Archeological Resources Intensive Survey Report

Farm-to Market (FM) Road 2493
from US 69 to FM 346, Smith and Cherokee Counties
CSJs: 0191-03-083, 0191-04-008, 0191-02-066

Antiquities Permit #8567
Cox|McLain Environmental Consulting
Principal Investigator: Melissa Green, MA, RPA

March 2019

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.
Intensive Archeological Survey for Proposed Improvements to Farm-to-Market Road 2493 From U.S. Highway 69 to Farm-to-Market Road 346 Smith and Cherokee Counties, Texas (CSJs: 0191-03-083, 0191-04-008, and 0191-02-066)

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March 31, 2019

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by TxDOT pursuant to 23 U.S.C. 327 and a memorandum of understanding dated December 16, 2014, and executed by FHWA and TxDOT.
Abstract

Between December 18 and 21, 2018, an intensive archaeological survey was completed in order to inventory and evaluate archeological resources within the footprint of the proposed FM 2493 roadway improvements from U.S. Highway 69 to Farm-to-Market 346 in Smith and Cherokee Counties, Texas. The project is identified under Texas Department of Transportation control-section-job numbers 0191-03-083, 0191-04-008, and 0191-02-066. The work associated with this archeological survey was carried out under Texas Antiquities Permit 8567 by Brett Lang (Project Archeologist) and Floyd Kent of Cox|McLain Environmental Consulting, Inc., a subcontractor to RPS Group.

No archeological sites were recorded during the survey. Results of the survey show that a majority of the project corridor has been highly disturbed from modern residential and commercial development, bulldozing associated with the original roadway construction, installation and repair of buried utilities, as well as from natural impacts such as erosion.

The area of potential effect is comprised of 159.1 acres of existing right-of-way and 68.0 acres of proposed right-of-way for a total of 227.1 acres. None of the 159.1 acres of existing right-of-way was pedestrian surveyed due to previous bulldozing associated with the original roadway construction. Of the 68.0 acres of new proposed right-of-way, right-of-entry access was only allowed on 24.5 acres, leaving 31.0 acres with no access at the time of this survey; these acres will require survey once right-of-entry is obtained. The remaining 12.5 acres of new proposed right-of-way was not surveyed due to apparent previous disturbances from residential and commercial development and corner clips.

In 24.5 acres where access was allowed, thirty-two shovel test units were excavated where subsurface archeological materials might occur, no obvious impacts or disturbances were observed, slope was less than 30 percent, ground visibility was limited, and standing water levels allowed. A majority of the land was publicly owned within the existing right-of-way. The remaining land was privately owned where new right-of-way is proposed. Soils were found to be shallow (generally extending 40 centimeters below the surface); subsoil was encountered in the majority of the shovel tests. All of the shovel tests were sterile and lacked any cultural material.

One backhoe trench was excavated on the east side of Farm-to-Market 2493 adjacent to the older section of Flint Cemetery. The backhoe trench lacked cultural materials and showed no evidence of burials within the undertaking’s area of potential effects.

No further work is recommended in the 196.1 acres of the area of potential effects that did not require survey (existing right-of-way and previously disturbed areas [e.g., residential/commercial and corner clips]), and was surveyed at this time. When access to the 31.0 acres recommended for archeological survey occurs, additional survey is recommended. If any unanticipated cultural materials or deposits are found at any stage of clearing, preparation, or construction, the work should cease and the Texas Department of Transportation should be immediately notified.
All materials (notes, photographs, administrative documents, and other project data) generated from this work will be housed at the Center for Archaeological Studies at Texas State University, where they will be made permanently available to future researchers per 13 Texas Administrative Code 26.16-17. No artifacts were collected and therefore none will be curated.

The Texas Historical Commission concurred with the findings and recommendations of this report on February 28, 2019.
Management Summary

Between December 18 and 21, 2018, an intensive archeological survey was completed in order to inventory and evaluate archeological resources within the footprint of proposed improvements along Farm-to-Market Road 2493 from U.S. Highway 69 to Farm-to-Market 346 in Smith and Cherokee Counties, Texas. Intensive pedestrian survey was conducted on parcels for which right-of-entry was granted; survey was conducted in areas that were physically inaccessible, previously developed, or in standing water. The archeological area of potential effects includes approximately 159.1 acres (64.4 hectares) of existing right-of-way and approximately 68 acres (27.5 hectares) of proposed new right-of-way, covering a total archeological area of archeological potential of approximately 227.1 acres (91.9 hectares).

The proposed project would consist of widening the existing 2-lane undivided highway to a 4-lane highway with flush median (continuous left-turn lane). The project includes a grade separation at U.S. Highway 69 and an approximate 1-mile transition east of U.S. Highway 69. The proposed typical section consists of four 12-foot (3.7-meter) lanes (two in each direction), a 16-foot 94.39-meter) continuous left-turn lane, 6-foot (1.8-meter) bike lanes, and 5-foot (1.5-meter) sidewalks (only in specific locations). Drainage would be via storm sewer. The right-of-way width varies from 142 to 240 feet (43.3 to 73.1 meters). Approximately 68 acres (27.5 hectares) of additional right-of-way would be required to implement the proposed improvements. There are no planned easements, temporary or permanent. The depths of impacts within the area of potential effects would range from a typical depth of 2 feet (0.6 meters) to a maximum depth of 10 feet (3.0 meters) along the roadway, with a deeper, yet undetermined depth, expected at the overpass for US Highway 69.

The fieldwork was carried out under Texas Antiquities Permit 8567 by Brett Lang (Project Archeologist) and Floyd Kent of Cox|McLain Environmental Consulting, Inc., a subcontractor to RPS Group, on December 18 to 21, 2018. The project is sponsored and funded by the Tyler District of the Texas Department of Transportation. The project is subject to Section 106 of the National Historic Preservation Act as well as the Antiquities Code of Texas.

Access was granted to 183.6 acres (159.1 existing and 24.5 new proposed right-of-way) of the area of potential effects; no survey was conducted in the existing right-of-way or in the 12.5 acres of previously disturbed proposed right-of-way. The 24.5 acres of proposed new right-of-way is currently privately-owned and access was granted prior to the field visit. Within the 24.5 acres of accessible new right-of-way, thirty-two shovel test units were excavated in areas where subsurface archeological materials might occur, no obvious impacts or disturbances were observed, slope was less than 30 percent, and in areas where ground visibility was limited. The extent of standing water at the surface varied throughout the area of potential effects. Soils were found to range from 30 to 95 centimeters (11.8 to 37.4 inches) below ground surface; clay subsoil was encountered around 40 centimeters (15.7
Proposed Improvements to FM 2493 from US 69 to FM 346
Smith and Cherokee Counties, Texas

inches) deep in the majority of the tests. All of the shovel tests were sterile lacking cultural material and no sites were recorded during the survey.

One backhoe trench was excavated on the east side of Farm-to-Market 2493, adjacent to the older section of Flint Cemetery. The backhoe trench, 99 meters (324.8 feet) long and 1 meter (3.3 feet) wide, was sterile for cultural materials and showed no evidence of burials outside of the fence line.

No further work is recommended in 196.1 acres of the total 227.1 total area of potential effects within the proposed Farm-to-Market 2493 roadway improvements. The recommendation is due to previous bulldozing associated with the original roadway construction with survey not warranted in the 159.1-acre existing right-of-way. Within the proposed new right-of-way 24.5 acres were surveyed with no cultural material or sites uncovered. and the remaining 31.0 acres not surveyed due to no right of entry will require survey in the future. If any unanticipated cultural materials or deposits are found at any stage of clearing, preparation, or construction, the work should cease and the Texas Department of Transportation should be immediately notified.

No artifacts were found or collected. However, all other materials (notes, photographs, administrative documents, and other project data) generated from this work will be housed at the Center for Archaeological Studies at Texas State University, where they will be made permanently available to future researchers per 13 Texas Administrative Code 26.16-17.
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1 INTRODUCTION

Overview of the Project

The purpose of the investigation described in this document is to identify cultural resources within the footprint for proposed improvements to Farm-to-Market Road (FM) 2493 from U.S. Highway (US) 69 in Bullard to FM 346 in Flint (Figure 1); the project is located in both Smith and Cherokee Counties, Texas. The overall project length is approximately 9.2 miles ([mi]; 14.8 kilometers [km]). The proposed project would consist of widening the existing 2-lane undivided highway to a 4-lane highway with flush median (continuous left-turn lane). The project includes a grade separation at US 69 and an approximate 1-mi (1.6-km) transition east of US 69. The proposed typical section consists of four 12-foot (ft, or 3.7-meter [m]) lanes (two in each direction), a 16-ft (4.9-m) continuous left-turn lane, 6-ft (1.8-m) bike lanes, and 5-ft (1.5-m) sidewalks (only in specific locations). Drainage would be via storm sewer. The right-of-way width varies from 142 to 240 ft (43.3 to 73.1 m). Approximately 68 acres (ac, or 27.5 hectares [ha]) of additional right-of-way would be required to implement the proposed improvements. There are no planned easements, either temporary or permanent.

The archeological area of potential effects (APE) consists of the 227.1-ac (91.9-ha) footprint for the project, which includes 159.1 ac (64.4 ha) of existing roadway right-of-way and 68.0 ac (27.5 ha) of proposed new roadway right-of-way. Depths of impacts within the APE would range from a typical depth of 2 ft (0.6 m) below ground surface to a maximum depth of 10 ft (3.0 m) below ground surface along the roadway, with a deeper (yet undetermined) depth expected at the overpass for US 69.

Brett Lang (Project Archeologist) and Floyd Kent of Cox|McLain Environmental Consulting, Inc. (CMEC), a subcontractor of RPS Group, performed an intensive pedestrian survey with shovel testing on December 18 to 21, 2018. Melissa M. Green was the Principal Investigator. Access was available for approximately 24.5 acres of the APE at the time of the intensive pedestrian survey augmented with shovel testing. Thirty-two shovel test units were placed judgmentally within areas of the APE with right-of-entry based on the observed level of disturbance, visibility of the ground surface, and guidelines established by the Council of Texas Archeologists (CTA) and approved by the Texas Historical Commission (THC). In addition, a single backhoe trench measuring 99 m (324.8 ft) in length and 1 m (3.3 ft) wide was placed on the west side of the older portion of Flint Cemetery (on east side of FM 2493) to ensure that no unknown burial features were present outside of the cemetery’s fence line. The methods employed during this study and relevant constraints are discussed further in Chapters 3 and 4.
Proposed Improvements to FM 2493 from US 69 to FM 346
Smith and Cherokee Counties, Texas

Figure 1
Project Location
FM 2493 from US 69 to FM 346
Basemap Source: ESRI (2018)

Cherokee and Smith Counties

Project Area

CSJs: 0191-03-083, 0191-04-008,
and 0191-02-066

February 2019
Proposed Improvements to FM 2493 from US 69 to FM 346
Smith and Cherokee Counties, Texas

Regulatory Context

The proposed FM 2493 improvements project is owned and sponsored by the Tyler District of TxDOT, an agency of the State of Texas, rendering the project subject to the Antiquities Code of Texas (9 Texas Natural Resources Code [TNRC] 191). The Antiquities Code requires consideration of effects on properties designated as—or eligible to be designated as—State Antiquity Landmarks (SALs), which includes archeological resources. Antiquities Permit 8567 was assigned to this project by the THC. The project also has a federal nexus, triggering Section 106 of the National Historic Preservation Act (NHPA), as amended (16 U.S. Code [USC] 470; 36 Code of Federal Regulations [CFR] 800). The purpose of the investigation described in this document was to conduct an intensive survey for archeological resources (Category 2 under 13 Texas Administrative Code [TAC] 26.20), including both previously unknown resources and previously documented resources, if any, within the 227.1-ac (91.9-ha) project area. If previously unidentified significant resources had been identified during the survey, they would have been evaluated for inclusion in the National Register of Historic Places (NRHP; 36 CFR 60) or for listing as a SAL (13 TAC 26.12). All materials generated from this work will be permanently housed at the Center for Archeological Studies (CAS) at Texas State University at San Marcos per 13 TAC 26.16 and 26.17.

The project has a high probability of encountering human burials near the known Flint Cemetery only, and a low potential near the Bullard Memorial Cemetery. If burials are found, TxDOT will be notified, and all requirements of 8 Texas Health and Safety Code (THSC) 711 will be followed.

Structure of the Report

Following this introduction, Chapter 2 presents environmental parameters, a brief cultural context, and a summary of previous archeological research near the APE. Chapter 3 discusses research goals, relevant methods, and the underlying regulatory considerations. Chapter 4 presents the results of the surveys and summarizes the implications of the investigations. References are provided in Chapter 5.
2 ENVIRONMENTAL AND CULTURAL CONTEXT

Topography, Geology, and Soils

The APE crosses through Smith and Cherokee Counties, which are located within the Interior Coastal Plains of the Gulf Coastal Plain physiographic province, consisting of parallel ridges and valleys with geologic beds that tilt toward the Gulf (Bureau of Economic Geology [BEG] 1996). The APE is located at elevations ranging from approximately 450 to 620 ft (137.1 to 188.9 m) above mean sea level along the 9.2-mi (14.8-km) segment of FM 2493 beginning at US 69 on the south end in Cherokee County and continuing north to FM 346 in Smith County. The project area is situated in a semi-rural combination of commercial and residential development; in general, the area surrounding the APE is developing rapidly as a result of suburban expansion.

Geologically, the APE is primarily underlain by Eocene Weches Formation, which consists of quartz sand, glauconitic sand and clay interbeds (U.S. Geological Survey [USGS] 2018a). According to Natural Resources Conservation Service (NRCS) data, the APE falls in two large soil associations: the Woodtell-Wolfpen-Pickton Association, which covers approximately 2 mi (3.2 km) of the northern end of the APE, and the Redsprings-Elrose-Cuthbert Association, which covers the remaining mileage to the south (NRCS 2018). These well-drained upland soils have deep to very deep overall profiles but shallow archeologically relevant horizons. The A Horizons are relatively shallow (between 3.9 and 13 in [10 and 33 cm] below the surface) over either E or Bt (strong clay accumulation) horizons. Based on the Eocene-age surface geology, upland topography, and soils with thin A horizons, the potential for deeply buried prehistoric deposits is considered low. Some potential does remain for both prehistoric- and historic-age deposits within range of conventional shovel testing from the surface to the top of the clay layer. Surficial archeological deposits could occur in the APE, though these deposits would not likely be significant.

Vegetation, Physiography, and Land use

The project is located in the Tertiary Uplands ecoregion according to the Texas Parks and Wildlife (TPWD) Ecoregion Map (Griffith et al 2007), derived from Gould et al. (1960). This ecoregion is composed of dissected, irregular, low-rolling hills. According to the TPWD’s Vegetation Types of Texas map and accompanying descriptions, the APE is in an area mapped as being covered with “Pine-Hardwood Forest” and “Other Native or Introduced Species”. Vegetation common within the “Pine-Hardwood Forest” included Loblolly pine, shortleaf pine, blackjack oak, sand post oak, southern red oak, sweetgum and yaupon trees. The “Other Native or Introduced Species” common vegetation included mixed native or introduced species of grasses and forbs on grasslands that resulted from prior clearing of wooded areas (McMahan et al 1984:26,29). Vegetation noted during the survey included prairie grasses, pines, cedars, bois d’ arcs, various oaks, sycamores, hackberries, holly, green and black brier, climbing vines, horse tail, sweetgums, and elms.
Archeological Chronology for Northeast Texas

The APE lies within the Northeast Texas archeological region (Kenmotsu and Perttula 1993; Perttula 2004a; Story et al. 1990), an area with a “long, complex, and endlessly fascinating” cultural history extending back at least 12,000 years into the past (Schambach 1993:1). The story of human occupation during these 12,000 years is found in the remains left by mobile Paleoindian and Archaic foragers; the long distance trade and exchange of goods (e.g., lithic raw materials); the development of sedentary communities of foragers and possibly pre-maize cultigens users (e.g., Fritz 1994); the adoption of ceramics and the bow and arrow; the development of complex Caddo horticultural and agricultural societies (Perttula 1996); and the use of earthen mounds. Other evidence of occupation includes the seemingly rapid abandonment of much of the region in the seventeenth and eighteenth centuries, due in large part to the effects of European-introduced diseases, as well as the European colonization of traditional Caddo territory, followed by the permanent expulsion of Caddo groups (Perttula 2004b). The chronological history by period is presented in Table 1. The dates assigned to the period interfaces represent a generalized time range but are based on scientific results from archeological research and are derived from Perttula (2004a).

Further discussion of the prehistory of Northeast Texas is beyond the scope of this document. For such a discussion regarding the prehistoric record, the reader is referred to Kenmotsu and Perttula (1993), Perttula (2004b), Story et al. (1990), and Thurmond (1988, 1990), among others.

<table>
<thead>
<tr>
<th>Period</th>
<th>Years Before Present**</th>
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<tbody>
<tr>
<td>Paleoindian</td>
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</tr>
<tr>
<td>Early</td>
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<tr>
<td>Late</td>
<td>95,000 – 8,000 B.P.</td>
</tr>
<tr>
<td>Archaic</td>
<td></td>
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<tr>
<td>Early</td>
<td>8,000 – 6,000 B.P.</td>
</tr>
<tr>
<td>Middle</td>
<td>6,000 – 4,000 B.P.</td>
</tr>
<tr>
<td>Late</td>
<td>4,000 – 2,000 B.P.</td>
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<td>Ceramic</td>
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<tr>
<td>Early</td>
<td>2,000 – 1,200 B.P.</td>
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<tr>
<td>Early to Historic Caddo</td>
<td>1,200 – 250 B.P.</td>
</tr>
</tbody>
</table>

*From Perttula 2004a: 9, Table 1.1
**Based on uncalibrated radiocarbon dates, which are typical in Texas archeology (see Perttula 2004a: 14, Note 1).
Historic Context

Smith County

The first known inhabitants were the Caddo, with the Anadarko the most commonly group documented by European immigrants. The first European settlement came from José Francisco Calahorra y Saenz, a Spanish missionary, in 1765. Later in 1788 two Frenchmen: Pedro Vial and Francisco Xavier, passed through what would become Smith County on their way to Natchitoches, Louisiana. The first land patents in what was to become Smith County were issued by the Mexican government to David G. Burnet in 1826. In July of 1846, the county was formed from part of the Nacogdoches District, and named after the Texas Revolution hero General James Smith. Tyler was designated the county seat and remains so to this day. By 1850, the first five brick buildings were built in Tyler, followed by the first newspaper (The Tyler Telegraph) and Tyler University (McCroskey 2010a).

The economy of Smith County was originally based on agriculture and later shifted to include oil production. In the 1860s, cotton was the main crop, and the production of delivery wagons was a significant source of income for Smith County. The county had six sawmills, five gristmills, three corn whiskey distilleries, 17 blacksmith shops, nine wagonmakers, three saddle shops, five cabinet makers, and 31 general stores. The Missouri-Pacific Railroad was completed in the 1870s. By the 1880s, cotton production had greatly spiked due to easier transportation facilitated by the railroad. The number of industries was reduced, however, due to the Civil War. The population did not see significant growth until the 1890s, when the population tripled to 28,324. By 1900, the economy also included fruit production and orchards, with more than a million planted trees at this time (producing mainly peaches). A blight severely hurt the peach crop, allowing strawberries and plums to become more common. The biggest economic boost was from oil production, which first started in 1931 when Guy V. Lewis completed the first well in Smith County. World War II brought additional economic prosperity in 1943 with the establishment of Camp Fannin, an infantry training base that was built near present-day Owentown. By the 1950s, cotton and corn production had decreased and was increasingly being replaced with livestock raising. Later in the 1970s, the medical industry became prominent in Smith County and continues to be so into the present (McCroskey 2010a).

Flint was first formed in 1882 out of the Tomás Quevedo survey and was named after Robert P. Flynt, a landowner. The city was situated at a stop on the Kansas and Gulf Short Line Railroad in Smith County. The first post office was opened in 1887. By 1890, the population numbered 25 with a general store, three cotton gins, and one doctor in town. The population continued to slowly rise and by 1902, more than 100 families worked at the railroad loading cabbage, cantaloupes, and peaches onto railroad cars for shipment. The population peaked at 450 in 1914, when the town supported six general stores, a bank, a newspaper, and a new two-story brick schoolhouse. The Great Depression hurt local businesses, and by 1950, the population had dropped to 150. The community greatly increased in
population in the late twentieth century, as the town grew from 150 in 1990 to 700 by the year 2000 (McCroskey 2010b).

The City of Bullard was first settled in 1850 by the William Pitt Loftin family on the line between the William H. Steel and Vinson Moore surveys. The town has been called other names, such as Etna and Hewville, and is located at the intersection of US 69 and FM 2493, FM 2137 and FM 344 along the current Southwestern Railway at the Smith and Cherokee Counties line. In 1883, the completion of the Kansas and Gulf Short Line Railroad changed the name officially to Bullard, and the Bullard railroad station was built in 1884. By 1890, the population had reached 200, and the town included a sawmill, two general stores, a physician, a smithy and wagon shop, a telegraph office, a school, and two churches already established. Schools expanded and segregated in 1903 to include one for white children (servicing 68 students) and one for black children (servicing 118 students). After World War II the population rose to 450, and Bullard became a shipping point for fruits and vegetables. The population continued to rise over time and by 2010 totaled 2,463 (McCroskey 2010c).

Cherokee County

The earliest prehistoric inhabitants of Cherokee County date back 12,000 years, as evidenced by finds at the George C. Davis Site at Mound Prairie. Based on artifacts unearthed at Mound Prairie, the Caddo arrived sometime around A.D. 780. The first land grant for Cherokee County was assigned to William Barr and Peter Samuel Davenport in 1798; however, neither Barr nor Davenport settled the land. In 1820, the Cherokee, Delaware, Shawnee, and Kickapoo Tribes settled north of the Camino Real. Compared to Smith County, the earliest European contact in Cherokee County is not nearly as well-known. Explorers (such as Luis de Moscoso Alvarado in 1542 and the La Salle expedition from 1686 to 1687) have been rumored to pass through Cherokee County, but the first documented European-Native American contact in the county was undertaken by Domingo Terán de los Ríos and Father Damian Massenet on November 6, 1691. In 1846, Cherokee County was established using land from Nacogdoches County. The county was named after the Cherokee Indians, following the Cherokee War of 1839 that expelled all Natives from the county (Ross 2010).

The economy of historic-age Cherokee County was similar to that of Smith County. White settlers poured in after the expulsion of all natives after the Cherokee War of 1839, and they brought with them their southern economic and social traditions. As early as 1850, the population was 6,673; this would increase to 12,098 by 1860. Cotton was a major crop early on, but the primary crops in 1860 were corn and wheat. Because of the large population growth, 17 public schools were established by 1850. The completion of the International-Great Northern (later called the Missouri Pacific) Railroad in 1872 and the Texas and New Orleans Railroad in 1905 formed new towns such as Bullard, Craft, Dialville, Cuney, Gallatin, and Reklaw. The railroads expanded both the population and cotton production between 1870 and 1900. A shift occurred in the 1930s from agriculture to industrial jobs, with the population peaking in 1940 with 43,970 people. The arrival of cars in 1905 and the
construction of four federal and four state highways over time led to a decrease in railroad transportation. After World War II, industrial plants were formed, and by 1970, these plants employed roughly 30 percent of the county’s population across 114 private manufacturing companies. Starting in 1934, oil and natural gas production contributed greatly to the economy, a trend that continues into modern times. By 2004, the total number of oil barrels produced in Cherokee County was 70,710,888 (Ross 2010).

### Previous Investigations and Previously Identified Resources

A search of the Texas Archeological Sites Atlas (Atlas) maintained by the THC and the Texas Archeological Research Laboratory was conducted in order to identify archeological sites, historical markers (Recorded Texas Historic Landmarks), properties or districts listed on the NRHP, SALs, cemeteries, or other cultural resources that may have been previously recorded in or near the APE, as well as previous surveys undertaken in the area. Per TxDOT requirements, a review of a 1-km (0.62-mi) buffer area around the project APE was undertaken to provide insight into the types of known and potential historic properties that may be impacted by the project (Figures 2a-2c).

According to the Atlas, no cultural resources projects have been conducted nor have any archeological sites been identified within the 1-km buffer area. However, three historical markers and two cemeteries are present.

The historic Flint Cemetery and its associated historical marker are located in the northeast corner of the intersection of FM 2493 and Craft Lane (County Road [CR] 148). According to the Atlas, the cemetery dates from 1900 to the present (THC 2018), with the earliest legible marker in the cemetery belonging to Lewis Edwin Ray, who was born on 19 November 1898 and died on 31 December 1900 (Tipton 2018a). A recent survey of the cemetery indicates that there are 1,332 interments (Tipton 2018a), and that the cemetery has outgrown its capacity. A new section of the cemetery has been established in recent years across FM 2493 from the original cemetery.

The Bullard Cemetery and its associated historical marker are found within the 1-km review area, located approximately 1,100 m (3,609 ft) due west of the APE along FM 344. The cemetery is also known locally as both the Aetna Burial Grounds Cemetery and the Etna Community Cemetery. It was established in the late 19th century and is still in use (THC 2018). According to the FindAGrave website, there are 1,883 memorials at the cemetery. The earliest legible marked graves are for two children, A. S. Gilchrist and J. J. Gilchrist, who died a month apart in August and September 1870, respectively. No parents were listed on the markers, but it is presumed that they were siblings. This cemetery does not appear in the Atlas dataset but is noted here. Bullard Memorial Cemetery will not be impacted by the proposed project (Tipton 2018b). The Douglas Cemetery is located to the west of the APE and south of the Bullard Cemetery, just inside the 1-km study area (THC 2018). There are 39 burials in the
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cemetery, with the earliest legible marker for baby Anna D. Robinson who was born in August 1860 and died in January 1861 (Tipton 2018c). Neither of these cemeteries will be impacted by the proposed project.

The second historical marker in the APE is the site of the historic Bullard Water Well, which marks the origin of the Bullard community. This natural resource sourced from the Carrizo-Wilcox major aquifer and the Queen City minor aquifer provided drinking water, and also served as a social gathering place early in Bullard’s history. Bullard succeeded earlier the communities of Etna and Hewsville in 1883 when the Kansas and Gulf Short Line Railroad extended track from Tyler to Lufkin. The reliable water source helped Bullard grow and thrive (THC 2018). The actual location of the original spring is not known, although it was likely near this marker. However, the proposed project will not impact the marker, as there is now a building in this location.

A review of the available historic aerials (from Nationwide Environmental Title Research or NETR), recent Google Earth™ images (viewed through Google Earth™ Pro), and historic topographic maps was conducted. The earliest available aerial imagery is from 1943, followed by images from 1971, 1995 to 1996, 2005, and 2009 to 2017. The 1943 aerial imagery indicates that both towns are minimally populated farming communities at this date. The main thoroughfares other than FM 2493 are east-west running Church Street (FM 169) and the St. Louis Southwestern Railroad located slightly west of FM 2493 in Flint, and east-west Tyler Street and the railroad along the west edge of FM 2493 in Bullard. On the 1943 aerial, the historic Flint Cemetery is smaller in size (approximately 1.5 ac [0.6 ha]) than it is today (approximately 2.2 ac [0.9 ha]). The area north of the current circular drive had not yet been incorporated into the cemetery boundary and the burials appear to have been clustered near the middle and east areas within the boundary (USGS 2018b). The portion of the APE between the two communities is composed of largely undeveloped land, cultivated (terraced and unterraced) and cattle grazing fields, along with scattered rural residential properties. By 1971, the APE (including both Flint and Bullard) had not changed significantly. The towns’ limits have spread slightly, but for the most part, have not extended much beyond their 1971 boundaries. Today there are several large commercial and institutional complexes that have been built along the APE, though they are mostly located near the town limits, with pastureland, cultivated fields, and rural residential properties intermixed between the two communities. Based on the available aerial imagery, it was sometime between 1995 and 2004 that the new portion of the Flint Cemetery (west side of FM 2493) was established (Google Earth 2018; NETR 2018).

On post-1971 aerial photography, Bullard Memorial Cemetery was indicated on the east side of FM 2493, approximately 0.5 mi (0.80 km) south of Panther Crossing in Bullard and approximately 0.6 mi (0.97 km) north of the southern terminus of the current project’s APE. This cemetery does not appear in the Atlas dataset but is visible on this imagery. According to the available aerial imagery, the parcel on which it is located was undeveloped land as recently as 1971 (showing no apparent markers or graves). The cemetery and associated improvements are quite evident on 1995 imagery, with the first
row of graves located just over 40 feet from the edge of the FM 2493 roadway. Bullard Memorial Cemetery will not be impacted by the proposed project.

Seven topographic maps were available: 1946, 1948, and 1973 version of the Bullard 1:24,000 map, and 1956, 1977, 1985, and 1991 versions of the Mount Selman 1:24,000 map. The Bullard maps show only four structures between the project’s south terminus (the FM 2493 and US 69 intersection) north to Tyler Street in Bullard. Many structures are shown (on both sides of the roadway) in Bullard from Tyler Street north to approximately 3rd Street. From 3rd Street in Bullard north to FM 149 in Flint, five structures are noted immediately adjacent to the APE. Between FM 149 and FM 148 (the southern boundary of the Flint Cemetery), only one structure is noted on the west side of FM 2493, near its intersection with FM 149. Only the Flint Cemetery is mapped on the east side of the road. From the northern end of the Flint Cemetery to the project’s northern terminus at FM 346, several structures are shown. No structures are shown on any of the Mount Selman quadrangle maps due to the broader scale of the maps (USGS 2018b).

Historic deposits are more likely to occur along the FM 2493 corridor in the APE, based on information presented above and the known presence of farmhouses, outbuildings, agricultural fields, and/or the remnants of such features observed on modern and historic maps and aerials, and in photographs from a preliminary field visit by project team environmental staff. Close examination of these areas will be undertaken, particularly where there is proposed new right-of-way and where there is the potential for historic deposits associated with historic-age structures. In addition, an abandoned railroad grade is located in and near the APE, beginning at Goodson Spur Road south of Flint, following the alignment through Bullard, and continuing beyond the south terminus of the APE; any features and/or artifacts found associated with this railroad feature will be examined for associations with other potential historic-age resources.
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Figure 2a
Location of Archeological APE
FM 2493 from US 69 to FM 346

Topographic Source: USGS Bullard and Mount Selman 7.5’ Quadrangles (1973)

Prepared for TxDOT
1” = 2,500 feet
CSJ: 0191-02-683, 0191-04-508, 0191-02-666
Date: 4/2/2019

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Figure 2b
Location of Archeological APE
FM 2493 from US 69 to FM 346

Topographic Source: USGS Bullard and Mount Selman 7.5’ Quadrangles (1973)

Prepared for TxDOT
1’ = 2,500 feet
CSJ: 0191-02-683, 0191-04-008
Date: 4/2/2019

and 0191-02-066
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Figure 2c
Location of Archeological APE
FM 2493 from US 69 to FM 346

Topographic Source: USGS Bullard and Mount Selman 7.5' Quadrangles (1973)

Prepared for TxDOT
1" = 2,500 feet
CJ: 0191-02-683, 0191-04-008, 0191-02-686
Scale: 1:30,000
Date: 4/2/2019

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3 RESEARCH GOALS AND METHODS

Purpose of the Research

The present study was carried out to accomplish three major goals:

1. Identify all historic and prehistoric archeological resources located within the APE defined in Chapter 1;
2. Perform a preliminary evaluation of the identified resources' potential for inclusion in the NRHP and/or designation as a SAL (typically performed concurrently); and
3. Make recommendations for further research concerning the identified resources based on the preliminary NRHP/SAL evaluation with guidance on methodology and ethics from the THC and the CTA.

Section 106 of the National Historic Preservation Act

Section 106 of the NHPA of 1966, as amended (16 USC 470; 36 CFR 800), directs federal agencies and entities using federal funds to “take into account the effect of their undertakings on historic properties” (36 CFR 800.1a), with “historic property” defined as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places [NRHP] maintained by the Secretary of the Interior” (36 CFR 800.16).

In order to determine the presence of historic properties (with this phrase understood in its broad Section 106 sense) an APE is first delineated. The APE is the area in which direct impacts (and in a federal context, indirect impacts as well) to historic properties may occur. Within the APE, resources are evaluated to determine whether they are eligible for inclusion in the NRHP, and to determine the presence of any properties that are already listed on the NRHP. To determine whether a property is significant, cultural resource professionals and regulators evaluate the resource using these criteria:

... The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, material, workmanship, feeling, and association and

a. that are associated with events that have made a significant contribution to the broad patterns of our history; or
b. that are associated with the lives of persons significant in our past; or
c. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
d. that have yielded or may be likely to yield, information important in prehistory or history (36 CFR 60.4).
Note that significance and NRHP eligibility are determined by two primary components: integrity and one of the four types of association and data potential listed under 36 CFR 60.4(a-d). The criterion most often applied to archaeological sites is the last—and arguably the broadest—of the four; its phrasing allows regulators to consider a broad range of research questions and analytical techniques that may be relevant to a project (36 CFR 60.4[d]).

Occasionally, certain resources fall into categories that require further evaluation using one or more of the following Criteria Considerations. If a resource is identified and falls into one of these categories, the Criteria Considerations listed below may be applied in conjunction with one or more of the four National Register criteria listed above:

a. A religious property deriving primary significance from architectural or artistic distinction or historical importance, or

b. A building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event, or

c. A birthplace or grave of a historical figure of outstanding importance if there is no other appropriate site or building directly associated with his or her productive life, or

d. A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events, or

e. A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived, or

f. A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own historical significance, or

g. A property achieving significance within the past 50 years if it is of exceptional importance (36 CFR 60.4).

Resources that are listed in the NRHP or are recommended eligible are treated the same under Section 106, and are generally treated the same at the state level as well.

After cultural resources within the APE are identified and evaluated, effects evaluations are completed to determine whether the proposed project has no effect, no adverse effect, or an adverse effect on these resources. Effects are determined by assessing the impacts that the proposed project will have on the characteristics that make the property eligible for listing in the NRHP as well as its integrity. Types of potential adverse effects considered include physical impacts, such as the destruction of all or part of a resource; property acquisitions that adversely impact the historic setting of a resource, even if built resources are not directly impacted; noise and vibration impacts evaluated according to accepted professional standards; changes to significant viewsheds; and cumulative effects that may occur later in
time. If the project will have an adverse effect on cultural resources, measures can be taken to avoid, minimize, or mitigate this adverse effect. In some instances, changes to the proposed project can be made to avoid adverse effects. In other cases, adverse effects may be unavoidable, and mitigation to compensate for these impacts will be proposed and agreed upon by consulting parties.

**Antiquities Code of Texas**

Because the project is currently owned and funded by TxDOT, an agency of the State of Texas, the project is subject to the Antiquities Code of Texas (9 TNRC 191), which requires consideration of effects on properties designated as—or eligible to be designated as—SALs, which are defined as:

... sites, objects, buildings, structures and historic shipwrecks, and locations of historical, archeological, educational, or scientific interest including, but not limited to, prehistoric American Indian or aboriginal campsites, dwellings, and habitation sites, aboriginal paintings, petroglyphs, and other marks or carvings on rock or elsewhere which pertain to early American Indian or other archeological sites of every character, treasure imbedded in the earth, sunken or abandoned ships and wrecks of the sea or any part of their contents, maps, records, documents, books, artifacts, and implements of culture in any way related to the inhabitants, prehistory, history, government, or culture in, on, or under any of the lands of the State of Texas, including the tidelands, submerged land, and the bed of the sea within the jurisdiction of the State of Texas. (13 TAC 26.2)

Guidelines for the evaluation of cultural resources as SALs and/or for listing in the NRHP, which is also explicitly referenced at the state level, are detailed in 13 TAC 26. An archeological site identified on lands owned or controlled by the State of Texas may be of sufficient significance to allow designation as a SAL if at least one of the following criteria applies:

1. the site has the potential to contribute to a better understanding of the prehistory and/or history of Texas by the addition of new and important information;
2. the site’s archeological deposits and the artifacts within the site are preserved and intact, thereby supporting the research potential or preservation interests of the site;
3. the site possesses unique or rare attributes concerning Texas prehistory and/or history;
4. the study of the site offers the opportunity to test theories and methods of preservation, thereby contributing to new scientific knowledge; or
5. the high likelihood that vandalism and relic collecting has occurred or could occur, and official landmark designation is needed to insure [sic] maximum legal protection, or alternatively further investigations are needed to mitigate the effects of vandalism and relic collecting when the site cannot be protected (13 TAC 26.10).
For archeological resources, the state-level process requires securing and maintaining a valid Texas Antiquities Permit from the THC, the lead state agency for Antiquities Code compliance, throughout all stages of investigation, analysis, and reporting.

**Survey Methods and Protocols**

CMEC conducted an intensive survey under 13 TAC 26.14 using the definitions in 13 TAC 26.3. Field methods and strategies complied with the requirements of 13 TAC 26.20, as elaborated by the THC and the Council of Texas Archeologists (CTA).

The need for intensive survey within the existing right-of-way was not considered high due to the lack of potential for intact buried archeological deposits based on its narrow width, the depth and width of drainage ditches, its use for buried and aerial utility placement, and the presence of commercial and residential development, particularly in the limits of both Flint and Bullard. In particular, the “no survey recommended” area included 159.14 ac (64.4 ha) along the existing FM 2493 right-of-way and at the intersections of CR 149, CR 1339, CR 1282, CR 172, CR 150, CR 152 W, or any of the named crossings in the City of Bullard. In addition, 12.51 ac (5.06 ha) of proposed new right-of-way were also not recommended for survey due to their locations as corner clips and narrow (less than 5-ft or 1.5-m) swaths at the edges of the current right-of-way where the potential for intact buried archeological deposits is considered low due to previous impacts.

Shovel testing was conducted for the proposed new right-of-way where access was granted at the two stream crossings near the northern end of the APE and at most of the undeveloped areas that extend beyond the existing utility corridor only, totaling approximately 55.58 ac (22.5 ha) where the potential for intact buried deposits are more likely to occur.

All shovel tests were excavated in natural levels to subsoil or 60 cm (24 in), whichever was encountered first. Excavated matrix was screened through 0.635-cm (0.25-in) hardware cloth as allowed by moisture and clay content, which required that the removed sediment be crumbled/sorted by hand, trowel, and/or shovel point. Deposits were described using conventional texture classifications and Munsell color designations. Had any positive shovel test unit been identified, shovel tests would have been placed at 5-m (16-ft) intervals in each primary cardinal direction until two negative units were established in each direction, as allowed by project limits, observed disturbance, and other constraints. Deviations from THC and CTA standards would have been explicitly justified. Mechanical trenching in non-cemetery locations along the corridor was not anticipated.

The probability of encountering human remains was considered high at the historic Flint Cemetery adjacent to the project APE only, with the remaining survey areas, including near the Bullard Memorial Cemetery, having a lower overall potential. No mechanical scraping or trenching in the APE at the Bullard Memorial Cemetery was necessary, as the cemetery was established after the FM 2493
roadway was built, and grave locations are located well outside of the current right-of-way (approximately 40 ft or 12.2 m away). In addition, there is no new right-of-way proposed in the near this cemetery and it will not be impacted by the proposed improvements.

Oral history information was collected from two Flint Cemetery trustees stating that the burial placement in the cemetery began in the southeast corner and moved north and west as needed, and the western portion of the cemetery was not used until well after the old US 69/FM 2493 alignment was constructed (Personal communication with Bobby Carter on Aug 3, 2018 and Cynthia Griffin on August 7, 2018). However, due to the close proximity of the western cemetery fence to the edge of the current right-of-way (approximately 12 ft or 3.7 m), TxDOT recommended mechanical scraping or trenching be utilized to guarantee no isolated graves within the current right-of-way.

Mechanical investigations would occur in the area between the east edge of the pavement and the west edge of the right-of-way on the east side of FM 2493, unless these investigations are not feasible or safe due to the previous installation of buried utilities. If necessary, the same will occur on the west side of FM 2493 where new right-of-way is proposed. If burials are found during mechanical investigations, TxDOT and Smith County will be notified, and all requirements of 8 Texas Health and Safety Code 711 will be followed.

Most of the APE is located on publicly owned land. However, all of the proposed new right-of-way is on privately owned land slated for acquisition; therefore, artifacts identified in shovel tests and surface contexts were noted, described, photographed, and returned to their original contexts. At the time of the survey, landowner permission was being coordinated by TxDOT’s environmental and engineering consultant team. If for any reason access was not available at the time of the survey, a reasonable and good-faith effort was made to document inaccessible areas from accessible areas for the purposes of the present permit. This permit will then be closed (assuming all work products and submittals meet THC/CTA requirements) and, if necessary, an additional permit application would be submitted at a future date when any remaining land becomes accessible.

Any site recorded during the investigation would have been identified by a temporary marker placed on the site. The marker would have an identifying number in the form of “Field Site” designation, followed by a consecutively assigned number that will indicate the order in which the sites were discovered (e.g., FS-01, FS-02, etc.). This number is a temporary field number to be superseded by a formal site trinomial obtained following the completion of fieldwork (see below). Site designations would have been applied only to features (whether surface or subsurface) that appear to represent occupation or activity areas and/or to clusters of artifacts (whether surface or subsurface) with the minimum threshold of two contiguous positive shovel test units.

CMEC personnel kept a complete record of field notes with observations including (but not limited to) identified sites, cultural materials, location markers, contextual integrity, estimated time periods of
occupations, vegetation, topography, hydrology, land use, soil exposures, general conditions at the time of the survey, and field techniques employed. The field notes were supplemented by digital photographs.

**Reporting and Curation**

Relevant field observations for any new sites discovered during these investigations would have been transferred to TexSite forms and submitted to TARL for official recording and integration into the trinomial system. An analysis of recorded materials and site characteristics would have been performed, and the results presented in a clear and concise manner. These data would have been used to formulate a preliminary evaluation of the NRHP and/or SAL eligibility of each site, as well as a recommendation for further work or no further work, supported by explicit justifications (13 TAC 26.3; 13 TAC 26.10; 13 TAC 26.16). Data, sites recorded, and NRHP/SAL eligibility assessments would have been presented in a standard draft survey report to be submitted to TxDOT and the THC for review and comment. Comments on the draft report will be incorporated into a final version to be submitted (with the number and format of copies to be determined based on client preferences) to TxDOT and the THC. Per 13 TAC 26.16, the final permit-closure submittal will include a transmittal letter, abstract form, project area shapefile, tagged PDF files of the report.

All materials (notes, photographs, administrative documents, and other project data) generated from this work will be housed at the CAS at Texas State University, where they will be made permanently available to future researchers per 13 TAC 26.16-17. No artifacts were collected and therefore none will be curated.
4 RESULTS AND RECOMMENDATIONS

General Field Observations Results

Fieldwork, including an intensive archeological survey of a portion of the 227.1 ac (91.9 ha) APE, occurred on December 18 to 21, 2018. The intensive archeological survey was augmented with judgmentally placed shovel test units (Figures 3a-3j). The APE includes both existing and new proposed rights-of-way. Existing right-of-way covers approximately 159.1 ac (64.4 ha), and proposed new right-of-way covers approximately 68 ac (27.5 ha). Additionally, a single backhoe trench was placed on the east side of FM 2493 between Flint Cemetery and FM 2493 to ensure that no unmarked burials were present. Access was granted to 159.1 ac of existing right-of-way and 24.5 ac only of proposed new right-of-way within the APE. No access was granted to 31.0 ac of new right-of-entry, and 12.5 ac of proposed new right-of-way was not surveyed due to existing disturbances from residential/commercial and corner cuts. None of the 159.1 ac of existing right-of-way required pedestrian survey.

Most of the APE is situated along the existing FM 2493 roadway in both rural and commercial settings, with a section of proposed new right-of-way near the southern end of the APE, predominantly consisting of pasture land. The largest sections of the 24.5 ac with confirmed access were located near the APE's southern terminus and in the area south of Flint Cemetery in the northern portion of the APE (see Figures 3a-3c and 3h-3j). The remaining sections with granted survey access were small parcels scattered throughout the APE. At the southern end of the APE, the terrain was hilly with ground visibility between 10 and 30 percent; vegetation in this area consisted of short, ankle-high grasses (Figure 4) that covered pastures used primarily for cattle grazing. The APE continued across US 69 onto new right-of-way traversing a wooded, inundated, low-lying area and a cleared upland pastureland setting (Figures 5 and 6). The new right-of-way continued to the northwest into a wooded area (with no access), composed of hackberry, black walnut, cedar, oak, and Texas ash trees (Figure 7).

South of Flint Cemetery, survey access was granted for scattered parcels extending to the Bullard High School Stadium area. Immediately south of Flint Cemetery, parcels with access began in a mowed, manicured yard with 0 to 30 percent ground visibility owing to the ankle-high Bermuda grass present in this location (Figure 8). South of the manicured yard setting, the APE entered into a wooded section with bois d’Arcs, oaks, hackberries, hollies, sweetgums, green brier, black brier, climbing vines, and horsetail, along with 0 to 10 percent ground visibility (Figure 9). In the wooded section, an unnamed drainage measuring 3 m (9.8 ft) wide and 2 m (6.6 ft) deep was observed, as was an old wooden bridge spanning the waterway (Figure 10). Profiles of the drainage demonstrated homogenous soil stratigraphy and no cultural material. The lower elevation settings within the wooded section were often inundated with both water and sewage (based on the smell). South of Kimberly Drive, access was granted for a cleared cattle pasture on the west side of FM 2493. This area featured short, ankle-high grasses obscuring ground surface visibility to between 10 and 30 percent. The last section with granted

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Figure 3b
Survey Results
FM 2493 from US 69 to FM 346

Aerial Source: ESRI (2017)

Prepared for: TxDOT
Prepared by: 0191-02-066

February 2019
Proposed Improvements to FM 2493 from US 69 to FM 346
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Figure 3c
Survey Results
FM 2493 from US 69 to FM 346

Aerial Source: ESRI (2017)

Prepared for: TxDOT
Date: 02/1/2019
Scale: 1" = 500 feet
Date: 02/1/2019

CSJs: 0191-03-083, 0191-04-008, and 0191-02-066

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Proposed Improvements to FM 2493 from US 69 to FM 346
Smith and Cherokee Counties, Texas

Figure 3e
Survey Results
FM 2493 from US 69 to FM 346

Aerial Source: ESRI (2017)

Prepared for TxDOT
3 in = 500 feet
Scale 1:2,500
0191-02-066
Date: 2/13/2019

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CSJs: 0191-03-083, 0191-04-008, and 0191-02-066
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Proposed Improvements to FM 2493 from US 69 to FM 346
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Figure 3f
Survey Results
FM 2493 from US 69 to FM 346

Aerial Source: ESRI (2017)

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Figure 3h
Survey Results
FM 2493 from US 69 to FM 346
Aerial Source: ESRI (2017)

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CSJs: 0191-03-083, 0191-04-008, and 0191-02-066

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Figure 3j
Survey Results
FM 2493 from US 69 to FM 346
Aerial Source: ESRI (2017)

CSJs: 0191-03-083, 0191-04-008, and 0191-02-066

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Figure 4. South side of FM 2493 at the east end of the APE; view west.

Figure 5. Inundated, wooded area west of US 69 at south end of APE; view west.
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Figure 6. Hilly cow pasture area west of US 69; view northwest.

Figure 7. No-access area of proposed new right-of-way near south end of the APE; view northwest.
Proposed Improvements to FM 2493 from US 69 to FM 346
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Figure 8. Manicured, mowed yard south of Flint Cemetery; view northwest.

Figure 9. Wooded area south of the manicured yard; view southeast.
access was located east of Sanders Street, northeast of the Bullard Panthers’ stadium. The small parcel was a cattle pasture with 10 to 30 percent ground visibility and ankle-high prairie grasses.

Thirty-two shovel test units were excavated in the 24.5 ac proposed new right-of-way settings within the APE for which access had been granted. The existing right-of-way exhibited extensive disturbances in areas not requiring shovel testing. Due (in part) to the hilly terrain in the area, shovel test units were judgmentally placed in areas where subsurface archeological materials might occur, no obvious impacts or disturbances were observed, slope was less than 30 percent, ground visibility was limited, and/or soil moisture was low. Soils were fairly consistent with the description of the prescribed NRCS soil series, which consist of loamy sand or fine sandy loam. Colors varied from brown to dark reddish-brown (for the A horizons) and strong brown to red mottled clay or sandy clay (for subsoils throughout the corridor). Shovel test FK11 (Figure 11) was the exception, as it contained fine sand extending to 80 cmbs or 31.5 inbs, with no clay subsoil present. Details of all excavated shovel test units are presented in Table 2. No artifacts or archeological deposits were encountered in any of the shovel test units.
Figure 11. Shovel test FK11 showing deep friable sand; view down and west.

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<th>Depth (cmbs***)</th>
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<tr>
<td></td>
<td>70-80</td>
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<tr>
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<td>Brown (7.5YR5/4) sandy clay with 20% red (2.5YR4/6) clay</td>
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### Table 2: Shovel Test Unit Excavation Results*

<table>
<thead>
<tr>
<th>ST #</th>
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<td>55-65</td>
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<td>Very dark grayish brown (10YR3/2) sandy loam</td>
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<td>Brown (7.5YR5/3) friable sand</td>
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<td>Brown (7.5YR5/4) clayey sand with 15% strong brown (7.5YR4/6) sandy clay</td>
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<td>FK16</td>
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<td>70-95</td>
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<td>20-35</td>
<td>Reddish brown (5YR5/4) sandy clay with 10% strong brown (7.5YR5/4) clay</td>
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</table>
### Table 2: Shovel Test Unit Excavation Results*

<table>
<thead>
<tr>
<th>ST #</th>
<th>Depth (cmbs***)</th>
<th>Description/Notes</th>
<th>Artifacts</th>
</tr>
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<td>40-45</td>
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<td>Reddish brown (5YR5/4) sand</td>
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<td>Yellowish red (5YR5/6) sandy clay</td>
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<td>Watertable</td>
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<td>Light brown (7.5YR6/4) wet sand</td>
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<td>50+</td>
<td>Watertable</td>
<td>None</td>
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<td>Light brown (7.5YR6/4) sand with 15% strong brown (7.5YR4/6) wet sand</td>
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<td>Light brown (7.5YR6/4) wet sand</td>
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<td>Watertable</td>
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<td>Red (2.5YR3/4) sandy loam</td>
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<td>30+</td>
<td>Watertable</td>
<td>None</td>
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</tbody>
</table>

*All shovel tests were located on privately-owned property (proposed new right-of-way).

**Centimeters below surface

A majority of the APE was within areas disturbed by bulldozing from road construction, utility installation, and residential and commercial development. Outside of the existing roadway and associated right-of-way, the utility corridor on both sides of FM 2493 represents the most significant disturbance. Examples of disturbance within the utility corridors included buried utilities such as cable, phone, water, sewer, oil/gas pipelines, along with berms and excavated ditches and overhead power lines (Figure...
Sewer mains were also observed all along the project APE in both rural and residential settings (Figure 13). Residential and commercial development disturbance from the cities of Flint and Bullard precluded these areas from shovel testing, even if access had been granted (Figure 14).

In addition to the excavation of shovel test units, a single backhoe trench was excavated on the west side of Flint Cemetery between the cemetery and FM 2493 (see Figure 3j). Currently there are two sections of the cemetery located on both the east and west sides of FM 2493. However, burials in the east, or oldest section of the cemetery, along the east side of FM 2493 extend to the current fence line and adjacent to the utility corridor. The cemetery section on the west side of FM 2493 was established in the 1980s, and not investigated for current graves outside of the right-of-way of the APE. The area between the cemetery fence and FM 2493 appeared to be an existing utility corridor (Figure 15). The ground surface of the utility corridor was 71 cm (28 in) below the current surface of Flint Cemetery. Several buried utility lines, including a fiber optic cable, were recorded at the southern end of Flint Cemetery, but not within the area where the trench was located. However, during the trenching process, a sewer pipeline not known by the pre-excitation Texas 811 call, was discovered approximately 119 to 130 cm (47 to 51 in) below the surface and a smaller water line was observed immediately adjacent to the cemetery fence line.

The trench was 1 m (3.3 ft, the width of the bucket) wide and 99 m (324.8 ft) long, running the entire length of the older cemetery on the east side of FM 2493. The trench (Figure 16) was continuous, except for near the main entrance into the cemetery. Profiles of the west walls of the trench at five locations (at 14, 24, 45, 70 and 98 m [47, 80, 150, 230 and 320 ft]) along the trench from the southern end of the trench. Soil from the trench consisted of coarse to fine grained sands underlain by mottled sand with small amounts of clay before encountering the sewer pipeline (Figure 17). Details of all the wall profiles are found in Table 3. Artifacts associated with the installation of the sewer line were the only cultural items observed during the trenching process and included metal fragments, clear glass fragments, and two complete Barq’s Root Beer bottles dating to the 1950s or 1960s (Figure 18). No unmarked burials or archeological features were observed in the trench.
Proposed Improvements to FM 2493 from US 69 to FM 346
Smith and Cherokee Counties, Texas

Figure 12. West side of FM 2493 in rural area, showing utility corridor; view south.

Figure 13. Sewer main disturbance in utility corridor; view northwest.
Proposed Improvements to FM 2493 from US 69 to FM 346
Smith and Cherokee Counties, Texas

Figure 14. Disturbance in Bullard at Main Street intersection; view southeast.

Figure 15. West side of Flint Cemetery and FM 2493 prior to trenching; view south.
Proposed Improvements to FM 2493 from US 69 to FM 346
Smith and Cherokee Counties, Texas

Figure 16. Trench from near the northern end of Flint Cemetery; view north.

Figure 17. West wall profile and sewer pipeline at 98 m from the southern end; view west.
Proposed Improvements to FM 2493 from US 69 to FM 346
Smith and Cherokee Counties, Texas

Figure 18. Glass and metal fragments found at 70 m from the trench southern end.

Table 3: Backhoe Trench Excavation Results

<table>
<thead>
<tr>
<th>Location within BHT*</th>
<th>Depth (cmbs**)</th>
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<th>Artifacts</th>
</tr>
</thead>
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<td>14 m</td>
<td>0-71</td>
<td>No soil; ground surface lower than cemetery</td>
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</tr>
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<td></td>
<td>71-91</td>
<td>Reddish brown (5YR 5/4) coarse-grained sand</td>
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<tr>
<td></td>
<td>91-99</td>
<td>Yellowish red (5YR4/6) disturbed pipe fill</td>
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</tr>
<tr>
<td></td>
<td>99-112</td>
<td>Yellowish red (5YR5/6) very fine sand mottled with 10% reddish brown (5YR4/4) very fine sand</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>112-130</td>
<td>Red (2.5YR4/6) very fine sand</td>
<td>None</td>
</tr>
<tr>
<td>24 m</td>
<td>0-71</td>
<td>No soil; ground surface lower than cemetery</td>
<td>None</td>
</tr>
<tr>
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<td>71-86</td>
<td>Reddish brown (5YR4/3) loamy organic layer</td>
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<td>86-107</td>
<td>Red (2.5YR4/6) very fine sand</td>
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<td>107-122</td>
<td>Yellowish red (5YR4/6) fine sand mottled with 15% red (2.5YR4/6) clay</td>
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<tr>
<td></td>
<td>122-130</td>
<td>Red (2.5YR4/6) sand with some clay mottled with 10% red (2.5YR4/8) sand</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>130 +</td>
<td>Sewer pipeline</td>
<td>None</td>
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</table>
Recommendations

The project APE is located on hilly terrain and pasture lands within both existing and proposed right-of-way, residential or commercial development, or rural settings. The potential for deeply buried prehistoric archeological remains and/or deposits was considered low, as local soils feature relatively shallow A Horizons. The area adjacent to Flint Cemetery was thought to have higher potential for unmarked burials outside of the existing fence line. Historic-age archeology potential was considered minimal from the surface to approximately 50 cmbs (19.7 inbs) based on the Eocene-age upland deposits.

Results of the survey indicate that the majority of the APE has been extensively disturbed by previous activities (e.g., bulldozing associated with existing road construction and maintenance, residential and
commercial development, oil, gas, and sewer pipelines, utility installations, and natural erosion) in the distant and recent past. No pedestrian survey was conducted for the 159.1 ac of existing right-of-way. Survey was conducted in only 24.5 of the 68.0 ac of proposed new right-of-way where access was granted. No archeological sites or human burials were identified during the investigation. Due to a lack of right-of-entry, no survey was conducted within the 31.0 ac of proposed new right-of-way at this time. All shovel tests and surface exposures were sterile of archeological materials. No evidence of preserved deposits with a high degree of integrity (associations with distinctive architectural and material culture styles, rare materials and assemblages, the potential to yield data important to the study of preservation techniques and the past in general, or potential attractiveness to relic hunters [13 TAC 26.10; 36 CFR 60.4]) were encountered. Therefore, no archeological investigations are warranted prior to construction activities in the 196.1 ac (159.1 of existing right-of-way, 24.5 ac of access parcels, 12.5 ac of previous disturbed proposed right-of-way) examined for this permit. Additional archeological investigation is recommended in the 31.0 ac of proposed new right-of-way once access becomes available.

No artifacts were collected; therefore, only project records will be curated per TAC 26.16 and 26.17. Project records will be curated at the CAS at Texas State University, where they will be made permanently available to future researchers.

If any unanticipated cultural materials or deposits are found at any stage of clearing, preparation, or construction, the work should cease in that area and TxDOT personnel should be notified immediately. While any unanticipated finds are being evaluated and coordination is ongoing between TxDOT and the THC, clearing, preparation, and/or construction could continue in any other areas along the corridor where no such deposits or materials are observed.
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Tipton, J.


United States Geological Survey (USGS)


Appendix A

Design Documents
Appendix B

Regulatory Correspondence
February 28, 2019

Texas Antiquities Permit Number: 8567

Ms. Patricia A. Mercado-Allinger
Division Director/State Archeologist
Archeology Division Texas Historical Commission
PO Box 12276
Austin, TX 78711-2276

Dear Ms. Mercado-Allinger:

The proposed project will be undertaken with Federal funding. In accordance with Section 106 and the Programmatic Agreement (PA) among the Texas Department of Transportation (TxDOT), the Texas State Historical Preservation Officer (TSHPO), the Federal Highway Administration (FHWA), and the Advisory Council on Historic Preservation and the Antiquities Code of Texas and the Memorandum of Understanding (MOU) between the Texas Historical Commission (THC) and TxDOT, this letter initiates consultation for the proposed undertaking.

The Tyler District proposes to improve a section of Farm to Market (FM) 2493 between the communities of Flint and Bullard in Smith and Cherokee Counties. The proposed project would consist of widening the existing 2-lane undivided highway to a 4-lane highway with flush median (continuous left turn lane). The project includes a grade separation at US 69 and an approximate 1-mile transition east of US 69. The proposed typical section consists of four 12-foot lanes (two in each direction), a 16-foot continuous left turn lane, 6-foot bike lanes, and 5-foot sidewalks (only in specific locations). Drainage would be via storm sewer. Approximately 68 acres of additional right-of-way would be required.

The undertaking’s area of potential effects (APE) is defined as the existing 142 to 240 foot wide FM 2493 right of way (ROW) beginning at US 69 in Cherokee County and extending 48,576 feet (9.2 miles) northwest to FM 346 (159.1 acres) in Smith County. In addition, the APE includes approximately 68 acres of proposed new ROW that is illustrated on the plan view maps embedded within the attached intensive archeological survey report. According to typical design the depth of impacts would be up to 100 feet below the current ground surface for bridge and overpass supports and up to 10 feet for the rest of the project. The APE is comprised of approximately 227.1 acres and is located approximately 220 miles northeast of Austin, Texas.

Your office issued Texas Antiquities Permit Number 8567 to Cox/McLain Environmental Consultants to conduct an intensive archeological survey of the 227.1 acre APE. Fieldwork has recently been completed. The results of the investigation are as follows:

- The investigation consisted of a pedestrian survey of 24.5 acres of the proposed new ROW as well as approximately 0.5 acres of existing ROW adjacent to the Flint Cemetery.
Due to observations of extensive disturbance, no survey was recommended by the investigators and no survey was conducted within 158.6 acres of the existing ROW and 12.5 acres of the proposed new ROW.

One, 99 meter long by 1 meter wide backhoe trench was excavated within the 0.5 acres of existing FM 2493 ROW adjacent to the Flint Cemetery in order to confirm the absence of graves within the APE. No evidence of graves was observed.

A total of 32 shovel tests were excavated within the 24.5 acres of proposed new ROW that were surveyed under this investigation. No archeological remains were observed on the ground surface or within the shovel tests.

Due to denial of right of entry, survey was not conducted within 31 acres of proposed new ROW. Additional survey is recommended within these 31 acres once right of entry has been obtained.

No survey or further work is recommended within the remaining 196.1 acres of the APE.

No archeological sites or human burials were observed or recorded during this investigation.

A copy of the related survey report is attached for your review. TxDOT has reviewed this report and agrees with its recommendations. Based upon the results of the investigations, TxDOT seeks your concurrence with recommendations that no further work is required for the 196.1 acres of the APE that was assessed during this investigation. Additional survey is still required for the 31 acres of the proposed new ROW once right of entry has been obtained. Once right of entry has been obtained, TxDOT or its consultant will apply for a new Texas Antiquities Permit to complete Section 106 and Antiquities Code of Texas consultations for this project. In addition, TxDOT seeks your concurrence that the attached report is adequate and the stipulations set forth in the Antiquities Code have been fulfilled. Please signify your concurrence by signing on the line provided below.

In the event that archeological materials are discovered during construction in the areas recommended for no further work, construction in the immediate area shall cease, and the your office will be contacted to initiate accidental discovery procedures in accordance of the terms of the PA and the MOU. Thank you for your consideration in this matter. If you have any questions or further need of assistance, please contact Jon Budd of the TxDOT Archeological Studies Program at (512) 416-2640.

Sincerely,

Jon Budd
TxDOT staff archeologist

Concurrence:
for Mark S. Wolfe, State Historic Preservation Officer

2/28/19

Attachment
cc w/o attachments:

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.
Archeological Resources Intensive Survey Report

Farm-to Market (FM) Road 2493
from US 69 to FM 346, Smith and Cherokee Counties
CSJs: 0191-03-083, 0191-04-008, 0191-02-066

Antiquities Permit #8567
Cox|McLain Environmental Consulting
Principal Investigator: Melissa Green, MA, RPA

February 2019

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