ARCHAEOLOGICAL SURVEY OF
A PORTION OF THE
WHITES BRANCH EFFLUENT INTERCEPTOR
PIPELINE AND OUTFALL STRUCTURE,
DENTON COUNTY, TEXAS

Texas Antiquities Permit Number 4782

Jesse E. Todd, MS, MA

Submitted to:
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Fort Worth, Texas 76107

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Cultural Resources Report 2008-08
January 31, 2008
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ABSTRACT

In late January of 2008, AR Consultants, Inc. conducted an intensive pedestrian archaeological survey of approximately 1,300 feet of the proposed Whites Branch Effluent Pipeline Route located approximately 3.2 miles northeast of Roanoke in Denton County, Texas. The proposed pipeline route is located north of Dunham Road. The survey was done for Alan Plummer Associates, Inc. acting as agent for the Trinity River Authority. The survey was done under Texas Antiquities Permit Number 4782.

A records check failed to discover any listed sites in the study area and an intensive pedestrian survey and 3 shovel tests did not discover any cultural resources. Based on the field investigation, it is AR Consultants' recommendation that no further cultural resource investigations are warranted. The Archeology Division of the Texas Historical Commission 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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r-arc:Denton Creek/Whites Branch PL
INTRODUCTION

The Trinity River Authority intends to construct approximately 3.36 miles of the Whites Branch Effluent Interceptor Pipeline and Outfall Structure route in Denton County. The proposed pipeline route begins about 1.78 miles northeast of Roanoke at the Denton Creek Wastewater Treatment Plant and proceeds southeast to the railroad. The route then turns northeast for a short distance and then back southeast and will be bored beneath the Union Pacific railroad and US 377. East of US 377, the route continues northeast paralleling the abandoned Schooling Road across Denton Creek and its floodplain. After crossing the floodplain, the route turns east and parallels Dunham Road. The route then turns north and terminates north of the road where it will empty into an intermittent tributary to Whites Branch (Figure 1). The survey was done for Alan Plummer Associates, Inc. which is doing the environmental permitting for the Trinity River Authority.

AR Consultants, Inc. (Todd and Skinner 2003b) conducted an archaeological survey of a pipeline route across Denton Creek and its floodplain immediately west of the study area. Based upon the amount of disturbance from previous quarrying and earth moving activities documented during that survey, AR Consultants, Inc. recommended that the portion of the pipeline route across Denton Creek and its floodplain and the portion of the pipeline route adjacent to Dunham Road need not be surveyed, but that the portion of the proposed pipeline route north of Dunham Road needed to be surveyed. The Texas Historical Commission agreed in a letter dated July 23, 2007. The surveyed portion of the pipeline route is drawn in red on Figure 1.

The purpose of this investigation was to locate any cultural resources present within the surveyed route and make recommendations about their significance and how they might be impacted by construction. The survey was done in response to project review under Section 106 of the National Historic Preservation Act of 1966. The Antiquities Code of Texas applies since the Trinity River Authority is a political entity of the State of Texas and Texas Antiquities Permit Number 4782 was issued for the survey.

This report was written in accordance with the guidelines for short reports adopted by the Texas Historical Commission, Archeology Division, and developed by the Council of Texas Archeologists (ND). The following report contains a brief description of the natural environment and then a summary of previous archaeological investigations in the area as known from published sources. This is followed by the research design and methodology. The description of the results of the field investigation constitutes the majority of the report. The last chapter presents recommendations that arise from the study. A list of references cited concludes the report.
Figure 1. Location of proposed Whites Branch Effluent Pipeline and Outfall Structure route plotted on a portion of the Argyle, Texas 7.5’ USGS map. The surveyed portion of the pipeline route is drawn in red.

Administrative Information

Sponsor: Trinity River Authority
Review Agencies: Texas Historical Commission, Archeology Division
Principal Investigator: Jesse Todd
Field Crew: Brett Lang and Todd
Field Man-Days: 2
Acres Surveyed: approximately 2.75
Sites Investigated: None
Curation: No artifacts collected
NATURAL SETTING

Denton County is located in North Central Texas. It is bisected by the sandy soil of the Eastern Cross Timbers. The western portion of the county consists, on the surface, of the black soil of the Fort Worth Prairie while the eastern part consists of the rich, black soil of the Blackland Prairie. The county is drained by the Elm Fork of the Trinity River and several major creeks. (Odom 2003).

Quaternary alluvial terrace deposits overlie the Lower Cretaceous-aged Grayson Marl (Bureau of Economic Geology 1967). There are no reported springs in the area (Brune 1981:159-161).

Soils within the study area overlie the Lower Cretaceous-aged Grayson Marl (Bureau of Economic Geology 1967) and belong to the Slidell-Sanger Soil Association which contains gently sloping to moderately steep upland savannah clays (Ford and Pauls 1980:General Soil Map). Specific soils within the study area consist of Justin fine sandy loam with 1 to 3 percent slopes (Ford and Paul 1980:Sheet 45).

Prehistoric and historic inhabitants along Denton Creek would have used mast from oak trees for food along with the edible seeds of various grasses. The inhabitants also would have been able to acquire deer, squirrel and turkey which feed on the mast. Other nuts such as pecans and walnuts also would be available. Finally, Denton Creek was a likely perennial source for mussels, fish and turtles and aquatic birds. Bison would have been present on the prairies.

A consensus about the paleoenvironmental conditions of North Central Texas over the past 12,000 years has not been reached. Discussions by Prikryl (1993), Ferring and Yates (1997), Humphrey and Ferring (1994), and Brown (1998) offer disparate interpretations based on different analytical approaches. The following discussion relies heavily on Ferring’s investigations and focuses upon the past two thousand years. Correlating periods of rapid alluviation with higher precipitation and slow alluviation with drier conditions, Ferring has concluded that the Late Holocene [5000 yr B.P. to the present] was a wet period with moderate alluviation, except for a dry period between 2000 and 1000 yr B.P. [A.D. 1 to 1000]. It was during this dry period that the West Fork Paleosol was established on the stable surfaces of the river meanders along the Upper Trinity and its tributaries. This interpretation is supported by changing patterns seen in stable isotope analysis. Brown (1998) offers a differing interpretation based on isotopic analyses of mussel shells from a prehistoric site (41DL270) on Denton Creek. He concludes that the period from 1500 to 2500 yr B.P. was cooler and/or wetter and that before and after, the environment was warmer and drier, but he points out that this interpretation may only be applicable for the Elm Fork tributary and not the region.
CULTURE HISTORY

The history and prehistory of Denton County are summarized in several reports prepared by the University of North Texas (Lebo and Brown 1990; Brown and Lebo 1991; Ferring and Yates 1998). Prehistoric Native American settlement in Denton County began at least 10,000 years ago as attested to by the presence of distinctively shaped dart points (Crook and Harris 1957) at the Lewisville site and the Aubrey Clovis site (Ferring 2001). Moreover, artifact collectors report the presence of Clovis, Folsom, Scottsbluff and other Paleo-Indian points from the surface of sites in the region. The presence of exotic, i.e., non-local, lithic resources indicates that these early people traveled a territory where higher quality lithics were available or were involved in a system of raw material trading. These early people hunted now-extinct large game, but probably also foraged off the land.

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 gather native foods. Dart points, grinding stones, fire-cracked rock, and scrapers are common artifacts found on Archaic sites. The earliest Archaic peoples continued using exotic cherts for dart points, but as time passed, there was a shift toward the use of local lithics for chipped stone tools. These local materials are described as Uvalde Gravels (Menzer and Slaughter 1971). Large Archaic sites are generally located on terraces or ridges that overlook the Elm Fork of the Trinity. Smaller lithic scatters have been recorded in upland areas throughout the county. These sites appear to be Archaic in age, but none have been thoroughly studied.

Various authors, including Peter and McGregor (1988), have attempted to create a chronology for North Central Texas. The most commonly used chronology was established by Prikryl (1990) which divides the Late Prehistoric, the time from the use of the bow and pottery to the Historic Indian, into two periods: Late Prehistoric I (A.D. 700 to 1200) and Late Prehistoric II (A.D. 1200 to 1700).

During Late Prehistoric I times, a small amount of pottery appears at the Baggett Branch site, 41DL149 (Prikryl and Perttula 1995:189). Arrowheads appear about this same time and apparently the bow and arrow had been added to the hunting tools. From A.D. 1000 to 1300, pottery appears in North Central Texas that has similarities to Caddoan pottery as well as Caddoan and Jornada Mogollon ceramics occur on sites in North Central Texas (Prikryl and Perttula 1995). In addition houses were found at the Cobb-Pool site, 41DL148, (Peter and McGregor 1988:140). Fritz (1993) mentions the use of corn for food in North Central Texas during this time and Todd (1999) suggests that the presence of mussel shell hoes in North Central Texas indicates some form of farming.
During Late Prehistoric II times, it is believed that the climate was drier. Bison may have been utilized more than in Late Prehistoric I times. The presence of bison-scapula hoes, especially in northern North Central Texas, suggests an increase in horticulture or, at least, its first appearance. This concept is supported by the presence of sites along sandy terraces instead of the floodplain area where Late Prehistoric I sites are found. Also, there is a marked Plains influence in North Central Texas during this time (Prikryl 1990:80).

At the end of the Late Prehistoric periods, there appears to have been a general abandonment of the North Central Texas area. Along Red River in Montague and Cooke Counties and across Red River in Oklahoma, there is both archaeological and ethnographic evidence of historic Taovayas, Wichitas and Yscanis Indians (Bell, Jelks and Newcomb 1967; John 1992:204). Since the Spanish could not subdue the Indians, they made them their allies with promises of help against the Osages.

There is tantalizing evidence found on the Trinity River in Dallas County of a possible visit by Spanish explorer Hernando de Soto (Bruseth 1992). Artifacts found consist of a chain-mail gauntlet, a halberd and a spur. Current research, however, seems to indicate that Anglo settlers were the first non-Indians to settle in North Central Texas.

The first established European settlement in Denton County began before the mid-1800 with the establishment of the Peter’s Colony after Texas independence. These early settlers were farmers who selected bottomland along the Elm Fork of the Trinity (Bridges 1978). Commercial farming was not important until after the Civil War, and the early settlers were essentially self-sufficient. Besides the plants and animals they grew, wild animals and plants were commonly consumed. Denton became the county seat in 1856. By 1875, cotton, corn, and wheat were the main cash crops. Up to half of these crops were grown by tenant farmers who either paid rent to the land owner for their house, tools, and seed or by tenants who gave the landowner a third of the grain and a quarter of the cotton or other cash crops. By the turn of the century, all of the major communities had been established and some had passed away.

Previous Investigations

Several prehistoric buried sites have been found on the banks of Denton Creek, east of Lake Grapevine’s dam. The intriguing question is the absence and presence of the sites along the creek. A cluster of sites may be found and then a large area will not contain sites. AR Consultants, Inc. placed 13 backhoe trenches along Denton Creek east of SH 2499 but encountered cultural materials in four (Todd and Skinner 2003a).

Several general statements may be made concerning the archaeological sites found along Denton Creek. Sites occur within the floodplain proper, on terraces and overbank levees, especially adjacent to feeder creeks. They are buried, usually 2 meters below the ground surface. Sites containing mussels were probably temporary occupations because the mussel middens do not contain a great amount of mussel shells or animal bones. The presence of manos in so many sites indicates that plant processing was important in the area. Unfortunately, the only site to recover plant data was 41L270. Sites were probably
occupied during the fall which would be a good time to gather acorns as suggested by Skinner, Caran and Trask (1999) and mussels as suggested by Claassen (1998). Most of the sites are Archaic in age, even though there are Late Prehistoric occupations in the area, but these are found mainly on the surface. The discrepancy between the presence of Late Prehistoric and Archaic sites may be that the Late Prehistoric sites have been destroyed due to plowing. Prikryl (1990:83) notes that Late Archaic sites are more numerous than any other period in his study of the prehistory of the Lower Elm Fork. The same may be true for Denton Creek.

The following is a brief description of some of the discoveries. Skinner, Whorton and Young (1991) excavated the Golf Ball site, 41TR55, immediately east of the dam. Artifacts were recovered from trenches at depths of 205 cm. After investigating the site, the authors concluded that the site was a large, multicomponent site with at least two major periods of occupation.

East of the Golf Ball site, Skinner and Todd (2003a) uncovered a disarticulated hearth at 133 cm below the surface and several shell middens as well in Denton Creek's floodplain. Site 41TR201, consisting of charcoal, fire-cracked rock and mussel shells was found from 184 to 200 cm below the surface.

Jan and Paul Lorrain, along with Bill Young, have discovered several sites along Denton Creek (Lorrain and Lorrain 2001). Site 41TR116 is located on a terrace south of Denton Creek near a spring. It contained chips, flakes and cobbles eroding into a pasture. They believed the site to be Archaic in age. Site 41TR117, located on the Tarrant/Denton counties boundary, and north of the study area, was investigated by the Lorrains and Bill Young in 1986. The site, located on a terrace overlooking Denton Creek, consisted of flakes, flint chips, cobble fragments and the tip of a point. Jan and Paul Lorrain investigated a site in 1988 (41DL270) found by Bill Young. The site is in a terrace overlooking Denton Creek, and the soil the site was in consisted of Trinity Clay and Frio Sand. Bone, shell, snails, flint chips, manos, points and deer teeth could be seen exposed in the eroding surface. Jan and Paul Lorrain excavated some of the possible hearths and found fire-cracked rock, charcoal and some evidence of burned clay. Based upon the projectile points, the site was dated to the Archaic, and was probably a multiple occupation area. Cultural materials extended to at least 1.83 meters below the surface.

In 1994, 41DL270 was investigated further by Brown and Anthony (1991). They uncovered cultural deposits greater than 2.5 meters deep. Nine distinct cultural zones, dating from Middle Archaic to Late Prehistoric times, were uncovered. Excavation of this site provided insights into prehistoric use of invertebrate and vertebrate animals and plants, a paleoenvironmental synthesis and archeomagnetic studies. Plant data was especially important since many of the small sites recorded by Jan and Paul Lorrain contain manos.

Sites 41DL 252, 295, 296, 297, 299 and 300 are discussed together and are all recorded by Jan and Paul Lorrain (Lorrain and Lorrain 2001). The artifacts eroding out of banks of
Denton Creek consisted of mussel shells, manos, hearths, fire-cracked rock, dart points, lithic artifacts and debris and bone. These sites are probably Late Archaic (2000 B.C. to A.D. 700) in age. These sites are located approximately 2 meters below the surface.

No sites have been recorded in the survey area (Texas Archeological Sites Atlas 2007); however, AR Consultants (Skinner 1990) conducted an archaeological survey for Lone Star Gas of a pipeline route across Denton Creek west of the study area as did AR Consultants, Inc. (Todd and Skinner 2003b). No cultural materials were seen on the ground surface or uncovered in 28 shovel tests along the approximately 10,360 feet long pipeline across Denton Creek and the uplands adjacent to it.

Prior to the field survey, records were checked with Texas Historical Commission's Archeological Sites Atlas (2007). Historic maps, including the 1918 Soil Map of Denton County (Carter and Beck 1918) and the R. King Harris' Denton County highway map (1948) were also reviewed. No historic farmsteads were shown on the maps within the APE nor had any archaeological sites been recorded.
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 this part of Denton County. We proposed the three research problems presented below.

Based upon previous investigations in the area, it was felt that the study area had a low potential for containing prehistoric archaeological sites. Prehistoric sites usually are found in Denton Creek’s floodplain and on its terraces.

and

The potential for a historic site being present is good. Since the historic settlers did not necessarily follow existing routes and used cisterns and wells for a water supply, historic sites might be present in a variety of settings.

A third, 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

In order to address these research questions, a comprehensive pedestrian survey of the proposed pipeline route was conducted. The proposed pipeline route is approximately 1,300 feet long and has an easement of 80 feet. The surveyors, with the proper USGS and soil maps, systematically inspected the tract by walking parallel generally north and south oriented transects spaced 15 meters apart along the proposed pipeline route. Notes on the vegetation, soil and physiography of the study area were made. Photographs also were taken. Since the proposed pipeline route is to be placed in an upland setting, shovel tests were excavated on a judgmental basis as recommended by the Council of Texas Archeologists (2002). The loamy matrices were screened through a ¼-inch hardwire screen and the pit walls were examined for artifacts as well.
RESULTS

In this portion of the report, the intensive pedestrian archaeological survey is described which is followed by the conclusions derived from the survey. Shovel tests are described specifically in the text and are shown on Figure 3.

The Survey

Survey began north of Dunham Road in an improved pasture (Figure 2) and went northeast and north following the staked proposed pipeline route. The terrain gently slopes down to the east. Ground visibility ranged from less than 10 to 40 percent and eye-height visibility was excellent. Shovel test 1 (Figure 2) was excavated prior to the tree line shown in Figure 2 on a small knoll and encountered 37 cm of dark yellowish-brown (10YR3/4) sandy clayey loam that contained abundant gravel. The forested area north of Shovel test 1 is approximately 30 m wide and contains eastern red cedars, winged elm, American elm and hackberry trees along with understory vegetation that consists of saw greenbriar, grape vines, grama grasses and other prairie grasses. North of the forested area, the proposed route continues through unimproved pasture that contains broomweed, prickly pear, grama grass and other prairie grasses. Ground visibility was less than 10 percent but eye-height visibility was excellent.

Figure 2. Improved pasture at beginning of survey. Note stakes and forested area in background. View is to the northeast.
Shovel test 2 was placed on a generally level ridge north of the forested area and uncovered 36 cm of the dark yellowish-brown (10YR3/4) sandy clayey loam found in Shovel test 1, but no gravel was present. Just north of Shovel test 2, the proposed route is to be constructed in the center of a grass-covered two track road. The proposed pipeline route crosses the toes of two ridges (Figure 4) and no shovel tests were excavated along this portion of the route due to the slope.

Shovel test 3 was placed on a bench overlooking a tributary to Whites Branch where the proposed pipeline route terminates. The shovel test encountered 38 cm of brown (10YR5/3) sandy clay.

Conclusions

No cultural materials were seen on the ground surface or encountered in the three shovel tests as expected. Prehistoric sites probably were not present due to the absence of perennial water and lack of knappable lithic resources. Historic sites probably are not present because the European-American settlers preferred to use the land for ranching since it is on the edge of a series of ridges.
Figure 4. Proposed route crossing toe slopes of benches. Note stakes with flagging tape in center of grass-covered two-track road. View is to the south.
RECOMMENDATIONS

The purpose of this investigation was to determine if significant cultural resources were present within the short portion of the proposed Whites Branch pipeline route and outfall structure. None were found. Based upon the absence of archaeological sites, AR Consultants, Inc. recommends that further cultural resource investigations are unwarranted. We further recommend that construction supervisors be advised that if buried archaeological materials could be uncovered during construction, work should immediately cease in that area and the Archeology Division of the Texas Historical Commission be notified of the discovery.
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