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CSJ 2093-01-010, FM 2218, Fort Bend County, Houston District

Aaron Norment

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Report for Archeological Survey (FINAL)

CSJ 2093-01-010, FM 2218, Fort Bend County, Houston District

Allen Bettis, Principal Investigator; Antiquities Permit No. 9293
March 11, 2020

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 9, 2019, and executed by FHWA and TxDOT.

Abstract

On March 9 and 10, 2020, archeologist Aaron Norment from AmaTerra Environmental, Inc. (AmaTerra) conducted an intensive archeological survey with shovel testing on three parcels of land for part of the FM 2218 roadway project in Fort Bend County, Texas. This survey is for detention ponds and a segment of outfall line where right of entry was not granted during a prior survey along FM 2218. Total acreage surveyed for the three parcels measures approximately 37 acres. A total of 28 shovel tests were excavated across all three parcels resulting in recording one mid-twentieth century historic house site, 41FB363. Based on the age of the structure, poor integrity, and lack of attendant artifact assemblage, the site is recommended as not eligible for listing in the National Register of Historic Places (NRHP) or designation as a State Antiquities Landmark (SAL). No further archeological work is necessary. This survey was a no collection survey. As such, no artifacts were collected, and all records and photographs generated during this project will be housed at AmaTerra's offices.

Project Information

- **This survey is:**
  - ☐ the initial survey for this project
  - ☒ a continuation of previous survey(s) due to:
    - ☒ access issues and/or
    - ☒ design changes
- **Date:** 03/09/2020
- **Date(s) of Survey:** from 03/09/2020 to 03/10/2020
- **Archeological Survey Type:** ☐ Reconnaissance ☒ Intensive
- **Report Version:** ☐ Draft ☒ Final
- **Jurisdiction:** ☒ Federal ☒ State
- **District:** Houston
- **County or Counties:** Fort Bend
- **USGS Quadrangle(s):** Needville and Richmond, Texas
- **Highway:** FM 2218
- **CSJ:** 2093-01-010
- **Report Author(s):** Aaron Norment
- **Texas Antiquities Permit Number:** 9293
- **Principal Investigator:** Allen Bettis
- **Estimated Percentage of Time that the Principal Investigator Was in the Field:** Allen Bettis, Principal Investigator – zero percent in the field; Aaron Norment, technical expert – 100 percent in the field.

Project Description

- **Project Type:** road expansion with detention ponds
- **Total Project Acreage:** 93 acres
- **Existing ROW Acreage:** 43.3 acres
- **New Right of Way (ROW) Acreage:** 49.7 acres
- **New Easement Acreage (includes temporary and permanent easements):** *0.0* acres
- **Survey Area:** 37.01 acres
- **Project Description and Impacts:** The HOU District is proposing to improve the existing FM 2218, south of Rosenberg, between US 59 and SH 36, in Fort Bend County. The existing roadway consists of two, 12-foot (3.7 meter) wide lanes in each direction with ten-foot (three-meter) wide outside shoulders and six-foot (1.8 meter) wide inside shoulders along with a 42 foot (12.8 meter) wide median. The ROW width along this section varies from 320 to 1,370 ft (97.5 to 417.5 meters). The proposed facility would consist of two 12-foot main-lanes in each direction separated by a 15-foot wide median. The median would be a raised grass median with 12-foot wide left turn lanes at intersections. The left turn lanes would be controlled by signals at all major intersections. At the southern terminus, the intersection with SH 36 will be modified to allow for a 90-degree signaled intersection. In addition, TxDOT would construct 3-foot wide shared-use bike lanes on each side of the road parallel to FM 2218 sidewalks outside of the shared bike lanes. Lastly, the project would require two drainage outfall channels and two detention ponds which are located along the western side of FM 2218. A total of 49.7 acres of new ROW has now been acquired.

Area of Potential Effects and Survey Area

- **Area of Potential Effects (APE):**
- The APE is defined based on the most recent construction plans and schematics available at this time. The APE for archeological resources, or project area, is defined as the footprint of the undertaking to the maximum depth of impact(s), including all easements, and project specific locations. Thus, the project area will cover a total distance of approximately 3.7 miles and approximately 93 acres, 49.7 of which are newly proposed ROW. Most of the proposed new ROW is associated with outfalls and drainage detention. The project will be built at grade; therefore, the maximum depth of impact would typically be no more than four feet.
  - Horizontal limits: FM 2218, south of Rosenberg, between SH36 and US 59
  - Typical width of any existing ROW (*if variable, provide upper and lower limits*): 320–1,370 feet
  - Typical width of entire ROW, including existing and proposed new ROW (*if variable, provide upper and lower limits*): *NA*
  - Typical depth of impacts: less than four feet
  - Maximum depth of impacts: four feet
- The project requires the construction of two drainage outfall channels and two detention ponds along the western side of FM 2218; one pond located near the intersection of FM 2218 and SH 36 and the other located just north of J Meyer Road. The pond near SH 36 and FM 2218 measures approximately 11.2 acres. The pond north of J Meyer road measures approximately 23.5 acres. The portion of outfall channel west of FM 2218 measures approximately 2.4 acres.
- **No Survey Area:**
  - Not applicable – the entire APE requires survey
- **Access Denied Area:**

  This is a continuation of a prior survey conducted by AmaTerra. Parcels requiring survey were denied ROE, but ROE issues have been resolved allowing for survey to be completed.
- **Survey Area:** Same as APE
- **Parcel Number(s):** unavailable
- **Project Area Ownership:** parcels surveyed owned by TxDOT

Project Setting.

- Natural Setting
  - **Topography:** Topography consist of gently rolling uplands within the northern humid gulf coastal prairies of the Western Gulf Coastal Plain (Griffith et al. 2004). Elevation varies from 80 to 90 feet above mean sea level (**Figures 1 and 2**).
  - **Geology:** The APE is underlain by Beaumont Formation of late Pleistocene Age (USGS 2007).
  - **Soils:** Bernard – Edna complex, 0–1 percent slopes: Bernard series – deep, poorly drained soils formed in clayey fluviomarine deposits of the Beaumont Formation. Edna Series – deep, poorly drained soils that formed on loamy fluviomarine deposits derived from the Beaumont Formation. Lake Charles Series – Deep, moderately well drained slowly permeable soils formed in clayey sediments (**Figures 3a and 3b**).
  - **Potential Archeological Liability Map:** 2 – surface survey recommended; 4 – no survey recommended (**Figures 4a and 4b**)
  - **Historic Land Use:** Land in the regions has been used for various agricultural endeavors including cattle and horse grazing, as well as cultivation.
  - **Land Use:** Until recently, the APE was used as cattle and horse pastures, in addition to growing crops.
  - **Vegetation:** Various grasses and dewberry vines blanket the ground surface of the APE with stands of hackberry and elm trees growing in pockets and along fencelines.
- **Estimated Ground Surface Visibility:** 0–20 percent
- **Previous Investigations and Known Archeological Sites:** The Texas Archeological Site Atlas was consulted to identify previously recorded sites within 1 km or within the APE, as well as previous archeological surveys conducted within 1 km or within the APE (**Figure 5**). While no archeological sites were identified, one cemetery was found across FM 2218, the Greater Power Baptist Church Cemetery. Several projects have taken place within and near the current APE, including the precursory survey for the work in this report conducted by AmaTerra in 2016 along FM 2218. Other projects within 1 km include a 1988 survey for the Bureau of Land Management, a survey for the City of Rosenberg in 1994, a 2014 SWCA survey for the Corps of Engineers – Galveston District, and a 2015 survey of SH 36 for TxDOT conducted by AmaTerra.
- **Evaluation of Project Setting:**

  The project APE is situated on gently rolling uplands between erosional drainages into Beaumont Formation clays. These soils have low potential for containing deeply buried, intact prehistoric archeological deposits. Historically, the area was the site of early settlement in Texas, with large plantations popping up after Texas was annexed by the United States. Historic settlement persisted in the region, and the project area has moderate potential to contain intact historic deposits, although they are unlikely to be considered SAL or NRHP eligible. Because of shallow soils, shovel testing was suitable for survey and backhoe trenching deemed unnecessary.

Survey Methods

- **Surveyors:** Aaron Norment
- **Description of Methods:** An intensive pedestrian survey with shovel tests was conducted across all portions of the APE. Shovel testing was selected as the preferred method for investigation due to the shallow nature of soils known to be in the area. Survey efforts involved 100 percent pedestrian survey and subsurface investigations in the form of shovel testing to locate and identify, determine the nature, extent, and if possible, the significance of any archeological resources discovered in the APE. Shovel tests were distributed throughout the APE survey parcels. Shovel tests were excavated in 20 cm levels until sterile subsoil, compact clay, or until another reason presented itself for terminating the shovel test. All fill was screened through ¼-inch mesh hardware cloth when possible or troweled through. All shovel tests were mapped using a hand-held GPS unit and logged using Collector for iPad that recorded profile characteristics, depth, and contents, if any. Investigators took photographs of the landscape and various disturbances to document the APE setting. A total of 28 shovel tests were excavated.
- **Subsurface Probes (attach map)**

Method	Quantity in Existing ROW	Quantity in Proposed New ROW	Quantity in Proposed New Easements	Total Number per Acre
Shovel Test Pits	0	28	0	0.75
Power Auger Probes	NA	NA	NA	NA
Mechanical Trenches/Scrapes	NA	NA	NA	NA

- **Other Methods:** None
- **Collection and Curation:** ☒ NO ☐ YES If yes, specify facility_____.

  Comments on Methods: The survey methods used exceed the Council of Texas Archeologist (CTA) standards, which call for one test every two acres for project areas ranging between 11–100 acres, or one shovel test every 100 meters for linear projects. Shovel test rates for this project equal approximately 0.75 tests per acre.

Survey Results

Survey Area Description: The survey area consisted of three parcels totaling approximately 37 acres and were labeled Parcels 1-3 for the purposes of this survey. Parcel 1 is the largest of the parcels measuring approximately 23.5 acres. Parcel 2 is the smallest parcel measuring approximately 2.4 acres, and Parcel 3 is the southernmost parcel located near the intersection with SH 36 and FM 2218, measuring approximately 11.1 acres. Two of the parcels are set to become detention ponds (Parcels 1 and 3), while Parcel 2 is a portion of the outfall line connecting the northernmost detention pond with FM 2218.

Parcel 1

Parcel 1 is the largest survey parcel situated west of FM 2218 along Meyer Road. The parcel parallels the western bank of Seabourne Creek and recently served as a cattle pasture. The tenant, Mr. Jim Barta, explained that he maintained the property and grazed cattle, and Seabourne Creek was channelized sometime in the 1950s to help with flood control in the area. Additional flood control measures have occurred recently with the excavation of two large drainage ditches cutting directly across the APE (**Figure 6**). These appear to have been installed recently as a result of the growing subdivision adjacent to the northwest side of the APE. Other disturbances noted include the installation of a large overhead transmission line. Multiple tall metal towers sit at the western edge of the APE. The channelization of Seabourne Creek also disturbed portions of the APE. These changes are visible today, evidenced by routine maintenance of the channel banks (**Figure 7**). Aside from these manmade disturbances, hog rooting was observed in multiple portions of the APE as well. Parcel 1 is dominated by thick grasses with occasional stands of trees dispersed throughout the pasture. Ground surface visibility is generally poor, except for locations that have been rooted or disturbed by vehicle traffic or clearing. Several burn piles were also observed within the APE. Along Seabourne Creek, stands of trees dominate the landscape.

A total of 20 shovel tests were excavated within Parcel 1, three being positive for cultural material associated with site 41FB363 (**Figure 8**). The remaining 17 shovel tests were devoid of artifacts. Soil in this area was typically a dark grayish brown (10YR4/2) clay loam overlying dense, often compact, wet clays, often the same color. Some variation was noted with evidence of mottling, possible redoximorphic features due to water perching.

Parcel 2

Parcel 2 is a strip of land associated with the inflow channel directing runoff from FM 2218. Ground surface visibility in this parcel was fair, as it is regularly plowed. Old corn cobs seen in furrows indicate that corn was grown here. At the APE's intersection with existing FM 2218 ROW, several disturbances were noted. Possible utility relocation may have occurred prior to road construction resulting in the ground being cleared of vegetation and evidence of excavation (**Figure 9**). Additionally, two intersecting drainage ditches and a large berm were noted at the east end of the APE (**Figure 10**).

Due to these disturbances and excellent round surface visibility, two shovel tests were excavated in Parcel 2, both being negative for cultural material (**Figure 11**). Soils were saturated clay loams (10YR4/2) atop dense, moist basal clays. Crawfish mounds were observed throughout the pasture indicating that conditions are often moist in this portion of the APE.

Parcel 3

Parcel 3 is the southernmost parcel near the intersection of SH 36 and FM 2218. Until recently, the property was used for grazing horses. Grasses were quite short but blanketed the parcel. Several stands of trees, primarily hackberry and elm with the occasional live oak, were also observed in different areas of the APE (**Figure 12**). The very southern end of this parcel is part of an inflow line to direct water runoff. This portion of the parcel sits within a previously plowed pasture (**Figure 13**). One obvious disturbance to the APE is the excavation of a large ditch through the parcel. Flood control measures are a common occurrence in this area. Like Parcel 2, crawfish mounds were observed in Parcel 3, indicating that conditions are often wet. A total of six shovel tests was excavated within Parcel 3, all being devoid of artifacts (**Figure 14**). Soils in this parcel were like those observed in other portions of the APE, with moist clay loam (10YR4/2) near the surface, overlying dense, compact wet basal clays.

- **Buffer Zone Description:** The surrounding areas – up to 50 ft outside of the APE – are nearly identical to the areas surveyed within the APE. The only exception being the portions of APE that are parallel and adjacent to existing roadways.

Archeological Materials Identified: Site 41FB363 is a mid-twentieth century historic house site located along FM 2218 (**Figure 15**). The house sat approximately 50–80 ft north of FM 2218 at the edge of a large pasture. All that remains are the concrete foundations of a front and back porch, as well as a large void where the main house stood and a large concrete pad where the garage stood (**Figure 16**). A 2–3-foot-wide concrete walkway leads to the front steps form the road into the property. Just south of where the garage stood are two iron T's still in the ground, which are part of an old clothesline (**Figure 17**). Some broken pieces of PVC pipe and several large wooden logs resembling old highway construction remains, sat upon the old foundation. The former house site was overgrown with thick dewberry vines and small hackberry trees. Figure 18 provides a good overview of what remains of the house foundation.

What remains are large concrete constructions, poured by hand and built to last. The slabs of the porches measure 8 inches thick and site on hand-poured concrete beams. The front porch measures 12 feet wide by 30 feet long and ran the length of the house. The back porch was 8 feet wide and 16 feet long, roughly half of the length off the house. The house sat in between the elevated porches on a piers and beams (Jim Barta, personal communication) and measured approximately 20 feet wide by 30 feet long. The garage foundation was large, extending east of the back porch and measure approximately 20 x 30 feet. Northeast of the house sat a large barn (**Figure 19**). The barn measures approximately 40 x 50 feet and is still in working condition, used for general storage with a few loose

pieces of lumber and ranching tools observed. Mr. Barta stated the barn was built sometime in the 1950s after the house was built. Between the barn and the back of the house, there is also a subterranean propane tank that provided gas to the house. Mr. Barta was certain that all utilities running to the house, including electric, water, and gas had long since been terminated.

Seven shovel tests were placed near the house and barn locations, three of them being positive for cultural material. AN02 yielded a single cut cow bone, while AN03 yielded a rusted wire segment. AN20, southwest of the house yielded a single small fragment of brown bottle glass. No other artifacts were observed.

While excavating AN01 in what would have been the old front yard, Mr. Jim Barta stopped by curious as to the work occurring. He informed me that he was a local landowner and once owned a fair amount of property adjacent to the survey area but recently sold it to developers due to the multiple road projects and surrounding development. Mr. Barta was very knowledgeable of the old house foundation, knowing firsthand who built it and lived there for its entire use. According to Mr. Barta, the Yarling family built the house in the 1940s sometime shortly after World War II. It stood until sometime during the 1980s when it burned. That is when Mr. Barta tore it down because it was a safety concern. He also mentioned filling in the old septic tank just south of the house which is still evidenced by a large surface depression. Mr. Barta has been leasing this property from various landowners over the years, as it has changed hands multiple times. Most recently, Mr. Barta ran cattle on the place, but moved them due to impending construction plans.

- **APE Integrity:** Significant portions of the APE have been impacted by utility installation, road construction and maintenance, and ditch/channel digging to help with flood control. The rerouting/channelization of Seabourne Creek and the multiple runoff channels observed illustrate how significant flood control measures are in this area. All parcels appear to have been used for agricultural purposes as well, either has farmland or for grazing pastures for livestock. Large piles of debris in the form of brush, tree trimmings, deadfall, and some household trash demonstrate that large fires are used with some regularity to dispose of these materials. While small portions of these parcels could be undisturbed, most of the land surveyed has been impacted in some manner.

Recommendations

- **Results Valid Within (check all that apply to define the buffer zone):**

No Survey Area (NSA)	*Survey Area*	*Either*
☐ 50 feet of NSA	☒ 50 feet of survey area	☐ Variable, see map
☐ ___ feet of NSA	☐ ___ feet of survey area	

- **The Definition and Evaluation of this Horizontal Buffer Zone Is Based on One or More of the Following Considerations (check all that apply):**

  ☐ The integrity of the areas within and adjacent to the setting is affected by prior development.

  ☒ The survey shows that archeological materials are unlikely to exist in this area.

  ☒ Other (specify): Prior ranching and farming endeavors have also impacted this area.

  The findings documented in this report apply to all areas within the horizontal buffer zone, as specified in the previous section. Any design change within this area would not require additional review or investigation. Design changes that either extend beyond the buffer zone or result in potential impacts deeper than the impacts considered in this report would require additional review.

Archeological Site Evaluations: Site 41FB363 represents a small post-WWII farmhouse on the outskirts of Pleak Village, Texas in rural Fort Bend County. Having burned down and the house demolished left only portions of the foundation, the concrete walkway, and two clothesline posts. There is nothing significant about this structure. Shovel testing revealed that buried cultural material is present just below the ground surface, although artifacts were typical of mid to late twentieth century occupations and consisted of rusted wire and broken glass bottle fragments, and this was recovered in only three of the seven shovel tests excavated around the house site. The associated barn has been altered and maintained to keep serving its purpose but offers no archeological research potential either. No portion of the site meets any criteria for designation outlined in Section 106 of the National Historic Preservation Act, nor does it meet any of the selection criteria for evaluating archeological sites as a State Antiquities Landmark (SAL). As such, Site 41FB363 is recommended as not eligible for NRHP or SAL listing, and it is also recommended that construction should proceed with no further work necessary.

- **Comments on Evaluations:** None
- **Further Work:** No further work is recommended for any of these parcels along FM 2218.
- **Justification:** All work for this survey was conducted in compliance with Section 106 of the National Historic Preservation Act under the guidelines presented in 36 CFR 800, and in compliance with the Antiquities Code of Texas, whose guidelines are outlined under 12 TAC 26.

References Cited

Griffith, G. E., Bryce, S. A., Omernik, J. M., Comstock, J. A., Rogers, A. C., Harrison, B., Hatch, S. L., and Bezanson, D.
2004 Ecoregions of Texas (color poster with map, descriptive text, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:2,500,000).

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2020 Texas Archeological Sites Atlas Online. Electronic document, http://nueces.thc.state.tx.us/, accessed March 2020.

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2019 Digital Dataset.

United States Environmental Protection Agency (EPA)
2011 Level IV Ecoregions of Texas. Digital Dataset.

United States Geological Survey (USGS)
2007 Geologic Database of Texas. Digital Dataset.

Figures

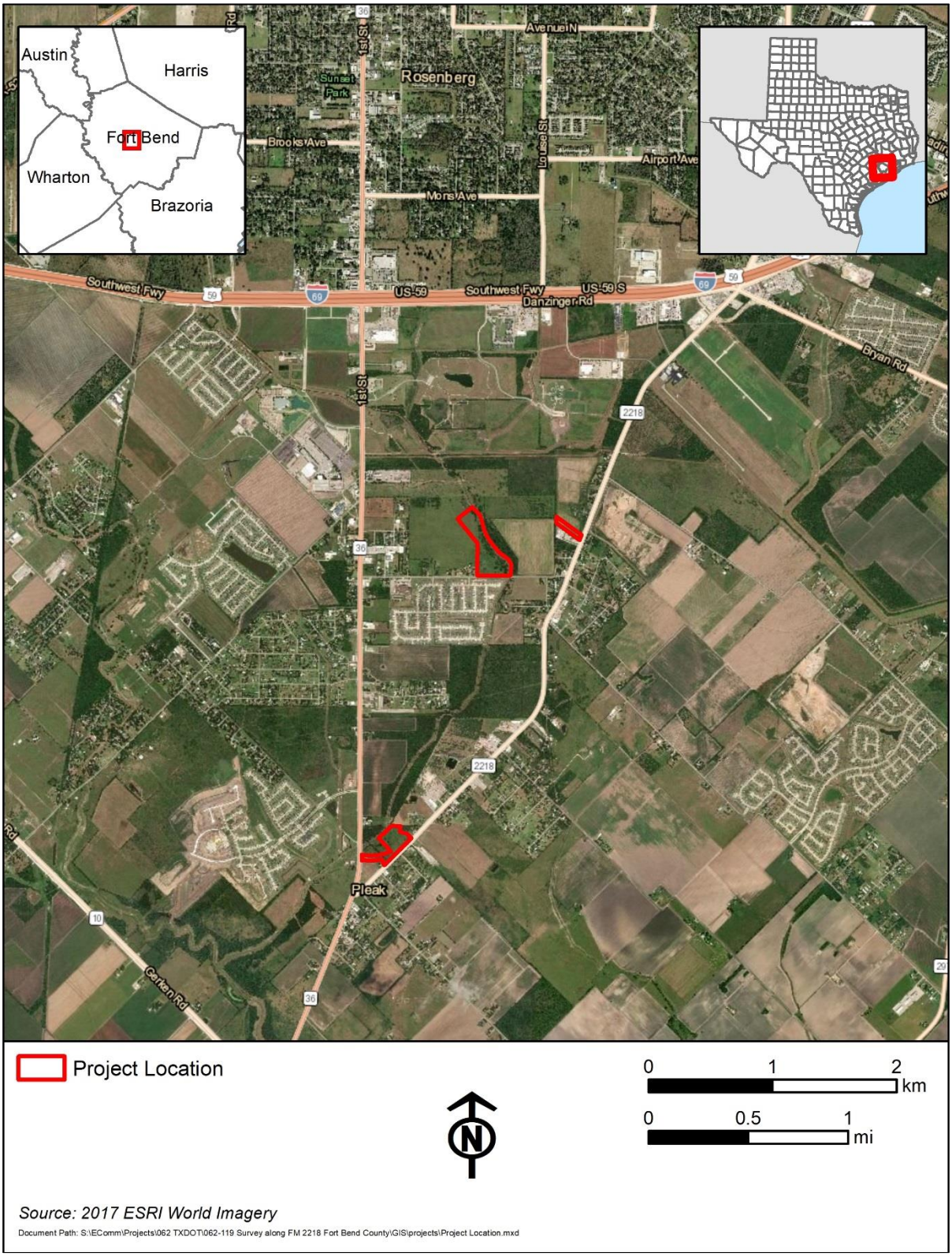

Figure 1. Project area depicted on aerial imagery.

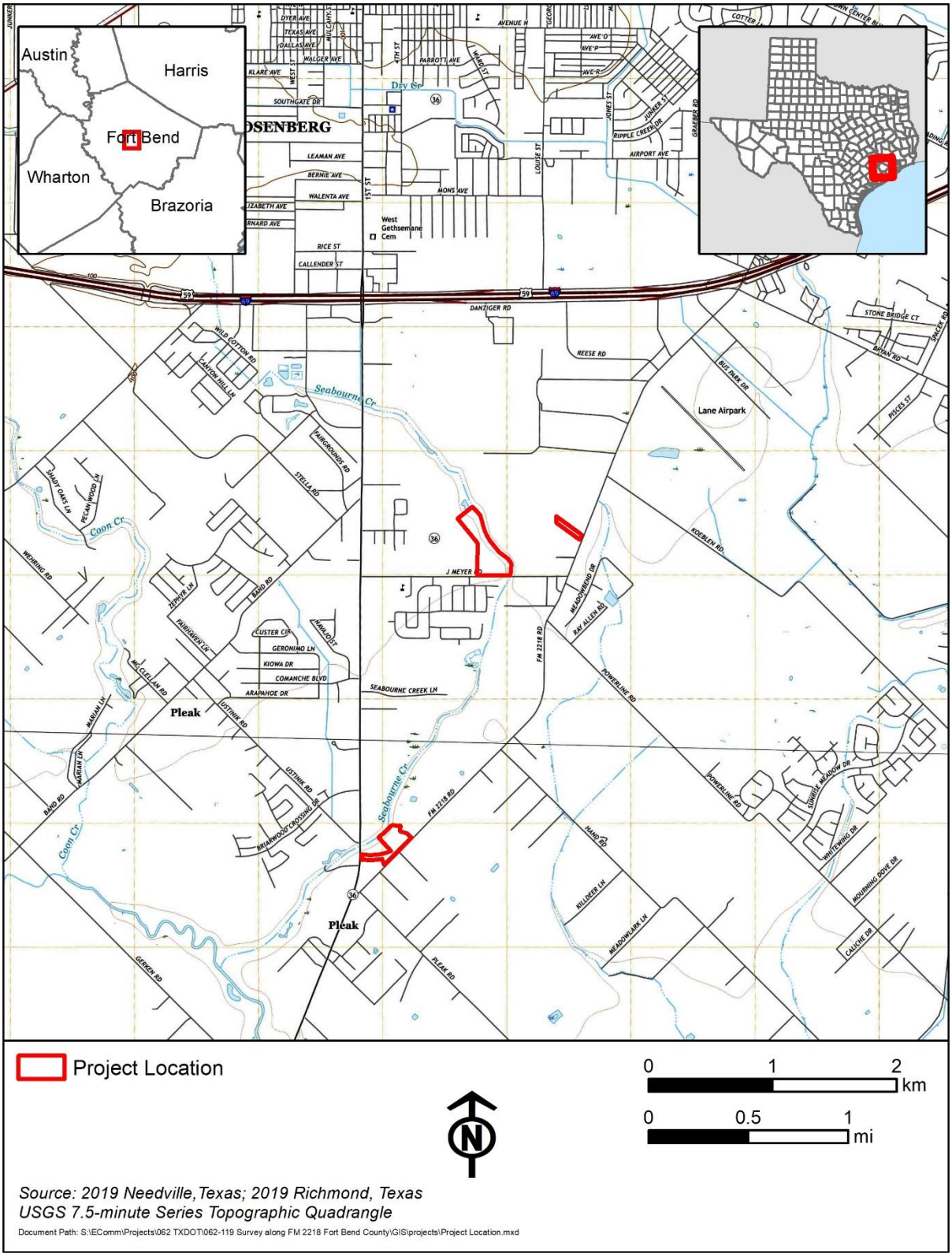

Figure 2. Project area depicted on 2019 USGS topographic maps – Needville and Richmond quadrangles.

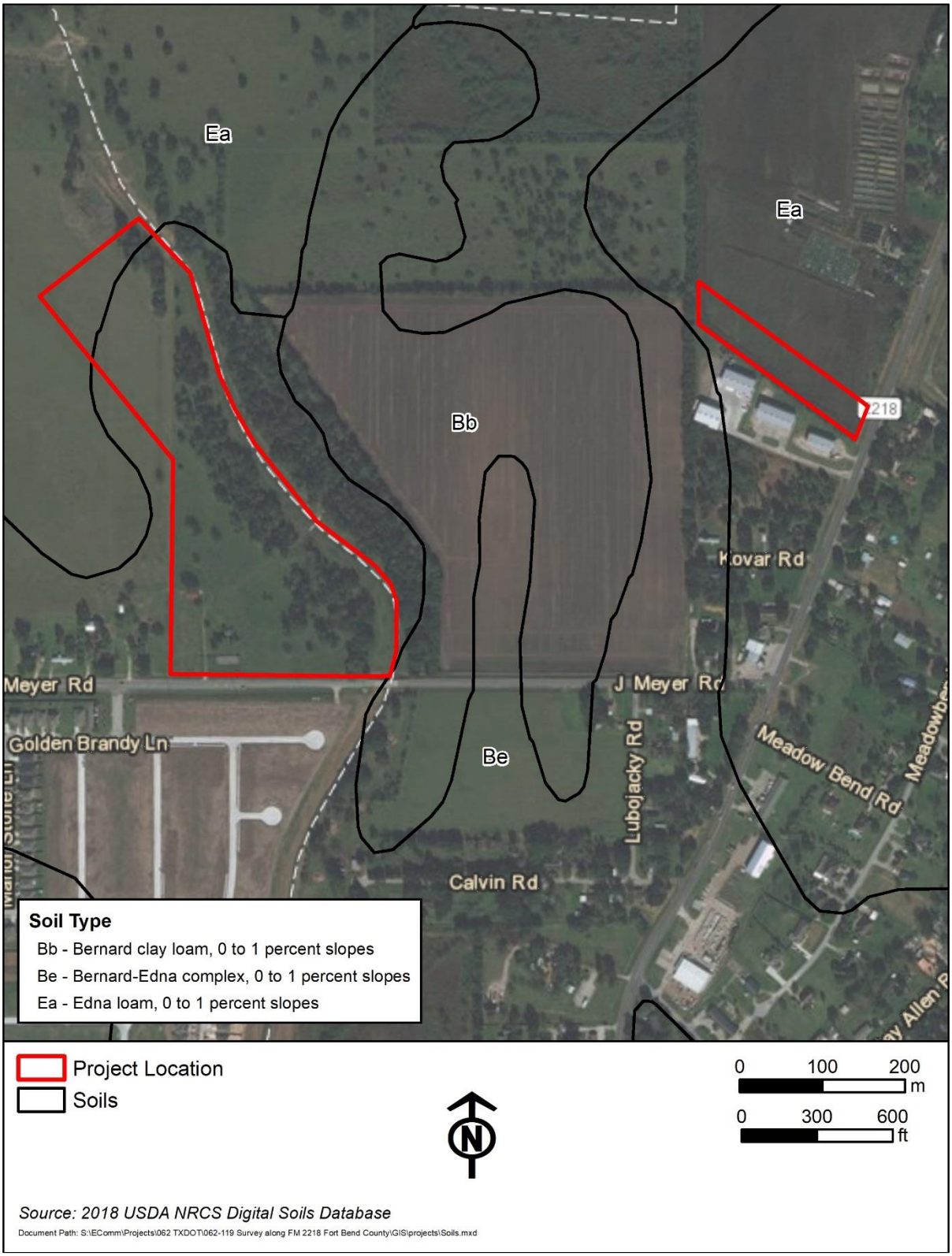

Figure 3a. Mapped soils within the project APE.

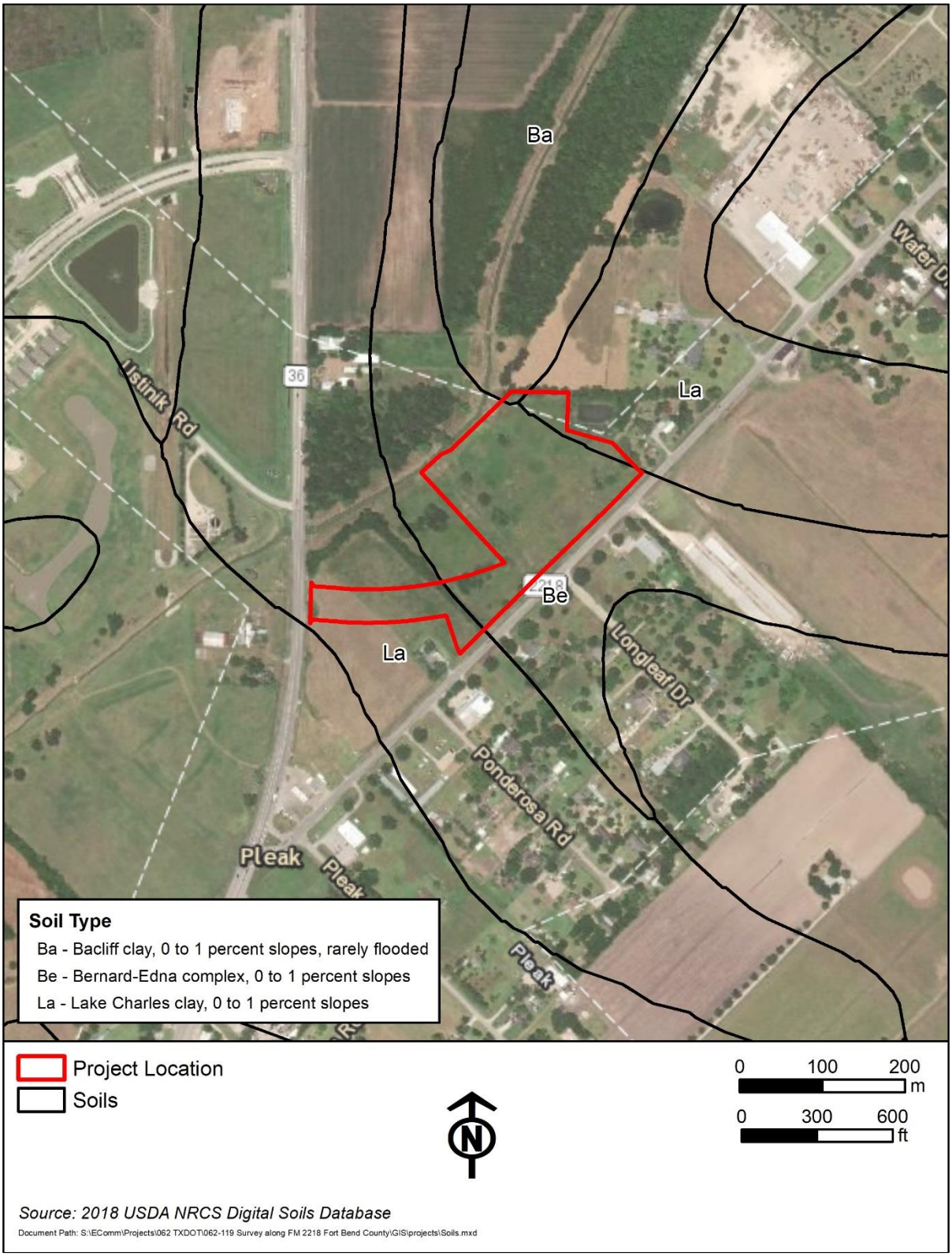

Figure 3b. Mapped soils within the project APE.

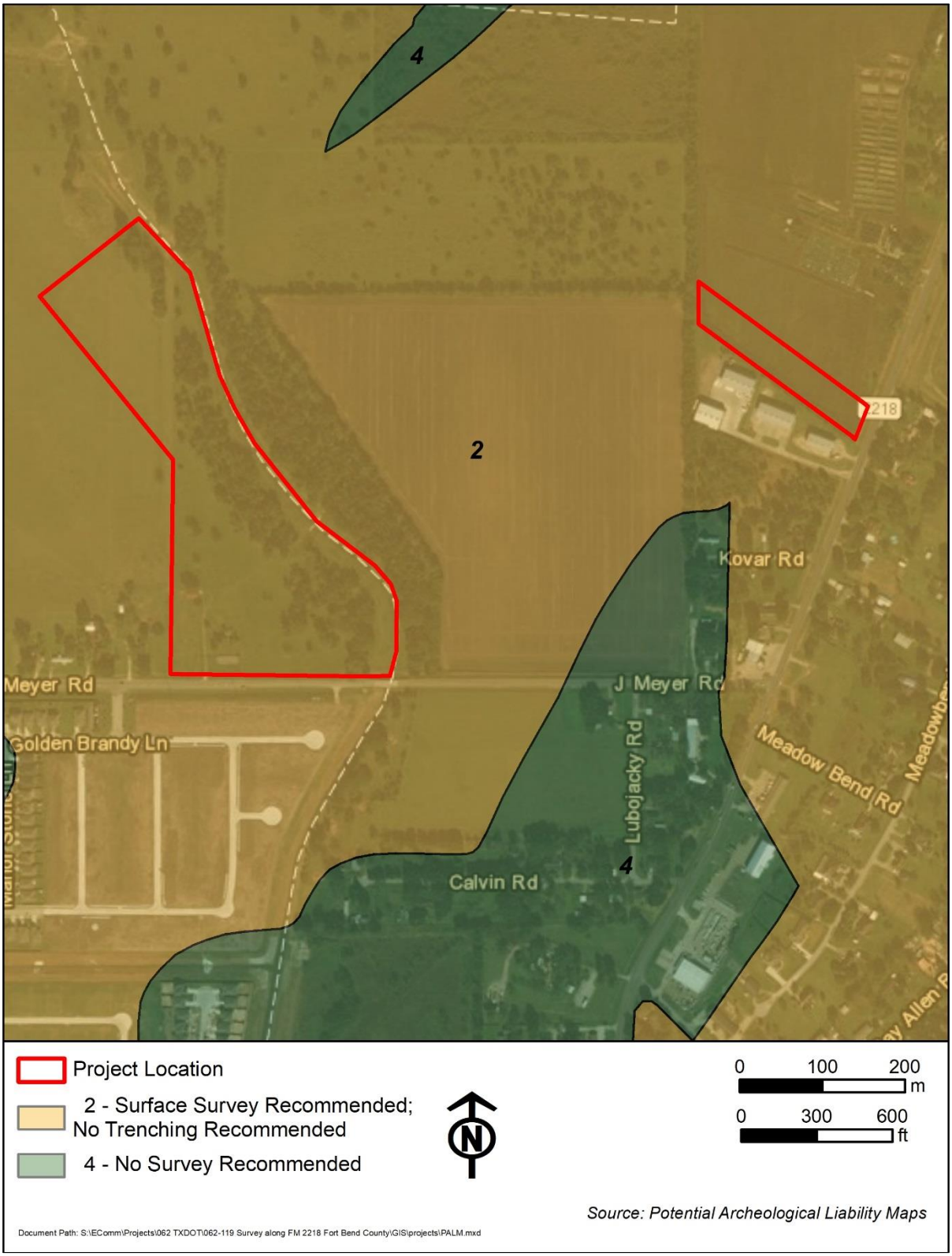

Figure 4a. PALM showing project APE.

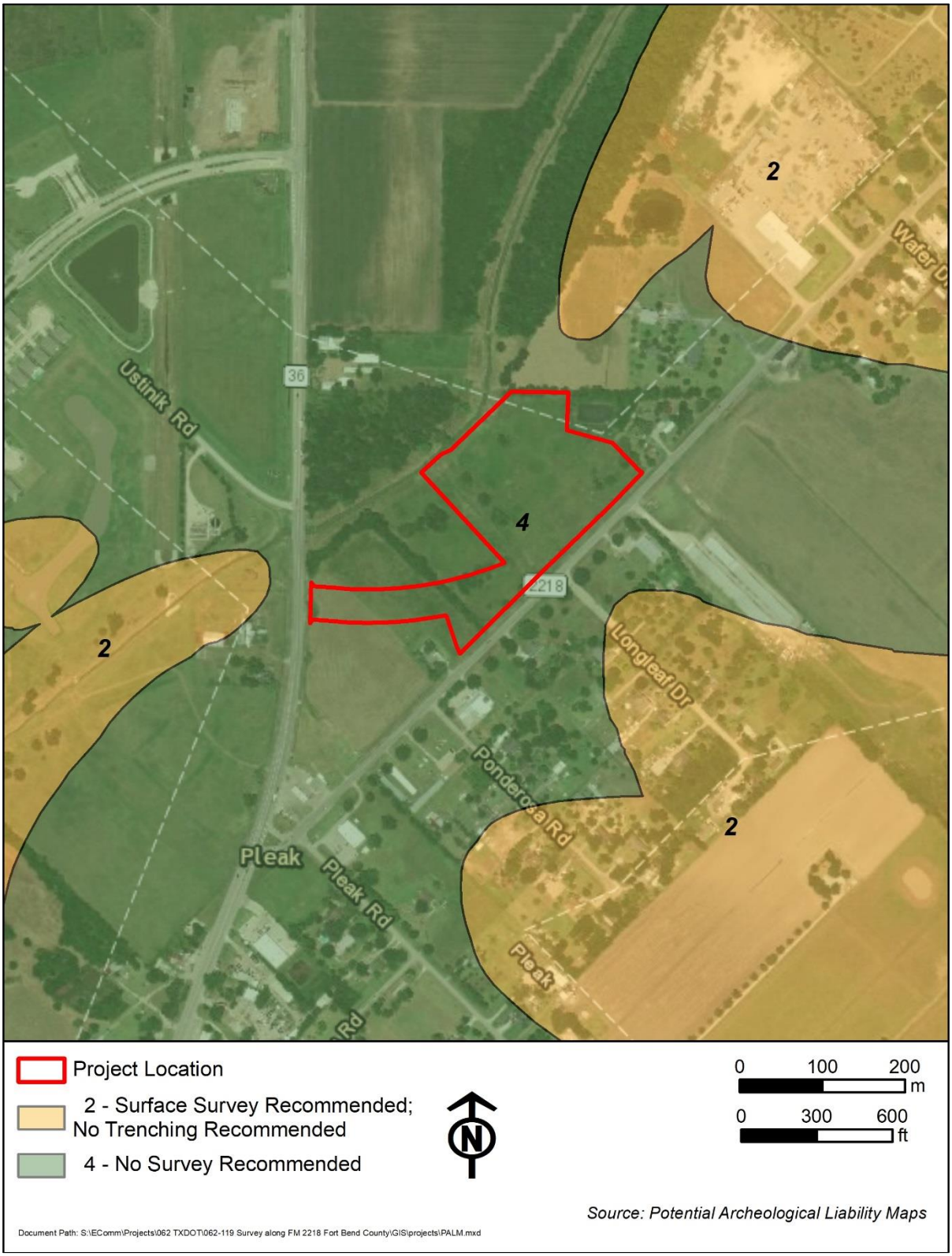

Figure 4b. PALM showing project APE.

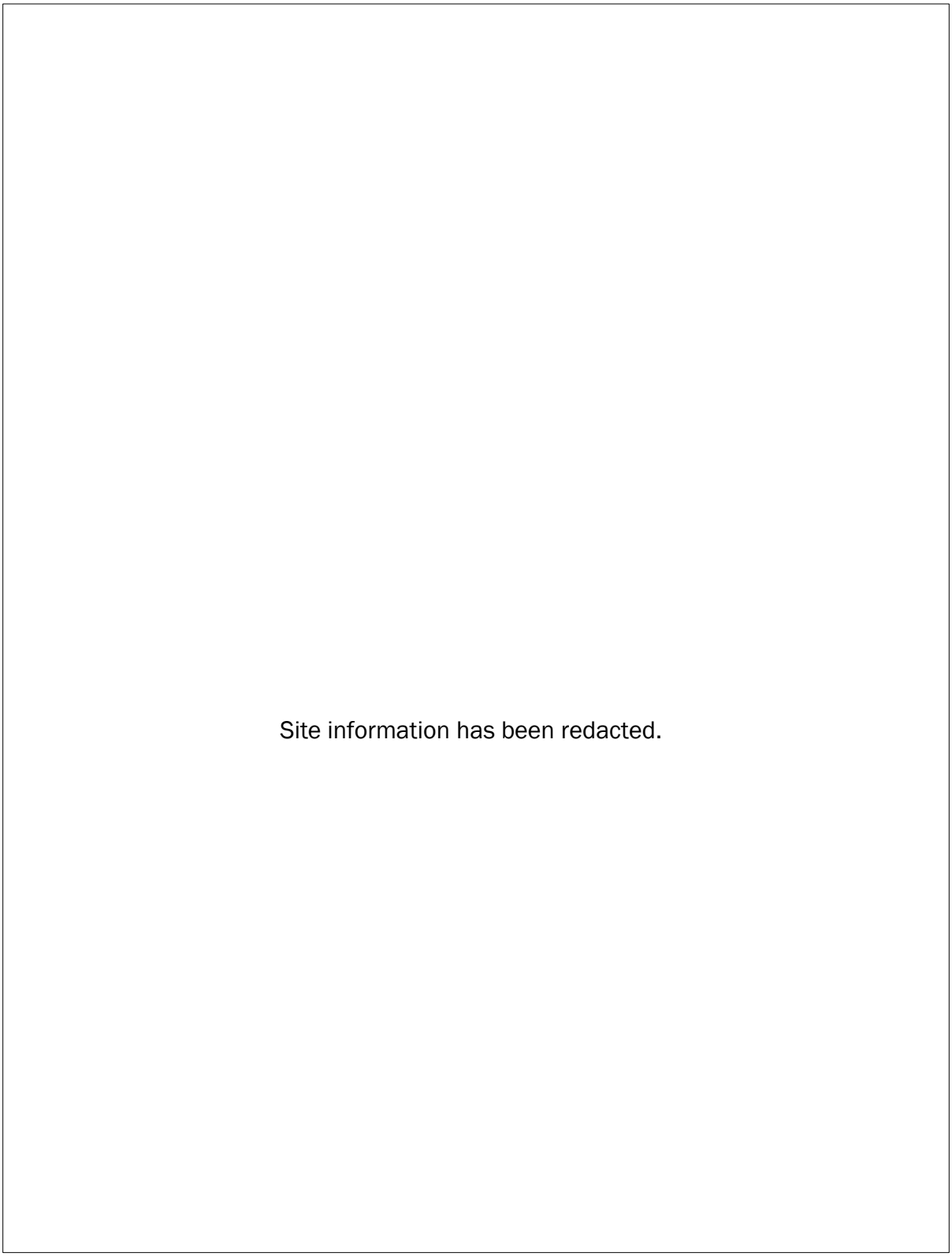

Figure 5. Map depicting previous archeological surveys conducted adjacent and within 1 km of the project APE.

Figure 6. Excavated drainage ditch through Parcel 1.

Figure 7. Channelized Seabourne Creek showing maintained creek bank.

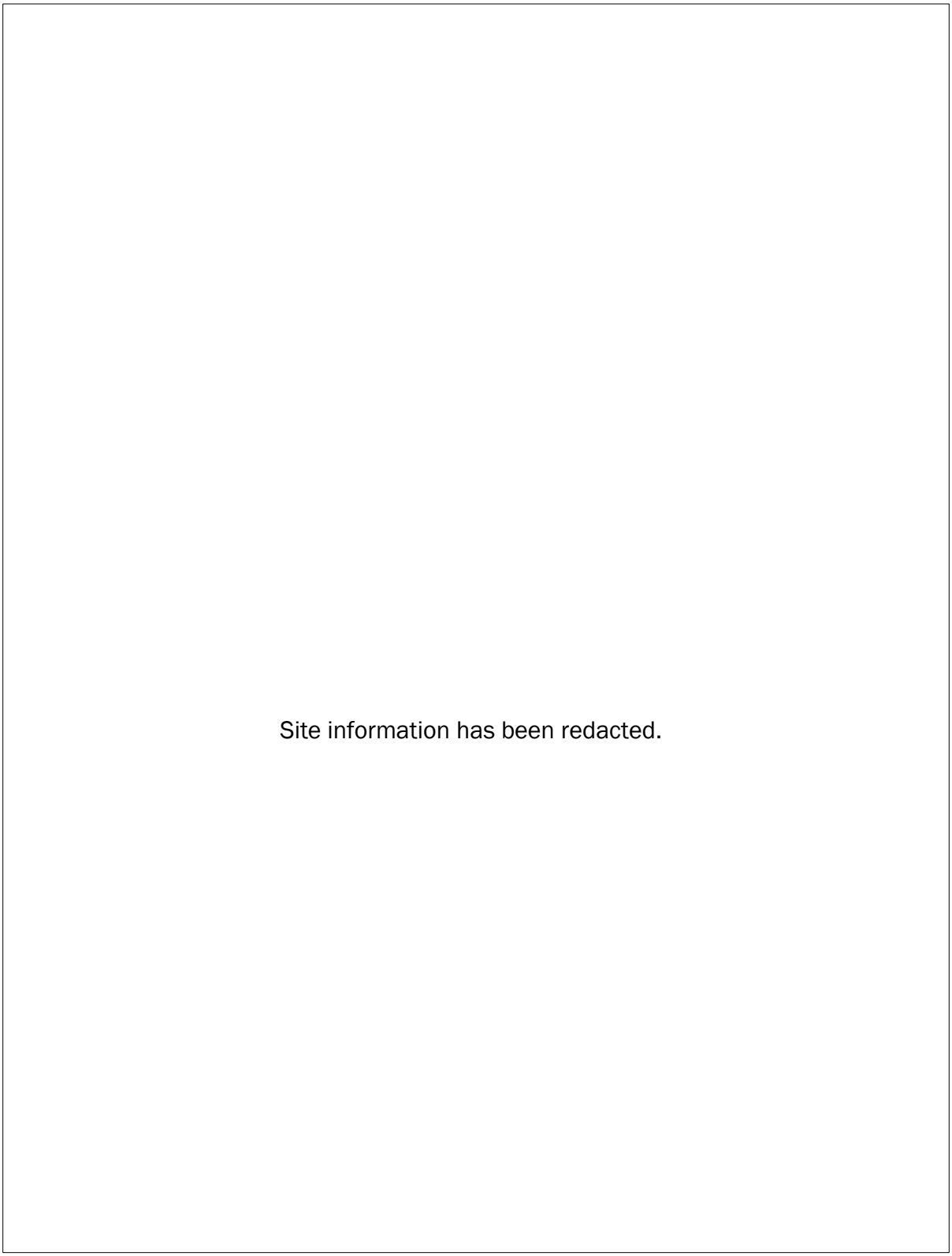

Figure 8. Results of shovel testing within Parcel 1.

Figure 9. Cleared area for utilities at the eastern end of Parcel 2.

Figure 10. Berm at east end of Parcel 2.

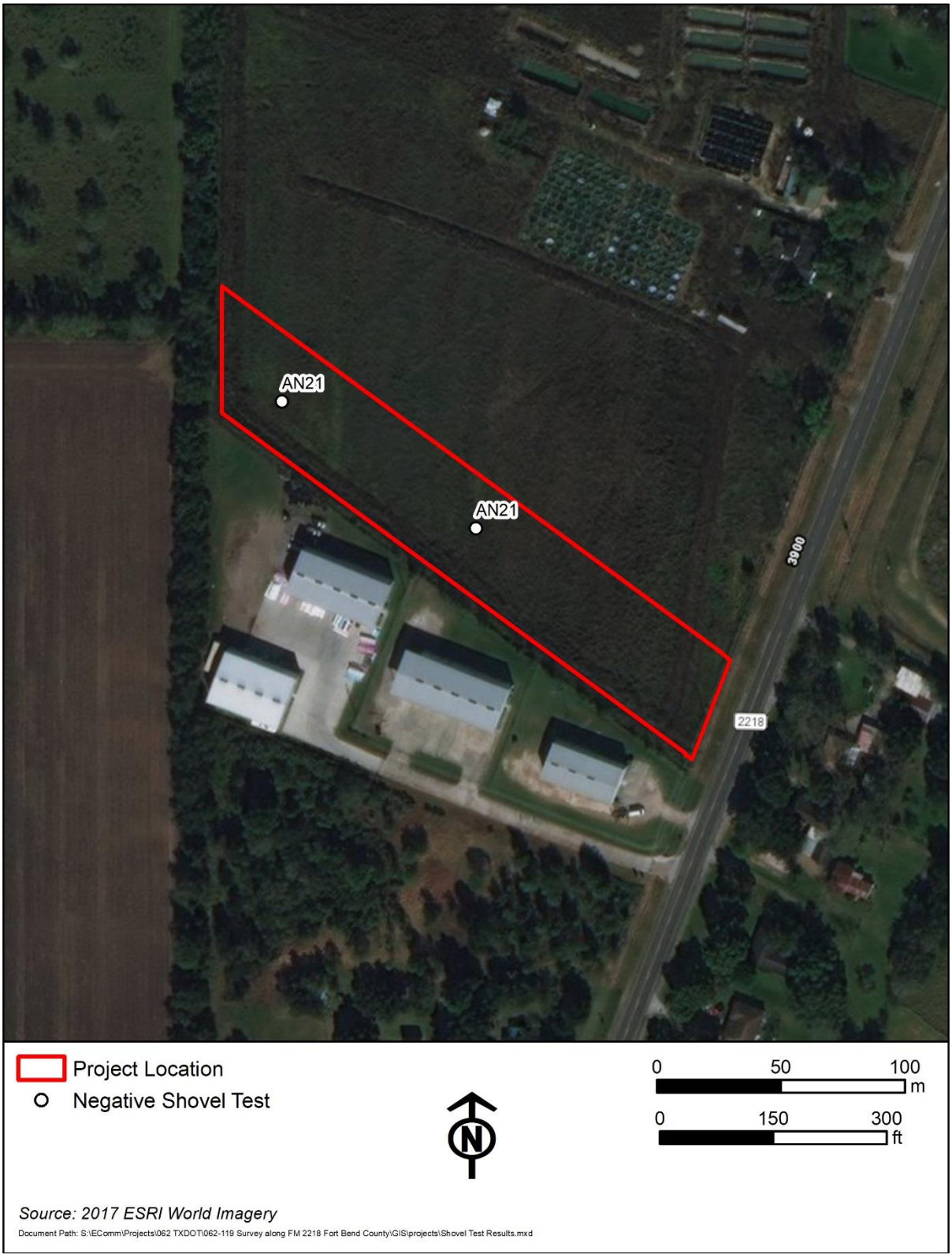

Figure 11. Results of shovel testing within Parcel 2.

Figure 12. General view of Parcel 3.

Figure 13. View of previously plowed pasture in Parcel 3.

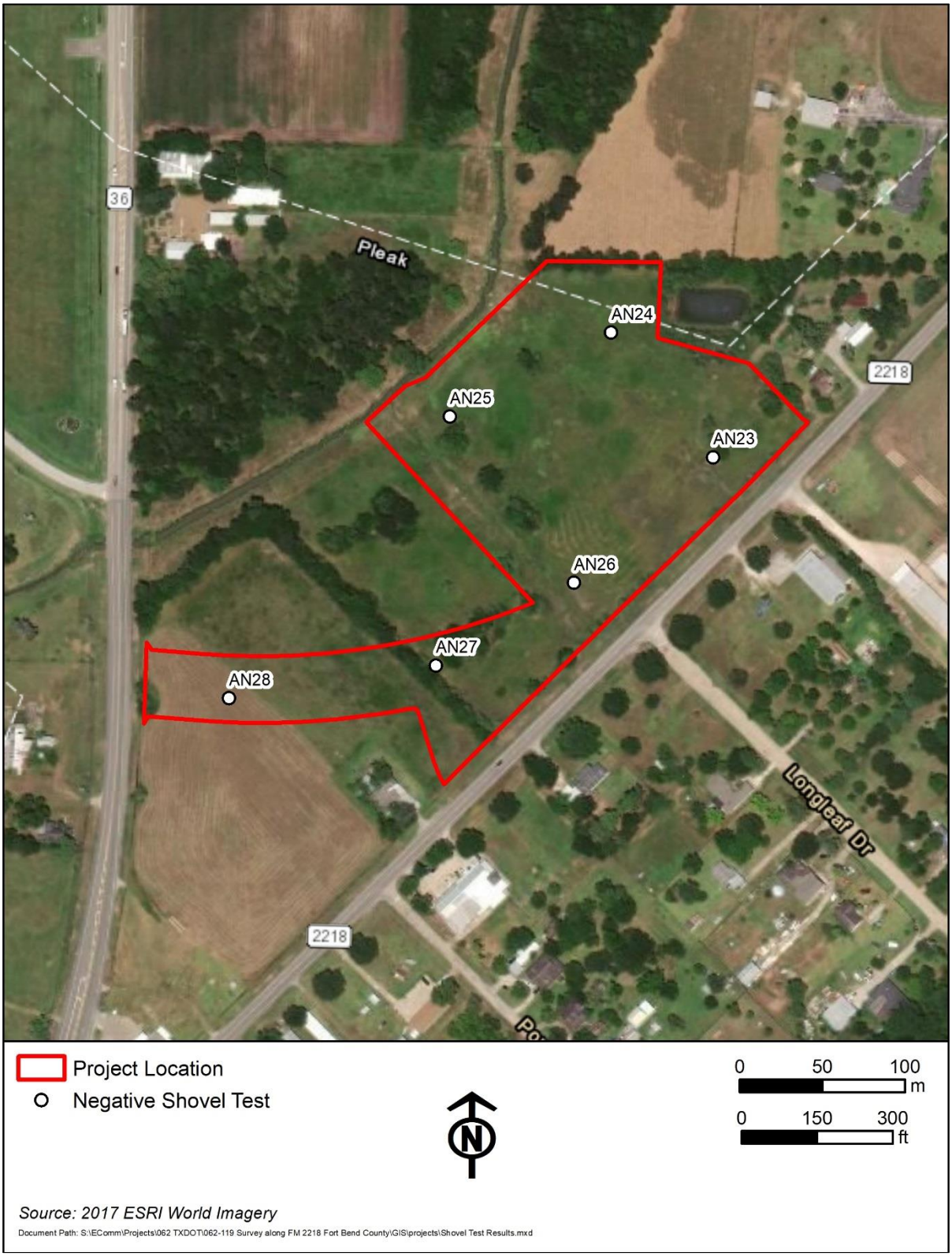

Figure 14. Results of shovel testing with Parcel 3.

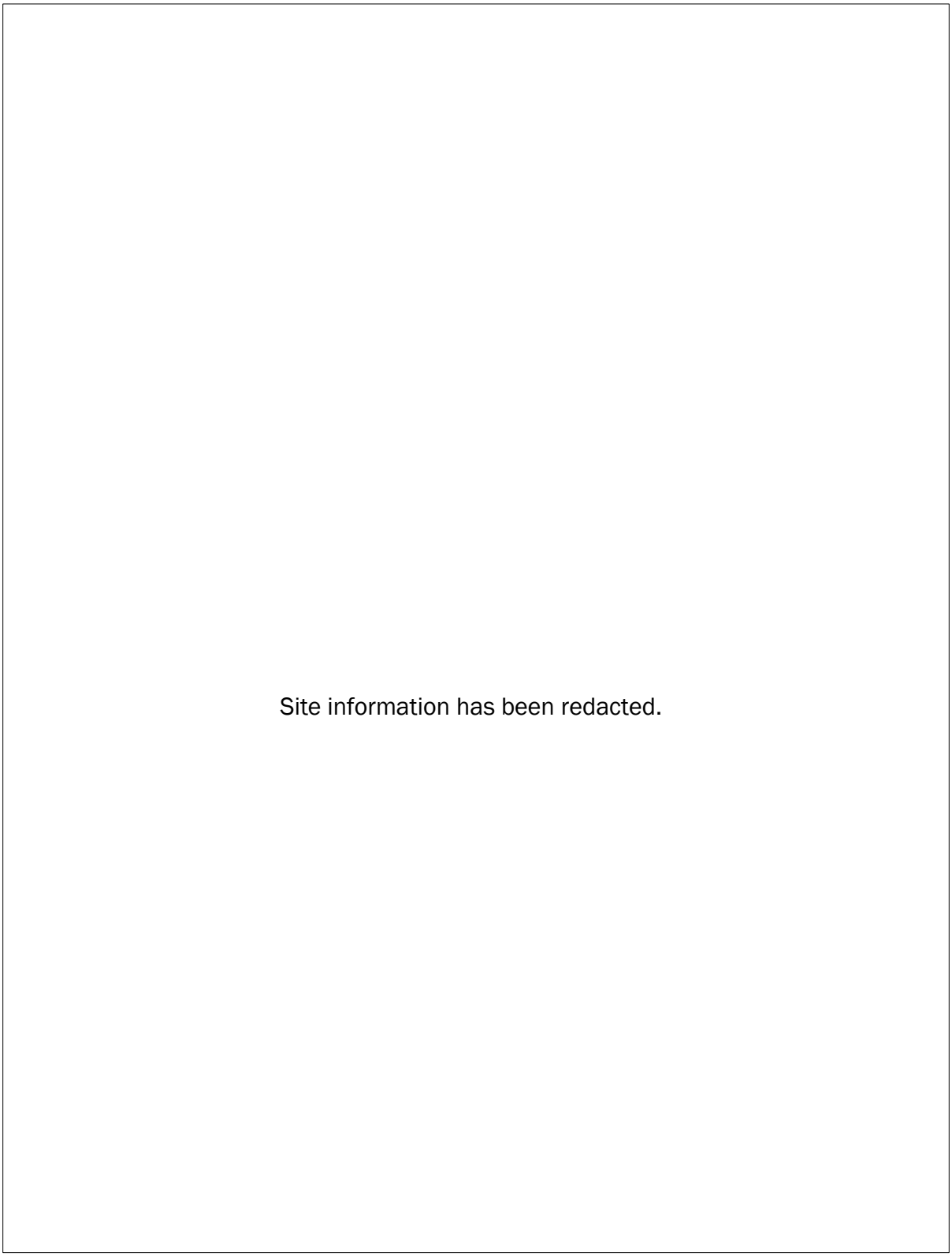

Figure 15. Site map of 41FB363 showing shovel tests in relation to house foundation and barn.

Figure 16. House foundation in 41FB363.

Figure 17. Clothesline T in site 41FB363.

Figure 18. Foundation remains of house in site 41FM363.

Figure 19. Barn in site 41FB363.

Tables

Shovel Test	Result	Northing	Easting	Depth	Color	Texture	Termination	Cultural Material
AN01	Negative	3268034	228831	0-40	10yr4/2	Clay Loam	Basal Clay	None
				40-50	10yr4/2	Clay Loam		
AN02	Positive	3268049	228841	0-28	10yr4/2	Clay Loam	Compact Soil	1 cut cow bone
				28-35	10yr4/2	Clay Loam		
AN03	Positive	3268063	228834	0-35	10yr4/2	Clay Loam	Compact Soil	1 wire segment
				35-40	10yr4/2	Clay Loam		
AN04	Negative	3268077	228829	0-28	10yr4/2	Clay Loam	Compact Soil	None
				28-32	10yr4/2	Clay Loam		
AN05	Negative	3268095	228816	0-33	10yr4/2	Clay Loam	Compact Soil	None
				33-48	10yr4/2	Clay Loam		
AN06	Negative	3268117	228791	0-41	10yr4/2	Clay Loam	Compact Soil	None
				41-48	10yr4/2	Clay Loam		
AN07	Negative	3268160	228786	0-20	10yr4/2	Clay Loam	Other	None
				20-30	10yr4/2	Clay		
AN08	Negative	3268262	228780	0-22	10yr4/2	Clay Loam	Compact Soil	None
				22-30	10yr4/2	Clay Loam		
AN09	Negative	3268336	228737	0-45	10yr4/2	Clay Loam	Compact Soil	None
				45-51	10yr4/2	Clay Loam		
AN10	Negative	3268413	228673	0-25	10yr5/2	Clay Loam	Basal Clay	None
				25-30	10yr5/2	Clay		
AN11	Negative	3268488	228674	0-25	10yr5/2	Clay Loam	Basal Clay	None
				25-30	10yr5/2	Clay		
AN12	Negative	3268485	228740	0-48	10yr4/2	Clay Loam	Basal Clay	None
				48-55	10yr4/2	Clay Loam		
AN13	Negative	3268358	228791	0-31	10yr5/2	Clay Loam	Basal Clay	None
				31-35	10yr5/2	Clay		
AN14	Negative	3268255	228846	0-24	10yr4/2	Clay	Basal Clay	None
				24-30	10yr4/2	Clay		
AN15	Negative	3268160	228900	0-20	10yr4/2	Clay	Basal Clay	None
				20-32	10yr4/2	Clay		
AN16	Negative	3268086	228977	0-20	10yr4/2	Clay	Basal Clay	None
				20-30	10yr4/2	Clay		
AN17	Negative	3268099	228883	0-39	10yr4/2	Clay Loam	Compact Soil	None
				39-58	10yr4/2	Clay Loam		
AN18	Negative	3268010	228973	0-26	10yr3/1	Sandy Clay	Compact Soil	None
				26-30	NA	construction fill		
AN19	Negative	3268013	228875	0-40	10yr4/2	Clay Loam	Compact Soil	None
				40-60	10yr4/2	Clay		
AN20	Positive	3268021	228788	0-28	10yr4/2	Clay Loam	Compact Soil	1 brown bottle glass
				28-33	10yr4/2	Clay Loam		

Shovel Test	Result	Northing	Easting	Depth	Color	Texture	Termination	Cultural Material
AN21	Negative	3268428	229424	0-34	10yr4/2	Clay	Water Table	None
				34-40	10yr4/2	Clay		
AN22	Negative	3268377	229502	0-25	10yr2/1	Clay	Basal Clay	None
				25-31	10yr2/1	Clay		
AN23	Negative	3265865	228174	0-20	10yr3/2	Clay Loam	Basal Clay	None
				20-30	10yr4/2	Clay		
AN24	Negative	3265940	228113	0-28	10yr5/2	Clay Loam	Basal Clay	None
				28-30	10yr4/2	Clay		
AN25	Negative	3265889	228015	0-26	10yr5/2	Clay Loam		None
				26-30	10yr4/2	Clay		
AN26	Negative	3265789	228090	0-33	10yr4/2	Clay Loam	Compact Soil	None
				33-40	10yr4/2	Clay Loam		
AN27	Negative	3265739	228007	0-36	10yr4/1	Clay Loam	Compact Soil	None
				36-40	10yr4/2	Clay		
AN28	Negative	3265719	227882	0-26	10yr4/1	Clay	Compact Soil	None
				26-30	10yr4/1	Clay		

This report was written on behalf of the Texas Department of Transportation by:

11842 Rim Rock Trail
Austin, Texas 78737

Technical Report No. 297

AmaTerra Project No. 062-119