



INDEX OF TEXAS ARCHAEOLOGY

Open Access Gray Literature from the Lone Star State

Volume 2018

Article 158

2018

Archaeological Survey Of The Proposed Grapevine Aerial SS Repair Tarrant County, Texas

Philip R. Fisher

Molly A. Hall

Follow this and additional works at: <https://scholarworks.sfasu.edu/ita>



Part of the [American Material Culture Commons](#), [Archaeological Anthropology Commons](#), [Environmental Studies Commons](#), [Other American Studies Commons](#), [Other Arts and Humanities Commons](#), [Other History of Art, Architecture, and Archaeology Commons](#), and the [United States History Commons](#)

Tell us how this article helped you.

This Article is brought to you for free and open access by the Center for Regional Heritage Research at SFA ScholarWorks. It has been accepted for inclusion in Index of Texas Archaeology: Open Access Gray Literature from the Lone Star State by an authorized editor of SFA ScholarWorks. For more information, please contact cdsscholarworks@sfasu.edu.

Archaeological Survey Of The Proposed Grapevine Aerial SS Repair Tarrant County, Texas

Creative Commons License



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/)

AR Consultants, Inc.

Archaeological and Environmental Consulting
805 Business Parkway, Richardson, Texas 75081
Phone: (214) 568-0478
Fax: (214) 221-1519
E-mail: arc@arc-digs.com

ARCHAEOLOGICAL SURVEY OF THE PROPOSED
GRAPEVINE AERIAL SS REPAIR

TARRANT COUNTY, TEXAS

Texas Antiquities Permit Number 8455

Philip R. Fisher, PhD
Principal Investigator
and
Molly A. Hall, MA

Submitted to:

GWC ENGINEERING, L.P.
2701 Fondren Drive, Suite 120
Dallas, Texas 75206

Submitted by:

AR CONSULTANTS, INC.
805 Business Parkway
Richardson, Texas 75081

Cultural Resources Report 2018-37
June 14, 2018

ARCHAEOLOGICAL SURVEY OF THE PROPOSED
GRAPEVINE AERIAL SS REPAIR
TARRANT COUNTY, TEXAS

Texas Antiquities Code Permit 8455

Philip R. Fisher, PhD
Principal Investigator
and
Molly A. Hall, MA

Submitted to:

GWC ENGINEERING, L.P.
2701 Fondren Drive, Suite 120
Dallas, Texas 75206

Submitted by:

AR CONSULTANTS, INC.
805 Business Parkway
Richardson, Texas 75081

Cultural Resources Report 2018-37
June 14, 2018

ABSTRACT

The City of Grapevine is proposing to repair an aerial sanitary sewer across Big Bear Creek in Tarrant County, Texas. The project area is located on the south side of a horseshoe bend in the floodplain of Big Bear Creek, north of Western Oaks Drive and west of Texas State Highway 121. AR Consultants, Inc. (ARC) conducted the intensive pedestrian archaeological survey in an area approximately 50-meters by 25-meters (0.3-acres) on June 8, 2018. Four shovel tests were excavated within the project area during the systematic field inspection. The archaeological potential for prehistoric and historic cultural resources was considered low. During survey, no cultural resources were identified in the shovel tests or found on the surface. Given the results of this survey, AR Consultants, Inc. recommends that further cultural resource investigations are unnecessary for this project, and requests that the Texas Historical Commission and the Fort Worth District of the U.S. Army Corps of Engineers concur with this recommendation. The field notes, photographs, and photo logs will be curated with the Center for Archaeological Studies at Texas State University in San Marcos, Texas.

TABLE OF CONTENTS

Abstract	i
Table of Contents	ii
List of Figures	ii
List of Tables	ii
Introduction.....	1
Natural Environment.....	5
Cultural History	6
Research Design and Methodology	9
Results.....	10
Recommendations.....	14
References Cited	15

LIST OF FIGURES

Figure 1. Location of the Grapevine Aerial SS Repair project area and Wall-Farrar Nature Park project area on the Grapevine 7.5' USGS topographic map.	2
Figure 2. The Grapevine Aerial SS Repair project area showing the location and extent of Gabion Erosion Control Structures.....	3
Figure 3. The existing aerial sanitary sewer across Big Bear Creek, looking southwest from the north bank.....	10
Figure 4. Vegetation and ground cover in the area of ST 1, facing south.....	11
Figure 5. Shovel test locations for the Grapevine Aerial SS Repair shown on a recent aerial photograph.	12

LIST OF TABLES

Table 1. Cultural Chronology.	6
Table 2. Shovel Test Descriptions.	11

INTRODUCTION

The City of Grapevine is planning the repair of an aerial sanitary sewer across Big Bear Creek in Tarrant County, Texas (Figure 1). The project area is located approximately 650-ft north of Western Oaks Drive and 700-ft west of Texas State Highway 121 on the south side of a horseshoe bend in the floodplain of Big Bear Creek on the southwest edge of Wall-Farrar Nature Park in Grapevine, Texas. The proposed project will replace an existing aerial sanitary sewer across Big Bear Creek using an anchored gabion erosion protection structure that will not impact the cut banks. Survey was conducted on the south side of the sewer crossing in an area approximately 50-meters by 25-meters (0.3-acres). The north side of the sewer crossing was not surveyed because it was surveyed by AR Consultants, Inc. (ARC) for the Wall-Farrar Nature Park in 2014 (Figure 1 and Figure 2). No prehistoric or historic cultural resources were found during that survey (Hall 2014). This methodology was approved by the THC on June 7, 2018.

GWC Engineering, L.P., who is handling the environmental permitting for the project, contracted with ARC to conduct an intensive archaeological survey of the Grapevine Elevated SS Repair project. The survey involved walking transects and placing shovel tests across the project area as well as a visual inspection along the drainage channel and bank on the south side of Big Bear Creek where surface exposure was present. Fieldwork was conducted on June 8, 2018.

This report was prepared to be reviewed by the Fort Worth District of the U.S. Army Corps of Engineers (USACE) and the Texas Historical Commission (THC). The cultural resource investigation was required because The City of Grapevine is a State entity and Texas Antiquities Permit Number 8455 was issued for the archaeological survey. Relevant legislation includes the Antiquities Code of Texas (Texas Natural Resource Code, Title 9, Chapter 191). Since the drainage contains Waters of the United States (WOUS) 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), the Clean Water Act, as amended (PL-92-500), the Rivers and Harbors Act of 1899, the Archeological and Historical Preservation Act of 1974, as amended (PL-93-291), Executive Order No. 11593 “Protection and Enhancement of the Cultural Environment,” and Protection of Historic Properties (36 CFR 800). The Archeology Division of the Texas Historical Commission will review this report on behalf of the State.

This report is written in accordance with report guidelines used by the Archeology Division of the THC (Council of Texas Archeologists 2018). The following report presents a brief description of the natural setting of the project area, followed by a discussion of the culture history and previous investigations within the study area. A chapter on the research design and methodology employed in the investigation is then followed by the results of the field investigation. The report concludes with recommendations followed by the references cited and an appendix.



Figure 1. Location of the Grapevine Aerial SS Repair project area and Wall-Farrar Nature Park project area on the Grapevine 7.5' USGS topographic map.

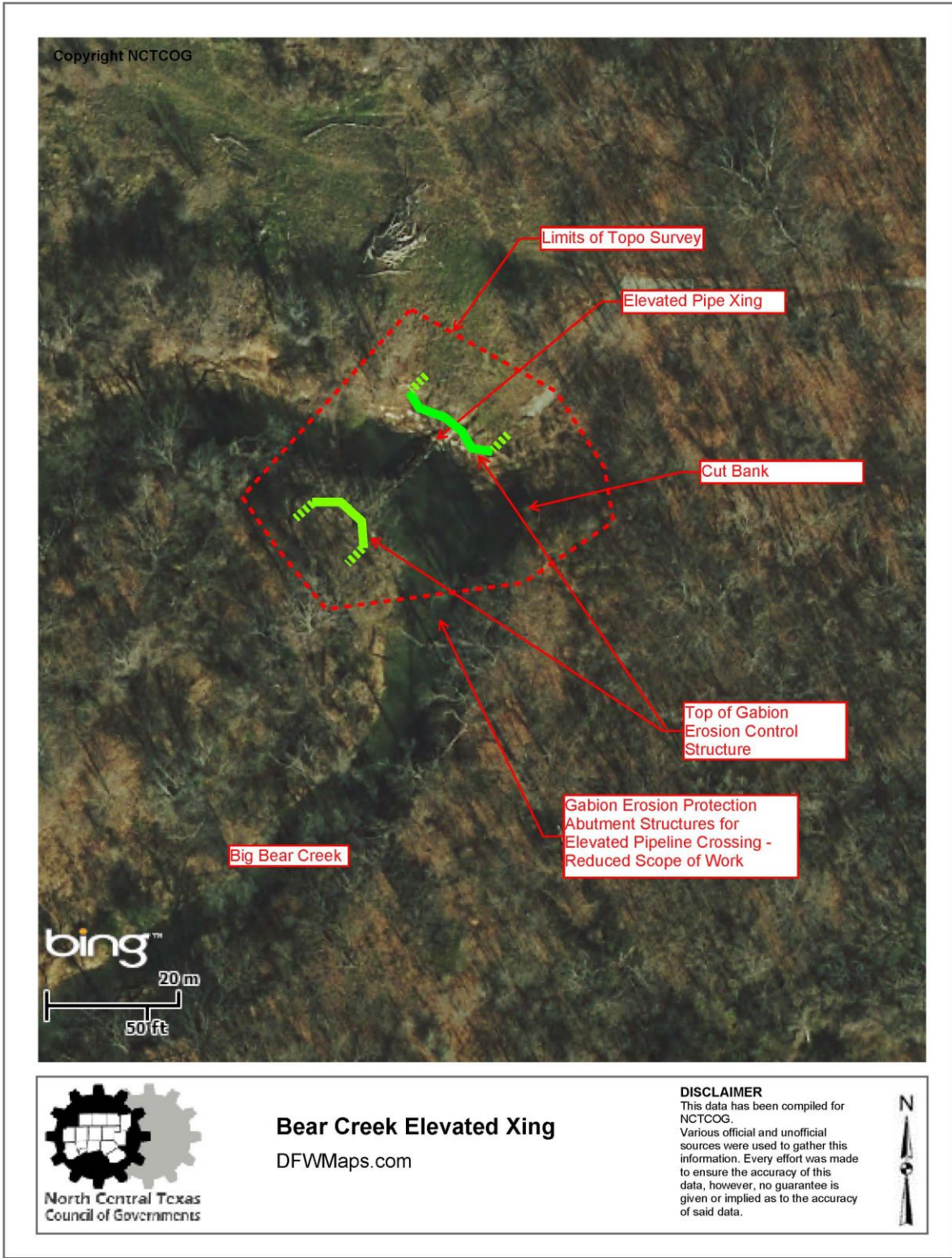


Figure 2. The Grapevine Aerial SS Repair project area showing the location and extent of Gabion Erosion Control Structures.

Administrative Information:

ARC Project Number: 180505
Sponsor: GWC Engineering, L.P.
Review Agency: Fort Worth District of the U.S. Army Corps of Engineers and the
Archeology Division of the Texas Historical Commission
Principal Investigator: Philip R. Fisher, PhD
Field Dates: June 8, 2018
Field Crew: Philip R. Fisher
Field Person Days: 1
Acres Surveyed: approximately 0.3 acres
Records Curation: Center for Archaeological Studies at Texas State University in San
Marcos, TX

NATURAL ENVIRONMENT

The project area is situated within the Eastern Cross Timbers Ecoregion of Texas. The Cross Timbers Ecoregion is a transitional zone between the prairie to the west and the forested, low hills to the east (Griffith et al. 2007). This region features low, stair-step hills and plains. More specifically, the project area is located in the Eastern Cross Timbers where post oaks and blackjack oak dominate the vegetation along with an understory of grasses and green briar.

The proposed project area is situated west of Texas State Highway 121, on the south side of Big Bear Creek, approximately 3.8 miles northwest of Big Bear Creek's confluence with Little Bear Creek and 13 miles southeast of Big Bear Creek's headwaters. At the project area, Big Bear Creek is a third-order drainage with a channel measuring approximately 20 meters across and at least 10 meters deep (water of an unknown depth was in the drainage at the time of survey). The project area lies within the Big Bear Creek floodplain.

The geology of the project area is anchored by the Upper Cretaceous-aged Woodbine Formation (Bureau of Economic Geology 1988). This formation consists mostly of sandstone with some clay and shale. The project area is mapped on Whitesboro loam, frequently flooded soils (Ressel 1981:Sheet 13). Whitesboro loam has a 27-inch-thick A horizon of dark grayish brown (10YR4/2) loam to sandy clay loam above a brown (7.5YR5/4) to mixed gray (10YR 6/1) and reddish yellow (7.5YR 6/6) clay loam to sandy clay loam B horizon.

CULTURAL HISTORY

A prehistoric chronology, based on Prikryl (1990), with an added historic period, for North Central Texas is presented below to provide the reader with a temporal framework for the culture history of the region.

Table 1. Cultural Chronology.

Period	Dates
Historic European	AD 1800 to present
Protohistoric (Historic Native American)	AD 1600 to AD 1800
Late Prehistoric	AD 700 to AD 1600
Archaic	6000 BC to AD 700
Paleoindian	ca. 11,000 BC to 6000 BC

The Paleoindian period is characterized as having small, nomadic bands of hunter-gatherers whose primary emphasis was the exploitation of now-extinct megafauna, such as mammoth and bison. Smaller game and plant gathering likely supplemented the Paleoindian diet (Bever and Meltzer 2007:59). As such, the archaeological record for the region consists of several distinctive styles of projectile points, such as the Clovis, Plainview, and Folsom. Currently, no Clovis points have been reported in Tarrant County, but numerous have been found in surrounding counties (Bever and Meltzer 2007:67-70). Subsistence patterns began to change as a general drying climatic trend swept the region, leading to extinction of many of the area's large mammals toward the end of the Paleoindian period.

The Archaic period is characterized by increased alluviation of water channels and a generally wetter environment than the previous period. This change in climate resulted in modification of Native American subsistence patterns, with broad exploitation of bottomland food resources. This, in turn, resulted in clusters of seasonal settlements along large drainages, including the Trinity River and its various forks and tributaries, and a marked increase in population density. With the advent of repeated, seasonal occupation of sites along drainages came a perceived increase in territorial constrictions among different groups in the region, with several authors citing the increased use of local lithic resources as evidence of this trend (Skinner 1981; Prewitt 1983).

The Late Prehistoric period is interpreted as a dryer period, with a focus on procurement of faunal resources, agriculture, and food preservation. The appearance of pottery and the bow and arrow help to date artifact assemblages to this period (Shafer 1977). The Protohistoric period is characterized by Native American abandonment of north central Texas in the period around 1500 to 1600, with almost no archaeological evidence found in the region dating to this time (Skinner 1988).

The Historic European period saw widespread Anglo settlement of north central Texas beginning in the 1830s. This expansion often resulted in brutal conflicts between settlers and nomadic bands of Native Americans (Garrett 1972:24). These early conflicts gave way to various Anglo strategies aimed at cohabitation, including peace treaties signed as early as 1843. Eventually, the entirety of north central Texas was settled, with numerous Anglo military installations established in the region. After Texas became part of the United States in 1845, peace was short lived. The Civil

War took its toll on the north central Texas population, as most of the able-bodied men left to fight for the Confederacy.

There is very little evidence of historic-era Native American occupation anywhere in the Dallas area, although historic accounts indicate that groups were present in the early 1800s. Beginning in the 1830s and continuing into the 1840s, the aboriginal inhabitants continued to play a role in the regional history. Garrett (1972:24) states, "Indian hostilities almost depopulated North Texas (of Anglo dwellers) after 1839. It dwindled to less than half." Hostilities continued until the Republic of Texas and ten Native American tribes signed the Treaty of 1843. This treaty provided the impetus for settlement of several North Central Texas counties.

After the Civil War Tarrant County continued to grow and prosper after the war. Fort Worth was spurred by growth of the cattle industry and the arrival of the Texas and Pacific Railway in 1876. By 1870, it is estimated that 300,000 head of cattle had been driven through Fort Worth and the primary industry throughout Tarrant County was agricultural into the 20th century. This industry was replaced by manufacturing soon after the Great Depression. Defense factories built near Grand Prairie for the development of goods for World War II attracted those seeking work. From the 1940s onward, many factories in Tarrant County continued to produce a wide variety of products, including airplanes, helicopters, mobile homes, electronics, and plastics. The development of DFW International Airport, and increased manufacturing and industrialization in the communities of Arlington, Euless, and Fort Worth, in the 1970s led to a rapid rise in the population of the surrounding communities (Hightower 2016).

Previous Investigations

A search of TASA (2018) located no prehistoric or historic archaeological sites, cemeteries, National Register of Historic Places (NRHP) properties, Historic Markers, or State Antiquities Landmarks (SALs) in the project area. Within a mile of the project area a single cemetery (the Parker Memorial Cemetery), historic marker for the Parker Memorial Cemetery, and eight archaeological sites were identified.

Several archaeological investigations have been conducted within the Big Bear Creek Watershed (Moir 1991; Prikryl 1990; Shelton et al. 2008; Skinner 1999; Whorton and Skinner 1993). Many of the surveys found no archaeological sites (Moir 1991; Whorton and Skinner 1993; Skinner 1999). The surveys which resulted in recording of sites are detailed below. During these investigations, sites ranging in time from the Paleoindian to the Historic Period have been recorded.

In 1982, Prikryl directed a survey of the Bear Creek drainage and recorded 24 new sites and revisited 10 previously recorded sites (1990). All of these sites were located on the first terrace above the narrow floodplain and contained deposits ranging in age from Paleoindian to Late Prehistoric II, with Late Archaic sites being the most common.

In 1992, C. Reid Ferring conducted test excavations at 41TR21, located approximately three kilometers downstream from the present study area. This multicomponent prehistoric site is located on a terrace approximately 1.7 meters above the Big Bear Creek floodplain. The site deposits are stratified remains of Late Archaic and Late Prehistoric occupations as indicated by chipped stone, ground stone, and ceramic artifacts.

ARC surveyed 1,210 acres of DFW airport property that was mostly in the Bear Creek Watershed (Shelton et al. 2008). This survey resulted in recording 23 archaeological sites, most of which had been disturbed and, therefore, were not recommended eligible for the NRHP. The prehistoric Armadillo site (41TR219), which is located in the uplands overlooking Bear Creek, and historic Morgan Hood Survey Pioneer Cemetery (41TR221) required further testing; however, both were ultimately determined ineligible. Based on the results of the surveys detailed above, it appears that prehistoric archaeological sites in the area tend to occur on terraces out of the floodplain or in uplands adjacent to tributaries. In 2014, ARC surveyed for the Wall-Farrar Nature Park on the north side of Big Bear Creek at the current project area (Hall 2014). No cultural resources were found during this survey.

Historic Map & Aerial Review

In addition to the TASA search, several historic maps and aerial photographs were reviewed prior to field work and are detailed below. Five historic maps dating from 1894 to 1959 were reviewed prior to the survey and no structures or features were mapped within the project area. These include the 1936 and 1958 Tarrant Count General Highway Maps, the 1920 Tarrant County Soils Map, the 1894 Fort Worth 125k USGS topographic map, and the 1959 24k USGS topographic map. No mapped structures are visible in the project area on aerial photographs from 1956 to the present.

RESEARCH DESIGN AND METHODOLOGY

Research Design

Two predictions were developed prior to survey regarding the potential for finding prehistoric and historic sites in the Grapevine Aerial SS Repair project area. The first hypothesis concerns the prehistoric occupation. It was predicted that there was low potential for encountering evidence of prehistoric occupation in this location. This is based primarily on the fact that the project area lies completely within the Big Bear Creek floodplain and prehistoric sites recorded within the Bear Creek watershed are primarily located on the first terrace.

The second prediction addresses historic site potential which is also considered to be low based on a review of historic maps and aerial photographs of the surrounding area which show no development or structures in the project area. The project area is not near any historic roads or structures and residential features are not expected to have been built in floodplains. However, historic trash scatters may be located in drainages.

Methodology

Survey was conducted in accordance with the standards set forth by the THC (2014). Field personnel walked the entire tract in transects no wider than 30 m. Shovel tests were excavated throughout the APE averaging one per two acres, where the slope was less than 20 percent and the ground visibility less than 30 percent to explore for the presence of buried cultural deposits. Per standard procedures, shovel tests were excavated into the subsoil, or the depth reachable by a bucket auger. Shovel tests (STs) averaged 30 cm in diameter. An auger was used at around 55-60 centimeters below surface (cmbs) to supplement the STs to depths between 90 and 160 cmbs. All loamy soils were screened through ¼" wire mesh screens. The clay fill was inspected visually and broken into smaller chunks in order to determine if cultural materials were present. ST soil matrices were described on the basis of composition, texture, and color. The Munsell Soil Color Chart (2009) was used to identify soil colors. Field personnel made notes about the ground exposure, drainages, soil types, and disturbed areas where subsoil was exposed. Photographs were taken during the survey using a 16-megapixel, GPS-equipped, digital camera. ST and project boundary locations were marked with a handheld GPS receiver using the NAD83 datum.

RESULTS

This chapter is divided into two sections. The first describes the project area's natural setting along with results of the pedestrian survey. Conclusions derived from the survey close the chapter. Shovel Tests (STs) are described generally throughout the chapter and are detailed in Table 2 at the end of the Survey Results section.

Survey Results

The existing aerial sanitary sewer and project area are located on a horseshoe bend in the floodplain of Big Bear Creek (Figure 3). Most of the project area is covered in oak, elm, mesquite, and hackberry trees. Additionally, there are various shrubs, grasses, grapevines, and greenbriar, leaving zero-percent ground visibility in most of the project area (Figure 4). The only area with any ground visibility was a the existing sanitary sewer right of way (center of Figure 3). This area has been overlain with erosional control netting which extends from the bank approximately 15-meters southwest and comprises the visible, open, area.

Four shovel tests were excavated throughout the project area in the horseshoe bend of Big Bear Creek (Figure 5 and Table 2). As the open area described above was previously disturbed, ST locations were chosen on either side of the buried sanitary sewer near where Gabion construction has been proposed. Two STs (1-2) were placed on the east side between the sanitary sewer and the creek channel, and an additional two STs (3-4) were placed on the west side between the sanitary sewer and the creek channel.



Figure 3. The existing aerial sanitary sewer across Big Bear Creek, looking southwest from the north bank.



Figure 4. Vegetation and ground cover in the area of ST 1, facing south.

STs1 and 2 had similar profiles, revealing 75-80 cm of dark grayish brown sandy loam above a brown sandy clay loam. STs 3 and 4 also revealed a similar profile to each other as well as STs 1-2. The top layer consisted of 40-65 cm of dark grayish brown sandy loam. However, this sandy loam transitioned with depth into a dark grayish brown sandy clay loam that extended between 75 to 80 cmbs. Below this was a brown sandy clay loam to clay loam. No artifacts or features were noted in the shovel tests.

Table 2. Shovel Test Descriptions.

ST#	Depth (cmbs)	Description	Comments/Artifacts
1	0-80 80-160	Dark grayish brown (10YR4/2) sandy loam Brown (7.5YR4/4) sandy clay loam	None
2	0-75 75-100	Dark grayish brown (10YR4/2) sandy loam Brown (7.5YR4/4) sandy clay loam	None
3	0-65 65-80 80-100	Dark grayish brown (10YR4/2) sandy loam Dark grayish brown (10YR4/2) sandy clay loam Brown (7.5YR4/4) clay loam	None
4	0-40 40-75 75-90	Dark grayish brown (10YR4/2) sandy loam Dark grayish brown (10YR4/2) sandy clay loam Brown (7.5YR4/4) sandy clay loam	None



Figure 5. Shovel test locations for the Grapevine Aerial SS Repair shown on a recent aerial photograph.

Conclusions

No prehistoric or historic archaeological sites, features, or artifacts were identified during the survey. Though close to a reliable water source, this location within the Big Bear Creek floodplain does not provide protection from flooding and was not expected to have prehistoric or historic sites. Previous investigation in the Bear Creek watershed show that prehistoric sites are primarily found on the first terrace and occasionally on in the uplands, but rarely in the floodplain (Prikryl 1990; Shelton et al. 2008).

RECOMMENDATIONS

The purpose of this investigation was to determine if significant cultural resources are present within the Grapevine Aerial SS Repair in Tarrant County, Texas. No cultural resources were identified on or below the surface during the survey. Based on the results of the survey, ARC concludes that further cultural resource investigations for this project are unwarranted and recommends that the USACE and the THC concur with this assessment. However, if buried cultural materials are discovered during construction, the Archeology Division of the Texas Historical Commission and the Fort Worth office of the USACE should be notified.

REFERENCES CITED

- Bever, Michael R. and David J. Meltzer
 2007 Paleoindians of Texas: A Third Revised Edition of the Texas Clovis Fluted Point Survey. *Bulletin of the Texas Archeological Society* 78:65-99.
- Bureau of Economic Geology
 1988 *Geologic Atlas of Texas Dallas Sheet*. The Bureau of Economic Geology, The University of Texas at Austin.
- Council of Texas Archeologists
 2018 Guidelines for the Content of Cultural Resource Management Reports. <http://www.thc.texas.gov/public/upload/CTAguidelines.pdf>, accessed February 15, 2018.
- Garrett, Julia Kathryn
 1972 *Fort Worth: A Frontier Triumph*. The Encino Press. Austin.
- Griffith, Glenn, Sandy Bryce, James Omernik, and Anne Rogers
 2007 *Ecoregions of Texas*. Texas Commission on Environmental Quality, Austin.
- Hall, Molly A.
 2008 *An Archaeological Survey of the Proposed Will-Farrar Nature Park in Tarrant County, Texas*. Cultural Resources Report 2014-12. AR Consultants, Inc., Richardson.
- Hightower, W. Kellon
 2016 Tarrant County, *Handbook of Texas Online. Electronic document*, <https://tshaonline.org/handbook/online/articles/hct01>, accessed May 30, 2018.
- Munsell Color
 2009 *Munsell Soil-Color Charts*. Grand Rapids, Michigan.
- Natural Resource Conservation Survey (NRCS)
 2018 United States Department of Agriculture. Web Soil Survey, <https://websoilsurvey.sc.egov.usda.gov>, accessed May 30, 2018.
- Prikryl, Daniel
 1990 Lower Elm Fork Prehistory, A Redefinition of Culture Concepts and Chronologies along the Trinity River, North-Central Texas. Report 37, Office of the State Archeologist, Texas Historical Commission, Austin.
- Ressel, Dennis D.
 1981 *Soil Survey of Tarrant County, Texas*. United States Department of Agriculture, Soil Conservation Service, in cooperation with Texas Agricultural Experiment Station.
- Shafer, Harry J.
 1977 Late Prehistory in Central Texas. *Bulletin of the South Plains Archeological Society* 3:18-24.
- Shelton, Rebecca, Cody S. Davis, and S. Alan Skinner
 2008 *An Archaeological Survey for Chesapeake Energy Corporation at DFW International Airport, Dallas and Tarrant Counties, Texas*. Cultural Resources Report 2008-25. AR Consultants, Inc., Dallas.
- Skinner, S. Alan
 1981 Aboriginal Demographic Changes in Central Texas. *Plains Anthropologist* 26(92):111-118.
 1988 Where Did All the Indians Go? *The Record* 42(3): 101-104.
- Texas Archeological Sites Atlas
 2018 Search for cultural resources listed near the project area. Texas Historical Commission internet site, <http://nueces.thc.state.tx.us>, accessed May 30, 2018.
- Texas Historical Commission (THC)
 2014 Archeological Survey Standards for Texas. http://www.thc.texas.gov/public/upload/publications/THC_SurveyStandards_2014.pdf, accessed February 15, 2018.