

AN ARCHAEOLOGICAL SURVEY OF A PROPOSED 24" WATER MAIN
ALIGNMENT IN CENTRAL BRAZOS COUNTY, TEXAS

by

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AN ARCHAEOLOGICAL SURVEY OF A PROPOSED 24" WATER MAIN
ALIGNMENT IN CENTRAL BRAZOS COUNTY, TEXAS

Brazos Valley Research Associates

Project Number 00-12

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ABSTRACT

The construction corridor associated with a 17,000 foot water line in central Brazos County, Texas was examined for the presence of significant archaeological sites by Brazos Valley Research Associates (BVRA) in December 2002 and February 2003. The field survey was supervised by William E. Moore who was the Principal Investigator. The majority of the proposed water line (15,100 feet) will be placed along city and county roads in an area already disturbed by various utilities and road construction. This segment is a low probability area for the presence of significant archaeological sites since the soils overlying clay are shallow and the water line route does not cross or pass near any major streams. The remaining 1900 feet of the proposed water line, however, traverses cross-country on private property in a setting not disturbed by city utilities or road construction. This segment is closer to Turkey Creek, a first order stream that flows into the Brazos River. In this area shovel testing and probing was conducted. No archaeological sites were found and it is, therefore, recommended that the City of Bryan be allowed to proceed with construction as planned. Copies of the report are on file at the Texas Historical Commission, Archeology Division; the Texas Archeological Research Laboratory (TARL); the City of Bryan; and BVRA.

ACKNOWLEDGMENTS

The contract for this project was awarded to BVRA by the City of Bryan through the engineering firm CSC Engineering & Environmental Consultants, Inc. William R. Cullen, P.E. and Scott A. Schautschick of CSC are acknowledged for providing logistical support in the form of maps and obtaining landowner permission. The landowner, William E. Nash, is thanked for allowing access to his property. Jay O. Page, P.E., Associate Area Engineer at the Bryan Area Office of the Texas Department of Transportation is thanked for showing me the final plans for a portion of Leonard Road constructed in the 1950s and personal notes regarding other work along this road within the construction corridor. Mark H. Denton of the Archeology Division, Texas Historical Commission, is the reviewer for this project. Art Romine and Bobby Jemison assisted the Principal Investigator in the field. The figures that appear in this report were prepared by Lili Lyddon of LL Technical Services in North Zulch, Texas.

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INTRODUCTION

BVRA was retained by the City of Bryan to conduct a 100% Phase I cultural resources survey of the proposed 24 inch water main alignment in central Brazos County, Texas (Figure 1). The project area is depicted on United States Geological Survey topographical maps Bryan West and Chances Store (Figure 2). The proposed water line is 17,000 feet in length with a permanent easement of 20 feet. A 24 inch pipe will be placed in a 48 inch wide trench with an average depth of 5-6 feet. The proposed water line begins at the pump station in downtown Bryan and runs south along Main Street to Finfeather Road. It then travels south along Leonard Road, turns east onto Chick Lane, runs to the south overland for approximately 1900 feet, and terminates at an existing water line. For the purpose of this report, the project area begins at the Finfeather Road and Leonard Road intersection. When converted to acres, the 17,000 foot project area is 7.8 acres in size. There are two sections of Leonard Road in Bryan. The original section of Leonard Road, the subject of this report, was constructed by the Texas Highway Department in 1953 under the name Farm-to-Market Road 1688 (Texas Highway Department 1950).

In a letter from Mark H. Denton at the Texas Historical Commission, Archeology Division, to William R. Cullen, P.E. of CSC Engineering & Environmental Consultants, Inc. dated January 31, 2001, Mr. Denton states that an archaeological survey is required prior to site development. In order to satisfy this requirement, the City of Bryan, through CSC Engineering & Environmental Consultants, Inc., retained Brazos Valley Research Associates to perform this service. This project will be reviewed at the state level by the Archeology Division of the Texas Historical Commission.

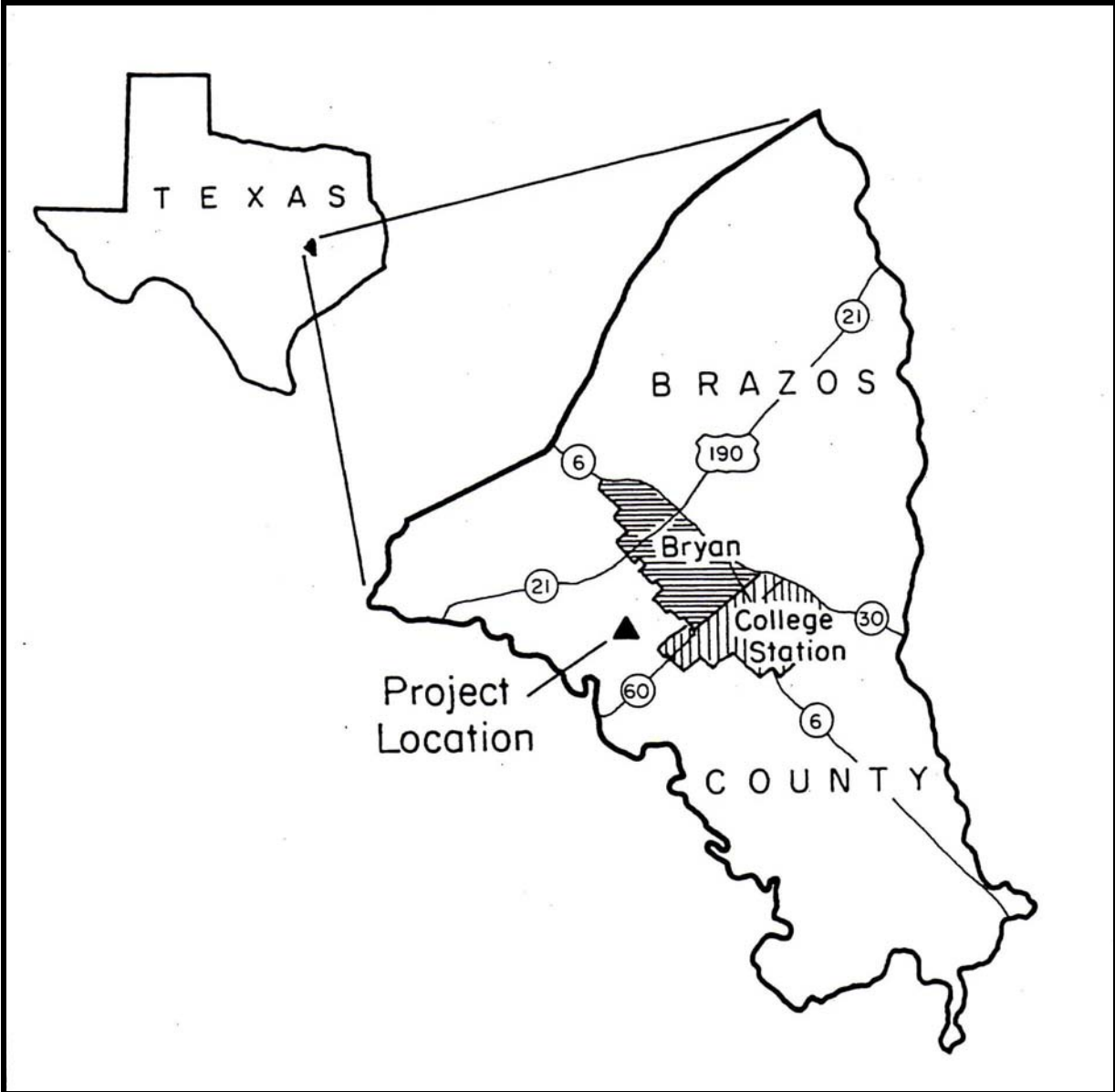


Figure 1. General Location Map

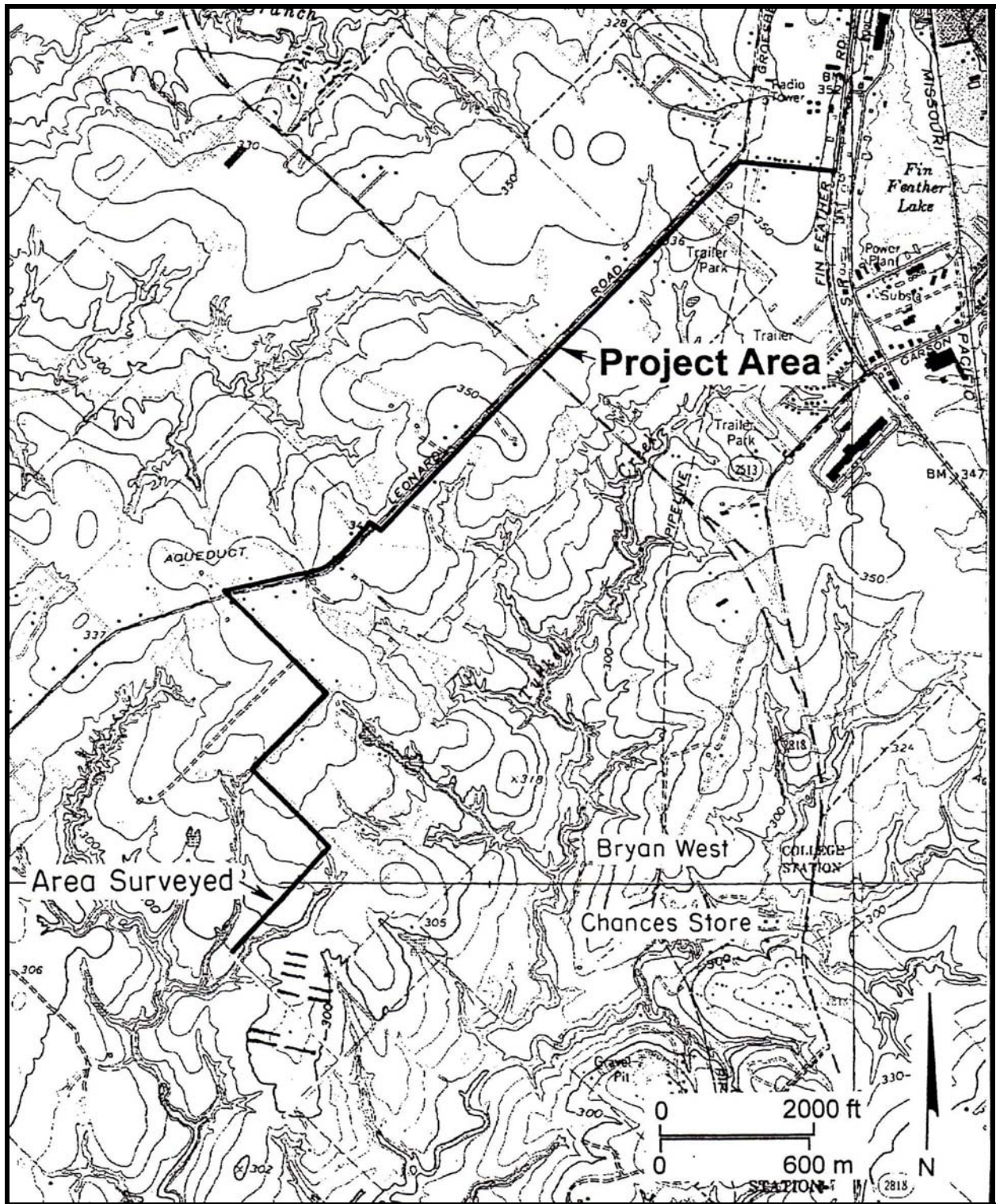


Figure 2. Project Area on Topographic Maps

ENVIRONMENTAL SETTING

The project area is located within the West Gulf Coastal Plain section of the Coastal Plain physiographic province as defined by Fenneman (1938:100-120). This physiographic section is subdivided according to the age of the geological formations (Gulf series) that roughly parallel the Texas coastline. The area is hilly and situated within the East Texas timber belt. Gould (1969) describes it as an area characterized by gently rolling to hilly topography with light colored soils that are acid sandy loams or sands.

The climate is subhumid to humid, and the weather is considered to be predominately warm. Annual rainfall for the county is 39.21 inches. A January minimum temperature of 42 degrees and a July maximum temperature of 95 degrees combine to produce a growing season of 274 days (Kingston and Harris 1983:180). The altitude varies from 200-400 feet.

No current soils book is available for Brazos County. Therefore, the Principal Investigator checked the last published soil survey (Mowery et al. 1958) for soil types in the project area. The 15,100 foot area along city and county roads is located in two major soil types, Tabor fine sandy loam (Ta), 1-3 percent slopes and Lufkin fine sandy loam (Ld), 1-3 percent slopes. These are shallow soils with the underlying clay between 8 and 14 inches. In the area shovel tested, the soil type is predominantly Ta soils (Figure 3). Tabor fine sandy loam is located on stream terraces and is very gently sloping. It is a deep, moderately well drained soil with depth to the water table at more than six feet. This soil, however, is saturated at a depth of 0.5 foot to 1.5 feet for short periods after heavy rains. It does not flood. Runoff is slow, and permeability is very slow. The surface layer (0 to 6 inches) is a pale brown, strongly acid fine sandy loam. The subsurface layer (6 to 14 inches) is a pale brown, strongly acid fine sandy loam. The subsoil, from 14 to 80 inches, consists of various clays.

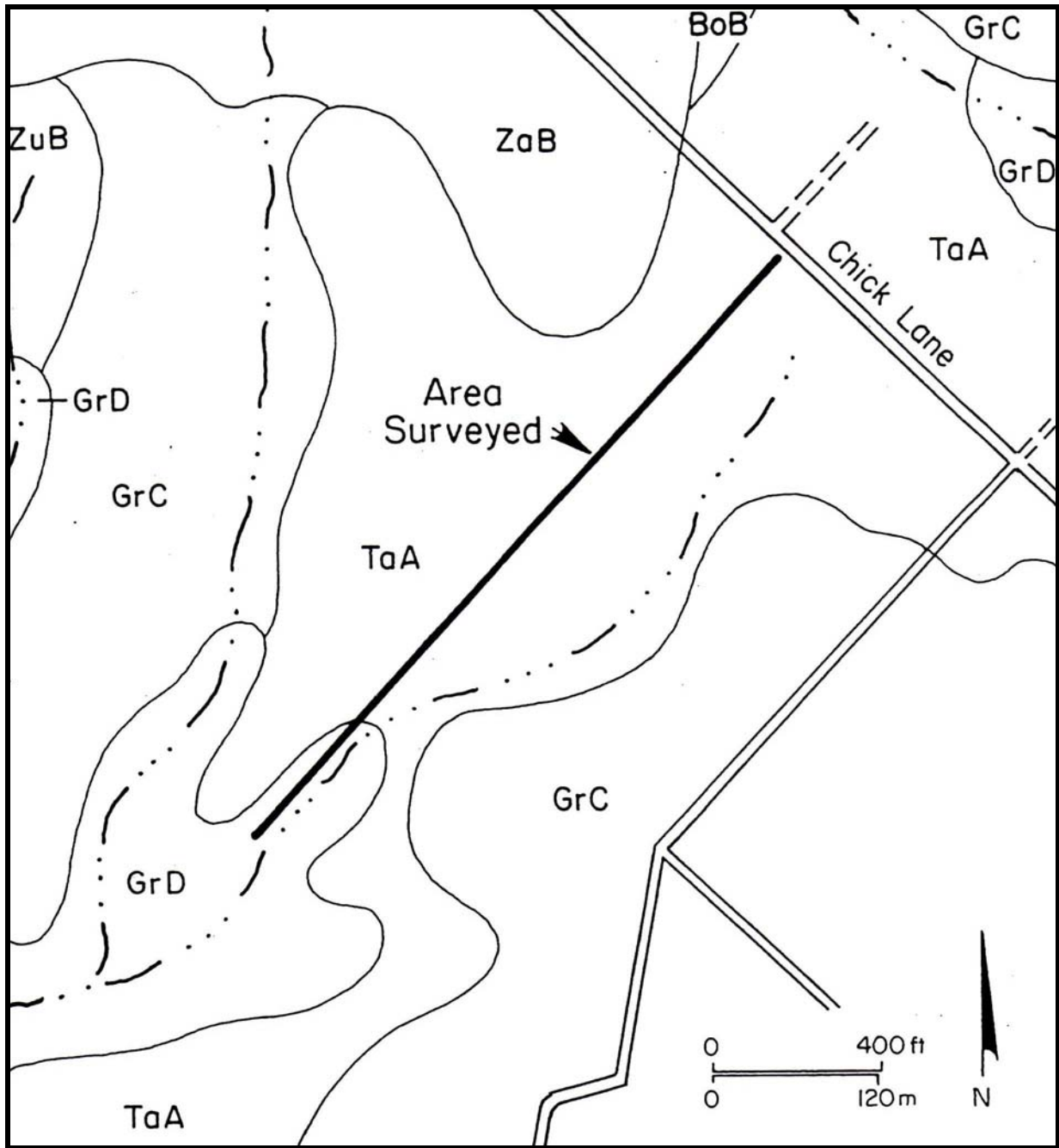


Figure 3. Project Area Soils

ARCHAEOLOGICAL BACKGROUND

According to a recently published planning document for the Eastern Planning Region of Texas (Kenmotsu and Perttula 1993:Figure 1.1.2), Brazos County is situated within the Southeast Texas archeological study region. In 1985, according to a statistical overview prepared by the Texas Historical Commission (Biesaart et al. 1985:114), Brazos County contained 33 recorded sites. In 1985, 0 sites in the county had been excavated, 0 had been tested by hand, and 33 had been surface collected. Two recorded prehistoric sites in the county were listed as Paleoindian, 1 was listed as General Archaic, and 1 was listed as Late Prehistoric (Biesaart et al. 1985:114). The archaeological potential of Brazos County is reflected in part by the increasing number of recorded sites found as a result of cultural resource management studies. The number of recorded sites now stands at 151 (Jean Hughes, personal communication, December 4, 2002).

A check of the records at the Texas Archeological Research Laboratory in Austin, Texas revealed no archeological sites have been recorded within the current project area. It was discovered that sites have been recorded in the region, and several significant archaeological investigations have been performed in Brazos County. Prehistoric sites in this area are typically found on sandy ridges and uplands in close proximity to dependable sources of water such as creeks and rivers. No prehistoric sites in the county have been reported on clay hills or in active floodplains.

It is beyond the scope of this report to discuss in detail the archaeological background of Brazos County, especially when numerous contract reports are available. The interested reader is referred to the statistical overview (Biesaart et al. 1985) and the planning document published by the Texas Historical Commission (Kenmotsu and Perttula 1993) for more detailed information regarding the prehistory of Brazos County.

FIELD METHODS

Prior to entering the field, the Principal Investigator checked with the Texas Archeological Research Laboratory for the presence of previously recorded sites in the project area and vicinity. No sites were found to be within the route of the proposed water line. Prior to visiting the project area with the survey crew, the Principal Investigator drove that portion of the route along Leonard Road and observed the presence of a fiber optic cable and telephone lines as well as an excavated drainage ditch created when the road was constructed in the 1950s. On December 2, 2002, the survey crew conducted shovel testing in the 1900 foot cross-country segment (Figure 4) which is the most undisturbed section in the 17,000 foot project area. The ground surface visibility in this area was very poor; therefore, the entire 1900 foot area was shovel tested. The crew began at the southern end and worked to the northeast. This area is heavily wooded with dense undergrowth. At the beginning of this part of the project area, the route passes closely to a very deeply incised tributary (or gully) of Turkey Creek. Shovel tests were placed at approximate 30 meter intervals where the creek was closest and changed to 45 meter intervals as the route grew more distant from the creek. In all, 10 tests were excavated in the wooded area. Next, the crew drove to the north end and walked through the relatively open pasture and dug five shovel tests. Here, the soil was very wet and difficult to screen. Five tests were excavated in the pasture area.

Shovel tests were dug to clay when possible, and the size of each test was 30 x 50 cm in diameter and varied in depth from 15 to 70 centimeters below the existing ground surface. Some tests were terminated due to saturated soils. All excavated fill was screened through 1/4 inch hardware cloth. Data obtained from shovel testing were recorded on a shovel test log (Appendix I). In all, 15 shovel tests were dug.

Following comments by the reviewer for the Texas Historical Commission it became apparent that the disturbed nature of the 15,100 feet along Leonard Road and Chick Lane needed to be better explained in the report. The Principal Investigator compared the new soil data with that in the 1958 soil survey to see if the soil types had changed based on more recent soil analysis in the field. No significant changes were noted. Also, the Bryan Area Office of the Texas Department of Transportation was visited to collect information regarding the construction of Leonard Road and associated utility lines in the immediate area. The City of Bryan Planning and Zoning Department was also contacted for information regarding the construction of Chick Lane at the southern end of the project area. The report was revised to reflect this additional work.

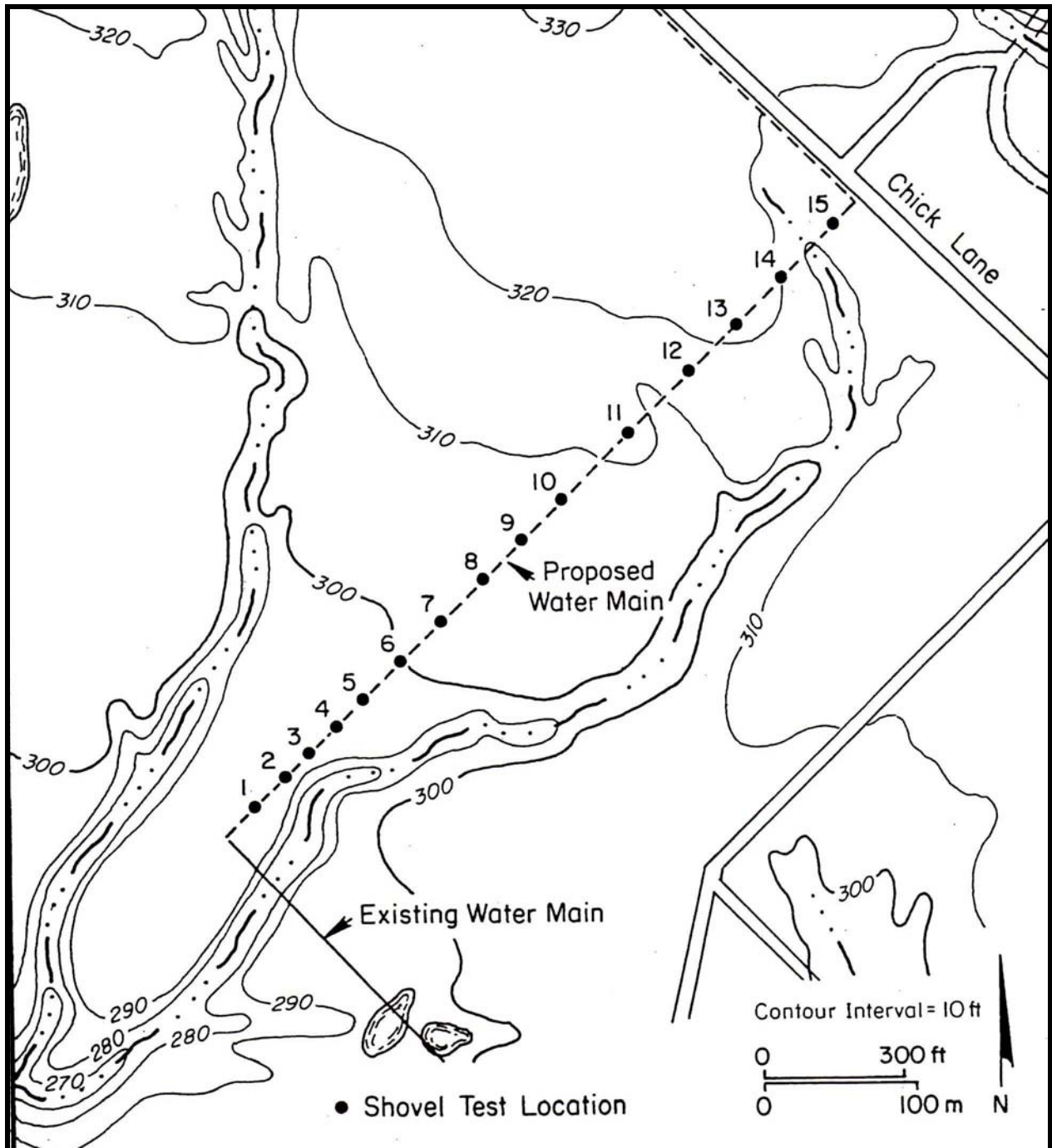


Figure 4. Segment of Project Area Shovel Tested

RESULTS AND CONCLUSIONS

Examination of the files at the Texas Archeological Research Laboratory in Austin, Texas revealed no sites have been recorded in the project area. There was also no indication that any part of the project area had been surveyed by professional archaeologists. No archaeological sites were found in the project area as a result of this survey. A review of the soil survey for Brazos County revealed that the soils in this area are shallow with clay at or near the surface. Along most of the project area construction corridor clay is present between 8 and 14 inches from the ground surface.

The visit to the Bryan Area Office of the Texas Department of Transportation office in Bryan produced useful data. According to the final plans for the construction of Leonard Road, the drainage ditches associated with road construction averaged 1.5 feet in depth, and 9000 cubic yards of dirt was removed (Texas Highway Department 1950). According to Jay O. Page (personal communication to William E. Moore on February 18, 2003), the Leonard Road Water Transmission Improvements project from Farm-to-Market Road 2818 to the beginning of Leonard Road was installed in 1989. This project greatly disturbed the construction corridor related to this survey with the installation of a 20 inch water line in a ditch with a minimum depth of 6 feet and a minimum width of 6 feet. In addition, a trailer park and several residences now occupy the landscape along this route. They are served by local utilities that have also contributed to the overall disturbance of this section of Leonard Road. It can be stated that north of Farm-to-Market Road 2818, the area is completely urban with residences and a trailer park. Some of the current development is not depicted on the outdated topographic maps that were used for this project. Both the Bryan West and Chances Store quadrangles were photorevised in 1980 over 20 years ago.

Along Chick Lane, the ditches are regularly scraped and reshaped, a process that occurs every 3-4 years. At the same time excess dirt is removed from the ditches and moved to other locations in the city. According to Paul Kasper (personal communication to William E. Moore on February 20, 2003), Assistant City Engineer, 1-2 feet of dirt was removed in the initial construction of the ditches.

It is the opinion of Brazos Valley Research Associates that there are no significant archaeological sites within the route of the water line. The 15,100 foot area that was not shovel tested is viewed as a low probability area for significant archaeological sites for two reasons. First, the construction corridor generally follows an upland ridge containing poorly developed soils with clay at or near the surface. Second, the main channel of Turkey Creek, the nearest major stream, is approximately 1800 meters to the south. Based on discussions with soil scientists at the local Natural Resource Conservation Service (NRCS), the drainage pattern shown on the topographic maps near the project area along Leonard Road consists of the upper reaches of tributaries of Turkey Creek, many of which are gullies created by erosion and not actual stream channels.

Disturbance to the project area along Leonard Road and Chick Lane has removed all of the topsoil that would contain cultural materials if archaeological sites were present. In addition, surface drainage in these areas is controlled by drainage ditches located adjacent to Leonard Road and Chick Lane. The location of these drainage ditches coincides with the proposed water main alignment.

RECOMMENDATIONS

It is recommended that construction be allowed to proceed as planned. It is always possible that archaeological sites are missed during any cultural resources survey. Should areas containing prehistoric or historic artifacts not discussed in this report be discovered during construction, the Archeology Division, Texas Historical Commission, must be notified immediately and all work stopped in the area of concern until the situation can be evaluated.

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APPENDIX I: SHOVEL TEST LOG

Test	Depth	Comments
01	40 cm	fine sandy loam overlying brownish-gray clay at 40 cm
02	35 cm	fine sandy loam overlying brownish clay at 35 cm
03	30 cm	fine sandy loam overlying brownish clay at 30 cm
04	50 cm	fine sandy loam overlying brownish clay at 50 cm
05	70 cm	fine sandy loam overlying brownish clay at 70 cm
06	15 cm	fine sandy loam overlying brownish clay at 15 cm
07	25 cm	fine sandy loam overlying brownish clay at 25 cm
08	20 cm	fine sandy loam overlying brownish clay at 20 cm
09	25 cm	fine sandy loam overlying brownish clay at 25 cm
10	25 cm	fine sandy loam overlying brownish clay at 25 cm
11	50 cm	fine sandy loam with gravels; dug to water table at 50 cm
12	40 cm	fine sandy loam with gravels; dug to water table at 40 cm
13	35 cm	fine sandy loam with gravels; dug to red clay at 35 cm
14	35 cm	fine sandy loam with some gravels; dug to red clay at 35 cm
15	35 cm	fine sandy loam with some gravels; dug to red clay at 35 cm
