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## Intensive Archeological Survey Of Little Elm Trunk Sewer City Of Temple, Bell County, Texas

Caitlin Gulihur

Ann M. Scott

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## Intensive Archeological Survey Of Little Elm Trunk Sewer City Of Temple, Bell County, Texas

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# Cultural Resources Survey

## INTENSIVE ARCHEOLOGICAL SURVEY OF LITTLE ELM TRUNK SEWER CITY OF TEMPLE, BELL COUNTY, TEXAS

November 2, 2017

**Final Report – Public Copy**

Terracon Project No. 96177347

Antiquities Permit No. 8082

Ann M. Scott, PhD, RPA, Principal Investigator



**Prepared for:**

Kasberg Patrick and Associates LP  
Temple, Texas

**Prepared by:**

Caitlin Gulihur, MA, RPA and Ann M. Scott, PhD, RPA  
Terracon Consultants, Inc.  
Austin, Texas

[terracon.com](http://terracon.com)

**Terracon**

Environmental



Facilities



Geotechnical



Materials

## **ABSTRACT**

The City of Temple has proposed the Little Elm Trunk Sewer project where an approximate 7,600-linear-foot wastewater line will be constructed in northern Temple, Bell County, Texas. The project engineer, Kasberg Patrick and Associates LP, retained Terracon Consultants, Inc. to conduct a systematic, intensive pedestrian survey of the approximate 12.21-acre project area. Because the City of Temple, a political subdivision of the State of Texas, sponsored the project, the proposed undertaking is subject to compliance with the Antiquities Code of Texas and oversight from the Texas Historical Commission. In addition, the project is also receiving funding from the Special Appropriations Act Projects Grants, administered by the United States Environmental Protection Agency. Thus, the action also falls under the purview of Section 106 of the National Historic Preservation Act of 1966. The cultural resources survey was carried out in advance of ground disturbance under Texas Antiquities Permit Number 8082, issued to Ann M. Scott, PhD, RPA, Principal Investigator. Fieldwork was carried out by Project Archeologist Caitlin Gulihur, MA, and Archeological Technician Juan Morlock under the supervision of Ann M. Scott. Records from the project will be curated at the Center for Archaeological Studies at Texas State University.

The 7,600-linear-foot alignment, with a 70-foot wide construction corridor (12.21 acres), was considered the Area of Potential Effect (APE). Survey of the APE consisted of systematic pedestrian coverage, including discretionary shovel tests. The work was carried out on July 21 and 24, 2017. Several hundred linear feet of the alignment had good ground surface visibility and several hundred more were disturbed from previous construction of roads and railroads. Thirteen shovel tests were excavated in areas that had less than 30 percent ground visibility or placed in areas that appeared to be undisturbed. No artifacts were discovered during the excavation of the shovel tests. A few isolated features were observed on the ground surface. No sites were recorded or revisited as a result of the survey. Therefore, there are no historic properties present within the project area. It is Terracon's recommendation that there are no historic properties eligible for State Antiquities Landmark designation or National Register for Historic Places inclusion that will be affected by future construction of proposed wastewater line. In the unlikely event that human remains are discovered during construction, activities should cease in the vicinity of the remains and Terracon, the Texas Historical Commission's Archeology Division, or other proper authorities should be contacted.



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# **INTENSIVE ARCHEOLOGICAL SURVEY OF LITTLE ELM TRUNK SEWER, CITY OF TEMPLE, BELL COUNTY, TEXAS**

Terracon Project No. 96177347

Antiquities Permit No. 8082

November 2, 2017

## **1.0 INTRODUCTION AND MANAGEMENT SUMMARY**

This report presents the findings from an intensive pedestrian survey of approximately 7,600 linear feet where the City of Temple had proposed constructing a wastewater line in northern Temple, Bell County, Texas (Appendix A, Exhibits 1 and 2). The 12.21-acre survey was performed on behalf of the City of Temple, a political subdivision of the State of Texas. Therefore, the project is under the purview of the Texas Historical Commission (THC) in compliance with the Antiquities Code of Texas. In addition, the survey meets the standards for compliance under Section 106 of the National Historic Preservation Act of 1966, as amended, as the project is receiving funding from the Special Appropriations Act Projects Grants, administered by the United States Environmental Protection Agency. The work described herein was performed under Texas Antiquities Permit Number 8082, issued to Ann M. Scott, PhD, RPA Principal Investigator, and in adherence to Title 13, Chapter 26 of the Texas Administrative Code. The work was carried out on July 21 and 24, 2017 by Project Archeologist Caitlin Gulihur, MA, and Archeological Technician Juan Morlock under the supervision of Ann M. Scott.

Abiding by standards set forth by the Council of Texas Archaeologists (CTA) for short reports, this negative findings report includes introduction and management summary, defining the area of potential effects, methods, results, and recommendations. The report was authored by Caitlin Gulihur, Project Archeologist, and Ann M. Scott, Principal Investigator.

## **2.0 DEFINING THE AREA OF POTENTIAL EFFECTS**

The project area, which is the same as the area of potential effect (APE), is an approximate 7,600-linear-foot alignment with a width of 70 feet. The total area of the APE is approximately 12.21 acres. The project area is located east of Old Highway 84 in northern Temple, Texas (See Appendix A, Exhibits 1 and 2). The proposed project consists of the installation of a wastewater line from just west of Old Highway 84 to an existing lift station near Lucius McCelvey Drive. The 70-foot-wide alignment includes the construction corridor and the new right-of-way (ROW) and easements that will be needed for the project.

### **3.0 RESEARCH AND SURVEY METHODS**

The methods described below were employed to identify and characterize cultural resources present within the APE to the extent practicable. Desktop review focused on identifying previously known cultural materials and understanding the site setting, and fieldwork was used to both search for unknown cultural resources and gather more information based on the desktop review.

#### **3.1 Desktop Review**

Prior to fieldwork, and as part of the Antiquities Code of Texas permit application, background research and a literature search was conducted. This effort included a desktop review of mapped geology and soils, a search for previously recorded sites and investigations, a review of historic designations such as Registered Texas Historic Landmarks (RTHLs), State Antiquities Landmarks (SALs), National Register of Historic Places (NRHP), and historical markers, and an examination of historic maps and aerials for evidence that the APE may have exhibited buildings or other features that may be considered historic (at least 50 years old).

#### **3.2 Intensive Pedestrian Survey**

In order to examine the 7,600-linear-foot APE for previously unknown cultural resources, an intensive pedestrian survey was conducted. The ground surface in the APE was systematically inspected by archeologists walking parallel transects spaced not more than 15 meters (49 feet) apart, for 100 percent coverage. The survey was augmented by shovel testing and thirteen shovel tests were excavated within the APE.

As a general method, shovel tests are excavated to varying depths that target Holocene-aged soils. Sediment was excavated in arbitrary 20-cm levels to depth and passed through ¼-inch hardware mesh. Characteristics and contents of shovel tests are recorded with photographs, field forms and notes, and a hand-held global positioning system (GPS) unit. Upon completion of excavation and documentation, the unit holes and artifacts, if present, are backfilled. Cultural materials encountered through the course of shovel test excavations are described and returned to their approximate origin. Archeological sites, if encountered, would be recorded with the Texas Archeological Research Laboratory and be assessed for eligibility for inclusion in the NRHP or designation as a SAL as appropriate. This survey has a “no-collection” policy; therefore, diagnostic artifacts (if encountered) would be documented in the field and not collected. Records will be temporarily housed in Terracon’s office in Austin and will be permanently curated by the Center for Archaeological Studies (CAS) at Texas State University upon completion of the project.

#### **3.3 National Register of Historic Places and State Antiquities Landmark Criteria**

For a historic resource to be deemed eligible for inclusion in the National Register of Historic Places (NRHP), the resource must be at least 50 years old and must possess significance and integrity. The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity

of location design, setting, materials, workmanship, feeling, and association and:

- a. That are associated with the events that have made a significant contribution to the broad patterns of our history; or
- b. That are associated with the lives of persons significant in our past; or
- c. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- d. That have yielded, or may likely to yield, information important in our prehistory or history (36 CFR 60.4).

Additionally, the State of Texas affords important cultural resources a level of protection beyond that of NRHP status if the resource meets the criteria for listing as a SAL. SAL criteria are divided into four categories based on the type of resource: archaeological site, shipwreck, cache and collection, and historic structure. The criteria for archaeological sites are:

- 1) The site has the potential to contribute to a better understanding of the prehistory and/or history of Texas by the addition of new and important information;
- 2) The site's archeological deposits and the artifacts within the site are preserved and intact, thereby supporting the research potential or preservation interest of the site;
- 3) The site possesses unique or rare attributes concerning Texas prehistory and/or history;
- 4) The study of the site offers the opportunity to test theories and methods of preservation, thereby contributing to new scientific knowledge; and
- 5) There is a high likelihood that vandalism and relic collecting has occurred or could occur, and official landmark designation is needed to ensure maximum legal protection, or alternatively, further investigations are needed to mitigate the effects of vandalism and relic collecting when the site cannot be protected (Title 13, Rule 26.10).

## **4.0 RESULTS**

### **4.1 Desktop Review**

Results of the Desktop Review are detailed below.

#### **4.1.1 Mapped Geology and Soils**

The bedrock geology of the project area is identified as Austin Chalk (Phanerozoic | Mesozoic | Cretaceous-Late periods) (Kau) consisting of chalk, marlstone, and claystone (Barnes 1992). Five soils are mapped within the APE (Appendix A, Exhibit 3) (Huckabee et al. 1977; USDA NRCS 2017). Frio silty clay, 0 to 1 percent slopes (Fs) is a deep (80 inches to bedrock), well-drained soil located on floodplains. Houston Black clay, 1 to 3 percent slopes (HoB) is a deep (104 inches to bedrock), well-drained soil located on ridges. Austin silty clay, 2 to 5 percent slopes (AsC) is a moderately deep (57 inches to bedrock), well-drained soil located on ridges. McLennan clay loam,

8 to 15 percent slopes (AIE2) is a deep (80 inches to bedrock), well-drained soil located on ridges. Stephen silty clay, 1 to 4 percent slopes (StB), is a shallow (28 inches to bedrock), well-drained soil located on ridges.

#### **4.1.2 Previous Investigations, Recorded Sites, and Designations**

Review of the Texas Archeological Sites Atlas (Atlas) and THC geospatial data using a 0.5-mile search buffer shows that only a small portion of the proposed project area has likely been previously surveyed. No archeological sites or other cultural resources have been recorded in the project APE. No previously recorded archeological sites are located within the 0.5-mile buffer.

No previously designated RTHLs, SALs, or NRHP listed or District properties are present within the 0.5-mile search area.

The current survey is for the proposed northwest Little Elm Trunk Sewer Line. The proposed northeast Little Elm Trunk Sewer Line was surveyed as part of a larger project in 2015 (Yelacic 2015). The survey employed intensive pedestrian survey, augmented by shovel testing and backhoe trenching. No cultural materials were observed during the 2015 survey in the vicinity of the proposed northeast Little Elm Trunk Sewer Line.

#### **4.1.3 Historic Imagery and Maps**

Historic-period topographic maps dating back over 100 years cover the project area. Several years were examined including 1890, 1918, 1965, 1978, 1993, and 2013. No historic structures were observed within the APE. Historic aeriels were also reviewed, the earliest of which was dated 1943. Others were dated 1952, 1964, 1976, 1985, 1996, 2004, and 2014. No historic structures were observed within the APE.

### **4.2 Intensive Pedestrian Survey**

The intensive pedestrian survey of the APE resulted in thorough coverage of the alignment and the excavation of thirteen shovel tests (Appendix A, Exhibit 4a, 4b, 4c, and 4d). The project APE is located from north of Lucius McCelvey Drive to west of Old Highway 84, and crossed several agricultural fields. The APE was covered in short to moderately tall local grasses, with woodland vegetation in areas; overall ground surface visibility varied widely. In the eastern end of the project alignment, through a wooded area, the ground surface visibility was generally good (Appendix B, Photo 1). The alignment was heavily disturbed where it paralleled Pegasus Drive (Appendix B, Photo 2). The central portion of the alignment crossed several former agricultural fields with moderately tall local grasses and generally poor ground surface visibility (Appendix B, Photo 3). Areas of the alignment which are currently being used for grazing livestock were covered in short local grasses and generally had poor ground surface visibility (Appendix B, Photo 4). The alignment crosses two railroad tracks, both of which had disturbed approximately 100 linear feet of the APE (Appendix B, Photo 5). The west-central portion of the alignment had gently sloping

topography and poor ground surface visibility (Appendix B, Photo 6). The southern end of the alignment was disturbed from an existing lift station and a roadside drainage (Appendix B, Photo 7). Thirteen shovel tests were placed in areas that appeared undisturbed and had less than 30 percent visibility (Appendix B, Photo 8) (see Appendix C for shovel test log). No cultural materials were observed during shovel testing.

Three isolated features were observed during the course of the survey (see Appendix A, Exhibit 4b). These isolated finds consisted of concrete agricultural drainage features of unknown age, which were roughly 3.5 meters wide and 1 meter tall (Appendix B, Photos 9, 10, and 11). The features were spaced along a fence line on a hill slope, with more features present outside of the current project APE. The likely use of these objects as drainage control features is supported by the shape of the features and their presence on a hill side. Historic aerial photographs indicate this portion of the project area was previously a terraced agricultural fields, and the drainage features were likely used to mitigate potential erosion of the terraces. No cultural materials were present on the ground surface in the vicinity of the features, and no artifacts were observed in a shovel test placed near one of the features. Given the isolated nature of these features, their unknown age, and the lack of artifacts, they were not recorded as an archeological site.

## **5.0 CONCLUSIONS AND RECOMMENDATIONS**

Terracon archaeologists conducted an intensive pedestrian survey of an approximate 7,600-linear-foot APE in advance of installation of the Little Elm Trunk Sewer line by the City of Temple in northern Temple, Bell County, Texas. The project area was systematically surveyed and thirteen shovel tests were placed within the APE. No archeological sites were recorded.

It is Terracon's opinion that there are no historic properties in the APE eligible for listing on the NRHP or designation as a SAL. Therefore, Terracon recommends that the project be allowed to proceed as future construction of the trunk sewer line will not affect historic properties. In the unlikely event that human remains or intact cultural resources are discovered during construction, construction should cease in the vicinity of the discovery and Terracon, the Texas Historical Commission's Archeology Division, or other proper authorities should be contacted.

## **6.0 REFERENCES CITED**

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**Cultural Resources Services**

Little Elm Trunk Sewer ■ Temple, Bell County, Texas

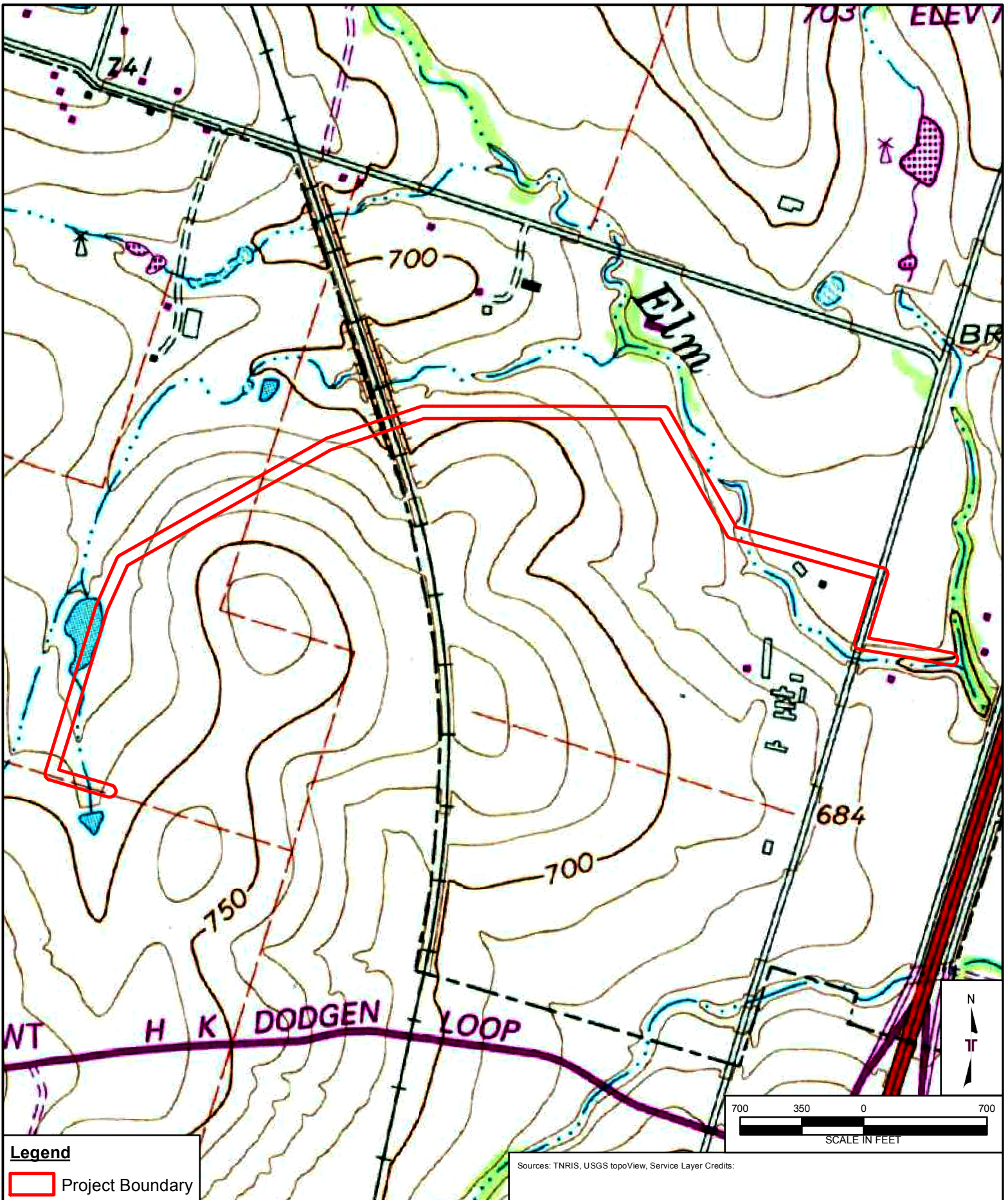
November 2, 2017 ■ Terracon Project No. 96177347



# **APPENDIX A**

## **Exhibit Maps**





**Legend**  
 Project Boundary

Sources: TNRS, USGS topoView, Service Layer Credits:

Project Mng: AS  
 Drawn By: Terracon  
 Checked By: JC  
 Approved By: AS

Project No: 96177347  
 Scale: AS SHOWN  
 File No.: 96177347  
 Date: May 12, 2017

**Terracon**  
 Consulting Engineers & Scientists  
 5307 INDUSTRIAL OAKS BLVD. - #160 AUSTIN, TX 78735  
 PH. (512) 442-1122 FAX. (512) 442-1181

1993 USGS Topographic Maps: Troy  
 Little Elm Trunk Sewer  
 Old Highway 84  
 Temple, Bell County, Texas

EXHIBIT  
 1





**Legend**

Project Boundary

Sources: TNRS, USGS topoView, Service Layer Credits:

Project Mngr:	AS
Drawn By:	Terracon
Checked By:	JC
Approved By:	AS

Project No:	96177347
Scale:	AS SHOWN
File No.:	96177347
Date:	May 12, 2017

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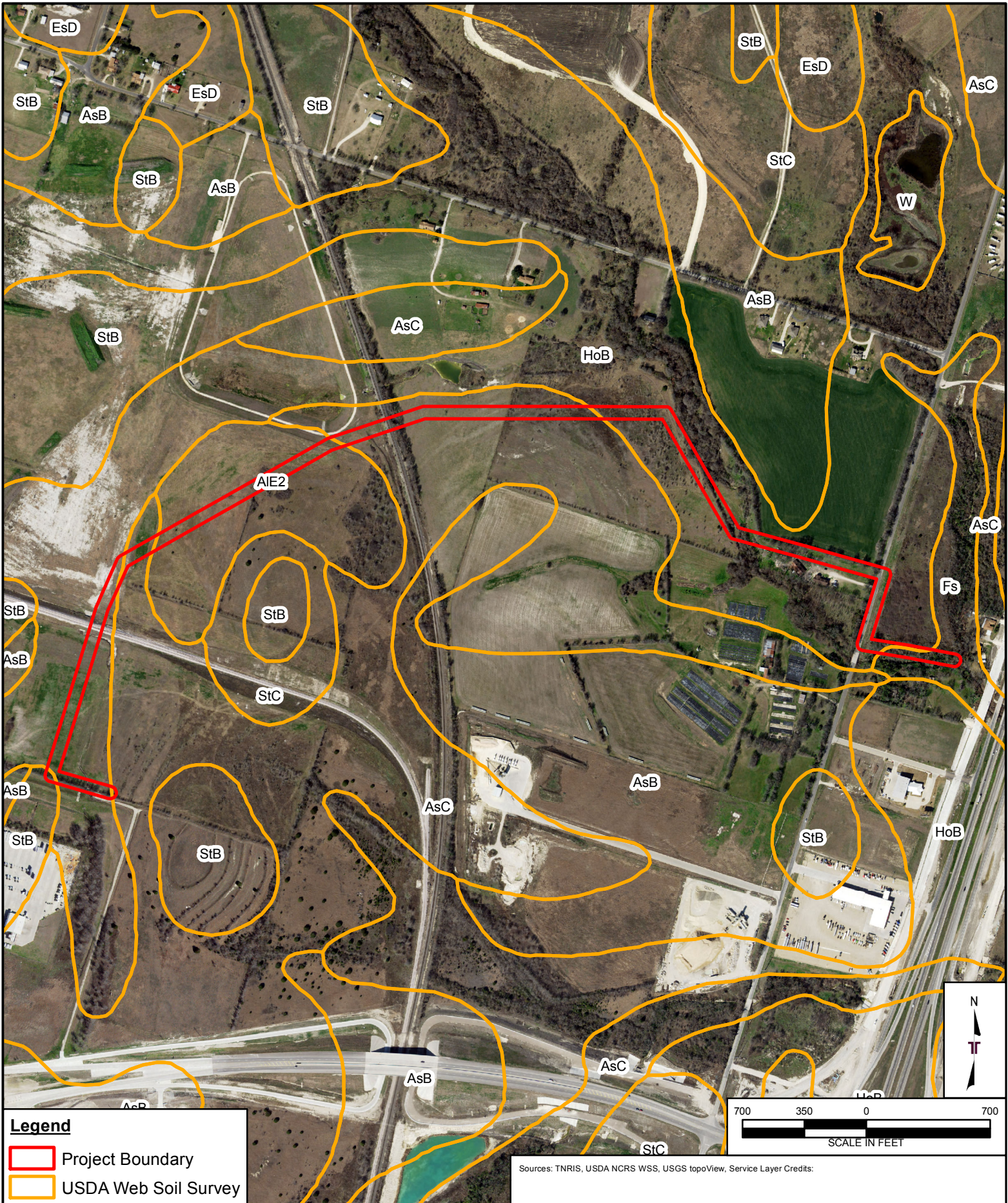
2015 Aerial Photograph

Little Elm Trunk Sewer  
 Old Highway 84  
 Temple, Bell County, Texas

EXHIBIT

2





**Legend**

- Project Boundary
- USDA Web Soil Survey

Sources: TNRIS, USDA NCRS WSS, USGS topoView, Service Layer Credits:

Project Mngr:	AS
Drawn By:	Terracon
Checked By:	JC
Approved By:	AS

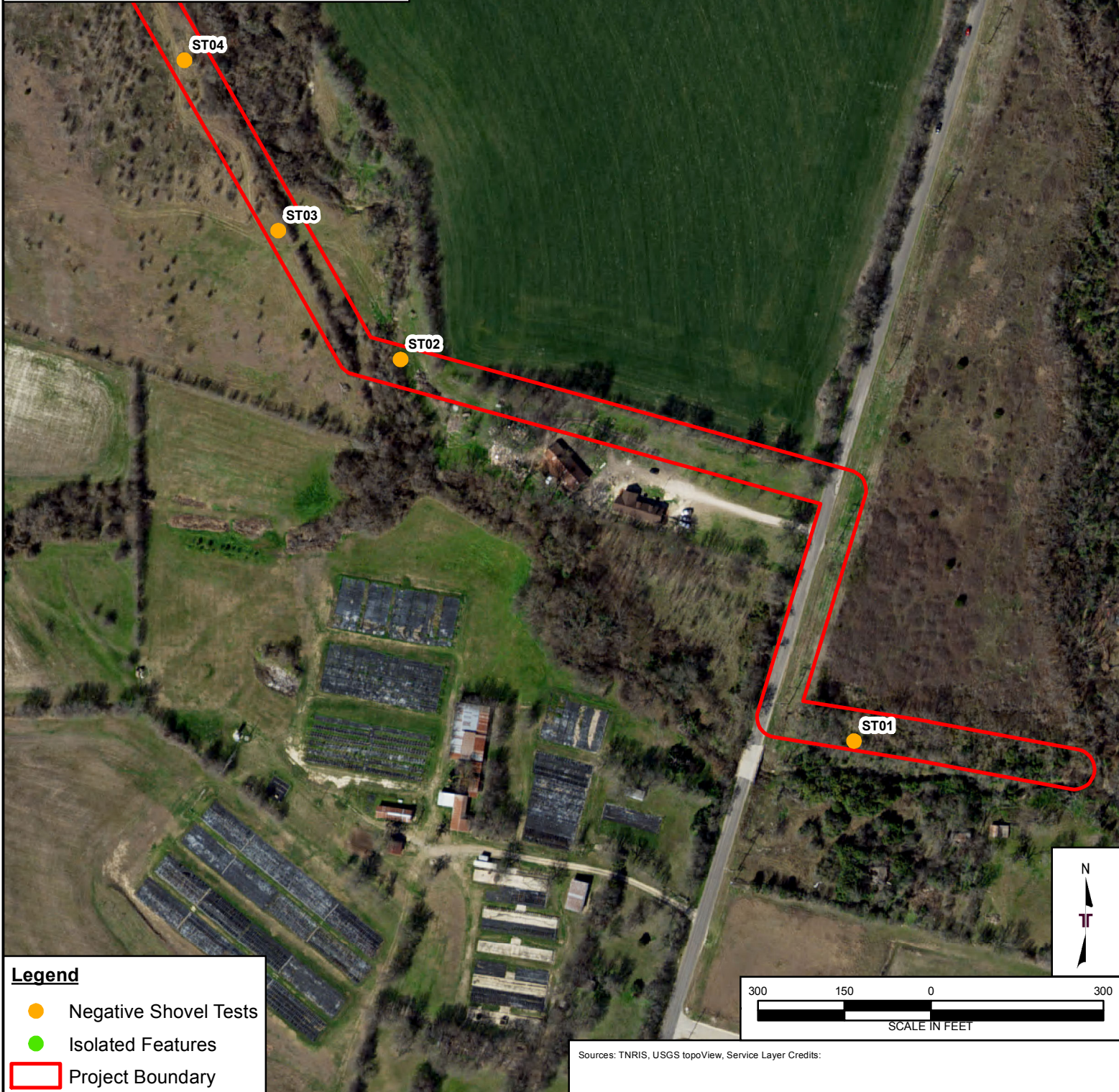
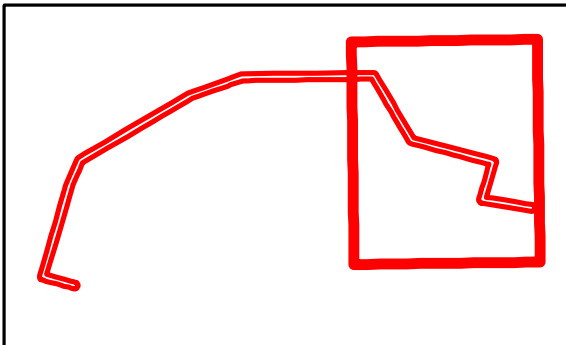
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Scale:	AS SHOWN
File No.:	96177347
Date:	May 12, 2017

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**USDA Soils Map**  
 Little Elm Trunk Sewer  
 Old Highway 84  
 Temple, Bell County, Texas

EXHIBIT  
3





**Legend**

- Negative Shovel Tests
- Isolated Features
- Project Boundary

Sources: TNRS, USGS topoView, Service Layer Credits:

Project Mngr:	AS
Drawn By:	Terracon
Checked By:	JC
Approved By:	AS

Project No.	96177347
Scale:	AS SHOWN
File No.:	96177347
Date:	Jul 26, 2017

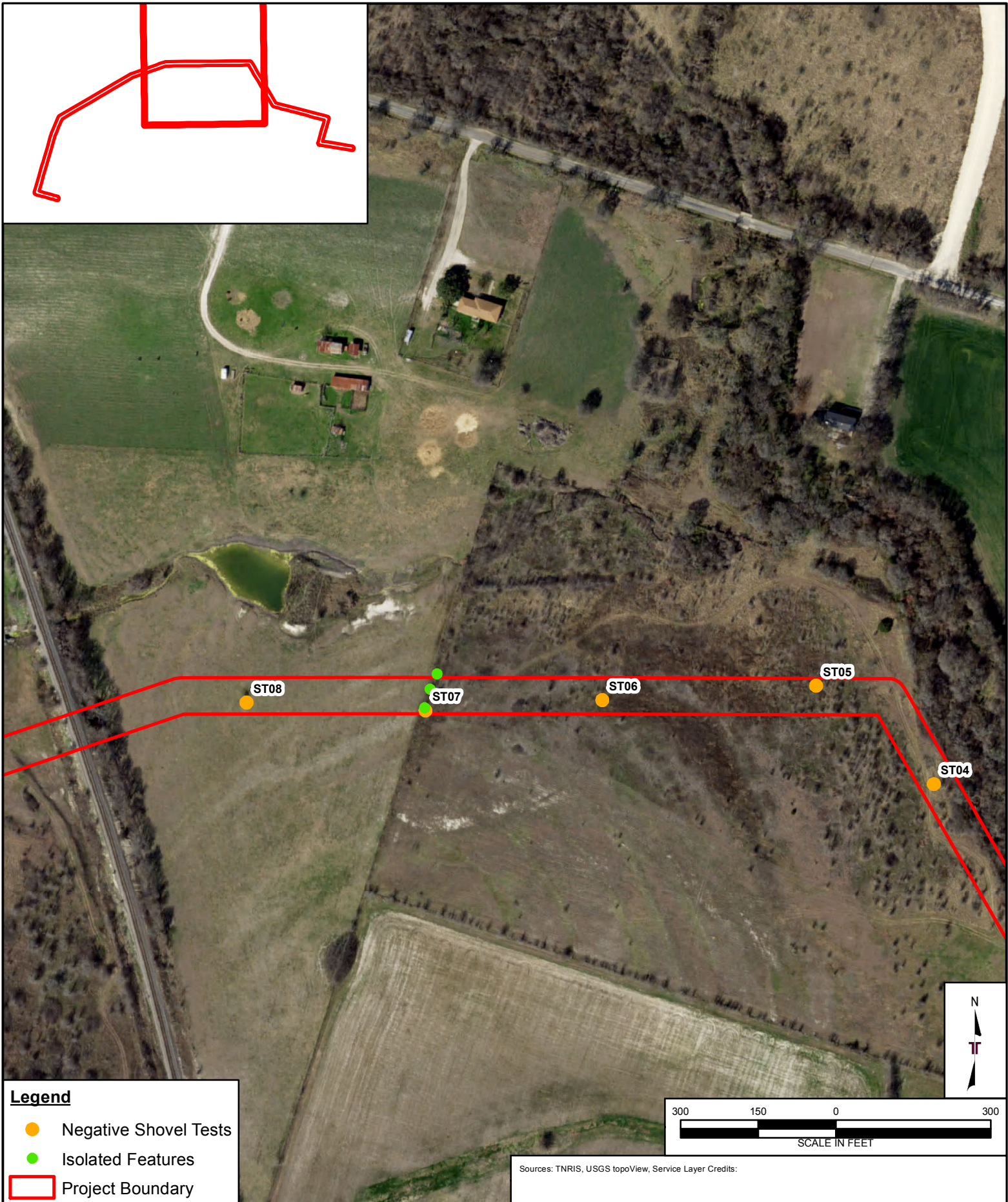
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**Results Map**

Little Elm Trunk Sewer  
 Old Highway 84  
 Temple, Bell County, Texas

EXHIBIT  
 4a





**Legend**

- Negative Shovel Tests
- Isolated Features
- Project Boundary

Sources: TNRS, USGS topoView, Service Layer Credits:

Project Mngr:	AS
Drawn By:	Terracon
Checked By:	JC
Approved By:	AS

Project No.	96177347
Scale:	AS SHOWN
File No.:	96177347
Date:	Jul 26, 2017

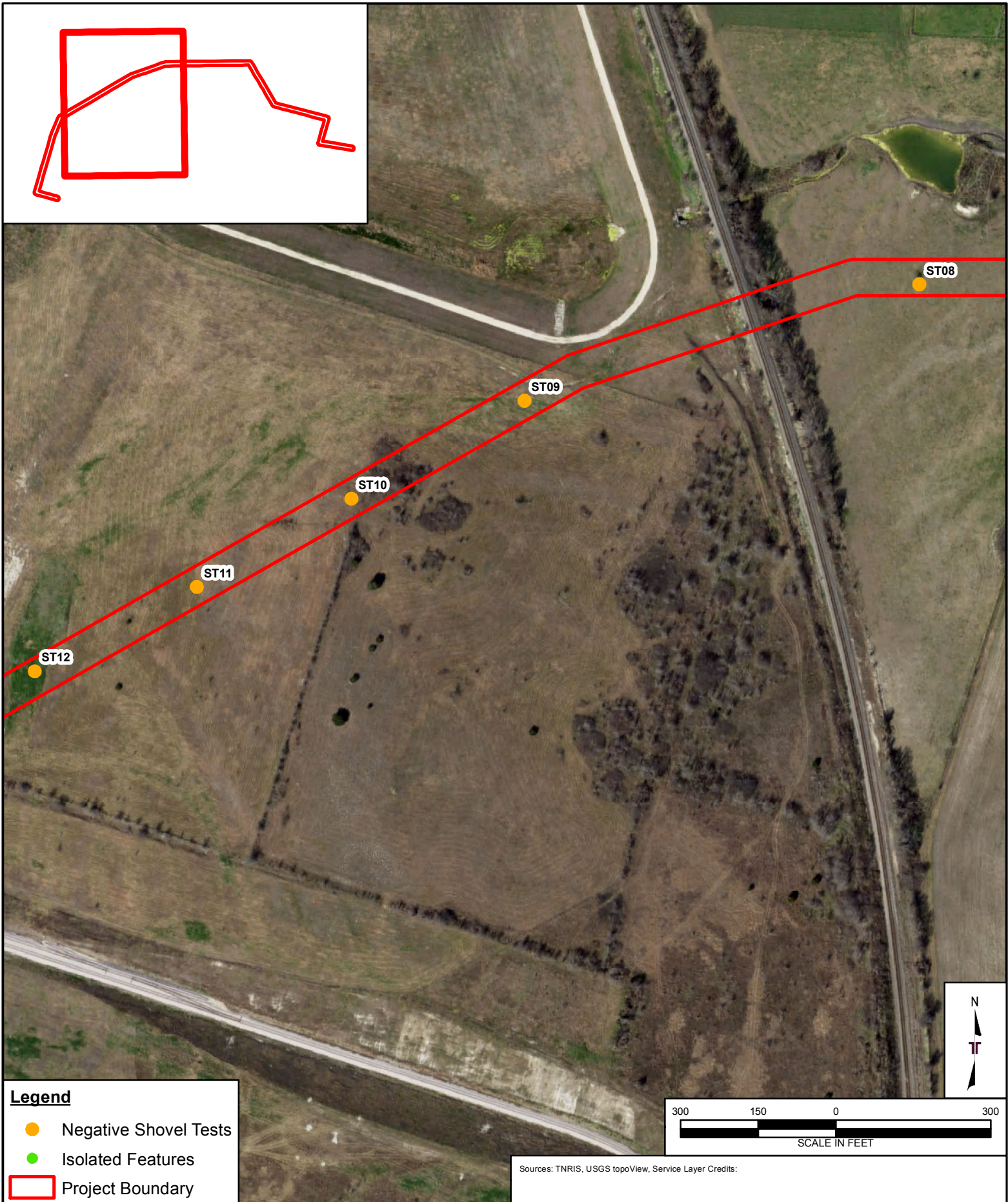
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**Results Map**

Little Elm Trunk Sewer  
 Old Highway 84  
 Temple, Bell County, Texas

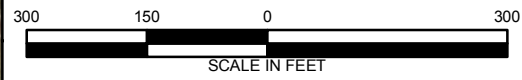
EXHIBIT  
 4b





**Legend**

- Negative Shovel Tests
- Isolated Features
- Project Boundary



Sources: TNRIS, USGS topoView, Service Layer Credits:

Project Mngr:	AS
Drawn By:	Terracon
Checked By:	JC
Approved By:	AS

Project No.	96177347
Scale:	AS SHOWN
File No.:	96177347
Date:	Jul 26, 2017

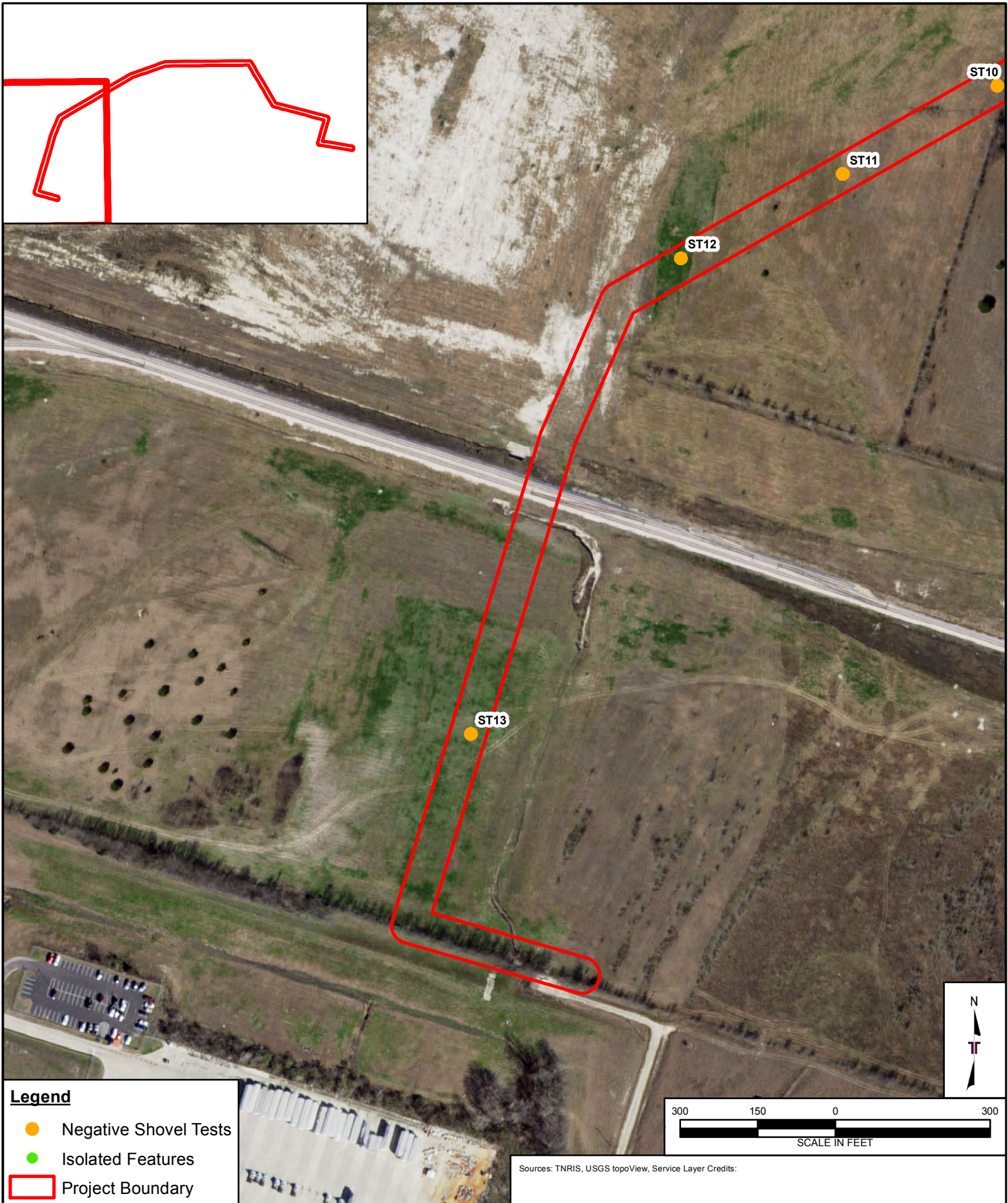
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 PH. (512) 442-1122 FAX. (512) 442-1181

**Results Map**

Little Elm Trunk Sewer  
 Old Highway 84  
 Temple, Bell County, Texas

EXHIBIT  
 4c





**Legend**

- Negative Shovel Tests
- Isolated Features
- Project Boundary

Sources: TNRS, USGS topoView, Service Layer Credits:

Project Mngr:	AS
Drawn By:	Terracon
Checked By:	JC
Approved By:	AS

Project No.	96177347
Scale:	AS SHOWN
File No.:	96177347
Date:	Jul 26, 2017

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**Results Map**

Little Elm Trunk Sewer  
 Old Highway 84  
 Temple, Bell County, Texas

EXHIBIT  
 4d

**Cultural Resources Services**

Little Elm Trunk Sewer ■ Temple, Bell County, Texas

November 2, 2017 ■ Terracon Project No. 96177347



# **APPENDIX B**

## **Photographs**



**Cultural Resources Services**

Little Elm Trunk Sewer ■ Temple, Bell County, Texas

Terracon Project No. 96177347 ■ Photos taken July 21, 24, 2017



**Photo 1. Eastern end of project alignment, through wooded area. Note good ground visibility. View to the west.**



**Photo 2. Alignment along Pegasus Drive. Note disturbance vegetation and utilities. View to the north.**



**Cultural Resources Services**

Little Elm Trunk Sewer ■ Temple, Bell County, Texas

Terracon Project No. 96177347 ■ Photos taken July 21, 24, 2017



**Photo 3. Alignment through former agricultural field. Note poor ground visibility. View to the south.**



**Photo 4. Alignment through livestock pasture. Note ground slope and poor ground visibility. View to the west.**



**Cultural Resources Services**

Little Elm Trunk Sewer ■ Temple, Bell County, Texas

Terracon Project No. 96177347 ■ Photos taken July 21, 24, 2017



**Photo 5. Railroad track and disturbances in central portion of alignment. View to the northeast.**



**Photo 6. Central portion of alignment. Note ground slope and poor ground surface visibility. View to the southwest.**



**Cultural Resources Services**

Little Elm Trunk Sewer ■ Temple, Bell County, Texas

Terracon Project No. 96177347 ■ Photos taken July 21, 24, 2017



**Photo 7. Southern end of alignment. Note disturbances from lift station and roadside drainage. View to the east.**



**Photo 8. Shovel Test 03.**





Photo 9. Isolated concrete agricultural drainage feature, looking upslope. View to the south.



Photo 10. Isolated concrete agricultural drainage feature, looking downslope. View to the north.



**Cultural Resources Services**

Little Elm Trunk Sewer ■ Temple, Bell County, Texas

Terracon Project No. 96177347 ■ Photos taken July 21, 24, 2017



**Photo 11. Side view of isolated concrete agricultural drainage feature.**

**Cultural Resources Services**

Little Elm Trunk Sewer ■ Temple, Bell County, Texas

November 2, 2017 ■ Terracon Project No. 96177347



## **APPENDIX C**

### **Shovel Test Log**

**Cultural Resources Services (Shovel Test Log)**

Little Elm Trunk Sewer ■ Temple, Bell County, Texas

Shovel Tests from July 21, 24, 2017 ■ Terracon Project No. 96177347



ST ID #	Depth cmbs	+/-	Ground cover	Munsell & Color	Texture	% Gravels	Comments
01	0-15	-	90%	7.5YR 2.5/1 Black	Clayey loam	0-5%	Rootlets and some small calcium carbonate nodules. Abrupt boundary with lower layer.
01	15-20	-	-	10YR 6/2 Light brownish grey	Clayey loam	0-5%	Large amount of calcium carbonate. Terminated due to calcium carbonate.
02	0-20	-	80%	7.5 YR 3/1 Very dark grey	Silty loam	20-25%	Loose silty fill, large amount of gravels, adjacent to two track road. Likely fill material, shovel test terminated.
03	0-35	-	80%	10YR 3/1 Very dark grey	Clayey loam	5-10%	Calcium carbonates increase with depth. Homogeneous. Increase in clay content at 30cmbs. Terminated due to calcium carbonate.
04	0-5	-	95%	7.5 YR 3/1 Very dark grey	Clayey loam	0-5%	Thin strat of lighter soil. Few calcium carbonates, some rootlets.
04	5-40	-	-	7.5 YR 2.5/1 Black	Clayey loam	0-5%	Roots in top part of layer. Increase in calcium carbonates with depth. Terminated due to calcium carbonates
05	0-30	-	95%	10YR 2/1 Black	Clayey loam	0-5%	Very, very gradual transition to lower strat. Little calcium carbonate.
05	30-50	-	-	10YR 4/1 Dark grey	Clayey loam	0-5%	Increase in calcium carbonates with depth. Terminated due to calcium carbonates.



**Cultural Resources Services (Shovel Test Log)**

Little Elm Trunk Sewer ■ Temple, Bell County, Texas

Shovel Tests from July 21, 24, 2017 ■ Terracon Project No. 96177347



ST ID #	Depth cmbs	+/-	Ground cover	Munsell & Color	Texture	% Gravels	Comments
06	0-50	-	70%	10YR 4/1 Dark grey	Silty loam	0-5%	Large amount of snail shell fragments. Increase in calcium carbonate with depth.
07	0-30	-	60%	10YR 5/2 Greyish brown	Silty loam	20-25%	Rootlets and insect burrows common. Increase in calcium carbonate with depth. Terminated due to calcium carbonate.
08	0-50	-	70%	10YR 5/1 Grey	Silty loam	0-5%	Soil very compact at first, due to use of parcel as horse pasture. Homogenous. Increase in calcium carbonate with depth.
09	0-25	-	100%	10YR 3/1 Very dark grey	Loamy clay	10-15%	Fairly compact clay. Hit decomposing bedrock around 20 cmbs.
10	0-25	-	95%	10YR 4/2 Dark greyish brown	Clayey silty loam	0-5%	Easy to dig. Hit decomposing bedrock around 25 cmbs
11	0-20	-	95%	10YR 5/2 Greyish brown	Silty loam	0-5%	Easy to dig. Hit calcium carbonate and decomposing bedrock at 20cmbs, soil becomes lighter.
11	20-35	-	-	10YR 7/2 Light grey	Silty loam	0-5%	Strat of decomposing bedrock. Shovel test terminated.
12	0-40	-	100%	7.5YR 3/1 Very dark grey	Loamy clay	0-5%	Homogenous down to decomposing bedrock at 40 cmbs.

**Cultural Resources Services (Shovel Test Log)**

Little Elm Trunk Sewer ■ Temple, Bell County, Texas

Shovel Tests from July 21, 24, 2017 ■ Terracon Project No. 96177347



ST ID #	Depth cmbs	+/-	Ground cover	Munsell & Color	Texture	% Gravels	Comments
13	0-10	-	95%	10YR 3/1 Very dark grey	Clay	0-5%	Few gravels and rootlets. Chunks of decomposing bedrock start showing up around 5 cmbs.
13	10-20	-	-	2.5Y 6/2 Light brownish grey	Loamy clay	5-10%	Mostly decomposing bedrock. Some upper strat soil present as well. Terminated due to decomposing bedrock.