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## **Cultural Resources Survey of Two Atascosa County Bridges, Atascosa County, Texas**

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## Cultural Resources Survey of Two Atascosa County Bridges, Atascosa County, Texas

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**SWCA**<sup>®</sup>

ENVIRONMENTAL CONSULTANTS

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## **Cultural Resources Survey of Two Atascosa County Bridges, Atascosa County, Texas**

Prepared for

**Texas Department of Transportation**

Prepared by

**SWCA Environmental Consultants**

Texas Antiquities Permit 4401

SWCA Cultural Resource Report No. 07-67

January 2015





**CULTURAL RESOURCES SURVEY OF TWO ATASCOSA COUNTY BRIDGES,  
ATASCOSA COUNTY, TEXAS**

Submitted to

**TCB INC.**  
6800 Park Ten Blvd., Suite 180-S  
San Antonio, Texas 78213

Prepared for

**TEXAS DEPARTMENT OF TRANSPORTATION**  
P.O. Box 29928  
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Principal Investigator

Kevin A. Miller

Texas Antiquities Permit 4401

SWCA Project Number 12320-143-AUS  
SWCA Cultural Resources Report No. 2007-067  
January 2015



## ABSTRACT

Cultural resource investigations were conducted by SWCA Environmental Consultants (SWCA) for the proposed replacement of two bridges located in Atascosa County for TCB INC. on behalf of the Texas Department of Transportation (TxDOT). These two project areas consist of the Byrd Road at Lucas Creek crossing in northeastern Atascosa County and the Jim Brite Road at Atascosa River crossing in eastern Atascosa County. The Texas Historical Commission (THC) issued Texas Antiquities Permit 4401 to SWCA to conduct the cultural resource investigations, which were designed to identify and evaluate any archaeological sites eligible for listing on the National Register of Historic Places (NRHP) or that might warrant designation as a State Archeological Landmark (SAL).

Investigations consisted of a background literature and records review and a pedestrian survey with shovel testing of relatively intact areas for both project locations. The background literature and records review revealed that neither of the project areas (i.e., Jim Brite Road at the Atascosa River or Byrd Road at Lucas Creek) have been previously surveyed and that no archaeological sites are within or near the project areas. The Leal Cemetery is located about 1.2 miles north of the Jim Brite Road project area, which could date to the occupation of nearby town of Leal between 1850s and 1860s. However, this cemetery will not be affected by the proposed project. The investigation of the two bridge crossings primarily encountered extremely constricted and disturbed right-of-way (ROW) with no cultural materials identified during the pedestrian survey or in the shovel test excavations.

In accordance with 36 CRF 800.4, SWCA has made a reasonable and good faith effort to identify archeological historic properties within the Area of Potential Effects (APE). The proposed replacement of the two bridges in Atascosa County will impact previously disturbed areas with no significant cultural properties. Thus, the proposed project will not affect any cultural resources. As no properties were identified that meet the criteria for listing in the NRHP according to 36 CFR 60.4 or for designation as an SAL according to 13 TAC 26.12, SWCA recommends no further investigations for these project areas.

No artifacts were collected. Therefore, nothing was curated.

## **MANAGEMENT SUMMARY**

**PROJECT TITLE:** Cultural Resources Survey of Two Atascosa County Bridges, Atascosa County, Texas.

**SWCA PROJECT NUMBER:** 12320-143.

**PROJECT DESCRIPTION:** The project included a background literature and records review for previously conducted surveys and recorded sites and an intensive pedestrian survey augmented with shovel testing of relatively intact areas for the proposed replacement of two rural Atascosa County bridges.

**LOCATION:** The project is comprised of two bridge replacement locations in Atascosa County. One project area is the Byrd Road at Lucas Creek crossing that is located roughly 1.25 miles east of the intersection of Farm-to-Market (FM) 1784 and State Highway (SH) 97 in northeastern Atascosa County. The second project area is the Jim Brite Road at Atascosa River crossing, which is located about 0.75 miles southwest of Leal, Texas in eastern Atascosa County. These project areas appear on the Saspamco SE and Leal 7.5-minute topographic quadrangle maps, respectively.

**NUMBER OF ACRES SURVEYED:** Roughly 1.6 acres.

**PRINCIPAL INVESTIGATOR:** Kevin A. Miller

**TEXAS ANTIQUITIES PERMIT:** 4401.

**DATES OF WORK:** February 2, 2007.

**PURPOSE OF WORK:** Since the proposed undertaking will involve federal funds from the Federal Highway Administration (FHWA) and involves state land controlled by the San Antonio District of the TxDOT, investigations were conducted in compliance with the Texas Antiquities Code; the National Historic Preservation Act (NHPA); and the First Amended Programmatic Agreement among the FHWA, TxDOT, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation regarding the implementation of transportation undertakings.

**NUMBER OF SITES:** None.

**CURATION:** No artifacts were observed. Thus, nothing was curated.

**COMMENTS:** The pedestrian survey utilized shovel testing in the relatively undisturbed locations of the project areas. No cultural materials were observed on the surface or in the subsurface investigations of the two project areas. Therefore, SWCA recommends no further archaeological investigations.



## INTRODUCTION

On behalf of TCB INC. and Texas Department of Transportation (TxDOT), SWCA Environmental Consultants (SWCA) conducted a background literature and records review and an intensive areal cultural resources survey of two proposed bridge replacements in Atascosa County, Texas (Figure 1). The project entails the replacement and rehabilitation of bridges by TxDOT on various county roads in Atascosa County, Texas. Because the construction would involve federal funds from the Federal Highway Administration (FHWA) and state land controlled by the San Antonio District of TxDOT, investigations were conducted in compliance with the Texas Antiquities Code; the National Historic Preservation Act (NHPA); the First Amended Programmatic Agreement among the FHWA, TxDOT, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation regarding the implementation of transportation undertakings, and the Memorandum of Understanding between TxDOT and the Texas Historical Commission (THC). The THC issued Antiquities Permit 4401 to SWCA to conduct the cultural resource investigations with Kevin A. Miller serving as the Principal Investigator.

The purpose of the work was to locate all prehistoric and historic archaeological sites in the Area of Potential Effects (APE), establish vertical and horizontal site boundaries as appropriate with regard to the APE, and evaluate the significance and eligibility of any sites recorded in the APE for eligibility for listing in the National Register of Historic Places (NRHP) and designation as a State Archeological Landmark (SAL). All work was done in accordance with the standards and guidelines of the Antiquities Code of Texas and the National Historic Preservation Act. SWCA archaeologists Josh Gibbs and Ken Lawrence conducted the fieldwork on February 2, 2007.

## DEFINITION OF STUDY AREA

The project consists of two bridge replacement locations on rural Atascosa County roads (Figure 1). One bridge is located on Byrd Road at Lucas Creek roughly 1.25 miles east of the intersection of Farm-to-Market (FM) 1784 and State Highway (SH) 97 in northeastern Atascosa County. The second bridge is located on Jim Brite Road at the Atascosa River about 0.75 miles southwest of Leal, Texas in eastern Atascosa County. Although some individual project construction areas may be limited to a single approach, the APE and survey for the replacement project locations were contained within the existing right-of-way (ROW) of the bridges and their approaches for a distance of 330 feet (100 m) along each approach. Both individual project locations are limited to existing ROWs. The vertical depth of impacts has not been specified in detail. However, construction within typical roadway approaches will not impact deposits to depths greater than four feet. Work for any required bridge crossings may entail cutting the banks at the crossing to a depth of at least ten feet for a distance of at least 25 feet from the existing edge of the banks. Additionally, SWCA visually inspected from the ROW an additional 25-foot wide corridor parallel to the ROWs to evaluate and address the potential for adjacent buried and/or significant archeological deposits. All work by SWCA was conducted on public (TxDOT) lands.

The Byrd Road bridge replacement project area is situated on Lucas Creek, a small upland drainage that drains into Prieto Creek and eventually into the Atascosa River (Figure 2). The geology of the crossing is mapped as Recent Alluvium consisting of floodplain deposits (i.e., gravel, sand, clay, silt, and organic material) (Barnes 1983). The soils of the crossing are mapped as frequently flooded Sinton soils that are described as deep soils found along and above upland stream chan-

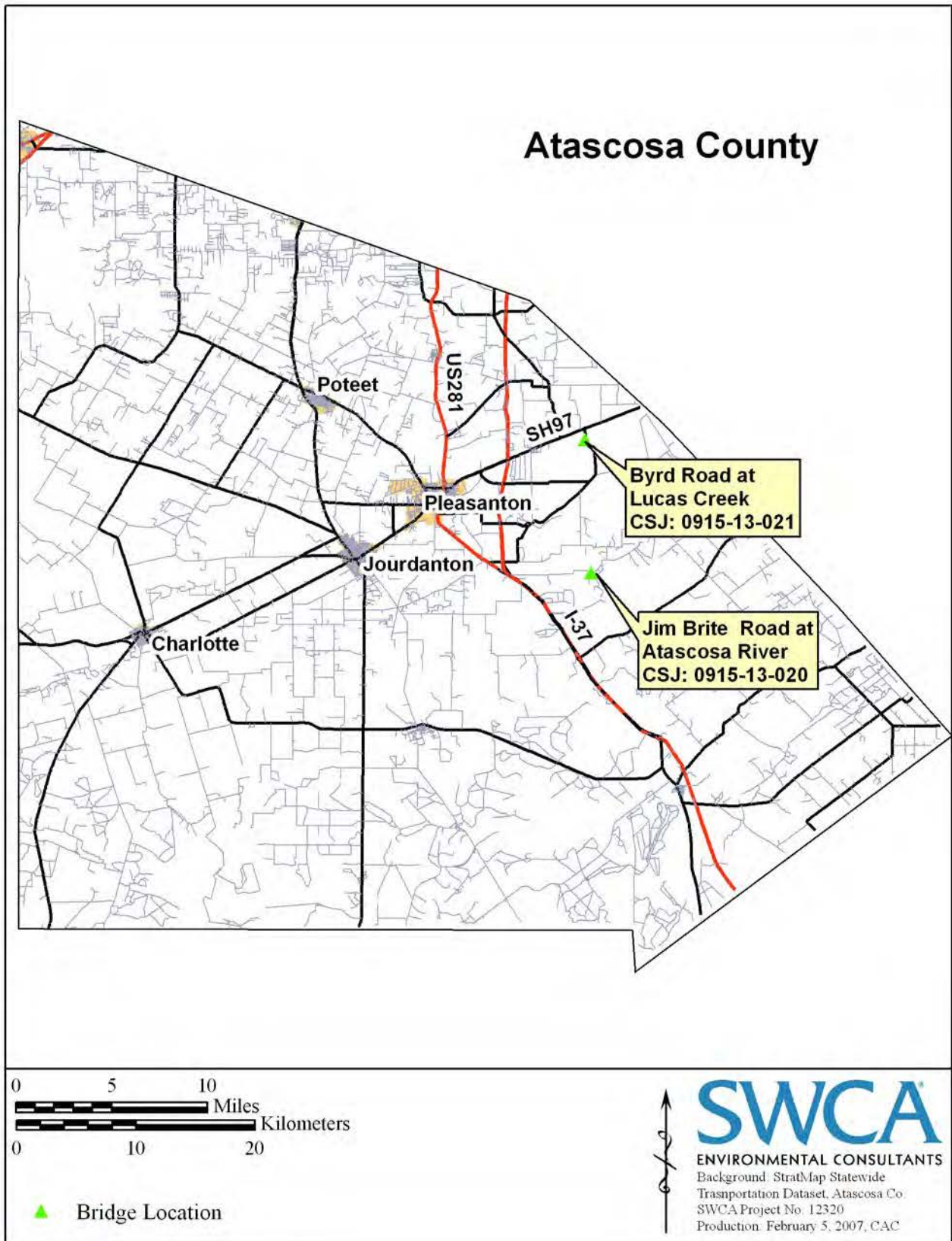


Figure 1. Project location map.

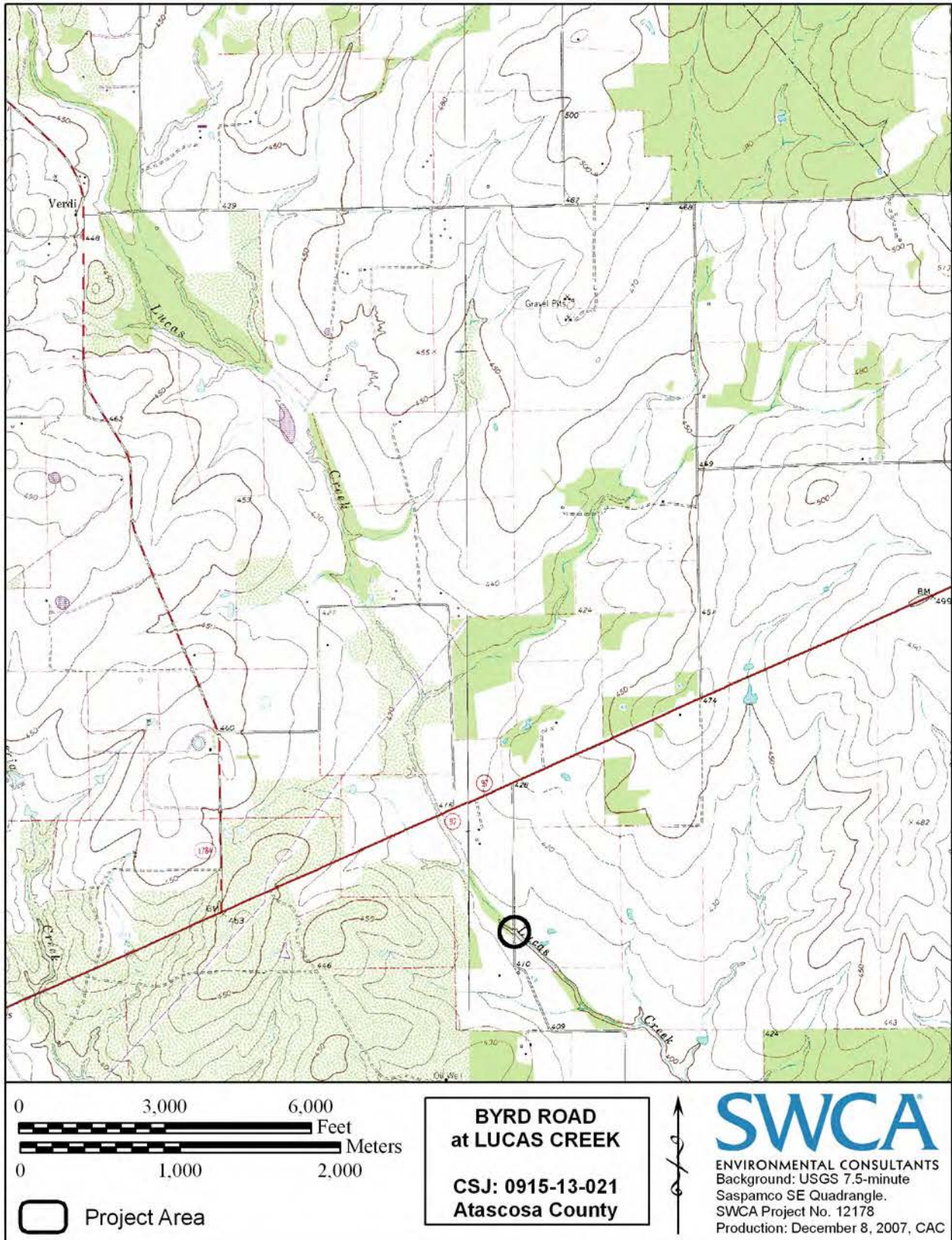


Figure 2. Byrd Road at Lucas Creek project location.

nels and Wilco loamy fine sand (0–3 percent slopes), which are characterized as deep, loamy soils that occupy gently sloping uplands (Dittmar and Stevens 1980).

The second project area, Jim Brite Road at Atascosa River, is situated on the Atascosa River, a drainage that empties into the Nueces River (Figure 3). The geology of the crossing is mapped as Recent Alluvium consisting of floodplain deposits containing gravel, sand, silt, clay, and organic material (Barnes 1976). The soils at the crossing are mapped as frequently flooded Sinton soils that are described as deep soils found along and above upland stream channels and Odem loamy fine sand (over wash) and Odem fine sandy loam, which are both characterized as deep soils that occupy level to gently sloping areas along floodplains and stream terraces (Dittmar and Stevens 1980).

## **METHODS**

### ***BACKGROUND REVIEW***

SWCA conducted a thorough archaeological literature and records search of both project areas. An SWCA archaeologist searched site files and maps at the Texas Archeological Research Laboratory and the THC's Texas Archeological Sites Atlas, an online database, for any previously recorded surveys and historic or prehistoric archaeological sites located in or near the project area. In addition to identifying previously recorded archaeological sites, the Atlas review included the following types of information: NRHP properties, SALs, Official Texas Historical Markers (OTHMs), Registered Texas Historic Land Marks (RTHLs), cemeteries, and local neighborhood surveys.

### ***FIELD METHODS***

The cultural resources survey included two SWCA archaeologists inspecting the two pro-

ject areas through both pedestrian and subsurface investigations. The archaeologists examined the ground surface and erosional profiles for cultural resources, but the primary means of investigation included shovel testing. Intensive survey was limited to relatively undisturbed areas within the project areas. Disturbed portions of the projects were examined at a reconnaissance level only. Shovel tests were excavated according to THC standards, which is roughly 16 per linear mile of 100-ft wide ROW. Of note, the width of the project ROW (as marked by fence lines) for the Byrd Road and Jim Brite Road project areas is 50 feet while the total length of both projects is relatively consistent (i.e., 700 feet). Thus, for a project of this size the THC recommends approximately 1 shovel test per crossing.

All shovel tests were excavated until bedrock or a substratum believed to predate human occupation was encountered. Excavated soil was screened through ¼-inch mesh to retrieve any cultural materials that might be present. Each test performed through the course of the project was documented with standardized shovel test forms and recorded with a handheld GPS, which were subsequently plotted on a map of the project area. During the survey of the project area, the archaeological crew photographed the environment and disturbances. Also, all available exposures were examined for the presence of cultural materials.

Portions of the project encompass topographic settings that have the potential for deeply buried archaeological sites (i.e., Atascosa River). The primary method for quickly and efficiently exploring these areas is backhoe trench excavation. Initially, backhoe trench excavation was planned for the Jim Brite Road at the Atascosa River project area. However, upon inspecting the project area, the ROW was found to be too confined for investigation with heavy machinery. Thus, inspections at this

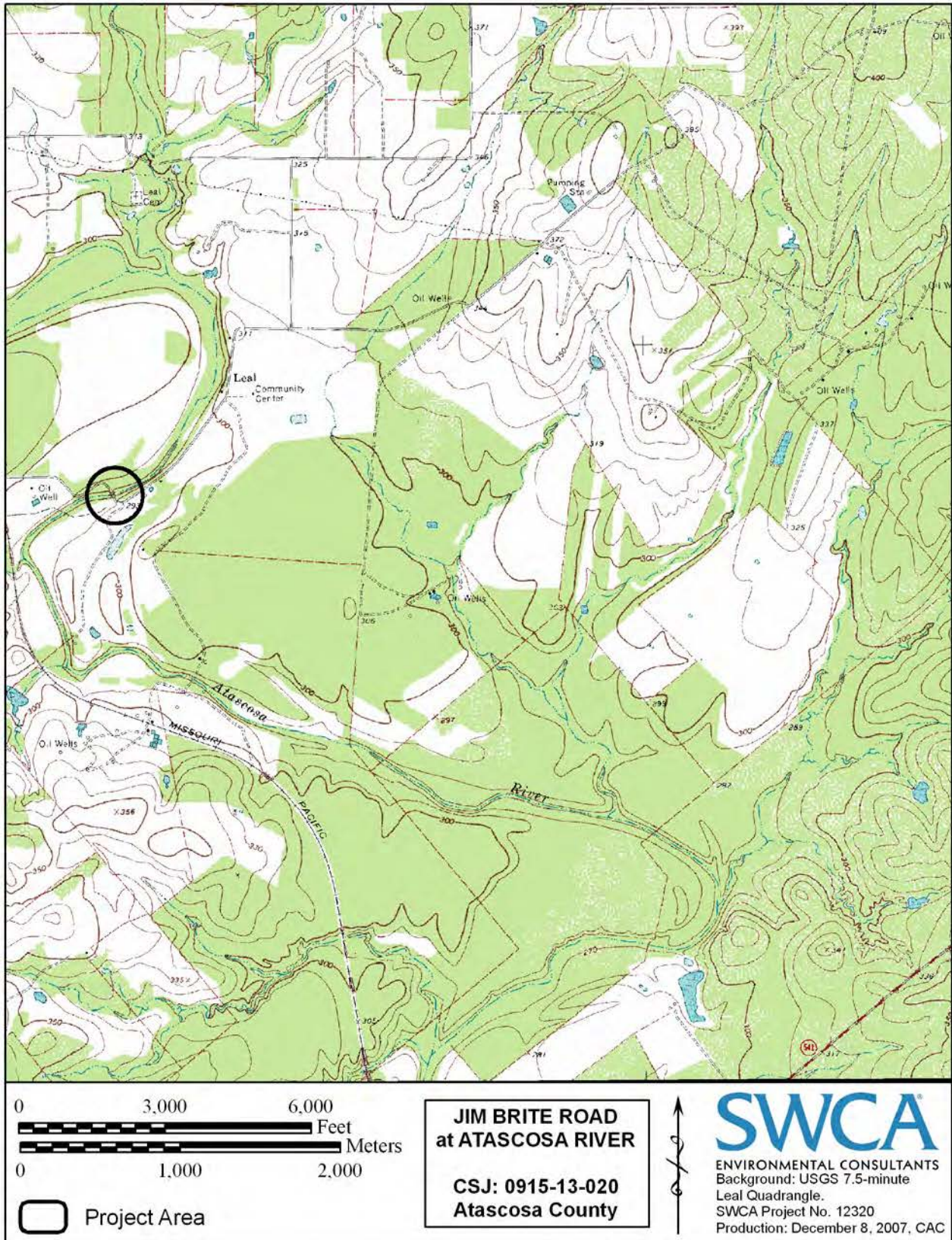


Figure 3. Jim Brite Road at Atascosa River project location.

crossing were limited to shovel test excavations and examinations of exposed cutbanks.

Also to accommodate future utility adjustments, a visual inspection was made of an additional 25 feet beyond the ROW (as marked by fence lines) along both sides of the roadway for each crossing. No new ROW is indicated for this project.

## **RESULTS**

### ***BACKGROUND REVIEW***

The background review revealed that none of the project areas have been surveyed for archaeological resources nor are there any cultural resources documented within or adjacent to the project areas. Furthermore, no previously recorded archaeological sites are within two miles of either of the project locations.

### ***FIELD SURVEY***

On February 2, 2007, two SWCA archaeologists conducted an intensive pedestrian survey of the two proposed bridge replacement crossings in Atascosa County. The pedestrian survey encountered a very narrow ROW (i.e., 50 feet) that has been disturbed from various construction activities and utilities. The results of the investigations of each project area are discussed below.

### **BYRD ROAD AT LUCAS CREEK**

The project area centers upon the bridge located along the Byrd Road at Lucas Creek, roughly 1.25 miles east of the intersection of FM 1784 and SH 97 in northeastern Atascosa County (see Figure 1). The project area encompasses approximately 0.8 acres of existing ROW that includes Byrd Road and its bridge over Lucas Creek.

The project area is situated in a gently rolling upland and the Lucas Creek drainage is a minor upland drainage (see Figure 2). The project area is surrounded by pasture land containing short grasses with some scattered timber (e.g., mesquite, oaks, and elms) while the drainage has a riparian corridor with various mixed hardwoods (e.g., elms and oaks). Surface visibility was good, typically 40–60 percent.

The existing bridge consists of a single span steel stringer bridge that is 50-feet long and 16.5-feet wide and supported by concrete abutments at the drainage banks (Figure 4). The Byrd Road roadway runs north to south and consists of a 20-foot wide gravel road with no shoulders. The Lucas Creek drainage, at this crossing, trends northwest to southeast and is roughly 22-feet wide and exhibits 4-foot high cutbanks. At the time of evaluation, the drainage contained over a foot of water and had a low-energy flow.

The project area has been significantly impacted by road construction, utilities, and fence lines. Specifically, both approaches along Byrd Road have been cut roughly 2–4 feet below grade (Figure 5). The road cut extends from the drainage to beyond 350 feet from each end of the bridge. Also, at the drainage banks, Byrd Road is underlain with a 2-foot thick fill section that extends 15 feet from the road centerline, which tapers to grade about 60 feet from the end of the bridge.

Furthermore, the project area has been disturbed by a buried telephone cable that runs along the western side of Byrd Road up both approaches. The buried cable parallels the road between 18–24 feet from centerline down the approaches until about 50 feet from the end of the bridge where it becomes an overhead utility that crosses the drainage (Figure 6). Similarly, an overhead power line parallels the eastern side of Byrd Road along both



Figure 4. Overview of Byrd Road at Lucas Creek bridge; facing southwest.



Figure 5. Overview of typical cut below grade along Byrd Road; facing south.



Figure 6. Overview of buried and overhead utility along Byrd Road; facing northwest.



approaches about 30 feet from centerline. Finally, barbed wire fence lines align both sides of the road generally 24 feet from the road centerline (Figure 7).

Due to the extensive disturbances and fill sections observed within the narrow ROW, no subsurface investigations were conducted at this project area. However, the entire project area was examined and all available cut bank exposures were inspected. No cultural materials were observed on the surface or in the cut banks of Lucas Creek.

A visual inspection of private lands up to 25 feet outside of the existing ROW was also conducted. All areas surrounding the crossing appear to be minimally disturbed by grazing and/or vegetation clearing, but are otherwise intact. The areas outside of the ROW west of Byrd Road bordering Lucas Creek appear to be the most intact. Although no evidence of cultural materials were observed within or outside of the project area, if construction activities extend beyond the fence lines at this crossing, then further investigations with shovel tests are recommended.

#### **JIM BRITE ROAD AT THE ATASCOSA RIVER**

The project area centers upon the bridge located along the Jim Brite Road at the Atascosa River, roughly four miles east of the intersection of Interstate Highway (IH) 37 and Jim Brite Road in eastern Atascosa County (see Figure 1). The project area encompasses approximately 0.8 acres of existing ROW that includes Jim Brite Road and its bridge over the Atascosa River.

The project area is situated on the flood plain terraces of the Atascosa River (see Figure 3). Specifically, the project area crosses two terraces of the Atascosa River. The western approach almost exclusively crosses the first terrace of the drainage, which is roughly 300-feet

wide. The eastern approach crosses a narrow (90-foot wide) first terrace before encountering the second terrace that continues beyond the area of investigation. The project area is surrounded by drainage bottom land containing short grasses with some scattered timber (e.g., pecan and oaks) while the drainage has a riparian corridor with various mixed hardwoods (e.g., elms and oaks). Surface visibility was good, typically 50–70 percent.

The existing bridge consists of a single span welded steel pipe deck with steel I-beam cross pieces. The bridge is 50-feet long and roughly 14.5-feet wide and supported by concrete abutments at the drainage banks (Figure 8). The Jim Brite Road roadway generally runs west to east and consists of a 12-foot wide gravel road with no shoulders. The Atascosa River, at this crossing, trends northeast to southwest and is roughly 12-feet wide and exhibits 5-foot high cutbanks. At the time of evaluation, the drainage contained over 2 feet of water and had a medium-energy flow.

The project area has been significantly impacted by road construction, utilities, and fence lines. Specifically, both approaches along Jim Brite Road have been cut below grade from the drainage to beyond 350 feet from the end of the bridge. The cut below grade on the western approach ranges from 2–4 feet below grade. The road cut along the eastern approach, which crosses the first and second terraces, ranges from 2–6 feet below grade (Figures 9 and 10). Also, several roadside field entrances along Jim Brite Road have impacted the ROW. Two roadside entrances intersect the Jim Brite ROW about 300 feet from the end of the bridge on the western approach while one roadside entrance is along the eastern approach roughly 200 feet from the end of the bridge.

Furthermore, the project area has been disturbed by a buried telephone cable that runs



Figure 7. Overview of fence line and buried utility along Byrd Road; facing north.



Figure 8. Overview of Jim Brite Road at the Atascosa River crossing; facing northwest.



Figure 9. Overview of road cut below grade along eastern approach of project area; facing south.



Figure 10. Overview of road cut below grade along eastern approach; facing west.

along the southern (down stream) side of Jim Brite Road up both approaches. The buried cable parallels the road between 18–30 feet from centerline down the approaches (Figure 11). Finally, barbed wire fence lines align both sides of the road, generally 21–25 feet from the road centerline (Figure 12).

Originally, this crossing was scheduled for subsurface investigations with backhoe trench excavations. However, upon evaluation of the project area it was determined that the ROW is too narrow and disturbed for backhoe trench excavation. A reasonably intact area was observed along the eastern approach that was investigated with two shovel test investigations (ST JB-1 and JB-2). The shovel tests were placed along the edge of the ROW within the narrow (5 feet) strip between the fence line and the cut below grade (Figure 13). One shovel test (JB-1) was placed on the first terrace of the Atascosa River while the second shovel test (JB-2) was placed on the second terrace of the drainage. Shovel test JB-1 was excavated to a depth of 80 cm below surface (bs) before terminating at impassible tree roots. Shovel test JB-1 encountered a 20-cm thick horizon of very dark grayish brown (10YR3/2) silty loam overlying a yellowish brown (10YR5/4) clay loam that graded into fine sand, which extends below 80 cmbs (Table 1). Shovel test JB-2 located on the second terrace encountered deep very dark grayish brown to brown (10YR3/2–4/3) sands that extended below 120 cmbs (Table 1). Of note, some of the examined road cuts in this area exhibited a brown (10YR4/3) clay horizon below the very dark grayish brown to brown sand horizon, which began about 135 cmbs and extends below 140 cmbs. No cultural materials were observed during the shovel test excavations or during the road cut profile examinations (Figure 14).

A visual inspection of private lands up to 25 feet outside of the existing ROW was also

conducted. All areas surrounding the crossing appear to be minimally disturbed by grazing and/or vegetation clearing, but are otherwise intact. The western approach consists of a pecan orchard that probably was cleared of vegetation at some time. The eastern approach has been disturbed to a moderate extent on the down stream side of the roadway for cattle pasturage while the upstream side of Jim Brite Road solely contains mixed hardwoods. Although no evidence of cultural materials were observed within or outside of the APE, should construction activities extend beyond the fence lines at this project area, then further investigation is warranted. Specifically, due to the relatively intact river terraces surrounding the prominent drainage of this crossing, then further investigations with backhoe trench excavation is recommended.

## **SUMMARY AND RECOMMENDATIONS**

On behalf of TCB INC. and TxDOT, SWCA conducted a background literature and records review and an intensive areal cultural resources survey of two proposed bridge replacements in Atascosa County, Texas. The project entails the replacement and rehabilitation of two bridges by TxDOT on two rural county roads in Atascosa County, Texas. Due to the project involving federal funds from the FHWA and state land state land controlled by the San Antonio District of TxDOT, the investigations were conducted in compliance of the Texas Antiquities Code under Texas Antiquities Permit 4401 and were designed to identify and evaluate any archaeological sites that may warrant designation as a SAL for listing in the NRHP.

The background records and literature research revealed no previously conducted surveys or recorded sites within or immediately adjacent to the two project areas. The survey of the Byrd Road at Lucas Creek project area encountered an extensively disturbed, narrow



Figure 11. Overview of buried utility along fence line along western approach; facing east.



Figure 12. Overview of fence lines and orchard along western approach; facing east.



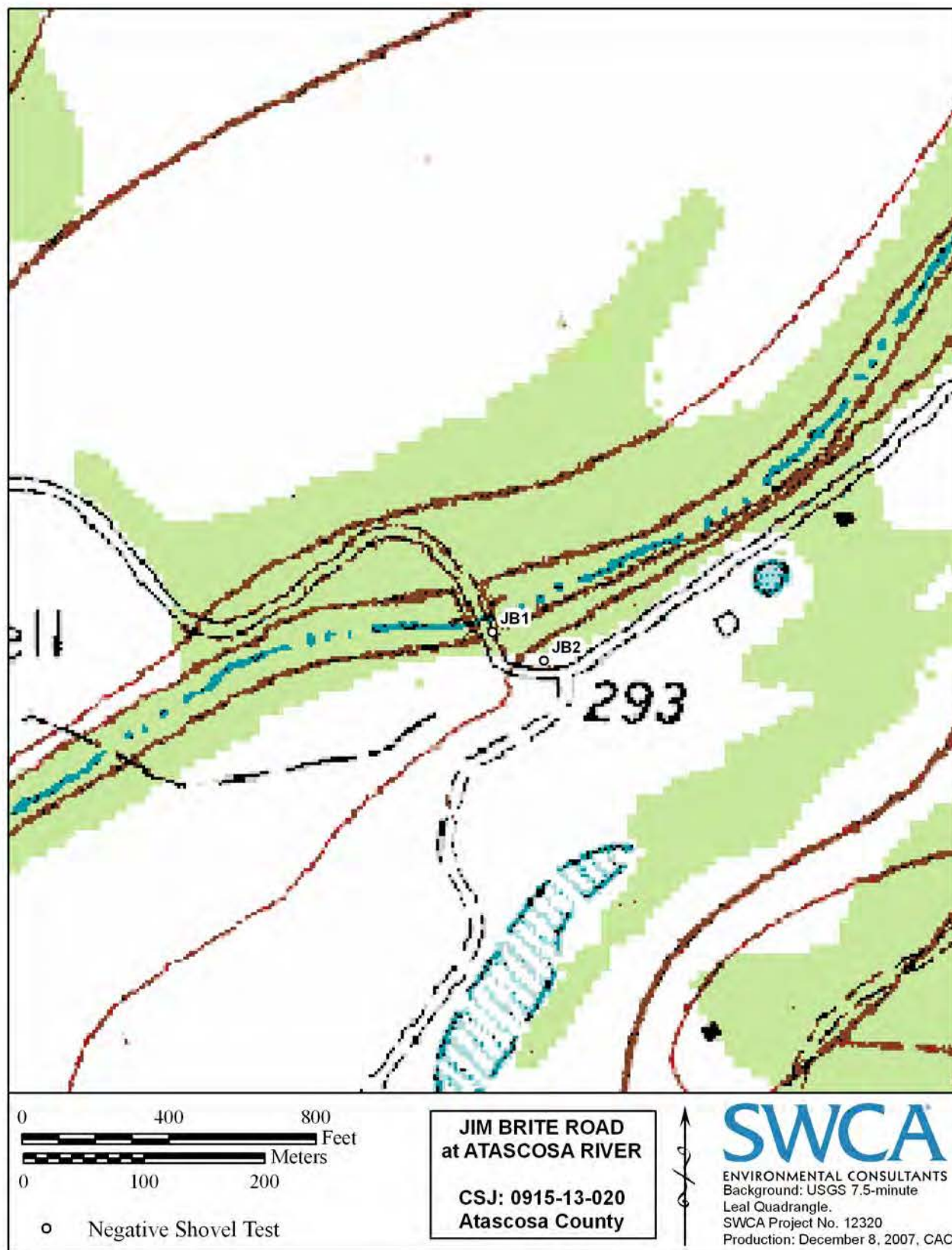


Figure 13. Shovel test locations at Jim Brite Road bridge.

**Table 1. Shovel Test Data**

Shovel Test	Site	Depth (cmbs)	Soil Color (Munsell)	Sediment Texture	Artifacts Recovered	Comments
JB-1	-	0-20	Very dark grayish brown (10YR3/2)	Silty loam	None	Located on first terrace on upstream side of eastern bank.
		20-60	Yellowish brown (10YR5/4)	Clay loam	None	Tree roots
		60-80	Yellowish brown (10YR5/4)	Sand	None	Tree roots
JB-2	-	0-100	Very dark grayish brown (10YR3/2)	Sand	None	Located on second terrace on upstream side of eastern bank, 5.5' above road way. No inclusions.
		100-120+	Brown (10YR4/3)	Sand	None	No inclusions. Stopped due to depth.



Figure 14. Overview of road cut profile along eastern approach near shovel test JB-2; facing northwest.

ROW crossing an upland drainage while the investigations at the Jim Brite Road at the Atascosa River encountered a narrow and extensively disturbed ROW that crosses a prominent drainage. Evidence of significant disturbance was observed at both project areas primarily associated with the construction of the respective roadways and various utilities.

SWCA's intensive survey did not encounter any cultural materials on the surface or subsurface of the project areas. Therefore, no cultural resources will be affected by the proposed projects. Due the narrow width of the ROW corridor, the survey standards called for a minimum of one shovel test at each crossing. Based on the disturbed nature of the Byrd Road project area, no subsurface excavations were conducted and no cultural materials were observed at this project area. At the Jim Brite Road project area, two shovel test excavations were conducted within some of the undisturbed portions of the ROW that revealed deep sands and silty loams. No cultural materials were observed within the subsurface investigations of this project area. Additionally, a visual inspection was conducted for the portions extending beyond 25 feet beyond the ROW along both sides of the road in each project area. No cultural materials were observed. However, should construction activities extend beyond the fence lines in either project area, then further investigations are recommended. Due to the deep deposits observed at the Jim Brite at the Atascosa River crossing, these investigations should be conducted with backhoe trench excavation.

In accordance with 36 CRF 800.4, SWCA has made a reasonable and good faith effort to identify archeological historic properties within the APE. As no properties were identified that meet the criteria for listing in the NRHP according to 36 CFR 60.4 or for designation as a State Archeological Landmark ac-

ording to 13 TAC 26.12, SWCA recommends no further work.

In the event that previously undiscovered archaeological remains are discovered during construction, work in the area of discovery shall cease and emergency discovery procedures will be implemented under the terms and conditions of the First Amended Programmatic Agreement among the FHWA, TxDOT, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation and the Memorandum of Understanding between TxDOT and the THC.

## REFERENCES

Barnes, V. G.

1976 *Geologic Atlas of Texas, Crystal City-Eagle Pass Sheet*. Bureau of Economic Geology, The University of Texas at Austin.

1983 *Geologic Atlas of Texas, San Antonio Sheet*. Bureau of Economic Geology, The University of Texas at Austin.

Dittmar, G. W., and J. W. Stevens

1980 *Soil Survey of Atascosa County, Texas*. United States Department of Agriculture, Washington, D.C.