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DRAFT

CULTURAL RESOURCES SURVEY OF THE PROPOSED

HARDIN ROAD AND WHITE AVENUE

AND OVERFLOW SWALE

COLLIN COUNTY, TEXAS

Jesse Todd, MS, MA

Texas Antiquities Permit Number 4389

Submitted to:

NATHAN D. MAIER CONSULTING ENGINEERS, INC.
Two Park Lane Place
8080 Park Lane, Suite 600
Dallas, Texas 75231

Prepared by:

AR CONSULTANTS, INC.
11020 Audelia Road, Suite C105
Dallas, Texas 75243-9085

Cultural Resources Report 2007-10
March 5, 2007

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ABSTRACT

On January 31, and February 7 and 27, 2007, AR Consultants, Inc. conducted a intensive pedestrian archaeological survey of approximately 8,300 feet of proposed Hardin Road right-of-way and about 1,000 feet of the White Avenue right-of-way for Nathan D. Maier Consulting Engineers, Inc. In addition, AR Consultants, Inc. investigated approximately 12 acres of overflow swale which will be excavated in Wilson Creek's floodplain. Fill from the swale will be used in the construction of the proposed road routes. Nathan D. Maier Consulting Engineers, Inc. is doing the environmental permitting and designing the proposed road routes for the City of McKinney in Collin County, Texas. The proposed Hardin Road will extend from US 380 to FM 3038 (Virginia Parkway) and White Avenue will be constructed from Community Drive to the proposed Hardin Road.

A records research did not reveal any historic or prehistoric cultural resources listed in the study area. A comprehensive pedestrian archaeological survey with shovel testing failed to discover any archaeological sites within the proposed road routes and five backhoe trenches within Wilson Creek's floodplain failed to uncover cultural materials older than 50 years. The conclusion is that this area in the Blackland Prairie in North Central Texas has a low potential for containing significant cultural resources as discovered in many other archaeological surveys in similar settings.

Based on the field investigation, it is AR Consultant's recommendation that no further cultural resource investigations are warranted along the proposed pipeline route. The Texas Historical Commission and 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.

TABLE OF CONTENTS

Abstract..... i
List of Figures..... ii
List of Tables..... ii
Introduction..... 1
Natural Environment..... 4
Culture History..... 5
Research Design and Methodology..... 6
Results..... 7
Recommendations..... 16
References Cited..... 17

LIST OF FIGURES

Figure 1. Proposed Hardin and White Avenues and swale along with shovel test locations plotted on a portion of the McKinney West, Texas 7.5' USGS map..... 2
Figure 2. View of unimproved pasture from south of US 380 to Bois d'Arc Road. Note disturbance in the lower left portion of the picture. View is to the north..... 8
Figure 3. Typical vegetation along proposed road right-of-way on the bench. Note good ground visibility. White flecks in picture are snow flakes. View is to the northwest..... 9
Figure 4. Backhoe trenches in the swale located on a portion of the McKinney East, Texas 7.5' USGS map..... 11
Figure 5. Swale and backhoe trenches located on a mid-2000 aerial Photograph which shows the vegetation pattern as well as disturbances in the area..... 12
Figure 6. Backhoe trench 3. Note the abrupt soil change in the bottom of the trench (253-310+ cm). This probably is a developing soil based on the calcium carbonate present. View is to the south..... 13
Figure 7. Backhoe trench 5. Note abundant calcium carbonate in the lower soil horizons. View is to the southeast..... 15

LIST OF TABLES

Table 1. Shovel test information. Munsell Color Chart Numbers used only first time listed..... 10
Table 2. Backhoe trench descriptions. Munsell Color Chart Numbers used only first time listed. Note: All soil was moist when examined..... 16

Rarc: Hardin and White Avenues

INTRODUCTION

On January 31 and February 7 and 27, 2007, AR Consultants, Inc. (ARC) conducted an intensive pedestrian archaeological survey of the proposed approximately 8,300 feet long Hardin Road and the about 1,000 feet long White Avenue as well as approximately 12 acres of overflow swale which will be excavated in Wilson Creek's floodplain. Fill from the swale will be used in the construction of the proposed roads. The proposed roads and swale are located approximately 1.5 miles west of McKinney, Texas in Collin County, Texas. The proposed Hardin Road begins at US 380 (University Drive) and runs generally south to FM 3038 (Virginia Parkway). White Avenue starts at Community Drive and runs west to the proposed Hardin Road (Figure 1). The study was done for Nathan D. Maier Consulting Engineers, Inc. which is doing the environmental permitting and designing the proposed roads for the City of McKinney. The scope of the project included a review of previously recorded sites in the vicinity, a pedestrian survey, the recording of prehistoric and historic sites, if found, and the preparation of a summary report.

The survey was necessitated because the City of McKinney is a political subdivision of the State of Texas. The Antiquities Code of Texas is applicable for this investigation, and the Texas Historical Commission will also act as the Section 106 review agency for the US Army Corps of Engineers. The purpose of this survey was to locate cultural resources and make recommendations about their significance and how they might be impacted by construction. Since Wilson Creek is to be crossed, relevant federal legislation includes Section 404 Permit for the Clean Water Act, the National Historic Preservation Act of 1966, as amended (PL-96-515), the National Environmental Policy Act of 1969 (PL-90-190), 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 Procedures for the Protection of Historic and Cultural Properties (36CFR800), Appendix C.

This report has been written in accordance with the guidelines for reports prepared by the Council of Texas Archeologists (N.D.). The following report presents a brief description of the natural environment and cultural history of the study area. This is followed by a description of the research design and the methodology used to carry it out. 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.

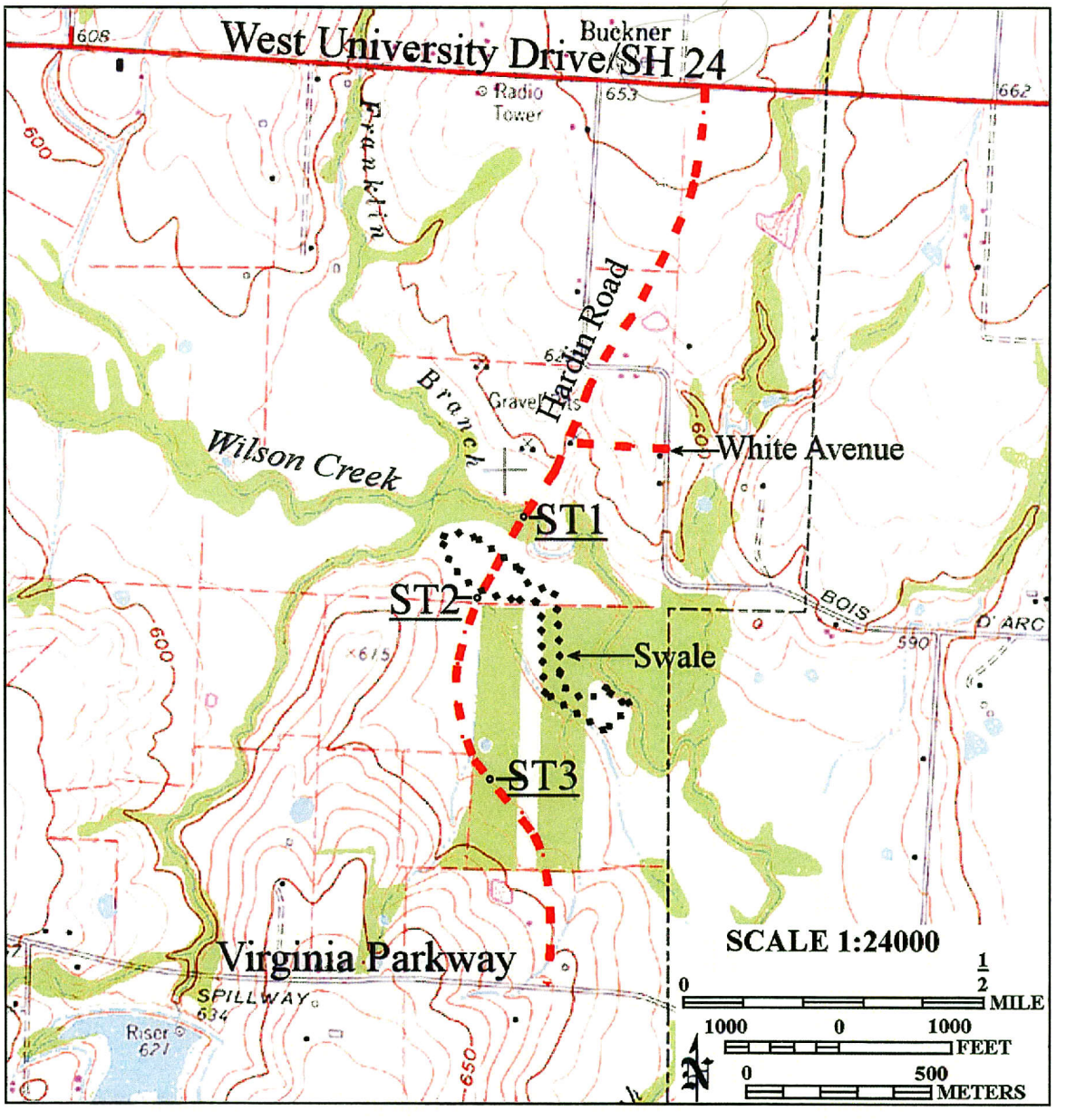

Figure 1. Proposed Hardin Road and White Avenue and swale along with shovel test locations plotted on a portion of the McKinney West, Texas 7.5' USGS map.

Administrative Information:

Sponsor:	City of McKinney with Nathan D. Maier Consulting Engineers, Inc. doing the environmental permitting and designing the road routes
Review Agency:	Texas Historical Commission, Archeology Division
Principal Investigator:	Jesse Todd, MS, MA
Field Crew:	Lance Trask, Rebecca Chapman and Todd
Fieldwork Dates:	January 31 and February 7 and 27, 2007
Project Man-days:	6
Acreage Surveyed:	14
Sites Recorded:	None

NATURAL ENVIRONMENT

Collin County, in which the study area lies, is in North Central Texas. It is totally within the Blackland Prairie region of Texas (Diamond, Riskind, and Orzell 1987: Figure 1). The prairie is dissected by the East Fork of the Trinity River on the eastern edge of the county. Narrow bands of bottomland forest are confined to the drainages throughout the county (Minor 2006a).

The proposed road routes cross the Houston Black-Austin Association which are upland soils that are deep over marls and chalk and the Trinity-Frio Association which contains nearly level floodplain clays and loams (Hanson and Wheeler 1969:General Soils Map). Soils in the study area include eroded Altoga silty clay with 5 to 8 percent slopes, eroded Houston clay with 5 to 8 percent slopes, Houston Black clay with 1 to 3 percent slopes, eroded Lewisville silty clay with 1 to 3 percent slopes and occasionally flooded Trinity Clay. The specific soil along Wilson Creek is occasionally flooded Trinity clay with 0 to 1 percent slopes (Hanson and Wheeler 1969:Sheets 25 and 32). The C horizon is listed as being 14 inches below the ground surface for the Trinity Series (Hanson and Wheeler 1969:25).

The soils are underlain by the Upper Cretaceous-aged Austin Chalk which consists of chalk with interbedded calcareous clays and thin-bedded marls. Wilson Creek is mapped as containing Quaternary alluvium (Bureau of Economic Geology 1967). Both the soil map and the USGS maps show Wilson Creek to be intermittent although Brune (1981:122) mentions that Walnut Springs is located about 5 miles northwest of the study area.

As indicated above, Collin County is located in the Blackland Prairie vegetative area of Texas (Gould 1975; Kuchler 1969: Region No. 68). Kuchler classifies the prairie as being dominated by Andropogon-Sipa grasses, and Gould notes that little bluestem is the climax dominant. Various other grasses are present as well. Mesquite is also present today but this is due to recent invasion of this species into the Blackland. According to various authors, including Lynott (1979), the prairie once supported a cover of tall grasses and was inhabited by now absent herbivores including bison and antelope. Certainly, deer inhabited the floodplain forests, but this environment is no longer present in the survey area.

Paleoenvironmental change is not well documented but it is summarized by Prikryl (1993:192-193). 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 and1050 B.C. show a drying with a return of arboreal pollen after 1050 B.C. The later change is similar to the environment of today. High grass pollen also occurs at approximately A.D. 450 and from A.D. 1550 to 1650, thus also suggesting drier periods. The presence of paleosols between A.D. 1 and 1,000 suggest an increase in moisture during this period with a return to drier conditions after A.D. 1,000.

CULTURAL HISTORY

The history of the Collin County region can be traced to as early as 8000 to 9000 B.C. and since that time, it appears to have been continuously occupied (Crook N.D.). The physical evidence of past occupation in the county has been termed "cultural resources," and many of these resources have been of such significance that they have been recognized, recorded and in many cases preserved (RMA/Texas 1986).

Prehistoric Native American settlement in Collin County began at least 10,000 years ago as attested to by the presence of distinctively-shaped dart points. No very early prehistoric sites have been recorded in the county but Paleo-Indian sites have been reported from Denton County to the west in the valley of the Elm Fork of the Trinity River. Nevertheless, artifact collectors report the presence of 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 knappable materials 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 to 800. The Archaic peoples lived throughout the county but particularly along the major and minor stream valleys where they were able to hunt animals and gather wild plants (Lynott 1977). Dart points, grinding stones, fire-cracked rock and scrapers are common artifacts 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 lithics for chipped stone tools. These local materials are described as Uvalde Gravels (Menzer and Slaughter 1971; Byrd 1971). Small scatters of lithic debris have been recorded in upland areas throughout the county (Lynott 1974; Hughston and Lynott 1974; Peter 1990; Hunt, Peter and Allday 1991). These sites appear to be Archaic in age but none have been thoroughly studied and their relationship to the Lake Lavon sites in uncertain.

About A.D. 700 to 800, a major change is found in the artifacts and settlement patterning of the prehistoric sites. Sites tend to congregate along the mainstream of the East Fork of the Trinity River. This is attributed to the drying up of the smaller tributaries. During this period, which is known as the Late Prehistoric, Caddoan pottery from East Texas appears as trade material along with the indigenous Nocona Plain pottery. It has been suggested that farming may have been practiced. Arrow heads appear about this same time and apparently the bow and arrow had been added to the hunting tools. The other interesting thing is the appearance of large, circular pits constructed at sites along the East Fork and its tributaries. No good explanation has been posed about the function of these features although various authors have offered their interpretations (Stephenson 1952; Lynott 1975; Bruseth and Martin 1987).

At the end of the Late Prehistoric period, there appears to have been a general abandonment of the Collin County and the north central Texas area based on an 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. There is very little evidence of historic era Native American occupation anywhere in the county until historic accounts indicate that groups were present in the early 1800's.

European settlement in Collin County began in the mid-1800's with the establishment of the Peter's Colony after Texas independence. The county was established in 1846 and the county seat was at Buckner until 1848 when it was moved to McKinney. Settlement has continued to the present. By the turn of the century, all of the major communities had been established and some had passed away.

The City of McKinney became the county seat for Collin County in 1849 after a special Texas legislature was convened because Buckner, then the county seat, was not within three miles of the center of the county as required by state law. The town was named after Collin McKinney who was a signer of the Texas Declaration of Independence and the author of the bill establishing counties in the northern part of Texas. Flour and corn were available in McKinney as were cotton mills, cotton gins, a cotton compress and a cottonseed oil mill. By the beginning of the 1880s, McKinney also boasted of an opera house. The Houston and Texas Central Railway ran through the city by 1872 and in 1881, the Missouri, Kansas and Texas Railroad reached McKinney. Also the Texas Electric Railroad served the city from 1908 to 1948. Today, the city's population is in excess of 21,300 people and serves as a commuter center for people who work in Plano and Dallas as well as the market center for agribusinesses within the county as it continues to grow (Minor 2006b).

Recent Investigations

Lindi Fisher of the Collin County Historical Preservation Group recorded the Covered Bridge site which consists of the abutments of a once covered bridge that spanned Wilson Creek southeast of the study area (Texas Archeological Sites Atlas 2007). AR Consultants, Inc. (Todd and Trask 2004) conducted an archaeological survey of a sewer pipeline route approximately 2 miles northwest of the study area. Two backhoe trenches were excavated on the banks of Wilson Creek to 280 and 309 cm below the ground surface but no buried cultural materials were found and none were seen on the ground surface during the archaeological survey or in the shovel tests.

RESEARCH DESIGN AND METHODOLOGY

Research Design

The purpose of this research design is to insure that fieldwork made a contribution to the prehistory and history of Collin County, Texas. A records review indicated no evidence of prehistoric or historic occupation in the survey area. Based on the known prehistoric and historic archaeology of the area, we proposed the following three research questions.

The first research question concerns the prehistoric occupation of the study area.

> It was predicted that this location in the upland prairie had little likelihood having been occupied prehistorically because of the lack of permanent water, low biotic diversity and lack of knappable material. However, buried archaeological sites might be present along Wilson Creek.

The second question concerns the historic occupation of the study area.

> It was predicted that historic sites were likely to be located along transportation routes, but the proposed road right-of-ways is so narrow that historic sites might not be encountered.

Methodology

The proposed road right-of-ways are about 120 feet wide and approximately 9,300 feet long. The overflow swale contains approximately 12 acres and should be excavated from 4 to 5 feet beneath the ground surface.

In order to conduct the archaeological survey, the surveyors first reviewed the information about the study area found in the Texas Archeological Site Atlas. In addition, the 1930 soils map of Collin County published by the Soil Conservation Service was examined for historic structures on the property. Then, armed with the USGS map, soil map, shovels, a camera and field notes, they carefully inspected the ground surface. The surveyors also made notes about the vegetation, soil and soil exposure and took photographs. Since the proposed pipeline route is in an upland and floodplain setting, shovel tests were placed in locations that might contain cultural resources in the upland and at 100 m intervals in the floodplain as suggested by the Council of Texas Archeologists (2002). Shovel tests were not dug in disturbed areas or where the soil visibility was 30 percent or more. The clay, which could not be screened, was manually and visually inspected for cultural resources as were the pit walls. The suggestion of 1 backhoe trench per acres as suggested by the Council of Texas Archeologists was exceeded in order to create a more comprehensive investigation for buried cultural materials. Backhoe trenches were 5 m long and approximately 3 m deep. Since the trenches were stepped according to OSHA standards, more area was investigated than just a 3 by 5 m trench.

RESULTS

In this chapter the study area is discussed which is followed by a description of the pedestrian survey. Shovel tests are discussed generally in the text and specific information is listed in Table 1. Their locations are shown on Figure 1. The conclusions derived from the survey end the chapter.

The study area

The proposed Hardin Road begins south of US 380 and runs generally south to Virginia Parkway. The proposed route crosses generally level upland terrain, gentle slopes and generally level floodplain. Unimproved pastures contained broomweed, dandelions, hog brush, johnson grass, occasional eastern and hackberry trees, saw greenbriar, grape vine and native grasses and shrubs. The floodplain north of Wilson Creek contains unimproved pasture and a forested area about 10 m wide which consists of 3 to 4 feet diameter bois d'arc and small hackberry trees. The floodplain south of the creek consists of bois d'arc, oak and hackberry trees, most of which are less than 60 years old. Understory vegetation consists of saw greenbriar, hog brush, dandelions, grape vine and native grasses and bushes. Wilson Creek is about 5 m wide and deep. Clear water was flowing at the time of visit and the substrate consists of loamy clay. No knappable lithic material or buried cultural materials were seen in the vertical banks. The swale is to be placed in improved pasture as well as the forested floodplain.

The survey

The description of the pedestrian archaeological survey is broken into three parts: Hardin Road, White Avenue and the swale.

Hardin Road

Survey began south of US 380 and ran south to Bois d'Arc Road. The proposed route crosses unimproved pasture (Figure 2) where the ground visibility was at least 60 percent. Elevated areas covered by caliche gravel were present on both sides of the proposed roadway. No shovel tests were excavated due to the good ground visibility and upland setting and no cultural materials older than 50 years were seen on the ground surface.

From Bois d'Arc Road to Wilson Creek, the proposed road right-of-way crosses and gentle slope that has been terraced. Prior to encountering the floodplain, the area has been mined in the past. Surprisingly, ground visibility was about 40 to 50 percent along the proposed road right-of-way. The road right-of-way parallels an existing water pipeline from Bois d'Arc Road to the creek. Limestone boulders have been concreted on both banks of Wilson Creek and its channel where the water line crosses the creek. No shovel tests were excavated along the upland portion of the proposed right-of-way because of the good ground visibility and terracing. No shovel tests were excavated in the floodplain because of disturbance from constructing the pipeline route and the concrete boulders across the creek.

Figure 2. View of unimproved pasture from south of US 380 to Bois d'Arc Road. Note disturbance in the lower left portion of the picture. View is to the north

From Wilson Creek to Virginia Parkway, the proposed road route runs through a floodplain and crosses benches of a northeast-southwest trending ridge. Shovel test (hereafter ST) 1 was excavated about 5 m south of Wilson Creek. The shovel test uncovered 45 cm of silty clay overlying different silty clay that extended to 87 cm below the ground surface. Beneath that silty clay is a different silty clay that ranges from 87 to 130 which, in turn, is underlain by a silty clay similar to that in Zone II. The shovel test was terminated at 174 cm below the ground surface. Culturally sterile matrices were uncovered. The second shovel test normally would have been placed a hundred m from ST 1, but a pipeline line was constructed approximately 91 m from ST 1 and the width of the pipeline route was 18 m. Shovel test 2 uncovered 45 cm of soil similar to ST 1. However, from 45 to 118 cm, the shovel test encountered laminae of two differently colored silty clays. Beneath the laminae was a fourth differently colored silty clay that extended to 151+ cm below the ground surface. The shovel test was cultural sterile.

From the floodplain to Virginia Parkway, the road right-of-way crosses benches of the ridge (Figure 3). Ground visibility along this portion of the route was about 50 percent. However, a small portion of the route was in a forested area where the ground visibility was less than 10 percent. Shovel test 3 was excavated and uncovered 37 cm of culturally sterile clay.

Figure 3. Typical vegetation along proposed road right-of-way on the bench. Note good ground visibility. White flecks in picture are snow flakes. View is to the northwest.

No cultural materials were seen on the ground surface or found in the shovel tests during the intensive pedestrian archaeological survey from US 380 to Virginia Parkway.

White Avenue

The proposed White Avenue right-of-way begins at the proposed Hardin Road north of Wilson Creek and runs east to Bois d'Arc Road. The road right-of-way crosses the terraced pasture already described. The proposed route is to be constructed near a residence shown on the 1960 USGS map. The residence had been removed, but the area was intensively investigated for the house foundation and any associated cultural features such as a root/storm cellar or cistern. No house foundation, trash or cultural features were found.

Table 1. Shovel test information. Munsell Color Chart Numbers used only first time listed.

ST No.	Depth (cm.)	Description*
1	0-45	Very dark gray (10YR3/1) silty clay
	45-87	Very dark grayish-brown (10YR3/2) silty clay
	87-130	Dark grayish-brown (10YR4/2) silty clay
	130-174+	Very dark grayish-brown silty clay

2	0-45 45-118 118-151+	Very dark gray silty clay Laminae of brown (10YR5/3) silty clay and dark grayish brown (10YR4/2) silty clay Dark grayish-brown silty clay
3	0-37+	Very dark gray clay

The swale

The swale consists of approximately 12 acres and is shown in Figures 4 and 5. Five culturally sterile backhoe trenches were placed close to Wilson Creek. The trenches are discussed generally in the text and specific information is provided in Table 2.

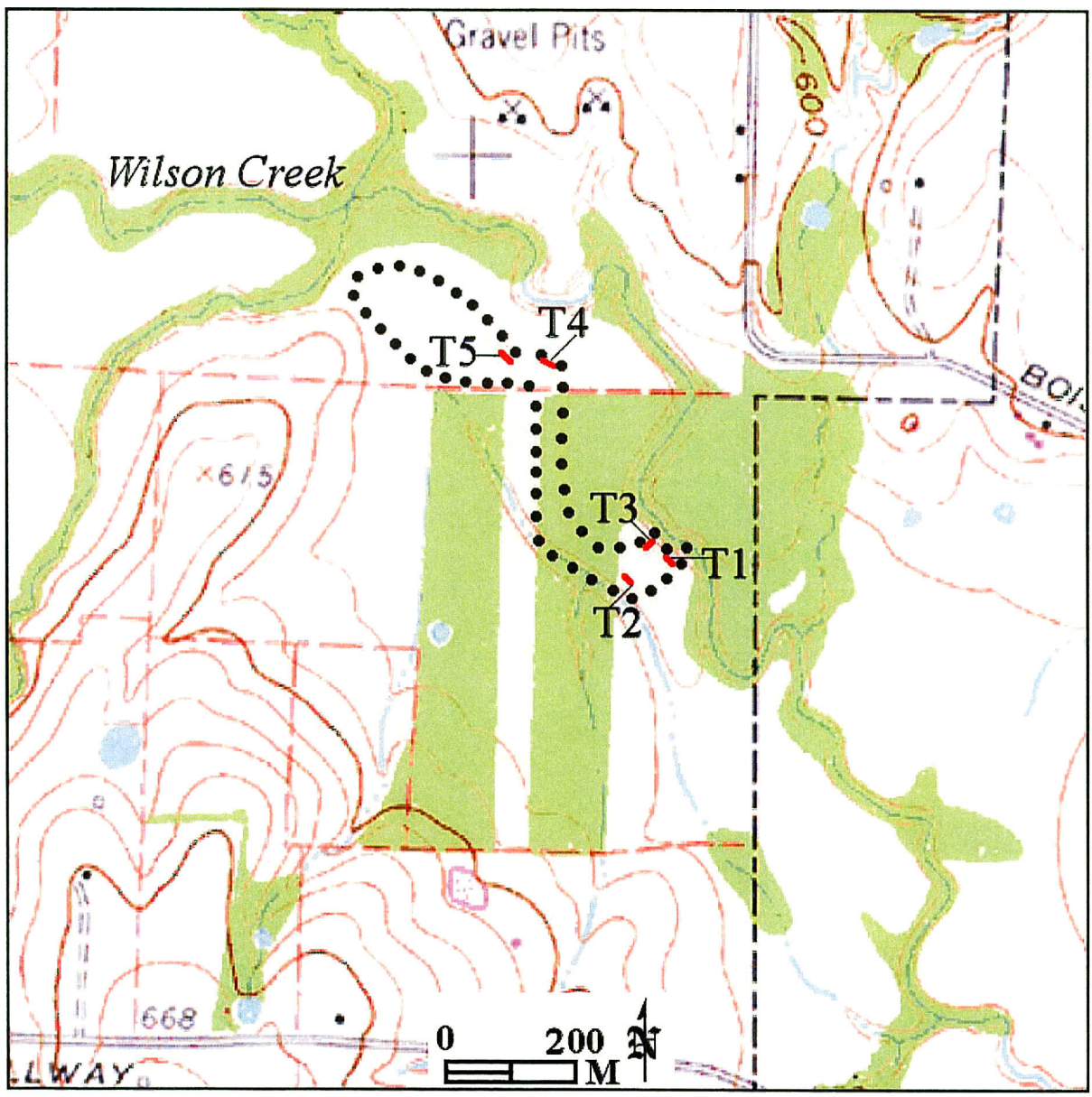

Figure 4. Backhoe trenches in the swale located on a portion of the McKinney East, Texas 7.5' USGS map.

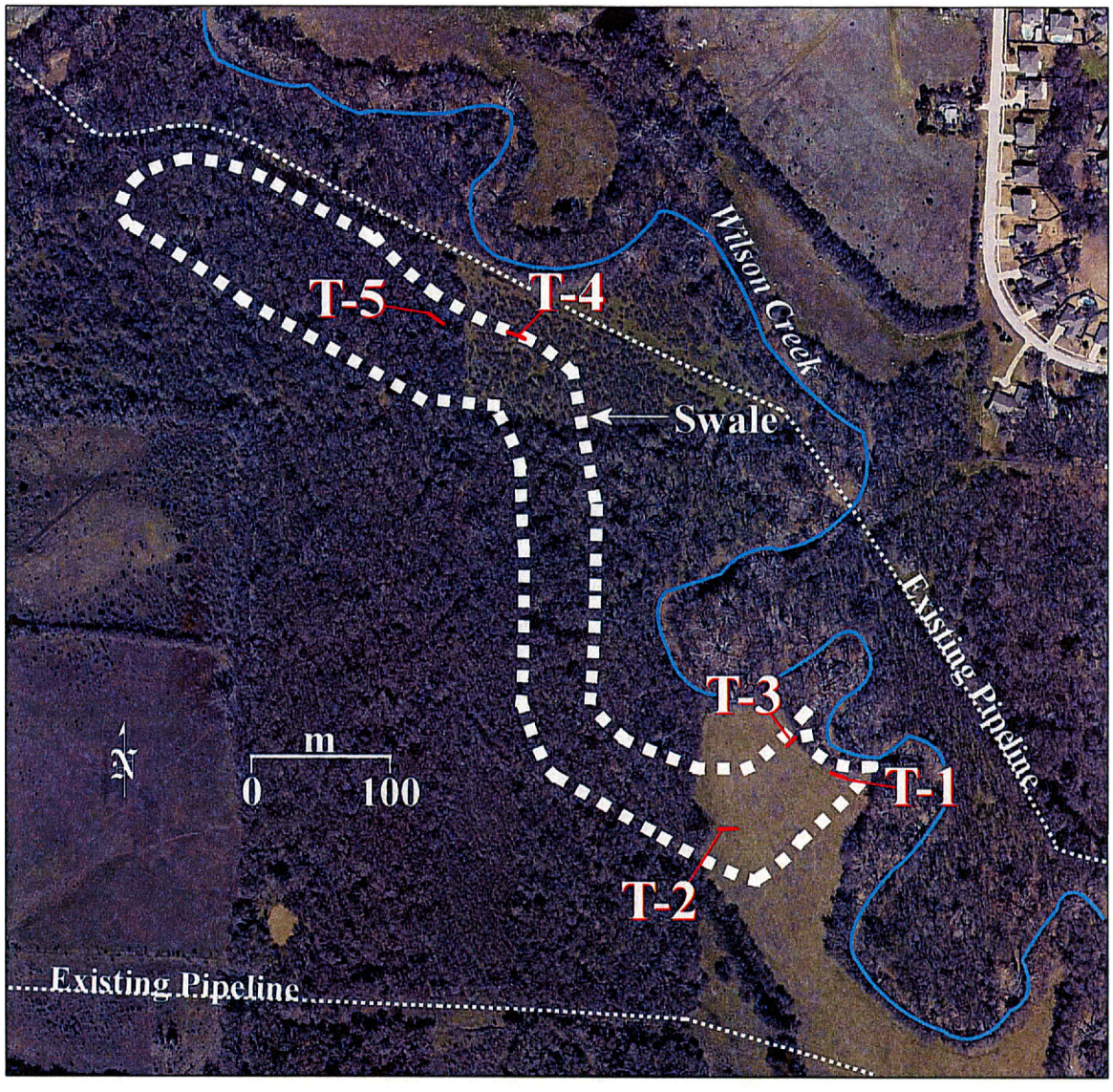

Figure 5. Swale and backhoe trenches located on a mid-2000 aerial photograph which shows the vegetation pattern as well as disturbances in the area.

Three backhoe trenches (1 through 3) were placed in an unimproved pasture where the swale is adjacent to Wilson Creek. Backhoe trenches 1 and 2 were placed adjacent to the creek and Backhoe trench 3 was placed adjacent to a natural swale/old tributary channel. All three were culturally sterile.

Two horizons, from 151 to 253 and 253 to 310 cm below the ground surface) in Backhoe trench 3 (Figure 6) were encountered that contained calcium carbonate nodules and filaments which indicate a developing soil horizon. Snails shells were present in Backhoe trench 1 which probably indicates flooding in the past or snails present along the stream forest. The upper zone of Backhoe trenches 1 and 3 differed from Backhoe trench 2 which suggests different soil deposition. The difference may be a result of the dynamic environment from flood deposition along the creek whereas Backhoe trench 2 may have

been more stable, or else sediment from the swale/old tributary channel may have been different than along the creek.

Figure 6A Backhoe trench 3. Note the abrupt soil change in the bottom of the trench (253-310+ cm). This probably is a developing soil based on the calcium carbonate present. View is to the south.

Backhoe trenches 4 and 5 were placed where the northwestern portion of the swale came close to Wilson Creek again. Both backhoe trenches were culturally sterile. The variation in soil matrix descriptions indicate a dynamic environment in the upper zones of the trenches, but the soil matrix description is similar for the lower portions of the trenches (248-280 in Backhoe trench 4 and 163-290 in Backhoe trench 5) indicating a stable environment and possibly a buried paleosol. The abundant calcium carbonate nodules in the Backhoe trench 5's lower horizons is shown in Figure 7.

Conclusions

As expected, no prehistoric or historic archaeological sites were encountered during the archaeological survey of the proposed road right-of-ways. The absence of prehistoric sites may be the low biotic diversity of the Blackland. Prehistoric sites might not be present along Wilson Creed due to periodic flooding. If a prehistoric site was present, it may have been removed during farming activities or terracing. Only two freshwater mussels and no aquatic life were seen along or in the creek. If there was an absence of aquatic life in the past, the area might have been visited only for seasonal activities such as hunting. The absence of historic sites along roadways also may be attributable to removal for farming activities. The absence in the floodplain is probably due to seasonal flooding.

Figure 7. Backhoe trench 5. Note abundant calcium carbonate in the lower soil horizons. View is to the southeast.

Table 2. Backhoe trench descriptions. Munsell Color Chart Numbers used only first time listed. Note: All soil was moist when examined.

BHT No.	Depth (cm)	Description
1	0-80	Very dark grayish-brown (10YR3/2) slightly loamy clay; moderately weak; slightly hard; very fine columnar; no clay films present; abundant roots; horizon boundary clear and smooth; snail shells abundant and scattered
	80-160	Brown (10YR4/3) clay; moderate; slightly hard; fine subangular blocky; no clay films present; few fine rootlets; horizon boundary gradual and smooth; snail shells abundant and scattered
	160-2332	Brown (10YR5/3) clay; moderate; slightly hard; fine subangular blocky; very few thin clay films on ped faces; horizon boundary is clear and smooth; snail shells abundant and scattered
	232-290+	Dark grayish-brown (10YR4/2) clay; moderate; very hard; fine subangular blocky; few fine clay films on ped faces (more frequent than horizon above); snail shells abundant and scattered
2	0-61	Very dark gray (10YR3/1) clay; moderately weak; soft; very fine subangular blocky; no clay films present; abundant roots; horizon boundary clear and smooth
	61-111	Very dark grayish-brown clay; moderately weak; slightly hard; very fine subangular blocky; clay films common-thin on ped faces; many fine rootlets; horizon boundary gradual and smooth
	111-151	Brown clay; moderately weak; slightly hard; very fine subangular blocky; many clay films-moderately thick on ped faces and pore linings; very few fine rootlets; horizon boundary diffuse and smooth
	151-253	Brown (10YR5/3) clay; moderate; slightly hard; very fine subangular blocky; many to continuous clay films-thick on ped faces and pore spaces; beginning of slickensides; calcium carbonate nodules 1 cm in diameter; increase in size and amount with depth; 3% or greater; very few fine rootlets; horizon boundary gradual and smooth
	253-310+	Yellowish-brown (10YR5/4) clay with light yellowish-brown (10YR6/4) clay mottling; moderate; hard; fine to medium subangular blocky; clay films continuous-moderately thick on ped faces and pore linings; slickensides present; calcium carbonated nodules and filaments less than 10%, more filaments than nodules
3	0-74	Dark brown (7.5YR3/2) clay; moderately weak; slightly hard; very fine subangular blocky; no clay films noted; abundant roots; horizon boundary abrupt and smooth
	74-163	Brown slightly loamy clay; moderately weak; slightly hard; fine subangular blocky; very few clay films-thin on ped faces; many fine rootlets; horizon boundary diffuse and smooth
	163-248	Brown/dark yellowish-brown (10YR4/4) clay; moderately weak; slightly hard; fine subangular blocky; very few clay films-thin on ped faces; many fine rootlets; horizon boundary clear and smooth
	248-272	Brown silty clay; moderate; slightly hard; fine to medium prismatic; no clay films noted; very few fine rootlets; horizon boundary clear and smooth
	272-280+	Brown clay; moderately strong; hard; fine angular blocky; few thin clay films on ped faces and some pore linings
4	0-106	Very dark grayish-brown slightly silty clay; weak; slightly hard; fine subangular blocky; no clay films noted; abundant roots; have mixed fine sand and clay lens between 60 and 63 cm; horizon boundary gradual and smooth

	106-150	Brown silty clay; moderate; slightly hard; fine subangular blocky; very few clay films observed on ped faces; few fine rootlets; few small snail shells; horizon boundary clear and smooth
	150-182	Very dark grayish-brown clay; moderately weak; slightly hard; fine subangular blocky; clay films common-thick on ped faces, pore linings and bridges; beginning of slickensides; few fine rootlets; horizon boundary clear and smooth
	182-205	Dark grayish-brown clay; moderate; slightly hard; fine subangular blocky; many clay films-moderately thick on ped faces, pore linings and bridges; beginning of slickensides; snail shells present; *Helicina* orbiculata; horizon boundary gradual and smooth
	205-248	Brown (10YR4/3-5/3) clay; moderate; slightly hard; fine subangular blocky; many clay films-continuous and moderately thick to thick on ped faces, pore linings and bridges; beginning slickensides; horizon boundary clear and smooth
	248-280+	Yellowish-brown clay with strong brown (7.5YR5/8) mottles; very strong; very hard; fine prismatic; abundant calcium carbonate filaments and nodules; snail shell fragments in bottom zone
5	0-28	Dark grayish-brown silty clay; weak; slightly hard; fine subangular blocky; very few thin clay films on ped faces; abundant roots; scattered snail shells present; *Rabdotus dealbatus*; horizon boundary clear and smooth
	28-80	Very dark brown (10YR2/2) silty clay; weak; slightly hard; fine subangular blocky; common clay films on ped faces, pore linings and thin on some bridges; beginning of slickensides; scattered snail shells present; horizon boundary gradual and smooth
	80-128	Brown clay; weak; slightly hard; fine subangular blocky; clay films common-moderately thick on ped faces and pore linings only; few fine rootlets; greatest concentration of scattered snail shells; horizon boundary clear and smooth
	128-163	Brown clay; weak; slightly hard; fine prismatic; clay films continuous on ped faces, pore linings and bridges; slickensides present; minute calcium carbonate filaments and scattered calcium carbonate nodules; horizon boundary clear and smooth
	163-290+	Yellowish-brown clay with strong brown mottles; very strong; very hard; fine prismatic; abundant calcium carbonate filaments and nodules; snail shell fragments in bottom zone

RECOMMENDATIONS

Based on the above information, it is AR Consultants, Inc.'s conclusion that the Hardin and White Avenues and the overflow swale have a low potential of containing cultural resources. In addition there are no prehistoric or historic sites recorded in the area or any historic structures shown on the 1930's soils map for Collin County. We, therefore, recommend that further cultural resource investigations are unwarranted.

If cultural resources are encountered during construction, work should immediately cease in that area and the Archeology Division of the Texas Historical Commission and the Fort Worth District of the US Army Corps of Engineers should be notified if the cultural material is within Wilson Creek's floodplain. Work should not continue until discussions with the proper agency have been concluded.

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