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AN ARCHAEOLOGICAL SURVEY OF PROPOSED WATER PIPELINE ROUTE IMPROVEMENTS AND DEEP WELL LOCATION FOR THE CROSS COUNTRY WATER SUPPLY CORPORATION IN MCLENNAN AND BOSQUE COUNTIES, TEXAS

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Jesse Todd, MS, MA

Submitted to:

KBA ENVIROSCIENCES, LTD
359 Lake Park Road, Suite 110
Lewisville, Texas 75057

Prepared by:

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Cultural Resources Report 2007-35
August 6, 2007

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ABSTRACT

An archaeological survey was conducted along 4 sections of proposed water pipeline improvements for the Cross County Water Supply Corporation, three of which include drainage crossings in McLennen and Bosque County, Texas was conducted by AR Consultants, Inc. in late July of 2007. The purpose of the survey was to determine the likelihood of encountering prehistoric or historic archaeological sites within the proposed pipeline alignment. This investigation was done for KBA Environsciences, LTD.

A records research did not reveal any historic or prehistoric cultural resources in the study area; however, numerous archaeological sites have been recorded along the Brazos River near the study area as well as along tributaries to the Brazos River. A comprehensive survey of the four sections located no archaeological resources and shovel-testing failed to locate any buried cultural resources.

Based on the field investigation, it is AR Consultant's recommendation that no further cultural resource investigations are warranted on this property. The Texas Historical Commission and the Fort Worth District of the US Army Corps of Engineers should be advised if buried cultural resources are uncovered during construction, and, if found, construction should cease immediately in that area until proper investigations can be carried out.

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INTRODUCTION

Cross Country Water Supply Corporation intends to improve portions of its water pipeline line and excavate a new well as well as construct three new water plants in McLennan and Bosque Counties, Texas. After a review by the Archeology Division of the Texas Historical Commission (THC), the THC determined that approximately six-tenths (0.6) of a mile of the proposed water pipeline improvements be investigated as well as four (4) drainage crossings. The locations of the proposed improvements are shown on Figure 1. During the later part of July 2007, AR Consultants, Inc. conducted an intensive pedestrian archaeological survey of the recommended water pipeline route and the drainage crossings. The archaeological survey was done for KBA EnviroSciences, Ltd. which is doing the environmental permitting for the Cross Country Water Supply Corporation.

This study will satisfy the cultural resource needs of the Fort Worth District, Corps of Engineers in order to fulfill the requirements of a Section 404 Permit for the Clean Water Act. The relevant federal legislation includes the National Historic Preservation Act of 1966, as amended (PL-96-515), the National Environmental Policy Act of 1969 (PL-90-190) and the Archeological and Historical Preservation Act of 1974, as amended (PL-93-291). Likewise, this study would satisfy the requirements of the Texas Antiquities Code if development was being considered by a political subdivision of the State of Texas; nevertheless, the Texas Historical Commission will review the report as part of their Section 106 review responsibilities.

This report has been written in accordance with the guidelines for reports prepared by the Council of Texas Archeologists (ND). The following report presents a brief description of the natural and cultural environment of the survey area and vicinity. This is followed by the research design and the methodology. The results of the investigation follow and constitute the body of the report. The last chapter presents recommendations that arise from the study. A list of references cited concludes the report.

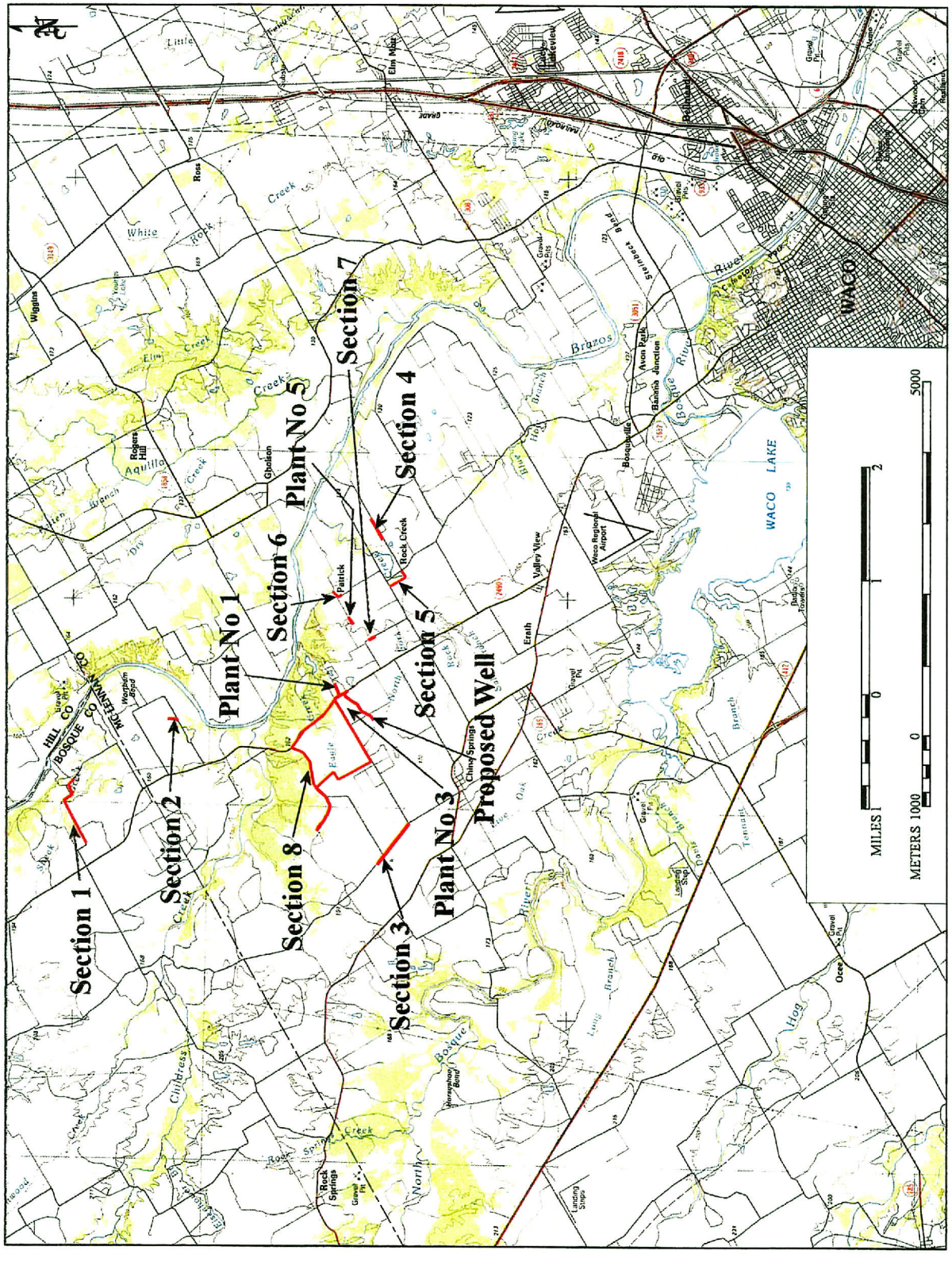

Figure 1. Cross Country Water Supply Corporation's proposed water pipeline improvement routes, plant locations and well site plotted on a portion of the Waco 1:100,000 map.

Administrative Information:

Sponsor:	Cross Country Water Supply Corporation with KBA EnviroSciences, Ltd. doing the environmental permitting
Principal Investigator:	Jesse Todd, MS, MA
Field Crew:	Jeff Craver, Cody Davis and Todd
Fieldwork Date:	July 29, 2007
Project Man-days:	3
Acres Surveyed:	approximately 4
Sites Recorded:	None

NATURAL ENVIRONMENT

McLennan and Bosque Counties lie in the Blackland Prairies of Texas (Diamond, Riskind, and Orzell 1987: Figure 1). The major river through the counties is the Brazos River. Today, narrow bands of bottomland forest are confined to the drainage valleys throughout the counties, except where cultivated prairie upland areas have been abandoned and have been invaded by shrubs and trees. The bottomland forest in the past was probably similar to that of today, where hunting for game, such as deer, occurred. Animals found on the prairie probably consisted of buffalo or antelope, although probably not in great quantities.

The immediate prairie area is underlain by Cretaceous-age formations such as the Edwards Limestone, the undivided PawPaw Formation and Weno Limestone, Mainstreet Limestone and Grayson Marl, or better known as the Del Rio Clay (Bureau of Economic Geology 1970). Recent Quaternary alluvium is present to the east along the Brazos River and older Quaternary age terraces parallel the river and are being, or have been, mined for sand and gravel. The soils in the survey area to the Purves-Maloterre Soil Association which consist of gently sloping and undulating upland cobbly clays in Bosque County (Stringer 1980:General Soils Map) and soils in the McLennan County portion of the study area consist mainly of Brewer clay loam, Vaross silty loam, Tarrant stony clay and Lewisville clay (USDA 1942).

Sheek, Eagle and Rock Creeks are mapped as intermittent. None of the drainages are mapped as containing Quaternary alluvium (Bureau of Economic Geology 1970).

As previously stated, the study area is located in the Blackland Prairie vegetative area of Texas. Kuchler (1969) classifies the Blackland as being dominated by Andropogon-Sipa grasses. Various other grasses are also present. The Texan biotic zone (Blair 1950: Figure 1) also includes the area. This prairie/savannah zone contains 47 species of mammals, 41 reptiles, and 35 amphibians.

Paleoenvironmental change is not well documented but it is summarized by Prikryl and Jackson (1985:13-14) and is discussed by Henry (1995). Prior to 12,000 B.C., the climate of north central Texas was cooler and moister than at present. Between 12,000 and 8,000 B.C., the climate became warmer and this continued to the present, but with brief mesic periods. It is suggested that the presence of high grass pollen and low arboreal pollen between 5550 and 1050 B.C. show a drying with a return of arboreal pollen after 1050 B.C. The later change is similar to today's environment. High grass pollen also occurs at approximately A.D. 450 and from A.D. 1550 to 1650, and this also indicates a drier period. The presence of paleosols between A.D. 1 and 1000 suggest an increase in moisture during this period with a return to drier conditions after A.D. 1000.

CULTURE HISTORY

The prehistory of the area adjacent part of the Central Brazos River Valley has been summarized in conjunction with the construction of Lake Whitney (Stephenson 1970), the raising of the conservation pool in the early 1970s (Skinner and Gallagher 1974), the excavation of the Baylor and Britton sites at Lake Waco (Story and Shafer 1965), and the excavation of the Kyle site, a rockshelter in Hill County (Jelks 1962), and recording the Ballew site (Watt and Agogino 1968). These summaries are not repeated here. More recent investigations include the excavation of the Horn Shelter Number Two (Forrester 1985; Redder 1985), and the Walton site [a historic Native American site] (Story 1985). Plainview points and Perdiz arrow points were recovered from Horn Shelter Number Two as were burials. Occupation at the Horn Shelter Number Two can be dated to the Paleo-Indian, Early Archaic, Middle Archaic and Late Prehistoric.

The subsequent period, the Archaic, lasted from 7,000-6,000 B.C. to possibly as late as A.D. 700-800. The Archaic peoples lived throughout the county, but particularly along the major and minor stream valleys where they were able to hunt and forage for native foods. Dart points, grinding stones, fire-cracked rock, scrapers and Waco sinkers (Watt 1936; Boyd and Shafer 1997) are commonly found on Archaic sites. The earliest Archaic peoples continued making and using exotic cherts for dart points, but as time passed, there was a shift toward the use of local stone resources for chipped stone tools. These local materials are described as Uvalde Gravels (Byrd 1971). Smaller lithic scatters have been recorded in upland areas throughout the county. These sites appear to be Archaic in age but none has been thoroughly studied.

About A.D. 700-800, a major change is found in the artifacts and settlement patterning of the prehistoric sites. This is attributed to the drying up of the smaller tributaries. During this period, which lasted until A.D. 1500/1600 and is known as the Late Prehistoric, Caddoan pottery from East Texas appears as trade material along with possibly indigenous pottery. It has been suggested that limited farming was practiced. Arrow points appear about this same time and apparently the bow and arrow had been added to the hunting tools. Numerous prehistoric burials have been recovered from the Asa Warner sites (Watt 1956; Wilson 1956; Wright 1997).

At the end of the Late Prehistoric period, there appears to have been a general abandonment of the Central Brazos River valley based on a general absence of sites with trade goods that might have been obtained from French, Spanish or English traders (Skinner 1988). This simplistic interpretation is tied to a general drying trend and attempts to factor in negative information generated by professional and avocational archaeologists who have conducted numerous site surveys throughout the region (Peter, Cliff and Green 1996:2). There is very little evidence of historic era Native American occupation anywhere in the county (Story 1985), although historic accounts indicate that groups were present in the early 1800's (Watt 1969).

The history of man's presence in North Central Texas continues with the first written accounts by French and Spanish explorers. There is tantalizing evidence of possible visits by Spanish explorers. Current research, however, seems to indicate that Anglo settlers in the mid-1800s were the first non-Indians to regularly inhabit the area.

Previous Investigations

No archaeological sites have been recorded within or adjacent to the study area (Texas Archeological Sites Atlas 2007). However, abundant sites have been recorded along the Brazos River near the study area as well as along tributaries and Childress Creek. Burned rock middens and lithic scatters dominate the archaeological site types.

RESEARCH DESIGN AND METHODOLOGY

Research Design

The purpose of the research design outlined below was to insure that fieldwork made a contribution to the better understanding of prehistoric and historic settlement in McLennan and Brazos Counties. A records review indicated no evidence of historic occupation in the area. As a result, we proposed the two research problems presented below.

The first question was simply was either prehistoric or historic archaeological sites present. Prehistoric sites might be present along the creeks, especially if perennial water is present nearby. Historic sites might be present since the water pipeline routes are adjacent to roadways.

A second, and even more basic, research problem guided the survey work. Simply stated the question asked, "How did past people use the land, and what record of this use did they leave behind?"

Most frequently, small-scale surveys of this type gather information in response to this more open-minded research question, which guides almost all archaeological surveys.

Methodology

The archaeologists conducted the intensive pedestrian survey using USGS maps, aerial photographs, a soil book and a Munsell Color chart book. Descriptions of the vegetation, topography and soil types were made and photographs were taken. Shovel tests were excavated on each bank of the drainages as recommended by Council of Texas Archeologists (2002). Shovel tests were excavated along the pipeline routes at 100 m intervals due to the ground visibility being less than 30 percent, but were not excavated in disturbed areas. Due to the upland setting of the study area, shovel tests were excavated to approximately 35 cm below the ground surface. The clay was manually broken and visually inspected for cultural materials as were the pit walls.

Deep testing was not done due to the shallow depth to the subsoil and the absence of fluvial sediments to bury cultural materials.

RESULTS

The following discussion presents a brief description of the findings of the surface survey and subsurface testing. The last section relates the findings of this survey with other prehistoric and historic archaeological sites reported in the Waco area. Recommendations for cultural resources management are presented in the following chapter. Since various sections of the proposed water pipeline routes were investigated, each section will be discussed separately.

Four of eight sections of the proposed water line improvements were recommended to be surveyed by the Texas Historical Commission. These four sections included the Sheek Creek crossing on section 1, the entire line (0.4 miles) and crossing at Rock Creek on section 5, the entire line (0.2 miles) on section 6 and the 2 creek crossings of Eagle Creek on section 8. Shovel tests are described generally in the text, but specific information is provided in Table 1. Shovel test locations are plotted on Figures 2, 4, 6 and 9.

Section 1

The first section surveyed (Section 1) was the crossing at Sheek Creek along County Road 3660 (Figure 2). This section of the waterline improvement runs east along CR 3660. The proposed line runs along the south side of the road till it crosses Sheek Creek where CR 3660 bends to the southeast. The line also crosses the road and continues on the east side. The area surrounding Sheek Creek was wooded with oak, cedar and elm with sparse areas of briars, poison ivy, prickly pear cactus and various vines. Ground Visibility ranged from 40 to 60 percent with limestone gravels present along the banks (Figure 3). Sheek Creek is two meters wide and is a meter deep with flowing water. Two shovel tests (1 and 2) were placed on either side of the drainage. Both encountered loam on the surface to around 20 cmbs before encountering clay to 37 centimeters below the ground surface (cmbs). Pea to baseball sized limestone gravels were noted throughout the shovel tests. Both shovel tests were culturally sterile.

Section 5

Section 5 is a 0.4 mile stretch of proposed line that begins on North Rock Creek Loop running south (Figure 4). The line crosses Rock Creek and turns to the east ending at Rock Creek Road. From North Rock Creek Loop south almost to the Rock Creek crossing, the area is a wetland with standing water (Figure 5), so no shovel tests were placed along this section of the proposed line. Ground visibility ranged from 70 to 100 percent along the remainder of the route. This southern portion of the line along Rock Creek was lined with oak, elm, and poison ivy. Three shovel tests (3 through 5) were placed along the remainder of the proposed route. Shovel tests 3 and 4 were placed on either side of Rock Creek and encountered loamy clay from the surface to 35 cm.

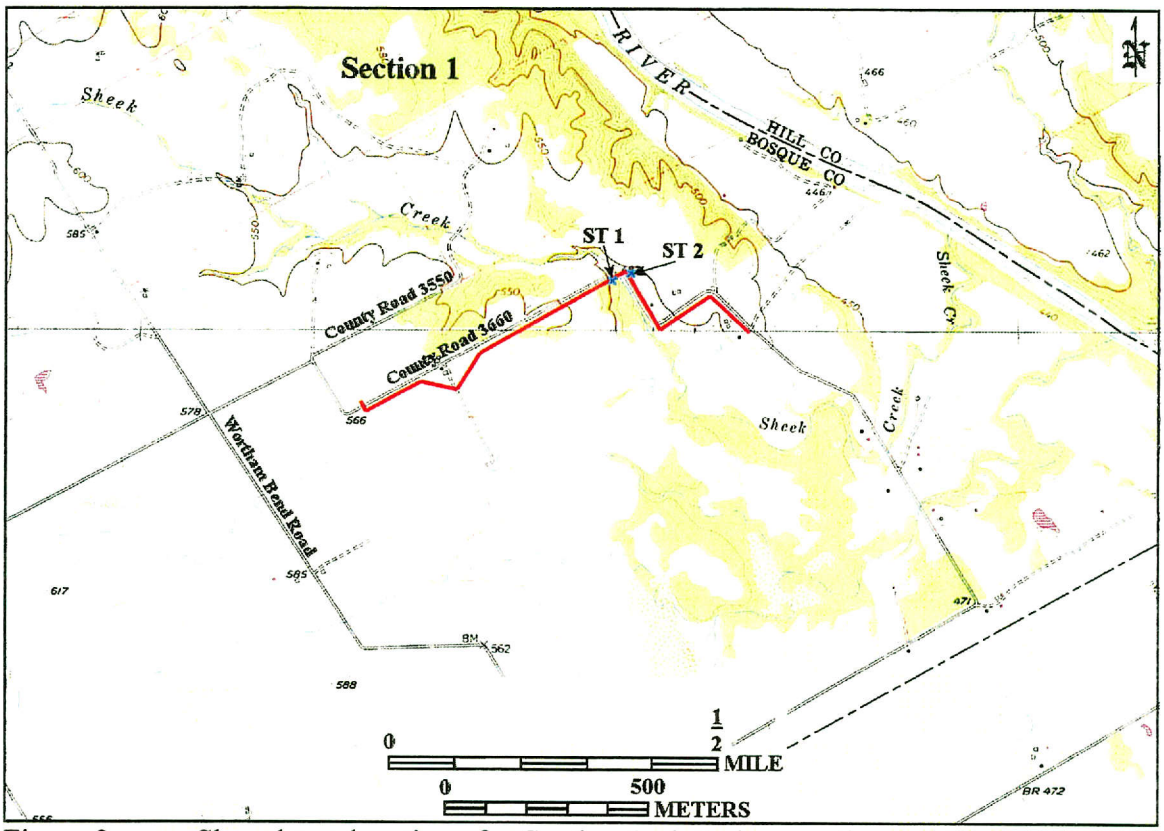

Figure 2. Shovel test locations for Section 1 plotted on portions of the Smiths Bend and China Spring, Texas7.5' USGS maps.

Figure 3. Sheek Creek. View is to the northeast.

Shovel test 4, located on the south side of Rock Creek encountered a few small pieces of rusted metal and trash. The area surrounding the shovel test contained miscellaneous pieces of metal pipe, pvc pipe, some small pieces of broken brick, and various other pieces of rusted metal. It was determined that this was some trash probably deposited here by the local residences located a hundred or so meters to the northeast as trash was noted throughout the area all the way to Rock Creek Road. Shovel test 5 was placed a hundred meters east of ST4 along the route in an open pasture. The shovel test was only excavated to a depth of 10 cmbs due to an abundance of pea to quarter sized limestone gravels that seemed to liter various small areas along the route all the way to Rock Creek Road. All three shovel tests were culturally sterile.

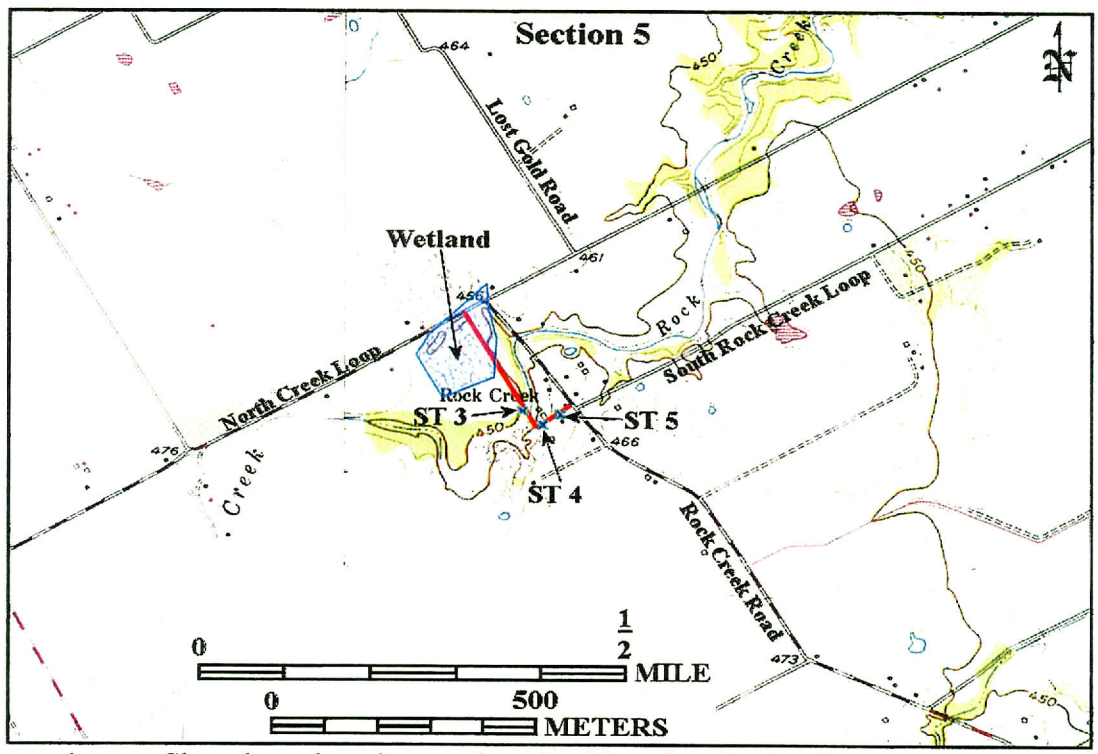

Figure 4. Shovel test locations and wetland location for Section 5 plotted on portions of the China Spring and Gholson, Texas 7.5' USGS maps.

Section 6

Section 6 is located along the south side of Lost Gold Road, terminating west of a small unnamed intermittent tributary of the Brazos River (Figure 6). The line crosses through several residential lawns with ground visibility ranging from 25 to 60 percent. Three shovel tests (6 through 8) were placed along the route every hundred meters. Shovel test 6 was located in an open field along the eastern most end of the route (Figure 7) with 60 percent ground visibility and was excavated to a depth of 30 cmbs encountering loamy clay throughout. Shovel tests 7 and 8 both were located in a small grass field (Figure 8) which had 25 percent ground visibility. Both encountered a sandy loam intermixed with small pea to half dollar sized pebbles to a depth of 30+ cmbs. None of the shovel tests encountered any culturally significant materials.

Figure 5. Wetland area along North Rock Creek Loop. View is to the south.

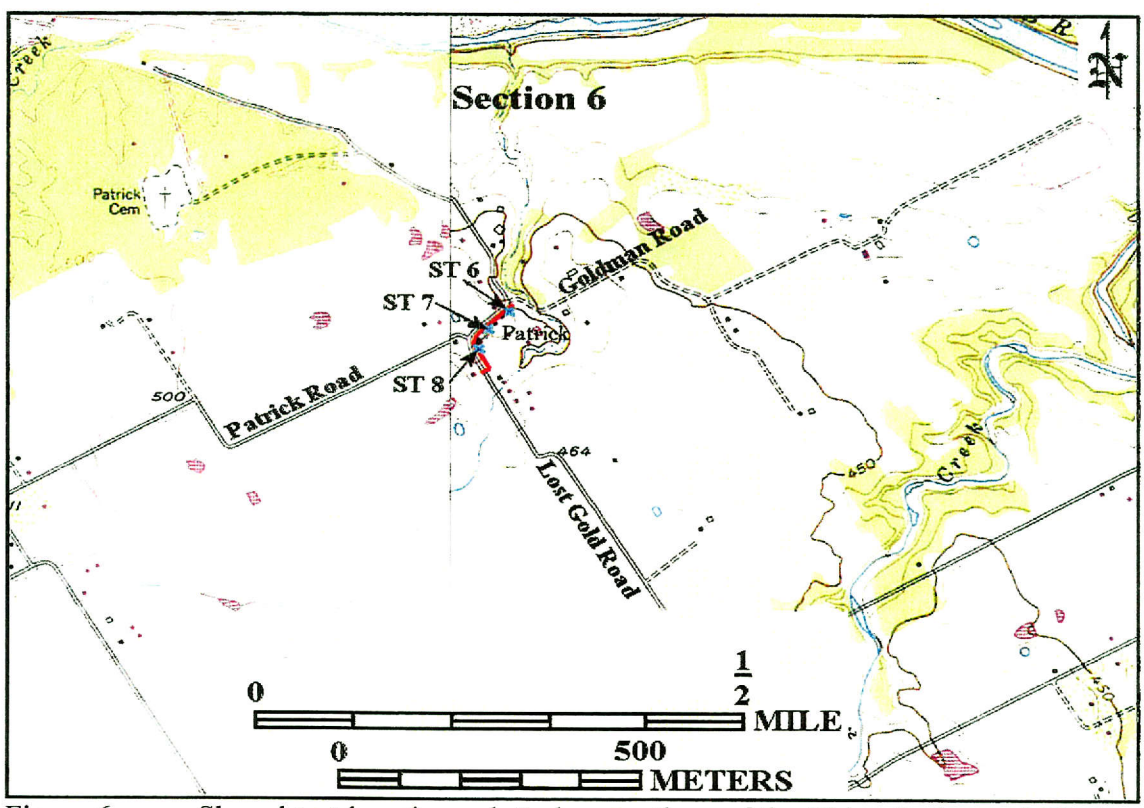

Figure 6. Shovel test locations plotted on portions of the China Spring and Gholson, Texas 7.5' USGS maps.

Figure 7. Open field along Lost Gold Road. View is to the southwest.

Figure 8. Grass field along Lost Gold Road. View is to the southwest.

Section 8

Section 8 of the proposed water lines runs south along FM 2490 crossing Eagle Creek, the line continues west along Culpepper Lane then cuts north through open fields crossing Eagle Creek again, then splits heading both east and west along Garrett Lane (Figure 9). The first crossing of Eagle Creek occurs along FM 2490. Eagle Creek is

approximately 2 meters wide and a meter deep with flowing water. Both sides of the crossing ranged from 70 to 85 percent ground visibility with limestone gravels intermixed with grasses on the surface. Shovel testing was not conducted here due to the excellent ground visibility and abundance of limestone gravels on the surface (Figure 10). The second crossing of Eagle Creek between Garrett Land and Culpepper Lane is within open grazing fields. The ground visibility surrounding the creek ranged from 30 to 70 percent. The creek is a meter wide and ¼ of a meter deep with a small amount of flowing water. A shovel test (9 and 10) was excavated on either side of the drainage. Both encountered loamy clay with small limestone gravels intermixed to a depth of 38-39 cmbs with more clay noted with depth. No cultural materials were encountered in either of the shovel tests.

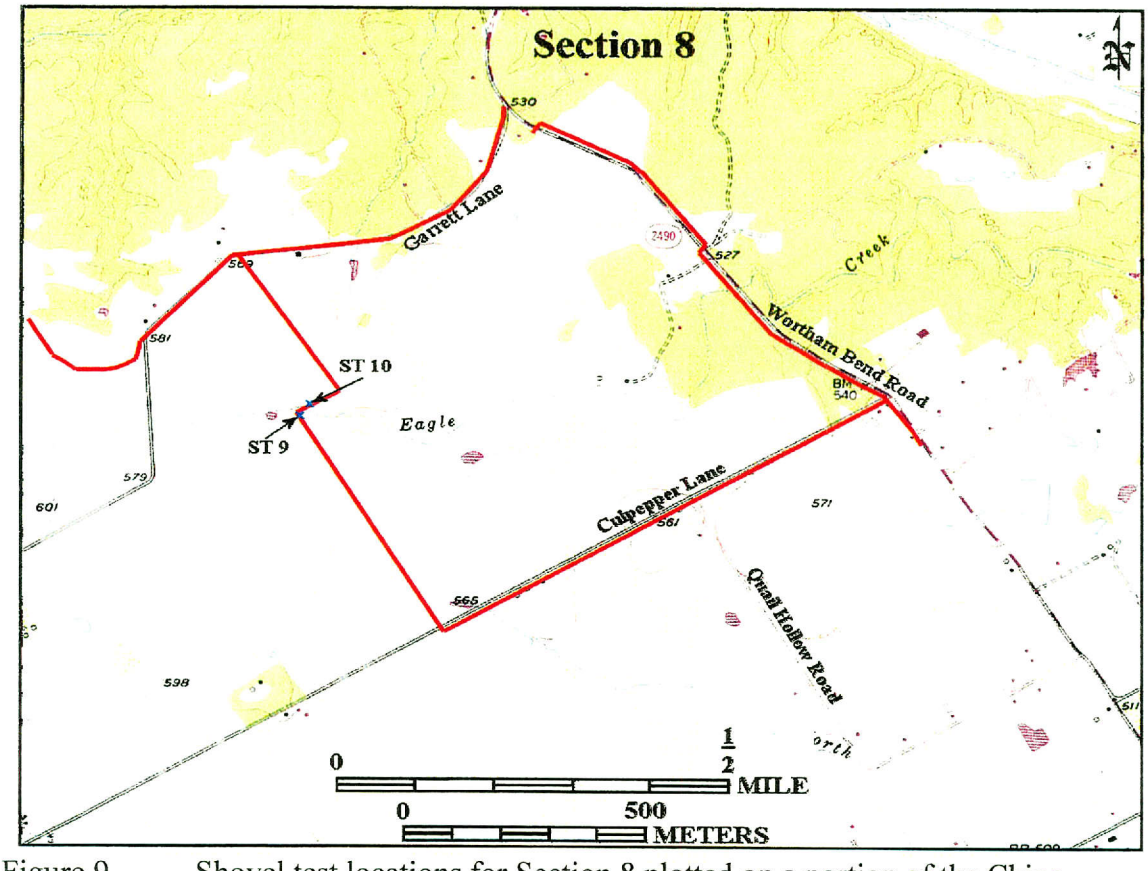

Figure 9. Shovel test locations for Section 8 plotted on a portion of the China Spring, Texas 7.5' USGS map.

Conclusions

AR Consultants found no physical evidence of historic or prehistoric archaeological occupation along the proposed pipeline routes within any of the four sections which include the crossings of Sheek, Rock and Eagle Creeks. Shovel tests were all negative for cultural materials (Table 1). A trash scatter was discovered east of Rock Creek in Section

Figure 10. Gravels along the bank of Eagle Creek. View is to the northeast.

6 but proved to have no depth, associated features or dateable materials. The absence of prehistoric sites could be attributed to the lack of perennial water and the lack of knappable lithic resources along the drainages. Rock Creek is mapped as perennial east of the proposed pipeline route, but it is unlikely that sites were placed in the swampy area because of the lack of elevations above flooding. Where there is elevation above Rock Creek to the south no cultural materials were found in shovel testing. The reason for the absence of historic residences is unknown.

Table 1. Shovel test descriptions.

ST No	Depth (cm)	Description*
1	0-15 15-35+	very dark brown (10YR2/2) loam very dark grayish brown (10YR3/2) clay
2	0-28 28-37+	dark yellowish brown (10YR3/4) loamy clay very dark grayish brown (10YR3/2) clay
3	0-35+	very dark brown loamy clay
4	0-25+	very dark brown loamy clay
5	0-10 10+	dark yellowish brown loam road gravel
6	0-32+	dark yellowish brown (10YR4/6) with 50% mottles of dark brown (10YR3/3) loamy clay
7	0-30+	strong brown (7.5YR4/6) sandy loam with increase of pea sized gravels with depth
8	0-33+	strong brown sandy loam with increase of pea sized gravels with depth
9	0-39+	very dark brown loamy clay intermixed with limestone gravel
10	0-10 10-38+	very dark brown loamy clay intermixed with limestone gravel an increase in clay with depth.

* Munsell color chart numbers listed only first time used.

RECOMMENDATIONS

The absence of significant cultural resources leads us to conclude that any modification to the sections will not have any adverse impact upon evidence of the history or prehistory of the Waco area. Consequently, it is our recommendation that the review agencies concur with our recommendation that the development of the site can proceed as planned. If buried cultural resources are encountered during construction, work should cease in the area, and the review agencies should be contacted.

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