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Intensive Archeological Survey of Old Gertrudes Road at Stewart Creek, Jack County, Texas

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Report for Archeological Survey

Intensive Archeological Survey of Old Gertrudes Road at Stewart Creek, Jack County, Texas Fort Worth District

Kevin Hanselka, Principal Investigator
Texas Antiquities Permit No. 8247

CSJ: 0902-40-027
January 12, 2018

Abstract

On behalf of the Texas Department of Transportation (TxDOT), SWCA Environmental Consultants (SWCA) conducted an intensive archeological survey on January 4, 2018, of 0.74 acre of existing right-of-way (ROW) and temporary easement along Old Gertrudes Road in Jack County, Texas. Because the project will receive funding from the Federal Highways Administration, it qualifies as an undertaking as defined in Title 36 Code of Federal Regulations (CFR) Part 800.16(y) and, therefore, the work was conducted in compliance with Section 106 of the National Historic Preservation Act (54 U.S. Code 306108). Furthermore, the project must also comply with the Antiquities Code of Texas (9 Natural Resources Code 191). Kevin Hanselka served as Principal Investigator under Texas Antiquities Code Permit No. 8247.

The total area of potential effects (APE) extends approximately 375 feet along the east-west roadway, covering 0.58 acre of existing ROW and a 0.16-acre temporary construction easement, representing a total of 0.74 acre. Typical depth of impacts is expected to be approximately 12 to 24 inches for the approaches, while maximum depth of impacts may reach over 10 feet for bridge supports.

Background research identified no archeological sites, historic markers, State Antiquities Landmarks, or properties eligible for or listed on the National Register of Historic Places within the APE or within a 0.6-mile (1-kilometer) radius review area. However, the review of U.S. Geological Survey topographic maps identified a historic grave 275 feet northeast of the APE. One previous survey, a 2012 linear survey, was conducted within the review area approximately 0.5 mile northeast of the APE. In addition, the historic map review identified several potential historic structures or other resources within 0.6 mile of the APE, but none within or immediately adjacent to the APE.

The field investigation of the proposed project APE consisted of an intensive pedestrian survey with shovel testing and examination of extensive natural exposures. The existing ROW is heavily disturbed by existing roadway, but the temporary easement is relatively undisturbed. The investigations identified no archeological resources. SWCA has made a reasonable and good faith effort to locate and identify historic properties as per 36 CFR Part 800.4(b)(1), and cultural resources as per Subchapter A of Chapter 26 of the Texas Administrative Code, throughout the proposed project APE. Based on the results of the survey, SWCA recommends a finding of “no historic properties affected,” and no further archeological investigations are recommended within the APE.

Project Identification

Date: January 12, 2018

Date(s) of Survey: January 4, 2018

Archeological Survey Type: Reconnaissance ☐ Intensive ☒

Report Version: Draft ☐ Final ☒

Jurisdiction: Federal ☒ State ☒

Texas Antiquities Permit Number: 8247

District: Fort Worth

County or Counties: Jack

USGS Quadrangle(s): Lynn Creek (3398-131)

Highway: Old Gertrudes Road at Stewart Creek

CSJ: 0902-40-027

Report Author(s): Steve Carpenter and Christopher Shelton

Principal Investigator: Kevin Hanselka, Texas Department of Transportation

Texas Historical Commission Approval

Signature Date

Project Description

Project Type: Roadway improvement with bridge replacement

Total Project Impact Acreage: 0.74 acre

New Right of Way (ROW) Acreage: 0.0 acre

Easement Acreage: 0.16 acre

Area of Pedestrian Survey: 0.74 acre

Project Description and Impacts: The proposed project would consist of the replacement of the Old Gertrudes Road bridge and approaches at Stewart Creek. The project area is located 0.05 mile west of Farm-to-Market Road (FM) 1191 in northwestern Jack County, Texas (Figure 1). The existing bridge consists of a one-lane, steel girder bridge on steel pile abutments and approaches with varying lane widths of 11.61 to 19.42 feet. Crossing Stewart Creek, an intermittent stream, the bridge has no shoulders. The proposed project would reconfigure the western and eastern approaches and replace the bridge with a new structure to facilitate two 12-foot-wide lanes. The new bridge would have a total width ranging from 24 to 26 feet. No shoulders would be added, and the bridge and approaches would remain within the existing ROW. A temporary construction easement north of the proposed fence line will be required.

Area of Potential Effects (APE): The total APE is about 375 feet long and covers approximately 0.74 acre, including 0.58 acre of existing ROW and 0.16 acre of temporary construction easement on the northern side (Figure 2). Typical depth of impacts are approximately 12 to 24 inches for the approaches, while maximum depth of impacts may reach over 10 feet for gabion protection and six 36-inch-diameter drill shafts.

Project Area Ownership: The existing ROW is owned and managed by TxDOT. The temporary easement is privately owned.

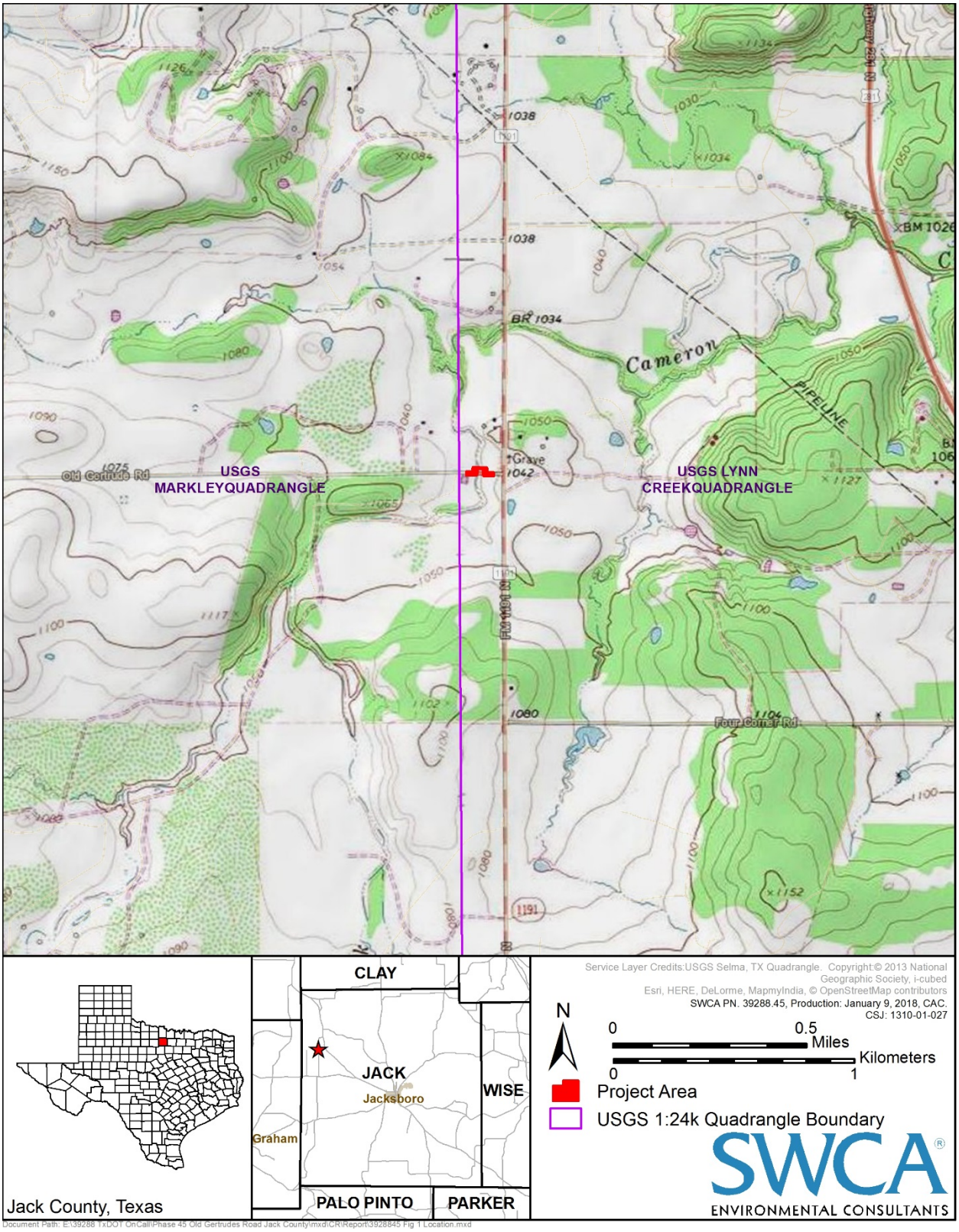

Figure 1. Project location map.

Figure 2. Project area.

Project Setting

Topography and Hydrology: The APE crosses the channel and low terraces of Stewart Creek. The area is within gently rolling to hilly terrain, dissected by downcutting drainages. Elevation ranges from 1,020 feet to 1,050 feet above mean sea level and exhibits a downcut topographic relief within the broader Cameron Creek drainage basin. Stewart Creek originates from the Upper Cameron Creek subwatershed and West Fork Trinity River watershed within the Trinity River Basin.

Geology: According to the Geologic Atlas of Texas, Wichita Falls-Lawton sheet, the geology of the proposed Old Gertrudes project area is underlain by Phanerozoic Thrifty and Graham formations, undivided (Figure 3) These formations are characterized by a combination of mudstone, shale, sandstone, and limestone deposits (Barnes 1987).

Soils: According to the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey, soils within the project area are mapped as Pulexas fine sandy loam, occasionally flooded (Figure 4). Pulexas soils have typical profile with a thin upper solum of brown (10YR 5/3) fine sandy loam to a depth of 5 inches (12.7 centimeters [cm]) overlying a light yellowish brown (10YR 6/4) fine sandy loam to 30 inches (76.2 cm) below surface. From 30 to 42 inches (76.2 to 106.7 cm) below surface, the soil transitions to a brown (10YR 5/3) fine sandy loam over a massive, hard brown (10YR 4/3) loam from 42 to 60 inches (106.7 to 152.4 cm). These soils are found along small streams in the Cross Timbers and claypan areas, typically with an A-C horizon profile, with the upper 5-inch-thick stratum being a weakly developed soil. These are nearly level soils located on floodplains and formed in stratified loamy alluvium (Crenwelge et al. 2005; NRCS 2018). According to TxDOT's Potential Archeological Liability Maps Automated Modeling of Archeological Potential (Abbott 2013), Pulexas soils have a high geoarcheological potential for intact strata in both shallow and deep contexts.

Land Use: The existing ROW has been roadway for at least a century and the temporary easement to the north is open pasture along the drainage. Maps indicate several detention ponds in the immediate vicinity for either flood control purposes or as stock tanks.

Vegetation: Portions of the existing ROW, mainly on the southern side, consist of tall grasses or tall weeds with small stands of trees and understory adjacent to the road and the narrow riparian zone. North of the ROW, where the new easement would be located, vegetation consists of low-grazed short grasses bordered by isolated trees.

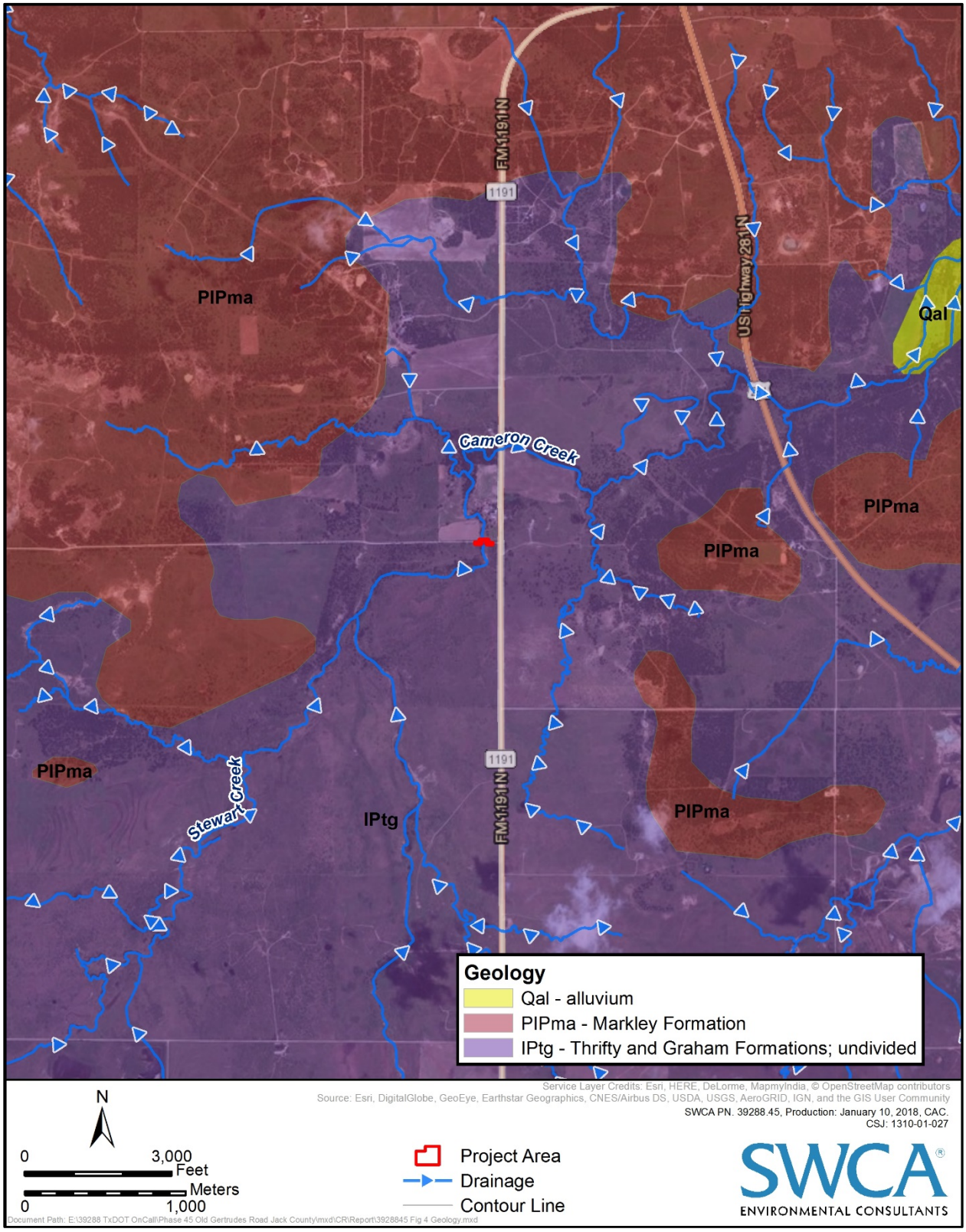

Figure 3. Project area geology.

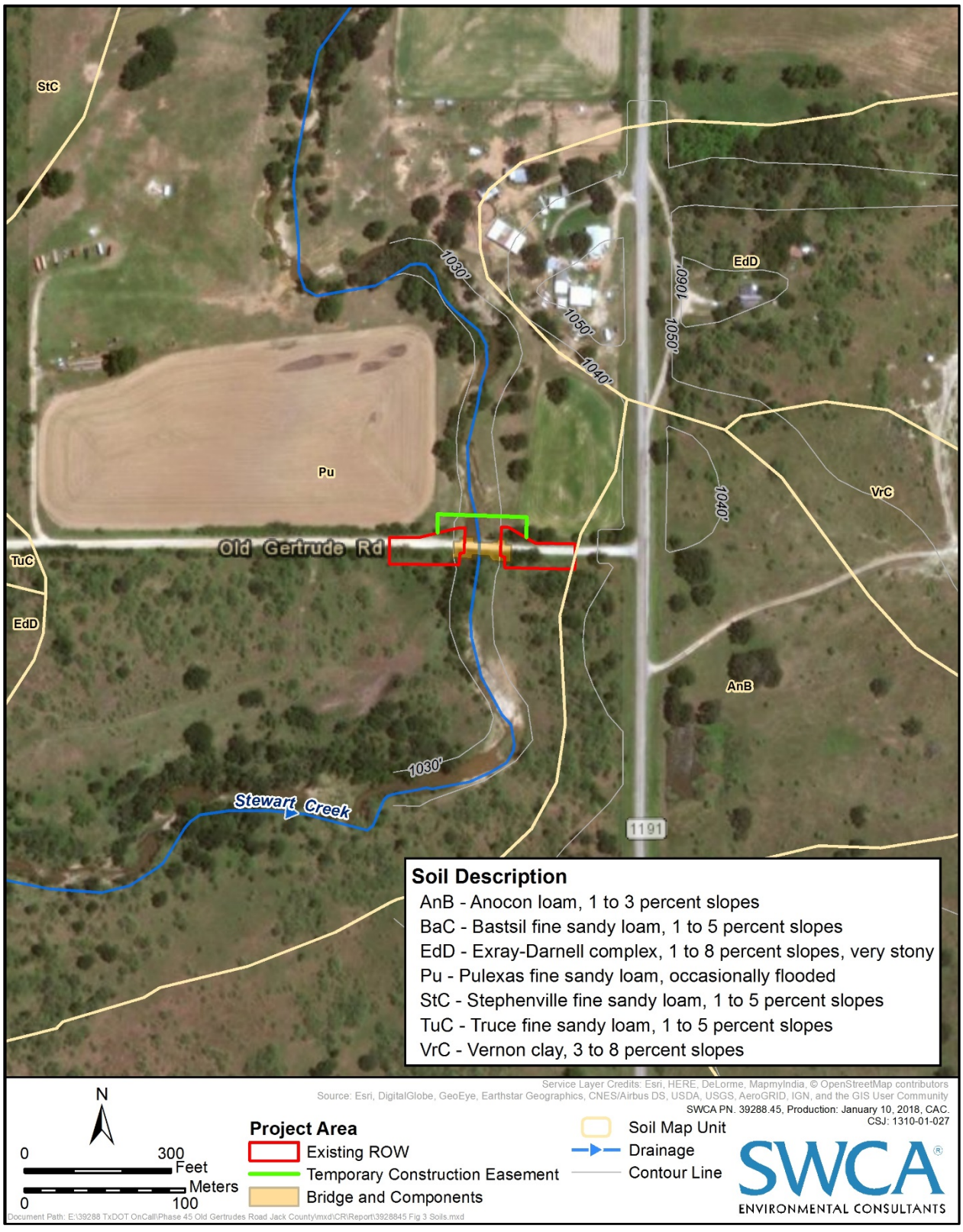

Figure 4. Project area soils.

Estimated Ground Surface Visibility: 0 to 20 percent.

Previous Investigations and Known Archeological Sites: Building upon AECOM's (2017) archeological review of the project, SWCA Environmental Consultants (SWCA) conducted background research to collect general information on the prehistoric and historic resources in the area and identify the locations and distribution of archeological sites, historic resources, markers, cemeteries, and other cultural resources within 0.6 mile (1 kilometer [km]) of the proposed project APE. Documents and references used to gather the background information include, but were not limited to, the Texas Archeological Sites Atlas (Atlas), the Texas Historical Sites Atlas, historic aerial images, topographic maps (U.S. Geological Survey [USGS] 2018), historical maps (Foster et al. 2006) and technical reports on previous cultural resources surveys.

A background literature review determined that the APE has not been previously surveyed for cultural resources. Additionally, no archeological sites, historic markers, State Antiquities Landmarks, or properties listed on, or eligible for listing on, the National Register of Historic Places were within the APE or within a 0.6-mile (1-km) radius review area. However, the review of USGS topographic maps identified a historic grave 275 feet northeast of the APE (see Figure 1).

The grave is apparently an isolated interment, or by USGS terminology it would be designated as a cemetery. It is depicted immediately east of FM 1191 in an area of open pasture with isolated trees. The feature is recorded in the Texas Historical Commission's (THC's) Atlas data under number JA-CO43, but is not listed as a Historic Texas Cemetery (THC 2018a). No further information regarding the age or disposition of the grave was found in the available records.

In addition, the historic map review identified several potential historic structures or other resources within 0.6 mile (1 km) of the APE, but none within or immediately adjacent to the APE. As a final note, the 1964 USGS topographical map (revised in 1981) also shows what appears to be an artificial tank or other water retention feature in the southwestern quadrant of the Gertrudes Road crossing. The feature is not on the original 1964 topographical map, indicating it was constructed between 1964 and 1981. The area is probably just beyond the APE, but indicates some level of artificial historic/modern disturbance in the immediate area.

One previous linear survey was conducted within the review area, approximately 0.5 mile northeast of the APE. In 2012, SWCA surveyed the Texas Express Pipeline under Texas Antiquities Permit No. 6220. The effort did not result in the recording of any cultural resources within the vicinity of the current proposed project.

The nearest historical landmark is 2.4 miles (4.0 km) southeast of the APE. The Lost Valley Marker (No. 3132) cites "Seven Blue Hills" in the distance, one of which is Spy Knob that served as a lookout during pioneer days. The marker text notes several events that occurred at the site:

In 1857, the Cambren and Mason families, settlers, were victims of white renegades and Indians. On May 18, 1871, on western rim, teamsters of Warren Wagon Train were killed soon after General W. T. Sherman of the U.S. Army had traveled safely through this valley. On July 12, 1874, the escort part of Major John B. Jones, Commander of the Frontier Battalion, Texas Rangers, was ambushed here, with two men killed. In later years, this has been peaceful farm-ranch area.

Comments on Project Setting: The existing ROW has been extensively modified by previous roadway construction, maintenance, and other disturbances (e.g., the water retention feature). The ROW has a low potential for intact deposits, but the temporary easement is relatively intact, although erosion has removed part of the terraces.

Survey Methods

Surveyors: Dan Rodriguez and Robert Brush

Methodological Description: The field investigations complied with the THC Archeological Field Survey Standards (THC 2018b) and Council of Texas Archeologists guidelines. The investigations entailed an intensive pedestrian survey of the entire 0.74 acre (Figure 5). Shovel test locations were chosen at the discretion of the project archeologist and focused on areas with the least disturbance within the APE, as well as areas with alluvial deposits. Archeologists also examined of extensive natural exposures located within the APE. In areas with a potential for deeply buried deposits, deep testing (e.g., mechanical trenching) is required to assess impacts commensurate with the depth of the APE. For this Project, deep testing was not conducted for several reasons: 1) the natural profiles (see discussion below) did not reveal deep alluvial deposits; 2) the existing ROW has been thoroughly impacted; 3) deep impacts are not expected within the temporary easement.

SWCA archeologists excavated shovel tests in arbitrary 4-inch (10-cm) levels and sifted all materials through ¼-inch mesh. Shovel tests measured 12 inches (30 cm) in diameter and were excavated to sterile soil strata or into indurated clay pan. Archeologists recorded shovel tests on data forms, and included information on texture, consistency, color, and cultural materials collected. Soil colors were described as per Munsell soil color charts. Furthermore, archeologists photographed all shovel tests and recorded shovel test locations on a handheld Global Positioning System (GPS) device with sub-meter accuracy.

Other Methods: None

Collection and Curation: NO ☒ YES ☐ If yes, specify facility.

Comments on Methods: THC survey standards for a project of this size (i.e., 0–2 acres) requires a minimum of three shovel tests per acre (THC 2018b). Due to the existing roadway and heavy disturbance within the APE, SWCA excavated two shovel tests, but did not conduct subsurface testing in disturbed existing ROW (Table 1).

Figure 5. Survey results

Table 1. Excavations in Project APE

Method	Quantity in Existing ROW	Quantity in Proposed New ROW	Quantity in Temporary Easements	Total Number per Acre
Survey Shovel Test Units	0	0	2	2.7
Auger Test Units	0	0	0	0
Mechanical Trenching	0	0	0	0

Survey Results

Project Area Description: On January 4, 2018, SWCA archeologists conducted a pedestrian survey of the APE, using shovel testing and available exposures to assess the potential for buried cultural deposits (see Figure 5). The existing ROW has been disturbed by the original bridge and roadway construction. Gabion structures around both bridge footings support elevated fill sections (Figures 6 and 7). On both sides of Stewart Creek, terraces were low and had a hummocky topography because of differential erosion and various disturbances. Sparse grasses afforded moderate surface exposure, which was augmented by cutbank profiles. A thin line of trees borders the existing roadway.

Erosional cutbanks were primarily located in the temporary easement in the northeastern quadrant, but also along the lower terraces bordering the creek. The profiles showed approximately 1 to 1.5 m of fine sandy loam overlying a substrate of gravels and cobbles, likely channel deposits from a relict stream (Figures 8 and 9). The channel deposits were poorly sorted, subangular to angular limestone and sandstone. Overlying sediments were tan to lightly rubified with a slightly darker, weakly developed upper A horizon. Boundaries are gradual to diffuse; inclusions include rootlets, few gravels, and insect burrows. The soils are described as calcareous, but no pedogenic calcium carbonate development was clearly discerned. Sediments apparently derive from both alluvial and colluvial input; located immediately upslope to both the east and west of the easements, agricultural fields provide sources of slopewash deposition (see Figure 5).

No cultural materials were identified in the available surface or cutbank exposures. A sparse amount of modern trash occurs along the creek, particularly beneath the bridge. No prominent strata or buried soils were noted in the available soil profiles.

Figure 6. Fill section behind gabion wall in existing ROW, facing east and showing temporary easement on northern side of APE.

Figure 7. Temporary easement on northern side of APE.

Figure 8. Natural erosional profile in temporary easement in southwestern quadrant, facing west. Note gravels and cobbles at base of profile.

Figure 9. Natural erosional profile in temporary easement in southwestern quadrant, facing west. Note gravels and cobbles at base of profile.

Shovel Test Results

Two shovel tests, one each in the relatively intact areas of temporary easement, encountered soils similar to those exposed in the natural profiles. Both shovel tests terminated at indurated loams, but did not hit the basal gravels (Table 2). Both shovel tests were negative for subsurface cultural materials.

Archeological Materials Identified: No archeological materials were identified.

APE Integrity: The proposed APE exhibits prior disturbance from road construction, but the temporary easements are relatively intact, although modified by varying degrees of erosion.

Table 2. Shovel Tests Profiles

ST No.	Level	Depth	Positive/ Negative	Munsell	Texture	Inclusions	Comment
DR01	1	0-55	Negative	7.5YR 5/8	Sandy Clay Loam	5%-10% Gravels, Pebbles	No cultural materials encountered. Terminated at compact soil.
RB02	1	0-45	Negative	7.5YR 5/8	Sandy Clay Loam	5%-10% Gravels, Pebbles	No cultural materials encountered. Terminated at compact soil.

Recommendations

Further Work: No further work is recommended.

Justification: Investigators did not encounter any archeological resources during intensive investigations of the APE. The original bridge and roadway construction has largely removed the archeological potential for the existing ROW. The Stewart Creek terrace deposits, identified as having the greatest potential for buried cultural deposits within the APE, were assessed through shovel testing and available erosional exposures. No subsurface cultural materials were identified. Based on the results of the pedestrian survey and shovel testing, no further investigations are recommended to assess impacts from project construction within the approximately 0.74-acre APE.

Investigations were conducted in compliance with the Antiquities Code of Texas and Section 106 of the National Historic Preservation Act. As per the federal and state implementing regulations at 36 CFR 800.4(b)(1) and 13 Texas Administrative Code 26, SWCA has made a reasonable and good faith effort to identify all cultural resources within the APE.

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

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