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## Cultural Resources Survey For The Legacy Force Main North

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## Cultural Resources Survey For The Legacy Force Main North

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# CULTURAL RESOURCES SURVEY FOR THE LEGACY FORCE MAIN NORTH

Denton County, Texas

Final Report  
January 2019

Texas Historical Commission  
TAC Permit # 8564

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aci Project No.: 05-18-063

## **Abstract**

On October 22, 2018, aci consulting conducted a cultural resources survey for the Legacy Force Main North, in Denton County, Texas. The Area of Potential Effect (APE) for this project consists of the 50-foot corridor for the proposed force main, incorporating two proposed alignments, totaling 1.63-miles (2.62-kilometers), and a total area of 11.39 acres (4.61 hectares) (Figures 1 and 2).

This work was conducted in compliance with the Texas Administrative Code (13 TAC 26.20[2]) under Texas Antiquities Code permit number 8564, as well as Section 106 of the National Historic Preservation Act of 1966, as amended. The survey did not result in the location of any new archeological sites, historic structures, or additional historic properties. Based on these results, no further archeological work is recommended. Records from this investigation will be curated at the Texas Archeological Research Laboratory (TARL). Julie Shipp served as Principal Investigator.

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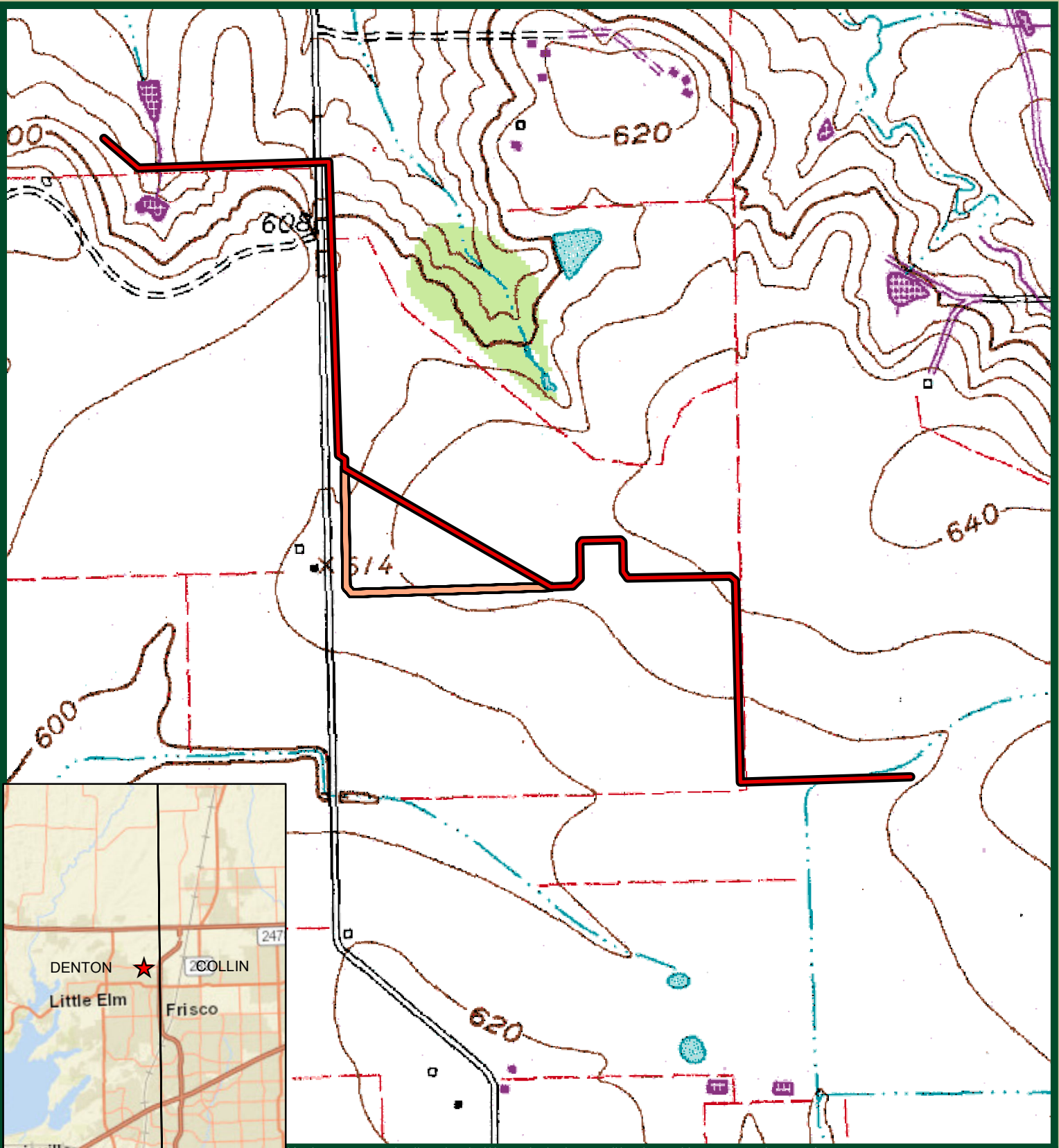
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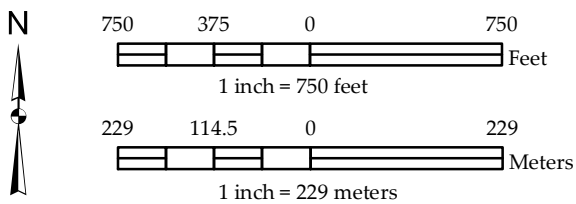
## 1.0 INTRODUCTION

On October 22, 2018, aci consulting conducted a cultural resources survey for the Legacy Force Main North, in Denton County, Texas. The Area of Potential Effect (APE) for this project consists of the 50-foot corridor for the proposed force main, incorporating two proposed alignments, totaling 1.63-miles (2.62-kilometers), and a total area of 11.39 acres (4.61 hectares) (Figures 1 and 2).

This work was conducted in compliance with the Texas Administrative Code (13 TAC 26.20[2]) under Texas Antiquities Code permit number 8564, as well as Section 106 of the National Historic Preservation Act of 1966, as amended. The investigation consisted of an intensive pedestrian survey, shovel testing, site recording, assessment of sites for listing on the National Register of Historic Places (NRHP) or for designation as a State Antiquities Landmark (SAL), data analysis, and reporting in accordance with THC and Council of Texas Archaeologists (CTA) standards.



This map is intended for planning purposes only. All map data should be considered preliminary. All boundaries and designations are subject to confirmation.



-  Proposed Force Main
-  Proposed Alternative

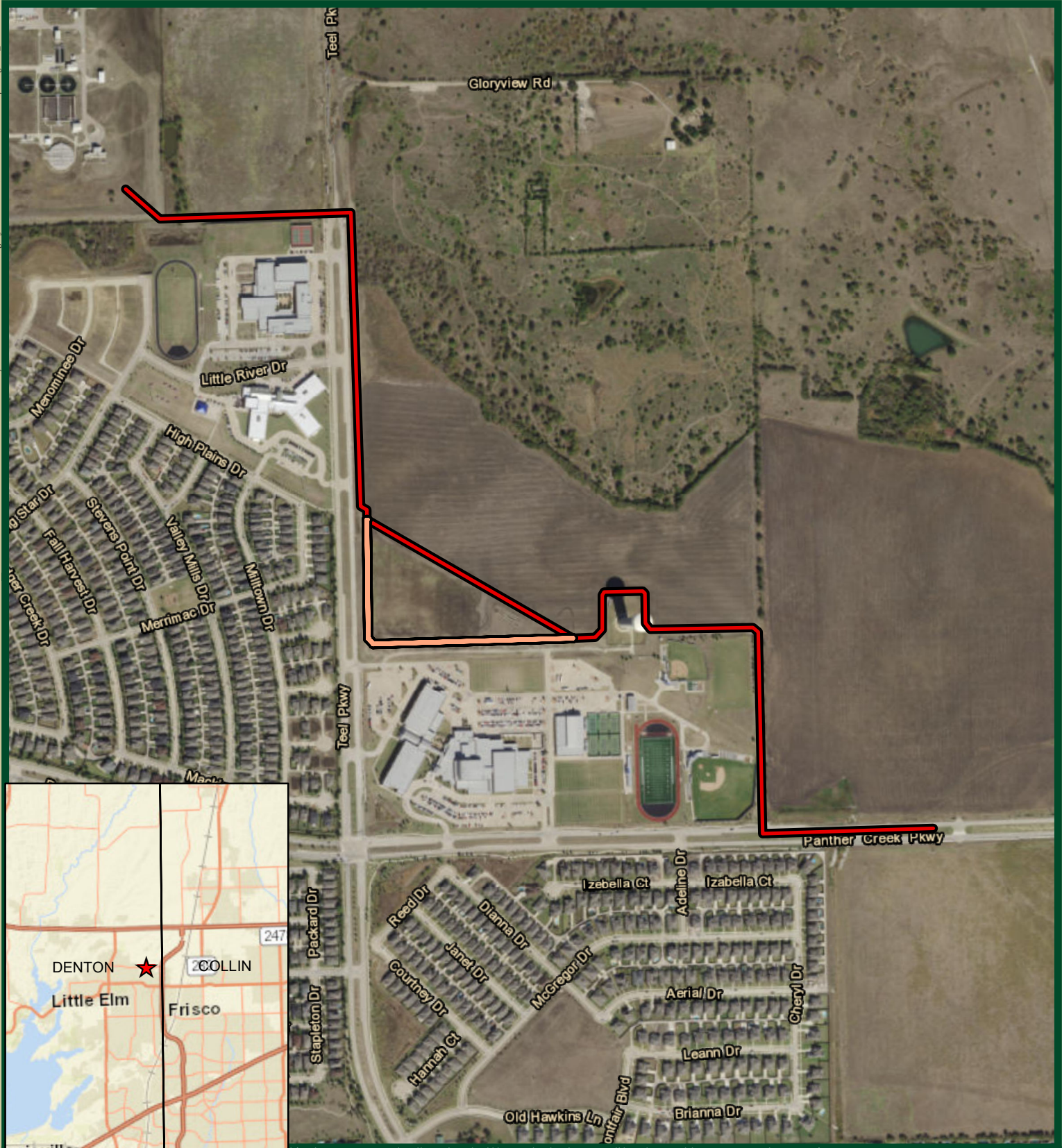


### Legacy Force Main North

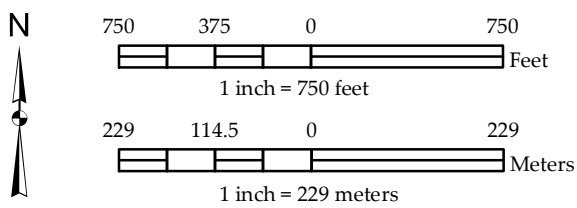
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Figure 1. APE on 7.5-Minute Topographic Map Background: Frisco

January 2019



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-  Proposed Force Main
-  Proposed Alternative





## 2.0 ENVIRONMENTAL SETTING

### 2.1 Physiography

The APE is located in north central Texas within the Blackland Prairie (Wermund 1995). The Blackland Prairie supports prairie vegetation along with small woods often found along low-gradient streams. The elevation of the APE ranges from 580 feet above mean sea level (MSL) near the northern terminus to 620 feet above MSL towards the southern terminus.

### 2.2 Geology and Soils

The Bureau of Economic Geology classified the general surface geology of the APE as the Eagle Ford Formation (Kef). The Late Cretaceous formation is described as shale, siltstone, and limestone (BEG 1992).

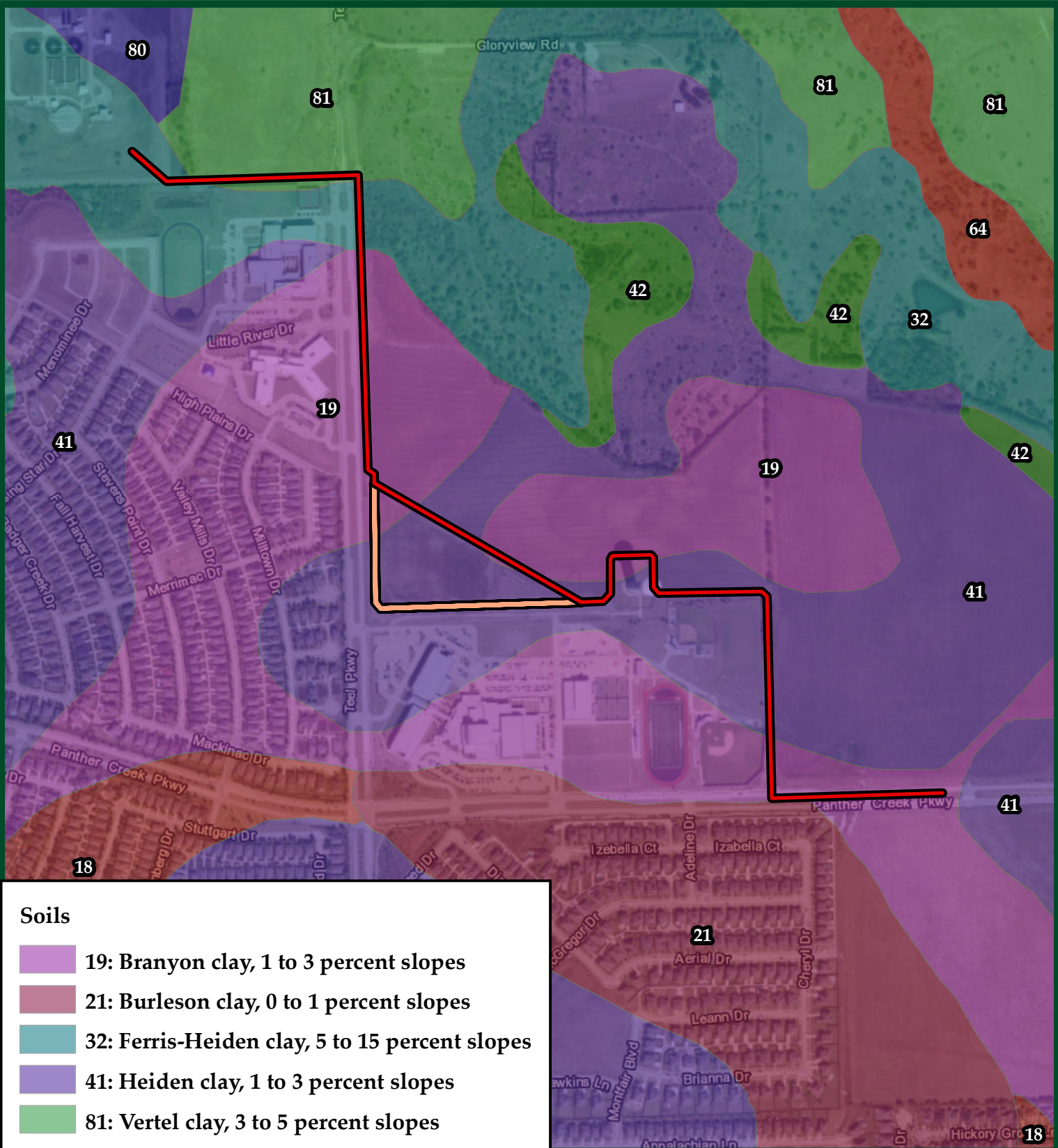
Five soil series are mapped within the APE (Figure 3). The soils are mapped as Branyon clay, Burleson clay, Heiden clay, Ferris-Heiden clay, and Vertel clay (NRCS 2018). All soil series have been previously determined to have a low probability to contain archeological sites according to the Potential Archeological Liability Maps (PALM) model created by TxDOT ENV for highway projects in the Dallas District (Abbott).

- *Branyon clay, 1 to 3 percent slopes (19)* - The Branyon series consists of very deep, moderately well drained, very slowly permeable soils that formed in calcareous clayey alluvium derived from mudstone of Pleistocene age. These nearly level to very gently sloping soils occur on treads of stream terraces on river valleys.
- *Burleson clay, 0 to 1 percent slopes (21)* - The Burleson series consists of very deep to clayey alluvium, moderately well drained soils that formed in calcareous clayey alluvium of Pleistocene age derived from mixed sources. These nearly level to gently sloping soils are on treads of Pleistocene stream terraces.
- *Heiden clay, 1 to 3 percent slopes (41)* - The Heiden series consists of deep and very deep to mudstone, well drained, very slowly permeable soils that formed in clayey residuum weathered from mudstone. These nearly

level to moderately steep soils occur on footslopes of base slopes, shoulders of interfluves, and backslopes of side slopes of ridges on dissected plains.

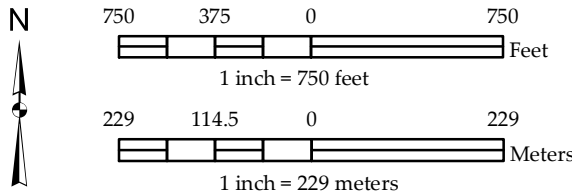
- *Ferris-Heiden clay, 5 to 15 percent slopes (32)* - The Ferris series consists of deep to very deep mudstone, well drained, very slowly permeable soils that formed in clayey residuum weathered from calcareous mudstone. These gently sloping to moderately steep soils occur on backslopes of side slopes of ridges on dissected plains.
- *Vertel clay, 3 to 5 percent slopes (81)* - The Vertel series consists of moderately deep, well drained, very slowly permeable soils. These gently sloping to strongly sloping soils are on uplands. They formed in shaly soil materials.

According to the Dallas District Hybrid Potential Archeological Liability Map (HPALM), the majority of the APE has low potential for cultural resources (Figure 4) (Abbott and Pletka 2014).



**Soils**

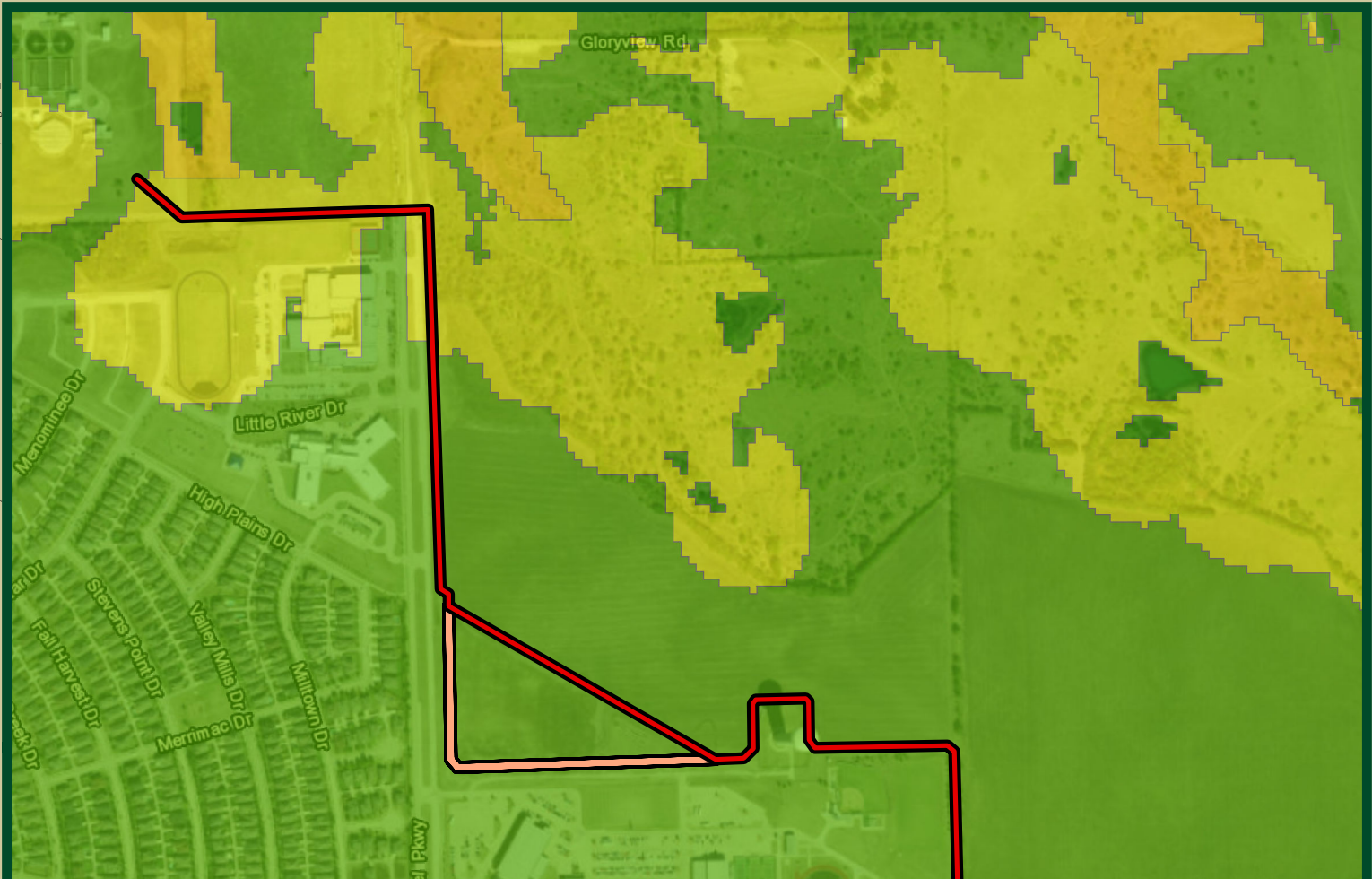
- 19: Branyon clay, 1 to 3 percent slopes
- 21: Burleson clay, 0 to 1 percent slopes
- 32: Ferris-Heiden clay, 5 to 15 percent slopes
- 41: Heiden clay, 1 to 3 percent slopes
- 81: Vertel clay, 3 to 5 percent slopes



Proposed Force Main

Proposed Alternative

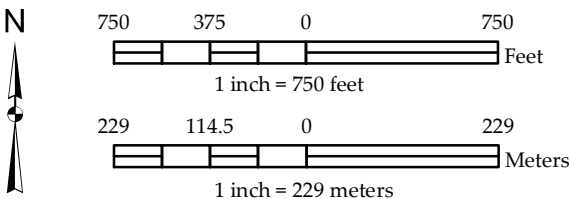




### HPALM Legend

- 0 = Negligible Potential
- 1 = Low Potential
- 2 = Low Shallow Potential, Moderate Potential at depth (>1m)
- 3 = Low Shallow Potential, High Potential at Depth
- 4 = Moderate Shallow Potential, Low Potential at Depth
- 5 = Moderate Potential
- 6 = Moderate Shallow Potential, High Potential at Depth
- 7 = High Shallow Potential, Low Potential at depth (>1m)
- 8 = High Shallow Potential, Moderate Potential at Depth
- 9 = High Potential

*This map is intended for planning purposes only. All map data should be considered preliminary. All boundaries and designations are subject to confirmation.*



- Proposed Force Main
- Proposed Alternative



### 3.0 PREVIOUS INVESTIGATIONS

A literature review of the THC Archeological Sites Database (the Atlas) revealed that no previously recorded sites are within the APE and only a small portion of the alignment had been previously surveyed. Two previously recorded sites and one cemetery are located within one kilometer of the APE (Figure 5). Furthermore, three previously conducted investigations are within 1 kilometer of the APE.

One survey is located adjacent to the northern terminus of the APE which was conducted in 2002 by GeoMarine, Inc. for the Northeast Texas Municipal Water District for the water treatment plant. As a result of the survey, two sites were recorded (41DN519 and 41DN520), both of which have been found ineligible for listing on the NRHP. 41DN519 is a historic site including a foundation, windmill, well, and a scatter of domestic artifacts. 41DN520 is a low-density historic scatter, most likely related to historic structures no longer present.

Two linear surveys are within one kilometer of the APE. One was conducted in 2007 by Halff Associates for the City of Frisco for a sewer interceptor. The other survey was conducted in 2014 by AR Consultants, Inc. for the City of Frisco water lines.

The Zion Cemetery is located 0.45 mile (0.72 kilometer) east of the APE. This cemetery would not be affected by the proposed project.

## 4.0 METHODS

### 4.1 Survey Method

An intensive pedestrian survey of the APE was conducted to locate any archeological sites or other historical properties that may be within the APE. The pedestrian survey was conducted along the entire 1.63-mile (2.62-kilometer) proposed alignment (see Figures 1 and 2). The majority of the APE lies within low probability areas.

Shovel tests were excavated in settings that had potential for buried cultural horizons and/or if the ground surface visibility is less than 30 percent. The tests were excavated at least 30 centimeters (cm) in diameter to the bottom of Holocene deposits, if possible. The shovel tests were dug in 10 cm levels, and the excavated sediments were screened through ¼-inch hardware cloth. Shovel tests were recorded on logs and the locations of the tests were recorded on a GIS unit. Other field forms include a daily journal, photograph log, and site forms.

## 5.0 RESULTS OF INVESTIGATION

The survey was conducted under pleasant cool conditions in the morning under a clear sky, with a slight breeze. Heavy rains had occurred for several days prior to the survey, and soils were completely saturated in certain areas. No issues arose during the survey of the originally proposed APE; therefore, the proposed alternate route was not surveyed.

The APE alternates from east-west and north-south through crop and ranch land and follows an existing power line corridor for the majority of the survey. Survey of the APE began on the north side of Panther Creek Parkway and headed west for 1,080 feet (330 meters) towards Lone Star High School. The APE crossed over a concrete and cobble culvert (Figure 7), and utility access points (Figure 8).

The APE turned north, entering a 10- to 15-foot (3- to 5-meter) wide area with heavily overgrown vegetation, and was bordered to the east by a barb wire fence and plowed field, and to the west by a 7-foot chain link fence that encompassed the Lone Star High School baseball fields. The APE stayed within the overgrown area for 1,089 feet (332 meters). Ground visibility was less than 30 percent due to the dense overgrowth (Figure 9).

From the overgrown area, the APE turned west towards Teel Parkway, bordered on the south by the chain link fence, and the north by plowed agricultural land (Figure 10). The APE went around the eastern, northern, and western boundary of the iron gate that enclosed a water storage tower, then shifted northwest for 1,348 feet (411 meters) towards Teel Parkway. At Teel Parkway, the APE headed north along the east side of the parkway. The APE continued north for approximately 1,668 feet (508 meters) passing by both Billy Gene Phillips Elementary School, and Sue Wilson Stafford Middle School (Figure 11). Approximately 197 feet (60 meters) north of the middle school, the APE headed west, crossed over Teel Parkway, and continued west along a manicured lawn maintained by the middle school. The APE ended on a small rise at the eastern perimeter of the Panther Creek Waste Water Treatment Plant, approximately 592 feet (181 meters) northeast of Sue Wilson Stafford Middle School (Figure 12).

Ground visibility for the APE was generally good, averaging over 30 percent. The exception was the overgrown area where visibility was less than 30 percent and was bordered by the fence associated with Lone Star High School, and agricultural field. Two shovel tests spaced approximately 20 meters apart were conducted within the overgrown area. Each shovel test reached a depth of approximately 20 centimeters below the surface. Soils for each shovel test consisted of heavily disturbed gray and dark gray clay loam mottled with black or gray inclusions.



**Figure 6. Overview of beginning of APE survey, facing west**



**Figure 7. Overview of APE with concrete culvert, facing east**





**Figure 8. Overview of APE with city utility access points, facing east**



**Figure 9. Overview of APE taken within overgrown area, facing south**



**Figure 10. Overview of APE with water tower, facing west**



**Figure 11. Overview of APE at Teel Parkway, facing north**



**Figure 12. Overview of end of APE at Panther Creek Waste Water Treatment Plant, facing northwest**

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

On October 22, 2018, aci consulting conducted a cultural resources survey for the Legacy Force Main North, in Denton County, Texas. The Area of Potential Effect (APE) for this project consists of the 50-foot corridor for the proposed force main, incorporating two proposed alignments, totaling 1.63-miles (2.62-kilometers), and a total area of 11.39 acres (4.61 hectares) (Figures 1 and 2).

The investigation consisted of a pedestrian survey augmented by shovel testing (n=2), and did not result in the location of new or previously recorded archeological sites, nor any other historic properties. Based on these results, no further archeological work is recommended. It must be noted that no level of survey intensity can be guaranteed to locate all cultural features within a project area. Therefore, should previously-unrecorded cultural resources, including human remains, be discovered during the course of construction for this project, Denton County or the city of Frisco will contact a qualified professional archeologist to assess the findings.

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