaufman County is located near the northern end of the Blackland Prairie physiographic province in north-central Texas, and the project area is situated firmly within the Blackland Prairie (Arbingast et al. 1973). The Blackland Prairie is a narrow physiographic zone situated between the Edwards Plateau to the west and the Gulf Coastal Plain to the east. The Edwards Plateau and Balcones Escarpment are associated with a great fault system that arcs across Texas to form a distinct boundary between uplands composed primarily of limestone bedrock and lower plains composed mainly of softer rocks. In places, this boundary is marked by an abrupt scarp (the Balcones Escarpment) and in others by a more gradational ramp, but the entire length of this transition zone is a major ecotone in terms of topography, bedrock, hydrology, soils, vegetation, and animal life.

The Blackland Prairie is a low, rolling land that extends in a narrow band just east and southeast of the Balcones fault zone from the Red River Valley in northeastern Texas south and southwest to the southern edge of the Edwards Plateau. This is an area of low relief and poor drainage where water often ponds after rainstorms. Streams flow at very gentle gradients. Elevations on the Blackland Prairie are mainly in the range of 120.0 to 215.0 m (393.6 to 705.2 feet) above mean sea level (amsl). Deep, calcareous, clayey soil formed in soft bedrock supports predominantly prairie vegetation broken by small woods and forests. Rock of any kind is scarce on the Blackland Prairie, and the only chert sources are gravels in the beds of streams that drain exposures of Edwards limestone to the west.

Hydrologically, the study area is situated within the Upper Trinity River basin. The Trinity River flows south-southeastwards across the Gulf Coastal Plain and discharges into the Gulf of Mexico at Trinity Bay just east of Baytown in Chambers County, Texas. Elevations across the APE are relatively flat, averaging approximately 105.0 meters (344.4 feet) amsl.

2.2 GEOLOGY AND GEOMORPHOLOGY

Multiple geological formations are associated with the physiographic province in which the project area is located. In general, the bedrock throughout north-central Texas is composed of Upper Cretaceous formations that dip slightly to the east and are predominantly composed of calcareous clay, shale, limestone, and marl, with a small portion of sandstone (Sellards et al. 1932). These geologic units are overlain in some areas by unconsolidated Quaternary alluvial floodplain and fluviatile terrace deposits. On the surface, these formations weather into a rounded, gently rolling topography with a few bluff faces exposed in stream valleys where more resistant strata are present.

Specifically, the project area is situated on the Holocene-age Alluvium and Quaternary deposits, undivided (Qal), which consists of floodplain deposits composed of gravel, sand, silty clay, and organic matter (Barnes 1988). Geomorphologically, the project area is set within the eastern floodplain of the Trinity River and is underlain by Trinity clay, 0 to 1% slopes, frequently flooded (Table 1; Figure 3). This soil type typically consists of deep deposits of calcareous clayey alluvium derived from mudstone. Aboriginal cultural resources are commonly encountered in deep alluvial sediments adjacent to major streams such as the Trinity River. As a result, the location of the project area possesses a high potential for archeological resources. Previous cultural resources surveys farther up the Trinity River basin have encountered buried paleosols which represent old land surfaces dating to the late Holocene (ca. 1,000 years B.P.) (Owens et al. 1999). These buried paleosols are sometimes associated with preserved cultural resources.

2.3 CLIMATE

Evidence for climatic change from the Pleistocene to the present is most often obtained through studies of pollen and faunal sequences (Bryant and Holloway 1985; Collins 1995). Bryant and Holloway (1985) present a sequence of climatic change for east-central Texas from the Wisconsin Full Glacial Period (22,500 to 14,000 B.P.) through the Late Glacial Period (14,000 to 10,000 B.P.) to the Post-Glacial Period (10,000 B.P. to present). Evidence from the Wisconsin Full Glacial Period suggests that the climate in east-central Texas was considerably cooler and more humid than at present. Pollen data indicate that the region was more heavily forested in

Table 1. Summary of Mapped Soils within Project Area

NRCS Soil Code	Soil Name	Parent Material	Typical Profile (Centimeters)
Tf	Trinity clay, 0 to 1% slopes, frequently flooded	Calcareous clayey alluvium derived from mudstone	0-15: Clay 15-41 Clay 41-91: Clay 91-163: Clay 163-191: Clay

Source: NRCS 2017

NRCS = Natural Resources Conservation Service

Figure 3. Distribution of Soil Types Mapped within Project Area

deciduous woodlands than during later periods (Bryant and Holloway 1985). The Late Glacial Period was characterized by slow climatic deterioration and a slow warming and/or drying trend (Collins 1995). In east-central Texas, the deciduous woodlands were gradually replaced by grasslands and post oak savannas (Bryant and Holloway 1985). During the Post-Glacial Period, the east-central Texas environment appears to have been more stable. The deciduous forests had long since been replaced by prairies and post oak savannas. The drying and/or warming trend that began in the Late Glacial Period continued into the mid-Holocene, at which point there appears to have been a brief amelioration to more mesic conditions lasting from roughly 6,000 to 5,000 B.P. Recent studies by Bryant and Holloway (1985) indicate that modern environmental conditions in east-central Texas were probably achieved by 1,500 years ago.

Kaufman County is located within the south-central climatic division. The modern climate is dry and subhumid with long, hot summers and short, mild winters. The characteristically humid, subtropical climate is influenced primarily by the tropical Maritime air masses from the Gulf of Mexico, but the climate is modified by polar air masses. Tropical Maritime air masses predominate throughout spring, summer, and fall. Modified polar air masses are dominant in winter and provide a continental climate characterized by considerable variations in temperature. The average annual temperature is 18.5°C (65.3°F), and average annual precipitation is 88.4 centimeters (cm) (34.8 inches). Maximum rainfall, in the form of thundershowers, occurs in June and September, and the average growing season is 270 days long.

2.4 FLORA AND FAUNA

The project area is situated in the southwestern portion of the Texan biotic province (Blair 1950), an intermediate zone between the forests of the Austroriparian and Carolinian provinces and the grasslands of the Kansan, Balconian, and Tamaulipan provinces. Some species reach the limits of their ecological range within the Texan province. The project area traverses the Blackland Prairie, a region of dark, calcareous clays derived from ancient shales and chalks. The vegetation within the project area consists predominantly of grasslands with isolated trees and scattered clusters of trees, while the greatest concentrations of trees occur along drainages.

Dominant floral species include little bluestem, big bluestem, Indian grass, switchgrass, sideoats grama, hairy grama, tall dropseed, silver bluestem, and Texas wintergrass. Wooded areas are often restricted to stream courses, primarily consisting of elm and hackberry, while bois d'arc is common in lowland areas. Vegetation observed during the survey of the project area includes post oak, blackjack oak, elm, hackberry, and mesquite trees, and mixed mid-sized to tall grasses.

The fauna associated with this region are represented by a mixture of species from the Austroriparian, Tamaulipan, Chihuahuan, Kansan, Balconian, and Texan biotic provinces. Common mammalian species include white-tailed deer, opossum, eastern cottontail rabbit, raccoon, striped skunk, hispid cotton rat, white-footed mouse, nine-banded armadillo, and fox squirrel. Common bird species include northern bobwhite, eastern meadowlark, mourning dove, killdeer, field sparrow, red-tailed hawk, turkey vulture, belted kingfisher, and mockingbird. Reptile and amphibian species common to this biotic zone include six-lined racerunner, rat snake, eastern hognose snake, Gulf Coast toad, Texas spiny lizard, rough green snake, copperhead, western

diamondback rattlesnake, green treefrog, Blanchard's cricket frog, diamondback water snake, Houston toad, and green anole. Although small herds of bison and antelope were common during the late prehistoric and early historic periods, these species are no longer native to this region (Jurney et al. 1989:13-14).

3.0 CULTURAL BACKGROUND

Compared to other regions of Texas, North-Central Texas has been the focus of relatively little archeological research to date; as such, the culture history of this region has yet to be systematically defined. Much of the information generated by the reservoir investigations has yet to be synthesized. The following discussion of the prehistory of North-Central Texas draws on the few synthetic and summary sources available, especially those by Prikryl (1990, 1993). Story's (1990) summary of archeology on the East Texas Gulf Coastal Plain also draws on some of the work done in the upper Trinity basin, and Lynott's (1981) discussion of prehistoric adaptations in the Cross Timbers, Grand Prairie, and North-Central Plains provides connections to an overview by Hofman et al. (1989) of southern Great Plains archeology.

3.1 PALEOINDIAN PERIOD (10,000 TO 6000 B.C.)

The initial human occupations in the New World can now be confidently extended back before 10,000 B.C. (Dincauze 1984; Haynes et al. 1984; Kelly and Todd 1988; Lynch 1990; Meltzer 1989). Evidence from Meadowcroft Rockshelter in Pennsylvania suggests that humans were present in Eastern North America as early as 14,000 to 16,000 years ago (Adovasio et al. 1990), while more recent discoveries at Monte Verde in Chile provide unequivocal evidence for human occupation in South America by at least 12,500 years ago (Dillehay 1989, 1997; Meltzer et al. 1997). Most archeologists have historically discounted claims of much earlier human occupation during the Pleistocene glacial period. However, recent investigations of the Buttermilk Creek Complex in Bell County, Texas, have raised the possibility that a pre-Clovis culture may have been present in North America as early as 15,500 years ago (Waters et al. 2011).

By approximately 11,000 years ago, PaleoIndian populations were present in north-central Texas. The PaleoIndian occupation of the Upper Trinity River basin is known primarily through diagnostic projectile points from surface collections or stratigraphically mixed contexts. The Field Ranch Site (Jensen 1968) along the upper Elm Fork is a primary example of typical site contexts. Clovis and Plainview points are commonly found along both Denton and Clear creeks in the Cross Timbers region. The Lewisville Lake Site (Crook and Harris 1957, 1958, 1961) is the best known PaleoIndian site in the region. While the original radiocarbon dates (ca. 37,000 B.P.) contributed to the significance of the site, more recent work (Stanford 1981) has resolved the controversy concerning the date of occupation. It appears that the presence of naturally occurring lignite as either a fuel in the hearths excavated at the site or an inadvertent inclusion contaminated the radiocarbon samples. Consequently, the usually accepted date of 10,000 to 8,000 B.P. for Clovis

period occupations is probably a reasonable estimate for the first human occupation of north-central Texas. Our knowledge of the subsistence and settlement strategies used by these early occupants is extremely limited. However, recent excavations at the Aubrey Site (Ferring 1989), a well-preserved Clovis period site in Denton County, indicate that subsistence efforts did not focus on big game animals alone; rather, the entire range of prairie and forest species was exploited. Whether this pattern of a more generalized foraging subsistence system is characteristic of Clovis adaptations in the Eastern Woodlands, and the focus on now-extinct big game species is more characteristic of a Plains adaptation, remains to be documented.

While some PaleoIndian sites are known within this region, few have been adequately examined (Preston 1972, 1974). The Lewisville Lake Site (Crook and Harris 1957; Stanford 1981, 1982), the Murphy Site (Texas Archeological Research Laboratory [TARL] archives), and the Quince Site (Perttula 1994) are the only sites that have been examined in any detail. The examination by Story (1990:176-210) of the distribution of finds of PaleoIndian projectile points has revealed some interesting spatial and chronological trends. Clovis points cluster along the Red River, within the Upper Trinity River drainage, and in southeastern Texas. Folsom points, which are probably indicative of a Plains adaptation, are not well represented; rather, Dalton or Dalton-like points are well represented in the Ouachita Mountains of western Oklahoma and eastern Arkansas and on the adjacent Gulf Coastal Plain. Story (1990:196) postulates that this concentration may reflect ecological or territorial factors between 8500 and 7500 B.C. San Patrice points, which occur within the same time span, are represented but are few in number.

3.2 ARCHAIC PERIOD (6000 B.C. TO A.D. 700)

With the end of the Ice Age, the prehistoric residents of north-central Texas began to develop into localized populations of efficient hunter-gatherers, exploiting localized resource bases. This period, and the subsistence pattern that characterizes it, has come to be known as the Archaic. The Archaic represents a long period of time that is characterized by only gradual and minor changes in subsistence patterns, lithic technology, and projectile point styles. It was apparently a period of strong cultural stability. Archaic populations are usually characterized as generalized hunter-gatherers with more limited geographic ranges than preceding PaleoIndian peoples. There is presently no evidence for the development of local cultigens during the Archaic period in Texas; this is, however, not the case for the Ozark Highlands and other parts of the eastern United States.

Although Archaic period components have been observed on many sites in the region (Perttula and Nathan 1989), our knowledge of the Archaic period in the Upper Trinity River basin has been severely hindered by the lack of data from single-component or stratified sites. Important exceptions to this situation include the Packard, Bell, Gregory E. Johnson, Beaver, Lamas Branch, Hill, McKensie, and Mahaffey sites in Oklahoma; the Tankersley Creek, Jake Martin, and Yarbrough sites in Texas; and the Stark and Old Martin Place sites in Arkansas. Recent investigations along the West Fork of the Trinity River (Peter and McGregor 1988; Yates and Ferring 1986) indicate that primary contexts for Early and Middle Archaic sites are found deeply buried within floodplain alluvium. Artifacts from these periods occur on terrace surfaces, but they are frequently mixed with later materials. In fact, the initial treatment of the Archaic period

(Crook and Harris 1952, 1954), which defined the Carrollton and Elam foci, was based upon materials recovered from such terrace contexts. Consequently, these time-space constructs are no longer recognized as acceptable for north-central Texas (Peter and McGregor 1988; Prikryl 1987; Yates and Ferring 1986).

Recent investigations at Joe Pool Lake (Peter and McGregor 1988) and at Lake Ray Roberts (Baird et al. 1982; Bousman and Verrett 1973; Ferring and Yates 1997; Prikryl and Yates 1987; Skinner and Baird 1979; Yates and Ferring 1986) indicate that the Late Archaic period is characterized by assemblages left by small bands of foraging hunters and gatherers who occupied a locality for a limited period of time on a seasonal basis. Deer and numerous small mammals were the primary food resources. Large pits, known as Willey Focus pits, appear in the archeological record during the Late Archaic period. The function of these pits is not entirely clear, although excavation of one such feature at the Sister Grove Creek site in the East Fork of the Trinity River basin (Lynott 1975) revealed the presence of 13 features within the pit fill, including two burials (one human and one dog), hearths, and small refuse pits. Based on these excavations, it was hypothesized that the Sister Grove Creek pit could be interpreted as the remains of a structure in which the entire community participated in ritual feasting. The documentation of large pits associated with Late Archaic period sites in the Richland/Chambers Creek drainage (Bruseth and Martin 1987) further suggests that important sociopolitical changes may have been occurring during this time period. Unfortunately, the significance of these pits remains an enigma despite their excellent documentation.

3.3 LATE PREHISTORIC PERIOD (A.D. 700 TO 1600)

The beginning of the Late Prehistoric period in the Upper Trinity River basin is marked by the appearance of arrow points. The initial date of A.D. 700 for this period is based upon dated contexts to the west in the Brazos River drainage. Lynott (1977) suggests that the Late Prehistoric period may be divided into early and late phases. The early phase is characterized by sand- and grog-tempered ceramics, Scallorn and Alba arrow points, and a continuation of the foraging subsistence system of the Late Archaic period. The late phase reflects a Southern Plains influence with the appearance of Nocona Plain ceramics of the Henrietta Focus, various unstemmed triangular projectile points (e.g., Fresno, Harrell, Washita), and the Perdiz point. Evidence of horticulture and the procurement of bison also appears in sites of this period (Harris and Harris 1970; Morris and Morris 1970).

Recent investigations of the Cobb-Pool Site at Joe Pool Lake (Peter and McGregor 1988) have resulted in a reformulation of the Late Prehistoric period. The Cobb-Pool Site yielded house structures, roasting pits, Alba points, grog-tempered ceramics, and charred corn cupules. Radiocarbon dates from several features indicate that the site was occupied during the late 12th or early 13th century. Present evidence suggests that the site does not represent an intrusive Caddoan occupation; consequently, a significant adaptive change appears to have occurred during a middle phase of the Late Prehistoric period. It is also likely that ceramics were not introduced into the region before this time. Whether the Cobb-Pool Site merely represents a local anomaly or reflects a regional adaptive change remains to be documented.

3.4 PROTOHISTORIC PERIOD (A.D. 1600 TO 1800)

Historical documentation and archeological evidence are very sparse for the Protohistoric period in the Upper Trinity River basin. Tonkawa, Wichita, Caddo, and Comanche all are likely to have traversed the area; however, the locations of their sites and detailed ethnohistoric data are almost nonexistent. Although European trade items (Sollberger 1953) appear on a limited number of sites, no protohistoric site has been thoroughly investigated, and characterizations of Native American adaptations during this time period are conjectural at best. A lack of documentary evidence, together with a lack of interest among ethnologists and archeologists, has contributed to this situation.

By the 18th century, immigrant Plains Indian groups had moved into and beyond North-Central Texas, and their documentation by traders and explorers marks the start of the Protohistoric period. Documentary sources suggest that the Apache, Caddo, Comanche, Delaware, Kickapoo, Kitsai, Tonkawa, Wichita, and Yojaune traversed the region at various times during the period (Newcomb 1961; Newcomb and Campbell 1982); however, archeological sites that can be associated definitely with historic groups are few. The Wichita are known to have moved into Texas from Oklahoma and Kansas in the early 1700s. Sites attributable to the Wichita have been identified at the edges of North-Central Texas. Among these is the Stansbury site in Hill County, now inundated by Lake Whitney (Stephenson 1970). Excavations at the site produced burials, house structures, storage pits, and a variety of aboriginal artifacts, along with European ceramics, glass beads, metal arrow points, and flintlock musket parts. A cluster of Wichita sites also occurs to the north along the Red River in Montague County. These sites occur on both the Oklahoma and Texas sides of the river. Woodall (1967) excavated one of these sites, named the Upper Tucker site, which produced artifacts and features similar to those discovered at the Stansbury site. Wichita sites both on the Brazos and Red rivers were situated atop high terraces that overlook the rivers.

3.5 HISTORIC PERIOD (A.D. 1500 TO 1865)

The historic era of north-central Texas began with the entrance of early European explorers into the area and can be divided into three broad time periods—Spanish and French exploration and colonization (ca. A.D. 1500 to 1821), settlement (A.D. 1821 to 1865), and post-Civil War and modern development (A.D. 1865 to present). This section presents a brief overview of the history of north-central and eastern Texas and short descriptions of settlements in the vicinity of the project area.

The first European in Texas was likely Alvarez de Piñeda, who entered the area in 1519 (Hunt et al. 1992:8). In 1528, Cabeza de Vaca was shipwrecked at or near Galveston Island and subsequently taken captive by Native Americans living in the area. His captors allowed him to accompany them on their travels inland, but he recorded very little information about the country or its inhabitants during his six-year stay (Richner and Bagot 1978). The first European to visit north-central Texas may have been Luis de Moscoso del Alvorado. Leading Hernando de Soto's men after de Soto's death at the Mississippi River in 1541, de Moscoso may have crossed the

Trinity River[1] along its upper reaches (Reese et al. 1986:154), perhaps passing through the Pilot Point area (Lebo 1990:61). During the early 1730s, French traders operating out of New Orleans began entering East Texas. They "procured buffalo and deer skins," exchanged firearms and a variety of European trade goods with Native American groups, stole from the Spanish, and also "captured Apache women and children, horses, [and] mules" (Richner and Bagot 1978:77). An active trade system was soon established.

The activities of the Spanish and French in East Texas during the ensuing two centuries were prompted by quite different objectives. Spain claimed the area in the late 1500s but did little to colonize it because East Texas had no precious metals, the commodity that provided the primary thrust of Spanish colonial activity at that time (Richner and Bagot 1978:77). In contrast to the Spanish, who sought control of the territories they claimed, the French "were more interested in trade than territory; they were not much concerned with converting, incorporating, or pushing the natives off their land" (Fehrenbach 1968:41). The Spanish considered French trade with the indigenous groups of East Texas to be a security threat, an incursion into a strategic buffer zone between Spanish and French territory. In 1685, Spain began an effort to set up missions and gain a secure foothold in that buffer zone. This program of conversion and assimilation "was founded on the idea that the local people could be converted to Christianity and thus controlled. The converted Indians could then be used as a buffer to stop the French encroachment" (Richner and Bagot 1978:77). The impetus for this program was an accidental landing at Matagorda Bay by the French explorer René Robert Cavelier, Sieur de La Salle (Fehrenbach 1968:39, 47). The Spanish program was neither successful nor long-lasting. Only two missions were established, both on the Neches River, and the program was abandoned by 1693 (Richner and Bagot 1978:77).

It was 20 years before another French incursion drew the Spanish back to East Texas. In 1713, Saint Denis, a Canadian with great powers of persuasion, was sent by the governor of Louisiana up the Red River to build a fort on land claimed by the Spanish. Thus, Natchitoches was founded (Fehrenbach 1968:41-42) in present-day Louisiana, territory then claimed by Spain. Saint Denis believed that the French and Spanish could coexist in the area—that the presence of the Spanish could actually benefit the French. Although trade with the Spanish outposts was declared to be technically illegal, such prohibitions were seldom enforced, and Saint Denis was "hopeful of a much more lucrative business if permanent Spanish garrisons could be induced to remain in Texas" (Fehrenbach 1968:42). With his encouragement and aid, four new mission-forts were set up in Texas, one of which was at Nacogdoches. In the process of conducting business from Natchitoches with his Spanish father-in-law at Nacogdoches, Saint Denis helped delimit an unofficial boundary between the Spanish and French claims, with the Sabine River considered as the eastern limit of the former and the Red River the western extent of the latter. The good relations came to a quick end in 1721, when the new governor of Coahuila had Saint Denis

[1] The river was then called "Daycoa" by some Native American groups, "Arkikosa" by others. It received its European name in 1690 from the Spanish officer Alonso de Leon, who called it "La Santisima Trinidad, The Most Holy Trinity" (Reese et al. 1986:153).

arrested for trespassing while in the Rio Grande area on business (Fehrenbach 1968:42-43, 51; Richner and Bagot 1978:78).

The Spanish then developed a much more ambitious, and better funded, plan for permanent settlement in Texas. According to Fehrenbach, "[a] great semicircle of presidio-missions was planned to stretch up from northern Mexico, generally reaching across the middle area of Texas on a line from Laredo to the Sabine River" (1968:49). The effort to colonize the east portion of this semicircle ended in 1719 when the Spanish withdrew, in part because it was thought that the French were about to attack (Richner and Bagot 1978:78). The Spanish returned in 1721 when the Marquis de Aquayo led a large military force into the area and reoccupied the Spanish missions. Spanish decree required that Spanish settlers leave the area in 1773, but petitions garnered permission to set up a new colony on the Trinity River in 1774. Nuestra Señora del Pilar de Bucareli may have been established in present-day Madison County at the intersection of the Camino Real (now State Highway 21) and the Trinity River. Bucareli was abandoned in 1779, a move largely prompted by the settlers' fear of the Comanches in the area (Richner and Bagot 1978:78-81).

France had ceded Louisiana to Spain in 1762, but it was returned to France at the beginning of the 19th century, then sold to the United States in 1803, making it much easier for Americans to enter Spanish territory. The danger of incursion then lay not in military campaigns or the extension of trade networks, but in the gradual encroachment of settlers. According to one settler:

> A carbine and a little maize in a sack are enough for an American to wander about in the forest alone for a whole month. With his carbine, he kills the wild cattle and deer for food and defends himself from the savages. The maize dampened serves him in lieu of bread. With some tree trunks crossed, one above another, in the shape of a square he raises a house, and even a fort that is impregnable to the savage by building on a story crosswise above the ground floor. The cold does not affright him. When a family tires of one location, it moves to another, and there it settles with the same ease (Newton and Gambrell 1932:53).

To slow the incursion, Spain set up an outpost on the Trinity River a few miles south of abandoned Bucareli and called it Villa de Santisima Trinidad de Salcedo. There was little interest in resettlement among those living in central and west Texas, but a few residents, including 23 immigrants from Louisiana and 14 people from San Antonio, moved to the area in 1805. Between 1811 and 1813, control of the settlement alternated between the Spanish and the Mexican revolutionaries living in Texas. Then, in 1813, Spanish Captain Augustus Magee "marched into Salcedo, executed the inhabitants, and destroyed the settlement" (Richner and Bagot 1978:88).

The first successful large-scale colonization effort in Texas was initiated in 1821 by Moses S. Austin, who convinced the Mexican authorities that it would be to their advantage to let him settle American colonists in the region (Fehrenbach 1968:134-135). Moses Austin died shortly after winning approval of his plan, but his son continued in the effort and created a center of Anglo settlement in central Texas. This helped establish Texas as the new western frontier (Lebo 1990:61), easing the way for greater immigration to East Texas. Mexico also won its

independence from Spain in 1821, which further improved prospects for settlement of East Texas since the new Republic of Mexico relaxed immigration and land policies (Reese et al. 1986:154). In addition to the Austins' efforts to the south, independent settlers were moving into the Upper Trinity River basin and establishing new homesteads along the river and its tributaries (Richner and Bagot 1978:90).

The first skirmishes between Native American groups and the new settlers took place in the late 1830s or early 1840s, a poorly documented period in the history of the area. One of the earliest accounts of conflicts involved the Battle of Village Creek. In retribution for reported attacks on settlers in Titus County, General Edward H. Tarrant led a group of volunteer Texas Rangers in an attack against a settlement on Village Creek.[2] Few specifics are known with any degree of certainty as many of the accounts rely on personal recollections and were not recorded until many decades later (Hunt and Peter 1995:10). In the ensuing years, a concerted effort was made "to disband all the Indians in the upper Trinity" and force them out of the area permanently (Reese et al. 1986:154).

Texas became an independent nation in 1836, and by 1841 the Republic of Texas could be described as "independent, proud, and bankrupt" (Connor 1959:1). The leadership of the Republic saw immigration and the associated transfer and inflation of land values as a way to ease the financial troubles, which were especially severe during the depression of 1840 to 1841. In February 1841, the Fifth Congress of the Republic passed legislation that paved the way for empresario contracts and colonization, an act that some saw as anachronistic (the Spanish had tried to foster immigration in a similar way), but in hindsight may have been "the most important single act of the Republic" (Connor 1959:6; Fehrenbach 1968:283-284). A company or individual that was granted an empresario contract:

> was to receive ten premium sections for each hundred families settled onto the land. He also had other direct means of income, from surveying, selling cabins, necessities and charging for transportation costs to colonists he recruited…. The government reserved alternate sections of 640 acres within the empresario grants, and it was felt that rapid settlement would allow the Republic to sell these off and make a profit from immigration at last (Fehrenbach 1968:283-284).

W. S. Peters, through his Texas Emigration and Land Company, was the first empresario to bring settlers into the area after Texas gained its independence. The original contract, signed in August 1841 (Connor 1959:36), granted the company the right to settle the east half of Denton and Cooke counties and a portion of west Grayson County (Lebo 1990:63). The second contract, signed 3 months later, extended the area southward to encompass parts of Dallas, Tarrant, Ellis, and Johnson counties (Connor 1959:40). The third contract slightly extended the east, west, and south boundaries. The fourth and final contract, signed in January 1843, increased the area to be settled by approximately 300%, adding over 10 million acres (Connor 1959:37-45, 55; Lebo 1990:63). Under that contract, each head of a family settling in the Peters Colony area would

[2] Tarrant was accompanied by Captain John B. Denton, after whom the city and county were named. Denton was killed during the attack.

receive 640 acres and single persons would receive half that amount (Reese et al. 1986:155). A description in the early Texas newspaper, *The Telegraph and Texas Register*, reported in its issue of April 26, 1843, that conditions in the colony were "'wretched in the extreme,' with only four or five families and 15 or 20 single men in the colony" (*Denton Record-Chronicle* 1843)

Colonists moving to east and north-central Texas in the 1840s tended to settle in areas adjacent to major Blackland Prairie waterways in the southern portion of the Cross Timbers (Lebo 1990:62). Because they also tended to settle on the first available land, Grayson, Collin, and Dallas counties were settled initially; Denton, Tarrant, and Cooke counties followed as settlement expanded westward. Four out of five Peters Colony recruits were farmers, and they chose sites adjacent to the bottomland of the Trinity River and its tributaries (Lebo 1990:64).

During the late antebellum period, north-central Texas was the fastest growing region of the state (Hunt et al. 1997). The upper Trinity was no longer the hinterland it had been only a few short years previous. Area roads and ferries were developing quickly, and the first bridge spanning the Trinity River was built in 1854. A stage service operating between Fort Worth and Yuma was opened in 1856, and several other stage lines were operating by 1858 (Reese et al. 1986:156). Although the land could have produced great quantities of cotton and wheat, commercial agriculture was of little importance in the area prior to the Civil War. Most settlers were subsistence farmers whose crops, pigs, and cattle, were primarily intended for home consumption. Industries were generally operated on a seasonal basis by local farmers. Services available within the area included cotton ginning, grain and flour milling, blacksmithing, and brick and pottery production (Lebo 1990:65).

Slavery was not an issue of vital importance to the residents of north-central Texas. Local historian E.F. Bates (1976:95) is of the opinion that, because of slow and sporadic mail, "we [Denton County residents] were not much concerned about political affairs, as we were not, and could not be, well posted on current events of the State and nation." Although in 1860 the 5,000 residents of this county included only about 250 slaves,[3] "[s]till, most of the pioneers had come from southern or border states, and the sympathy of the county went reflexively to the Secessionists" (Odom and Lowry 1975:5). The Civil War had a devastating effect on the markets of north-central Texas, and items like coffee and sugar became difficult, and sometimes impossible, to buy (Hunt et al. 1997). With a large percentage of the area's workforce away fighting in the war, many of the small commercial enterprises and industries were closed due to a lack of labor. Many farms and ranches were likewise abandoned (Bridges 1978:97; Lebo 1990:66).

In the decade following the end of the war and the return to peace-time endeavors, the people of north-central Texas witnessed a great many changes—population increased rapidly, commercial ventures became much more common, and there was an upsurge in urbanization.

[3] Although these figures (from Odom and Lowry 1975:5) reflect the situation as derived from research, Bates gives figures that reflect his own impressions as a resident of the county during that period. He says that there were "not exceeding eight to ten negro slaves then in the county" (Bates 1976:97) and that "there was not over one soldier in one hundred from Denton County who owned slaves" (Bates 1976:105).

Accompanying this growth were increasingly common Native American uprisings. As Confederate posts were abandoned and citizens disarmed, the dislocated indigenous groups made the most of a good opportunity. Federal troops were largely ineffectual in protecting the Euro-Americans, so "from 1866 to 1873, [the area] experienced its most furious and dangerous period of Indian Wars" (Lebo 1990:66). Between 1868 and 1886, the area also experienced increased criminal activities, which some residents of the day attributed to youths who had learned from the war that "might makes right" and chose to live by that code (Bates 1976:105, 124).

Livestock, particularly cattle, became an increasingly important commodity in north-central Texas (Lebo 1990:65), but cash crops such as cotton were also gaining in importance. The railroads expanded through East Texas and into the study area in the 1870s. The number of lines in north-central and East Texas tripled during the decade, even though development was slowed slightly by the economic crisis and national panic of 1873 (Fehrenbach 1968:433; Lebo 1990:66). In spite of national economic problems and the state's disastrous debt (Fehrenbach 1968:433), the area generally experienced a boom during the 1870s. More rural communities were established, both rural and urban communities grew, and the developing transportation systems expanded the markets for cash crops and livestock. By 1875, most of the land suitable for homesteading had been claimed, and settlements could be found over much of the county. Barbed wire, invented in 1875, arrived in the area in the early 1880s and offered a practical means of fencing the open range, altering life greatly by fostering livestock production.

The practice of tenant and share farming was on the rise and, during the 1880s, almost 40% of all Texas farmers were laboring under that system (Green 1977:135). The depression of the 1890s made matters worse for the small landholder, forcing many either into tenancy or off farms and into urban areas (Lebo 1990:66). As the turn of the century approached, farmers began devoting greater acreage to the production of cash crops (Lebo 1990:66). The economy took a turn for the better, but this, and a greater emphasis on the production of cash crops that some academic experts thought would allow "laborers and tenants…to climb an 'agricultural ladder' to farm ownership" (Green 1977:133) failed to improve the lot of the small farmer. According to the 1910 census, more than half of the farms in Texas were tenant-operated, and the *Dallas Morning News* reported that "nine in ten of the tenants today, probably nineteen out of twenty, are destined to remain tenants" (Green 1977:137). Higher land values prompted owners to demand cash in addition to the usual shares paid by tenants, which, "coupled with exorbitant interest rates, made it almost impossible for the average renter to get ahead" (Lebo 1990:66-67). Tenancy continued to rise until the 1930s, when the Depression and a drop in the value of cotton as a cash crop caused a decline in the tenant system (Lebo 1990:67; Richner and Bagot 1978:95).

The rural population over much of Texas fell as World War II approached and farmers moved into jobs in the growing war- and petroleum-related industries. Small farms gave way to large-scale agribusiness ventures specializing in grain and beef production. After the end of the war, only a few small farms continued to operate (Lebo 1990:67; Richner and Bagot 1978:95-96). Although Kaufman County today remains predominantly rural, the rapid growth of the Dallas-Fort Worth metroplex is rapidly encroaching upon it.

4.0 ARCHIVAL RESEARCH

Prior to initiating fieldwork, Horizon performed background archival research on the THC's online *Texas Archeological Sites Atlas* (TASA) for information on previously recorded cultural resources sites and historic properties in and near the proposed project area as well as previous cultural resources investigations conducted in the vicinity of the proposed project area. Based on this archival research, no previously recorded archeological sites, cemeteries, or historic properties listed on the NRHP have been recorded within a 1.6-kilometer (1.0-mile) radius of the project area. The nearest site, 41EL1, is located just over a mile away from the project area on the western side of the Trinity River. A linear cultural resources survey conducted by the USACE Forth Worth District in 1976 traverses the project area from north to south. However, no other cultural resources surveys have been conducted within or near the project area (THC 2017).

A review of historical aerial photographs and topographic maps containing the proposed project area revealed that no structures are visible on historical imagery within the project area at any time between 1961 and the present.

5.0 SURVEY METHODOLOGY

On August 23, 2017, Horizon staff archeologists Briana Nicole Smith and Stephanie Mueller, under the overall direction of Jeffrey D. Owens, Principal Investigator, performed an intensive cultural resources survey of the project area to locate any cultural resources that potentially would be impacted by the proposed undertaking. Horizon's archeologists traversed the project area on foot and thoroughly inspected the modern ground surface for aboriginal and historic-age cultural resources. Ground surface visibility was low throughout the project area due to dense undergrowth vegetation that has developed subsequent to past vegetation clearing events. Tall ragweed, greenbrier, and poison ivy covered the majority of the project area as well as occasional clusters of mesquite, oak, and cottonwood trees (Figures 4 to 9).

In addition to pedestrian walkover, the Texas State Minimum Archeological Survey Standards (TSMASS) require a minimum of 1 shovel test per 2.0 acres (0.8 hectare) for tracts between 4.5 and 40.5 hectares (11.0 and 100.0 acres) in size. As such, a minimum of 28 shovel tests would be required within the 22.4-hectare (55.4-acre) project area. Horizon excavated a total of 28 shovel tests, thereby meeting the TSMASS for a project area of this size (Figure 10). Shovel testing revealed dense clay soils that were impenetrable with shovels past an average depth of 30.0 centimeters (11.8 inches) below surface. In general, shovel tests measured approximately 30.0 centimeters (11.8 inches) in diameter, and all sediments were screened through 6.35-millimeter (mm) (0.25-in) hardware cloth.

In addition, four trenches were excavated within the vicinity of the USACE jurisdictional tributaries and pond in the southeastern portion of the project area (see Figure 10). The trenches were excavated in order to assess the potential for deeply buried cultural resources and the presence of buried paleosols, such as the West Fork paleosol known from farther to the north within the Trinity River basin. Trenches were excavated using a trackhoe with a 1.8-meter-(6.0-foot-) wide, toothed bucket. The four trenches measured between 6.5 to 7.2 meters (21.3. to 23.6 feet) in length and were excavated to depths ranging from 5.0 to 5.5 meters (16.4 to 18.0 feet) below surface. Horizon personnel monitored all trackhoe trench excavations. Trench walls, floors, and spoil piles were inspected during and after excavation for evidence of archeological materials, distinctive stratigraphic anomalies, and/or soil discolorations that may be indicative of past cultural activities. Horizon personnel recorded notes on the stratigraphic character of soil deposits observed in trench walls, though at no time did any personnel enter a trackhoe trench that was more than 1.2 meters (4.0 feet) deep per current Occupational Safety and Health Administration (OSHA) guidelines.

Figure 4. Eastern Branch of Jurisdictional Tributary, Facing North

Figure 5. Western Branch of Jurisdictional Tributary, Facing Southeast

Figure 6. Jurisdictional Excavated Pond, Facing West

Figure 7. Dense Vegetation within the Project Area, Facing West-Southwest

Figure 8. Disturbed Area on Eastern Side of Project Area, Facing North

Figure 9. Wooded Area on Southern End of Project Area, Facing South

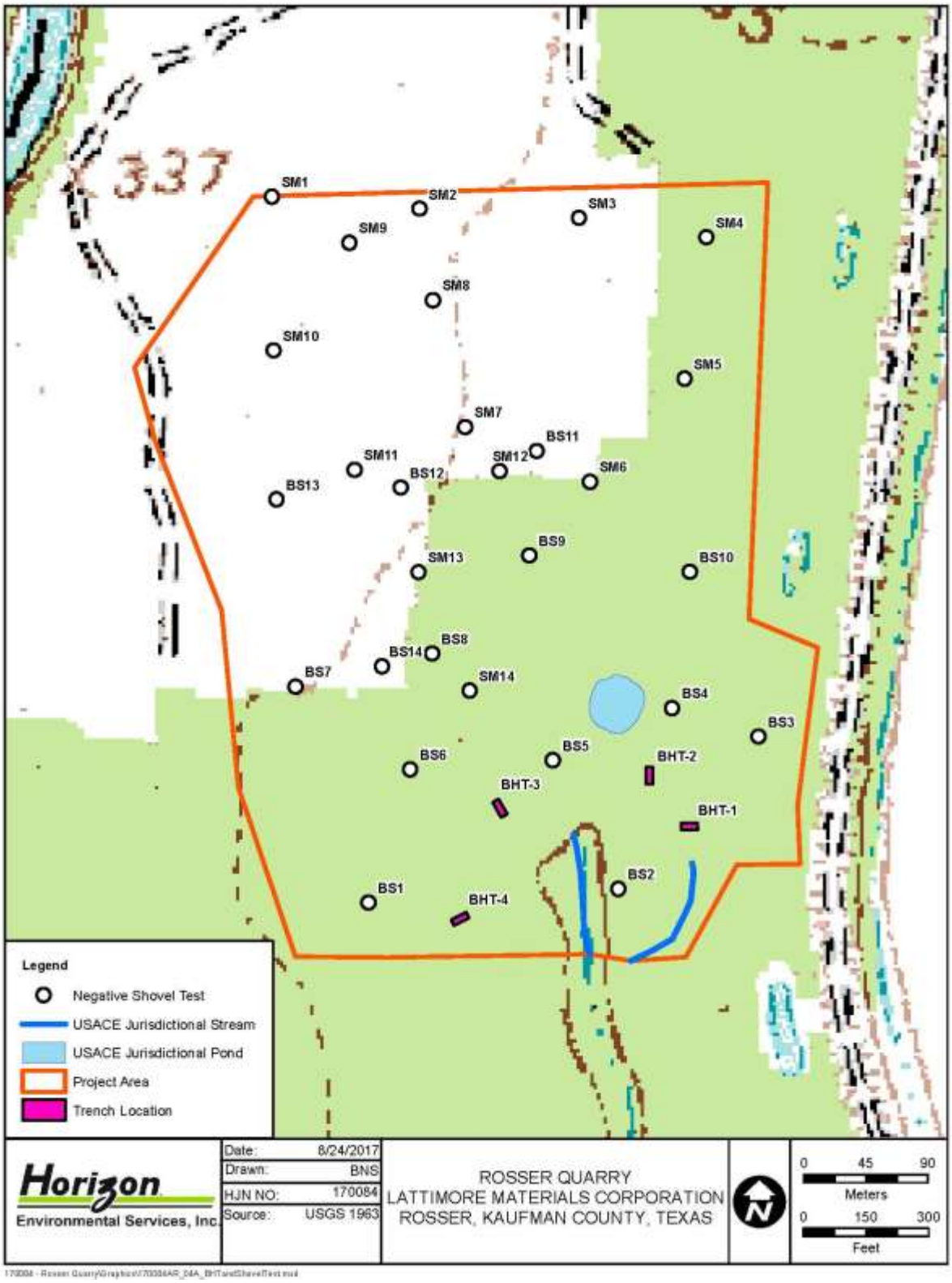

Figure 10. Locations of Shovel Tests and Trenches Excavated within Project Area

The UTM coordinates of all shovel tests and trackhoe trenches were determined using hand-held Garmin ForeTrex global positioning system (GPS) devices based on North American Datum of 1983 (NAD 83). Specific trackhoe trenching data for all four trackhoe trenches excavated within the project area are summarized in Appendix A, and shovel test data are summarized in Appendix B.

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

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

6.0 RESULTS OF INVESTIGATIONS

Horizon staff archeologists Briana Nicole Smith and Stephanie Mueller, under the overall direction of Jeffrey D. Owens, Principal Investigator, performed an intensive cultural resources survey of the project area on August 23, 2017, to locate any cultural resources that potentially would be impacted by the proposed undertaking. Horizon's archeologists traversed the project area on foot and thoroughly inspected the modern ground surface for aboriginal and historic-age cultural resources. In addition to pedestrian walkover, the TSMASS require a minimum of 1 shovel test per 2.0 acres (0.8 hectare) for tracts between 4.5 and 40.5 hectares (11.0 and 100.0 acres) in size. As such, a minimum of 28 shovel tests would be required within the 22.4-hectare (55.4-acre) project area. Horizon excavated a total of 28 shovel tests, thereby meeting the TSMASS for a project area of this size. In addition, four trenches were excavated using a trackhoe with a 1.8-meter- (6.0-foot-) wide bucket in the vicinity of the USACE jurisdictional tributaries and pond in the southeastern portion of the project area. The trenches were excavated in order to assess the potential for deeply buried cultural resources and the presence of buried paleosols, such as the West Fork paleosol known from farther to the north within the Trinity River basin.

Shovel testing revealed dense clay soils that were impenetrable with shovels past an average depth of 30.0 centimeters (11.8 inches) below surface. The four trenches excavated within the southeastern portion of the project area revealed deep alluvial sediments consisting of dense clay overlying sandy clay and sandy clay loam to depths of 5.0 to 5.5 meters (16.4 to 18.0 feet) below surface. Ground surface visibility was low throughout the project area due to dense undergrowth vegetation that has developed subsequent to past vegetation-clearing events. Tall ragweed, greenbrier, and poison ivy covered the majority of the project area as well as occasional clusters of mesquite, oak, and cottonwood trees.

In addition, four trenches were excavated using a trackhoe with a 1.8-meter- (6.0-foot-) wide bucket in the vicinity of the USACE jurisdictional tributaries and pond in the southeastern portion of the project area. The trenches were excavated in order to assess the potential for deeply buried cultural resources and the presence of buried paleosols, such as the West Fork paleosol known from farther to the north within the Trinity River basin.

No cultural resources, prehistoric or historic-age, were documented on the modern ground surface or within any of the shovel tests or trackhoe trenches excavated within the project area. Furthermore, no evidence of subsurface paleosols was observed in any of the four trackhoe

trenches. While shovel testing was not capable of fully penetrating Holocene-age floodplain deposits within the broader project area, all of the deep, clayey alluvial deposits observed in the four trackhoe trenches were culturally sterile, and the stratigraphy observed in trench wall profiles did not suggest any clear boundaries between strata that suggest that stabilized land surfaces were present for any prolonged period of time during the accretion of the floodplain alluvial fills.

7.0 SUMMARY AND RECOMMENDATIONS

7.1 CONCEPTUAL FRAMEWORK

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

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

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

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

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

Determinations of eligibility for inclusion in the NRHP are based on the criteria presented in 36 CFR §60.4(a-d). The 4 criteria of eligibility are applied following the identification of relevant historical themes and related research questions:

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

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

For an archeological resource to be eligible for inclusion in the NRHP, it must meet legal standards of eligibility that are determined by 3 requirements: (1) properties must possess significance, (2) the significance must satisfy at least 1 of the 4 criteria for eligibility listed above, and (3) significance should be derived from an understanding of historic context. As discussed here, historic context refers to the organization of information concerning prehistory and history according to various periods of development in various times and at various places. Thus, the significance of a property can best be understood through knowledge of historic development and the relationship of the resource to other, similar properties within a particular period of development. Most prehistoric sites are usually only eligible for inclusion in the NRHP under Criterion D, which considers their potential to contribute data important to an understanding of prehistory. All 4 criteria employed for determining NRHP eligibility potentially can be brought to bear for historic sites.

7.3 SUMMARY OF INVENTORY RESULTS

Horizon staff archeologists Briana Nicole Smith and Stephanie Mueller, under the overall direction of Jeffrey D. Owens, Principal Investigator, performed an intensive cultural resources

survey of the project area on August 23, 2017, to locate any cultural resources that potentially would be impacted by the proposed undertaking. Horizon's archeologists traversed the project area on foot and thoroughly inspected the modern ground surface for aboriginal and historic-age cultural resources. In addition to pedestrian walkover, the TSMASS require a minimum of 1 shovel test per 2.0 acres (0.8 hectare) for tracts between 4.5 and 40.5 hectares (11.0 and 100.0 acres) in size. As such, a minimum of 28 shovel tests would be required within the 22.4-hectare (55.4-acre) project area. Horizon excavated a total of 28 shovel tests, thereby meeting the TSMASS for a project area of this size. In addition, four trenches were excavated using a trackhoe with a 1.8-meter- (6.0-foot-) wide bucket in the vicinity of the USACE jurisdictional tributaries and pond in the southeastern portion of the project area. The trenches were excavated in order to assess the potential for deeply buried cultural resources and the presence of buried paleosols, such as the West Fork paleosol known from farther to the north within the Trinity River basin.

Shovel testing revealed dense clay soils that were impenetrable with shovels past an average depth of 30.0 centimeters (11.8 inches) below surface. The four trenches excavated within the southeastern portion of the project area revealed deep alluvial sediments consisting of dense clay overlying sandy clay and sandy clay loam to depths of 5.0 to 5.5 meters (16.4 to 18.0 feet) below surface. Ground surface visibility was low throughout the project area due to dense undergrowth vegetation that has developed subsequent to past vegetation-clearing events. Tall ragweed, greenbrier, and poison ivy covered the majority of the project area as well as occasional clusters of mesquite, oak, and cottonwood trees.

No cultural resources, prehistoric or historic-age, were documented on the modern ground surface or within any of the shovel tests or trackhoe trenches excavated within the project area. Furthermore, no evidence of subsurface paleosols was observed in any of the four trackhoe trenches. While shovel testing was not capable of fully penetrating Holocene-age floodplain deposits within the broader project area, all of the deep, clayey alluvial deposits observed in the four trackhoe trenches were culturally sterile, and the stratigraphy observed in trench wall profiles did not suggest any clear boundaries between strata that suggest that stabilized land surfaces were present for any prolonged period of time during the accretion of the floodplain alluvial fills.

7.4 MANAGEMENT RECOMMENDATIONS

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

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APPENDIX A:

Trackhoe Trenching Data

Table A-1. Trackhoe Trench 1 (BHT-1)

Trench No.: 1
UTM Coordinates[1]: 736084 E, 3594203 N
Comment: BHT-1 is oriented east to west and measures 7.0 meters long by 1.8 meters wide. The trench is located at the northern end of the easternmost branch of the jurisdictional tributary.

Zone	Depth (cmbs)	Description	Artifacts
1	0-160	2.5Y 3/2 very dark grayish-brown clay; medium subangular blocky structure; gradual, smooth boundary; several small to medium-sized roots from 0 to 50 cmbs	None
2	160-260	2.5Y 3/3 dark olive-brown clay mottled with 2.5Y 5/6 light olive-brown sand; 5% common river gravels; moderate blocky structure; gradual, smooth boundary	None
3	260-450	2.5Y 4/4 olive-brown gravelly sandy clay; weak, very fine subangular blocky structure; 10% common river gravels; abrupt, smooth boundary	None
4	450-500	Mottled 2.5Y 5/6 light olive-brown and 2.5Y 6/3 light yellowish-brown dense sandy clay; moderate very fine subangular blocky structure; abrupt, smooth boundary	None
5	500-550	2.5Y 6/4 sandy clay loam; weak very fine granular structure; moist with no gravels	None

cmbs = centimeters below surface

Figure A-1. Overview of Trackhoe Trench 1 (BHT-1)

Table A-2. Trackhoe Trench 1 (BHT-2)

Trench No.: 2
UTM Coordinates[1]: 736058 E, 3594241 N
Comment: BHT-2 is oriented north to south and measures 6.5 meters long by 1.8 meters wide. The trench is located between the two branches of the jurisdictional tributary.

Zone	Depth (cmbs)	Description	Artifacts
1	0-35	2.5Y 3/2 very dark grayish-brown clay; moderate medium subangular blocky structure; abrupt, smooth boundary; several small to medium-sized roots from 0 to 50 cmbs	None
2	35-150	2.5Y 5/4 light olive-brown sandy clay; weak, very fine subangular blocky structure; abrupt, smooth boundary	None
3	150-300	2.5Y 3/1 very dark gray dense clay; massive subangular blocky structure; gradual, smooth boundary	None
4	300-400	2.5Y 4/4 olive-brown dense clay; massive subangular blocky structure; abrupt, smooth boundary	None
5	400-505	10YR 6/8 brownish-yellow sandy clay loam; weak very fine granular structure	None

cmbs = centimeters below surface

Figure A-2. Overview of Trackhoe Trench 2 (BHT-2)

Table A-3. Trackhoe Trench 1 (BHT-3)

Trench No.: 3
UTM Coordinates[1]: 735948 E, 3594214 N
Comment: BHT-3 is oriented northwest to southeast and measures 7.2 meters long by 1.8 meters wide. The trench is located west of the westernmost branch of the jurisdictional tributary.

Zone	Depth (cmbs)	Description	Artifacts
1	0-40	2.5Y 3/2 very dark grayish-brown clay; moderate medium subangular blocky structure; abrupt, wavy boundary; several small to medium-sized roots	None
2	40-80	2.5Y 5/4 light olive brown sandy clay; weak, very fine subangular blocky structure; abrupt, wavy boundary	None
3	80-170	2.5Y 3/3 dark olive-brown clay; massive subangular blocky structure; abrupt, wavy boundary	None
4	170-300	2.5Y 3/1 very dark gray dense clay; massive subangular blocky structure; very gradual, smooth boundary	None
5	300-500	2.5Y 4/4 olive-brown sandy clay; weak very fine subangular blocky structure; 1% common river gravels	None

cmbs = centimeters below surface

Figure A-3. Overview of Trackhoe Trench 3 (BHT-3)

Table A-4. Trackhoe Trench 1 (BHT-4)

Trench No.: 4
UTM Coordinates[1]: 735917 E, 3594135 N
Comment: BHT-4 is oriented northeast to southwest and measures 7.1 meters long by 1.8 meters wide. The trench is located west of the westernmost branch of the jurisdictional tributary.

Zone	Depth (cmbs)	Description	Artifacts
1	0-55	2.5Y 3/2 very dark grayish-brown clay; moderate medium subangular blocky structure; abrupt, wavy boundary; several small to medium sized roots	None
2	55-80	2.5Y 5/4 light olive-brown sandy clay; weak, very fine subangular blocky structure; abrupt, wavy boundary	None
3	80-140	2.5Y 3/3 dark olive-brown clay; massive subangular blocky structure; gradual, smooth boundary	None
4	140-300	2.5Y 3/1 very dark gray dense clay; massive subangular blocky structure; gradual, smooth boundary	None
5	300-400	2.5Y 4/4 olive-brown sandy clay; weak, very fine subangular blocky structure; abrupt smooth boundary	None
6	400-500	10YR 6/8 brownish-yellow sandy clay loam; weak, very fine granular structure; moist with no gravels	None

cmbs = centimeters below surface

Figure A-4. Overview of Trackhoe Trench 4 (BHT-4)

APPENDIX B:

Shovel Test Data

Table B-1. Shovel Test Summary Data

ST No.	UTM Coordinates[1]		Depth (cmbs)	Soils	Artifacts
	Easting	Northing			
SM1	735783	3594661	0-30+	Dense black clay	None
SM2	735885	3594684	0-30+	Dense black clay	None
SM3	736007	3594645	0-35+	Dense black clay	None
SM4	736100	3594631	0-40+	Gravely black clay	None
SM5	736084	3594528	0-35+	Black clay with light gray mottles	None
SM6	736015	3594453	0-30+	Dense black clay	None
SM7	735924	3594493	0-25+	Dense black clay	None
SM8	735901	3594585	0-25+	Dense black clay	None
SM9	735840	3594627	0-30+	Dense black clay	None
SM10	735785	3594548	0-30+	Dense black clay	None
SM11	735844	3594462	0-30+	Dense black clay	None
SM12	735949	3594461	0-25+	Dense black clay	None
SM13	735890	3594387	0-30+	Dense black clay	None
SM14	735927	3594301	0-30+	Dense black clay	None
BS1	735884	3594135	0-30+	Very dark grayish-brown dense clay	None
BS2	736035	3594157	0-30+	Very dark grayish-brown dense clay	None
BS3	736137	3594268	0-30+	Very dark grayish-brown dense clay	None
BS4	736075	3594289	0-30+	Very dark grayish-brown dense clay	None
BS5	735988	3594251	0-30+	Very dark grayish-brown dense clay	None
BS6	735884	3594244	0-30+	Very dark grayish-brown dense clay	None
BS7	735801	3594304	0-30+	Very dark grayish-brown dense clay	None
BS8	735900	3594328	0-30+	Very dark grayish-brown dense clay	None
BS9	735971	3594400	0-30+	Very dark grayish-brown dense clay	None
BS10	736071	3594429	0-30+	Very dark grayish-brown dense clay	None
BS11	735976	3594476	0-30+	Very dark grayish-brown dense clay	None
BS12	735877	3594449	0-30+	Very dark grayish-brown dense clay	None
BS13	735787	3594440	0-30+	Very dark grayish-brown dense clay	None
BS14	735864	3594319	0-30+	Very dark grayish-brown dense clay	None

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

cmbs = Centimeters below surface

ST = Shovel test

UTM = Universal Transverse Mercator