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## Intensive Archeological Survey: State Highway 72, McMullen County, Texas

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## Intensive Archeological Survey: State Highway 72, McMullen County, Texas

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# Report for Archeological Survey

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Intensive Archeological Survey:  
State Highway 72, McMullen County, Texas

San Antonio District

Eric Oksanen, Principal Investigator, Antiquities Permit No. 8120

CSJ: 0483-02-021

September 8, 2017

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 12-16-14, and executed by FHWA and TxDOT.

## Abstract

On behalf of the Texas Department of Transportation, SWCA Environmental Consultants (SWCA) conducted an intensive cultural resources survey with mechanical trenching from August 16–18, 2017, on 226 acres of existing right-of-way (ROW) along State Highway (SH) 72 in McMullen 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, survey 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). Eric Oksanen served as Principal Investigator under Texas Antiquities Permit No. 8120.

The area of potential effects (APE) is defined as the existing 120-foot-wide ROW for a length of approximately 15.56 miles. The lane improvements within the 226-acre APE will include the addition of passing lanes throughout the project, and the widening of a turn lane near the eastern terminus.

A background literature review determined that portions of the APE have been previously surveyed for cultural resources and seven archeological sites are within the APE (Texas Historical Commission 2017a). However, three of the seven sites within the APE (i.e., 41MC623, 41MC590, and 41MC598) have been evaluated and found to be not eligible for listing in the National Register of Historic Places (NRHP). The remaining four previously identified archeological sites (i.e., 41MC369, 41MC370, 41MC371, and 41MC372) have an undetermined eligibility for listing in the NRHP or designation as a State Antiquities Landmark (SAL). In addition to the sites within the APE, 28 previously recorded sites are located directly adjacent to the existing ROW. All but two of the 28 adjacent sites are not eligible for the NRHP, whereas the remaining two sites have an undetermined eligibility.

The survey identified substantial disturbances within the APE, including prior infrastructure development, such as utilities and roads, and a variety of other land use practices. SWCA assessed the entire 226-acre survey area, but focused on the four sites within the direct APE that have an undetermined eligibility (i.e., 41MC369, 41MC370, 41MC371, and 41MC372). SWCA excavated 11 backhoe trenches (BHTs) and one 75-meter-long scrape (equivalent to 33 BHTs) near 41MC372 to assess the potential for burials within the four sites. The survey identified sparse lithic material, consisting of lithic flakes and tested cobbles, as well as few burned rocks within the back dirt and/or on the ground surface of all four sites within the heavily disturbed existing SH 72 ROW. Additionally, SWCA archeologists observed one sub-lanceolate point (Angostura-like) on the surface of 41MC371 within the existing ROW, while sparse faunal remains were identified within the upper 10 cm at site 41MC372. Due to the heavy disturbance observed throughout the existing ROW and the lack of intact subsurface deposits and cultural materials, all four evaluated sites (41MC369–41MC372) are recommended to be NOT ELIGIBLE for listing on the NRHP or for designation as SALs, and no further archeological investigations are recommended.

## Project Identification

- **Date:** 9/8/2017
- **Date(s) of Survey:** 8/16/2017 through 8/18/2017
- **Archeological Survey Type:** Reconnaissance  Intensive
- **Report Version:** Draft Final
- **Jurisdiction:** Federal  State
- **Texas Antiquities Permit Number:** 8120
- **District:** San Antonio
- **County or Counties:** McMullen
- **USGS Quadrangle(s):** Tilden, Rockaway Creek, and Fowlerton
- **Highway:** State Highway 72 Lane Improvements
- **CSJ:** 0483-02-021
- **Report Author(s):** Dan Rodriguez, Christina Nielsen, Christopher Shelton, and Steve Carpenter
- **Principal Investigator:** Eric Oksanen

## Texas Historical Commission Approval

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Signature

Date

## Project Description

- **Project Type:** Lane improvement
- **Total Project Impact Acreage:** 226 acres
- **Area of Pedestrian Survey:** 226 acres
- **Project Description and Impacts:** The proposed project would rehabilitate and add additional lanes for State Highway (SH) 72. Located entirely within McMullen County, the project area extends from the intersection with existing SH 97 at the western terminus to the intersection with existing SH 16 at the eastern terminus (Figure 1). The proposed SH 72 lane improvements will be conducted entirely within the existing highway right-of-way (ROW); no new ROW would be required.
- **Area of Potential Effects (APE):** The overall APE is defined as the typical 120-foot-wide existing ROW, extending 82,173 feet (15.54 miles) within the limits defined above (Figure 2). The project covers approximately 226 acres, much of which is existing roadway, utility corridors, and other infrastructure. Depth of impacts is expected to vary, ranging from 3 to 6 feet where the roadway will be rehabilitated and expanded.
- **Parcel Number(s):** No parcel numbers.
- **Project Area Ownership:** The existing SH 72 ROW is owned and managed by Texas Department of Transportation (TxDOT).

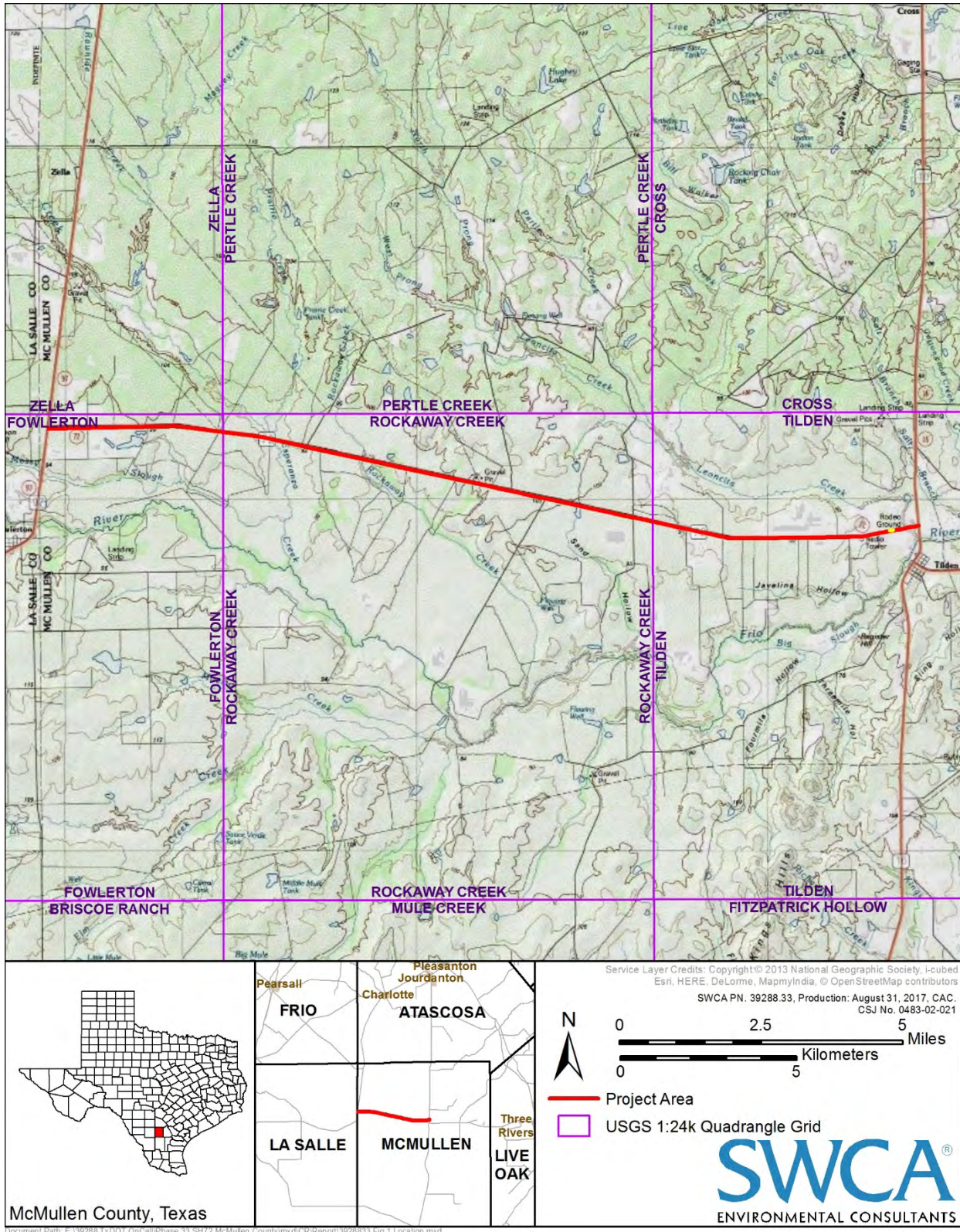


Figure 1. Project location.

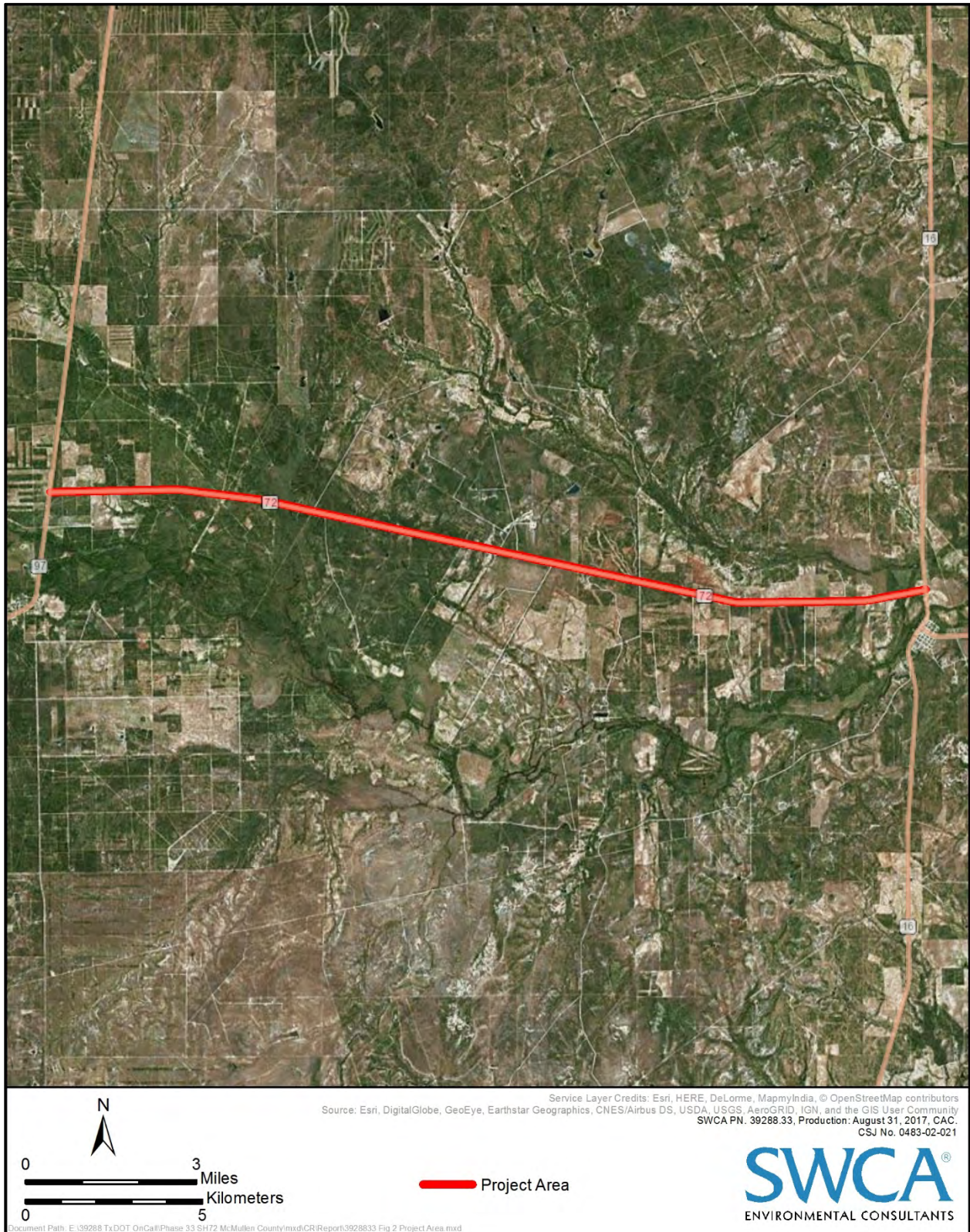


Figure 2. Project Area.



## Project Setting

- **Topography:** The APE runs roughly east to west across low rolling terrain of the Tamaulipan Thornscrub ecoregion (Wermund 2017). Elevation ranges from a maximum of 350 feet above mean sea level (amsl) in the center portion of the APE, to a low of 250 feet amsl near the eastern terminus of the APE.
- **Geology:** According to the Geologic Atlas of Texas, Crystal City – Eagle Pass sheet, most of the APE (79 percent) is underlain by Pleistocene terrace deposits (Qt), ancient deposits laid down by the Frio River and various associated tributaries and creeks (Barnes 1976) (Figure 3). Near the center of the APE, the proposed project would cross through deposits of Eocene-age Manning, Wellborn, and Cadell formations Undivided (Emwc) (10 percent), and a small portion of the eastern half of the proposed project would cross through Pleistocene Uvalde Gravel (QTu) deposits (3 percent). Two minor extents of Holocene alluvium (Qal) are mapped in the APE (8 percent), including the terraces of Rawhide Creek in the west-central part of the project and terraces at the far eastern end of the APE.
- **Soils:** Numerous different soils are traversed by the APE (Figures 4a–4c). The most common soil types found along the proposed project include Leoncita (22 percent), Caid (15 percent), Laparita (12 percent), and Coy (11 percent) (Natural Resources Conservation Service [NRCS] 2017). Laparita soils formed in interfluves, whereas Leoncita, Caid, and Coy series formed on terrace landforms. Additionally, the less-common Brundage, Montell, and Colmena series formed on terrace landforms during the Quaternary, while the Tordia series formed in interfluves during the same period. The Buchel, Sinton, and Cochina series are recent soils in frequently flooded areas. Each of these floodplain soils are formed in nearly flat landforms with slopes ranging from 0 to 1 percent. The Aguilares series is a fine sandy loam with gentle slopes ranging from 0 to 3 percent. The Weigang series consists of shallow soils formed in the gently sloping uplands. The Monwebb series soils are in occasionally flooded areas formed in clayey alluvium derived from Tertiary-aged sediments. Finally, the Dosrios series soils are located on summits and shoulders of interfluves and formed in marine sediments overlying clayey residuum derived from Tertiary-age mudstone (NRCS 2017).
- **Land Use:** The proposed project is in a rural area of northwestern McMullen County, between the towns of Fowlerton and Tilden. The APE is primarily surrounded by open active and non-active agricultural and pastoral fields, oil and natural gas wells and associated infrastructure, and sparsely scattered residences.
- **Vegetation:** Vegetation within the project area is primarily short, mixed grasses. The area surrounding the APE consists of open grass pastures and dense small trees and shrubs.
- **Estimated Ground Surface Visibility:** 30 to 100 percent within existing ROW.

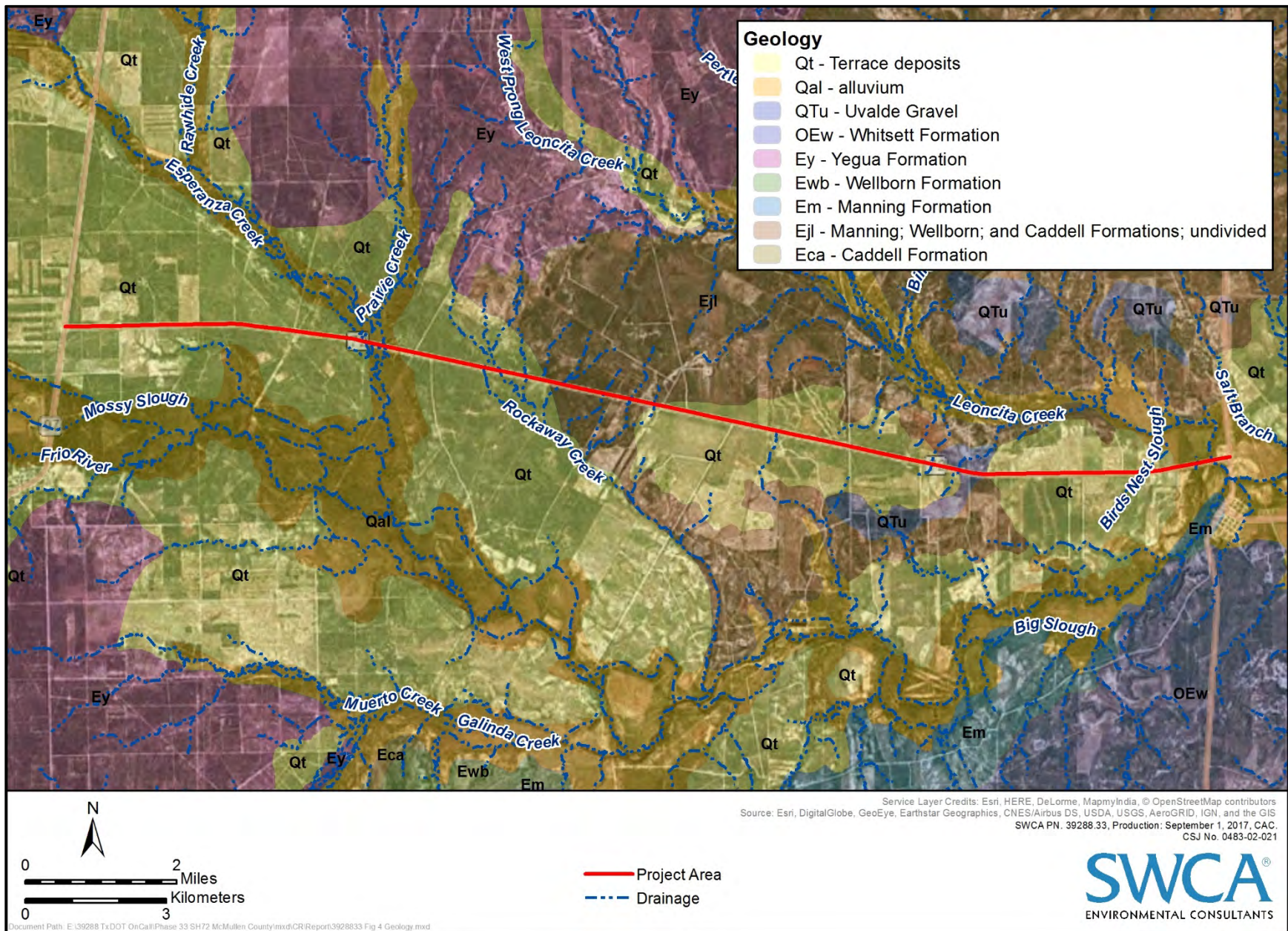


Figure 3. Project area geology.

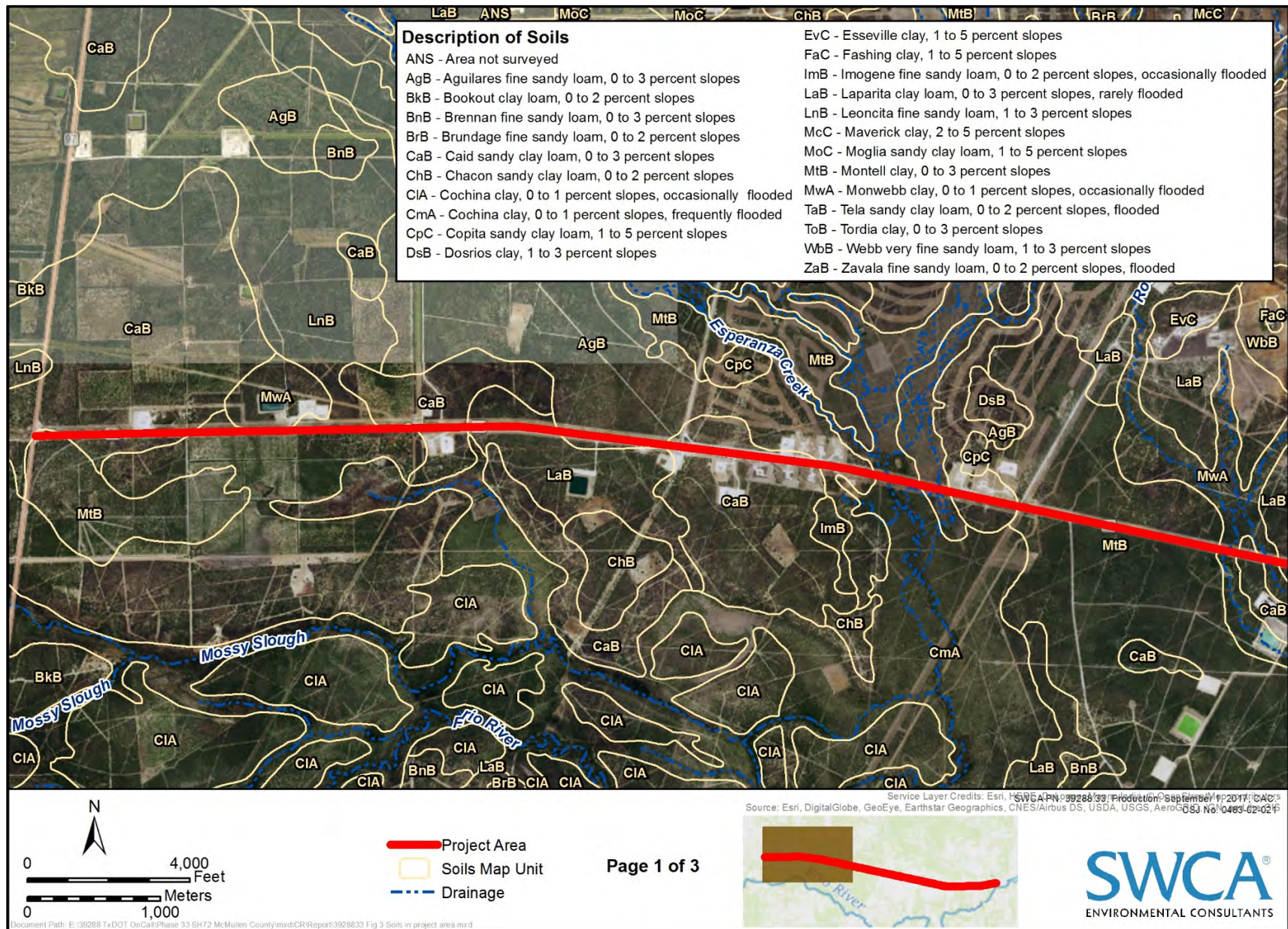


Figure 4a. Project area soils.

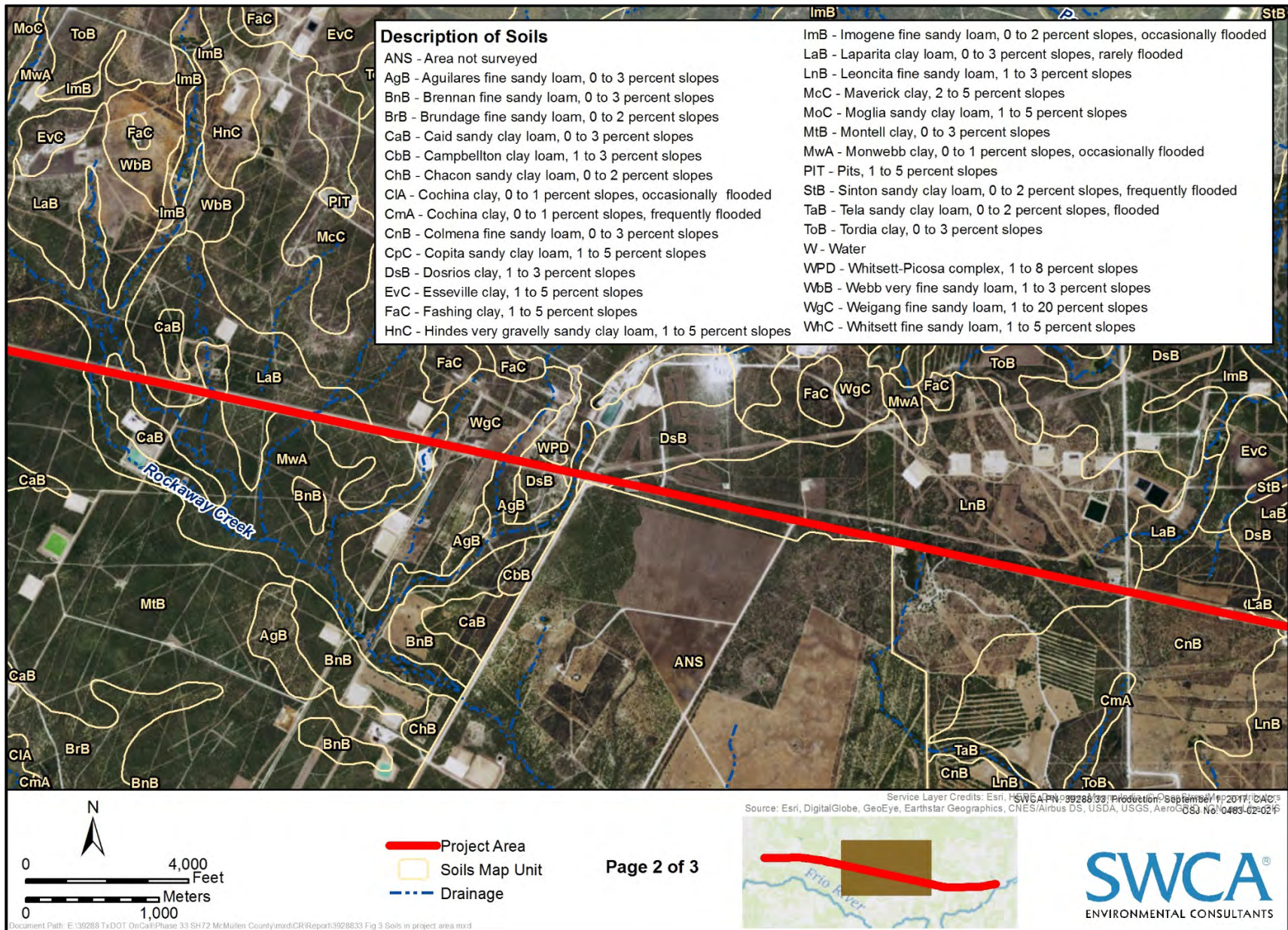


Figure 4b. Project area soils.

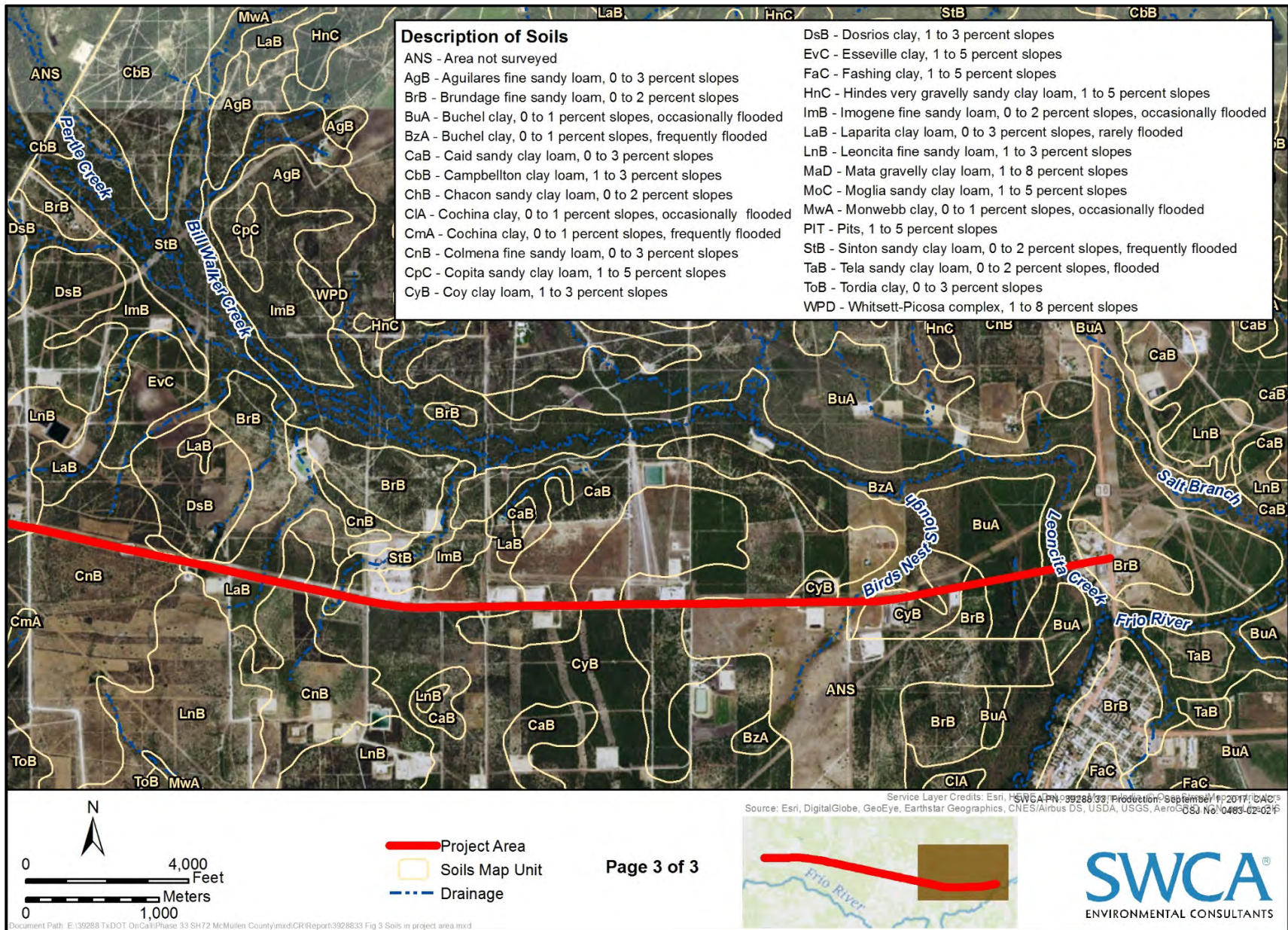


Figure 4c. Project area soils.

- **Previous Investigations and Known Archeological Sites:** A background literature review determined that portions of the APE have been previously surveyed for cultural resources and that six archeological sites are within the APE (Table 1) (Texas Historical Commission [THC] 2017a). In addition, numerous previously conducted cultural resources surveys and 45 archeological sites are mapped within a 0.6-mile (1-kilometer) radius of the APE (THC 2017a). No historic-age buildings or structures were identified within the APE during a review of the TxDOT Historic Overlay Maps (Foster et al. 2006).

The previously recorded sites and archeological surveys within the APE are related to earlier archeological investigations for SH 72 and proposed pipelines (THC 2017a). An intensive archeological survey for proposed SH 72 modifications was conducted in 1986 by Al McGraw for TxDOT. Four prehistoric sites (41MC369–41MC372) in the current APE were identified during the 1986 survey. All four prehistoric sites were listed as undetermined eligibility for listing in the National Register of Historic Places (NRHP) or for designation as State Antiquities Landmarks (SAL). All four sites are reported as prehistoric open campsites containing occasional thermally altered rock and deflated burned rock features. In addition, a Tortuga-like projectile point or knife was identified at site 41MC369 and Los Corrientes ceramics were identified at site 41MC371. All of the sites are described as having moderate to severe disturbance from the construction of SH 72; however, all were recommended for further archeological investigations within the surveyed portion of the proposed APE.

An intensive archeological survey of the southern half of the existing APE was conducted in 2011 for Arrowhead Eagle Ford Pipeline, LLC under a National Historic Preservation Act Section 106 survey effort. Another intensive archeological survey of the southern half of the existing APE was conducted in 2012 by Goshawk Environmental Consulting, Inc. (Goshawk) for the EOG River Lowe to Enterprise pipeline. Sites 41MC369 and 41MC370 within the current APE were revisited during the 2012 survey. Due to extensive disturbance, the portions of the sites within the proposed pipeline corridor were recommended as not eligible for the NRHP or as SALs. In 2014, SWCA conducted intensive surveys for the Eagle Ford Loop project in the western portion of the APE and revisited sites 41MC369 and 41MC370 within the current APE. Unlike the 2012 survey, the portions of the sites within the proposed Eagle Ford Loop project area were recommended for avoidance, and NRHP and SAL eligibility was considered undetermined.

Two other previous cultural surveys have been conducted along SH 72. The first is along Hobson Road where it crosses the north side of the current APE, where Hobson Road intersects SH 72. The second previous cultural survey parallels an unnamed oil well road that crosses the north side of the current APE, just northeast of site 41MC591. No additional information on these surveys was available on the THC Archeological Site Atlas (Atlas).

**Table 1. Archeological Sites within a 1-Kilometer Radius of the APE**

Site Trinomial	Site Type	Location Relative to APE	NRHP and SAL Eligibility Status
41MC589	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC623	Prehistoric lithic scatter	Within APE	Not Eligible
41MC590	Prehistoric lithic scatter	Within APE	Not Eligible
41MC591	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC622	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC592	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC593	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC767	Prehistoric lithic scatter	100 meters (m) north	Not Eligible
41MC766	Prehistoric lithic scatter	100 m north	Not Eligible
41MC764	Prehistoric lithic scatter	400 m north	Not Eligible
<b>41MC369</b>	<b>Prehistoric camp</b>	<b>Within APE</b>	<b>Undetermined</b>
41MC765	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC594	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC632	Prehistoric camp	Adjacent to APE	Not Recommended
<b>41MC370</b>	<b>Prehistoric quarry</b>	<b>Within APE</b>	<b>Undetermined</b>
41MC646	Unknown	Adjacent to APE	Unknown
41MC488	Prehistoric lithic scatter	200 m south	Not Eligible
41MC595	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC487	Prehistoric quarry	200 m north	Not Eligible
41MC596	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC597	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC598	Prehistoric lithic scatter	Within APE	Not Eligible
41MC599	Prehistoric lithic scatter	Adjacent to APE	Undetermined
41MC600	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC601	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC602	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC603	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC604	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC605	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC606	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC621	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC607	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC608	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC609	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC610	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC611	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC612	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC613	Prehistoric lithic scatter	Adjacent to APE	Not Eligible
41MC578	Unknown	200 m north	Unknown
41MC549	Prehistoric camp	100 m north	Not Recommended

Site Trinomial	Site Type	Location Relative to APE	NRHP and SAL Eligibility Status
41MC741	Prehistoric lithic scatter	400 m south	Not Recommended
<b>41MC372</b>	<b>Prehistoric camp</b>	<b>Within APE</b>	<b>Undetermined</b>
41MC742	Prehistoric lithic scatter	400 m south	Not Recommended
41MC760	Prehistoric lithic scatter	400 m north	Not Recommended
<b>41MC371</b>	<b>Prehistoric camp</b>	<b>Within APE</b>	<b>Undetermined</b>
41MC533	Prehistoric camp	300 m north	Not Recommended
41MC544	Prehistoric camp	400 m north	Not Recommended
41MC740	Prehistoric lithic scatter	400 m south	Not Recommended
41MC733	Prehistoric lithic scatter	500 m north	Not Recommended
41MC526	Prehistoric camp	600 m northeast	Undetermined
41MC723	Prehistoric camp	800 m northeast	Not Recommended

- **Comments on Project Setting:** A review of the Dallas District Hybrid Potential Archeological Liability Map (HPALM) revealed that most of the proposed project APE is within upland settings with low potential for the preservation of archeological sites. However, areas along intermittent drainages and floodplains (e.g., Post Oak Creek and Cedar Creek), have high to moderate potential for the preservation of archeological sites with reasonable integrity.

## Survey Methods

- **Surveyors:** Steve Carpenter, Christina Nielsen, and Jared Wiersema
- **Methodological Description:** SWCA conducted mechanical trenching, augmented with column samples across portions of the proposed APE, which were in proximity to previously recorded archeological sites with undetermined NRHP and SAL status. SWCA archeologists excavated a total of 11 mechanical trenches within the APE (Appendix A) (Table 2). In addition to the 11 mechanical trenches, SWCA excavated one 75-meter (m)-long scrape (equivalent to 33 backhoe trenches [BHTs]) (Appendix A). A total of six column samples were excavated off the walls of select BHTs (Appendix B).

**Table 2.** Excavations in Project APE.

Method	Quantity in Existing ROW	Quantity in Proposed New ROW	Quantity in Temporary Easements	Total Number per Acre
Column Samples	6	0	0	0.03
Auger Test Units	0	0	0	0
Mechanical Trenching	44	0	0	0.19



BHTs were excavated entirely within the existing APE. The trench locations were chosen at the discretion of the project archeologist and focused on accessible areas with the least disturbance within the APE or near previously recorded archeological sites within or adjacent to the ROW. Archeologists thoroughly documented and photographed the entire excavation process. Upon completion of each trench, the BHTs were backfilled, levelled, and returned as much as possible to their original state. SWCA excavated column samples when cultural or potentially cultural materials were identified within the trenches. A column sample consists of a roughly 30-centimeter (cm) (12-inch) square shovel test excavated on the profile of the BHT, in a position nearest to the potential archeological material. The column samples were excavated in arbitrary 20-cm (8-inch) levels until impenetrable soils or pre-Holocene strata were reached. All excavated soils were sifted through ¼-inch mesh. Archeologists recorded column samples on data forms, and included information on texture, consistency, color, and cultural materials collected.

- **Other Methods:** None
- **Collection and Curation:** NO  YES  If yes, specify facility.
- **Comments on Methods:** Due to the presence of numerous buried utilities within the existing ROW, much of the APE could not be trenched. SWCA focused the BHTs around previously recorded sites within the ROW that were determined to be of concern.

THC archeological survey standards do not specify a density of BHTs per unit area (THC 2017b). However, per TXDOT contractual requirements, a total of no more than 60 mechanical trenches could be placed within the project area (including those excavated as part of the long mechanical scrape). Additionally, for those BHTs wherein cultural materials were encountered, up to two shovel test probes (i.e., column sample units) would be excavated. As a result, SWCA excavated 44 total BHTs and six (6) column samples within the proposed project area.

## Survey Results

- **Project Area Description:** SWCA archeologists conducted intensive pedestrian survey throughout the proposed project area, with backhoe trenching in proximity to previously recorded archeological sites with undetermined NRHP and SAL status (Figures 5a–5c). The investigations revealed that the proposed project APE has been significantly disturbed from the construction of SH 72 and its associated shoulders and other infrastructure. In addition, at least four buried utilities are present within the southern SH 72 ROW and two buried utilities are present within the northern SH 72 ROW. Due to evident disturbances throughout most the APE, subsurface investigations were restricted to the northern SH 72 ROW, in proximity to the four previously recorded site locations requiring investigations. SWCA excavated a total of 44 total BHTs and six (6) column samples within the proposed project area (see Figures 5a–5c).

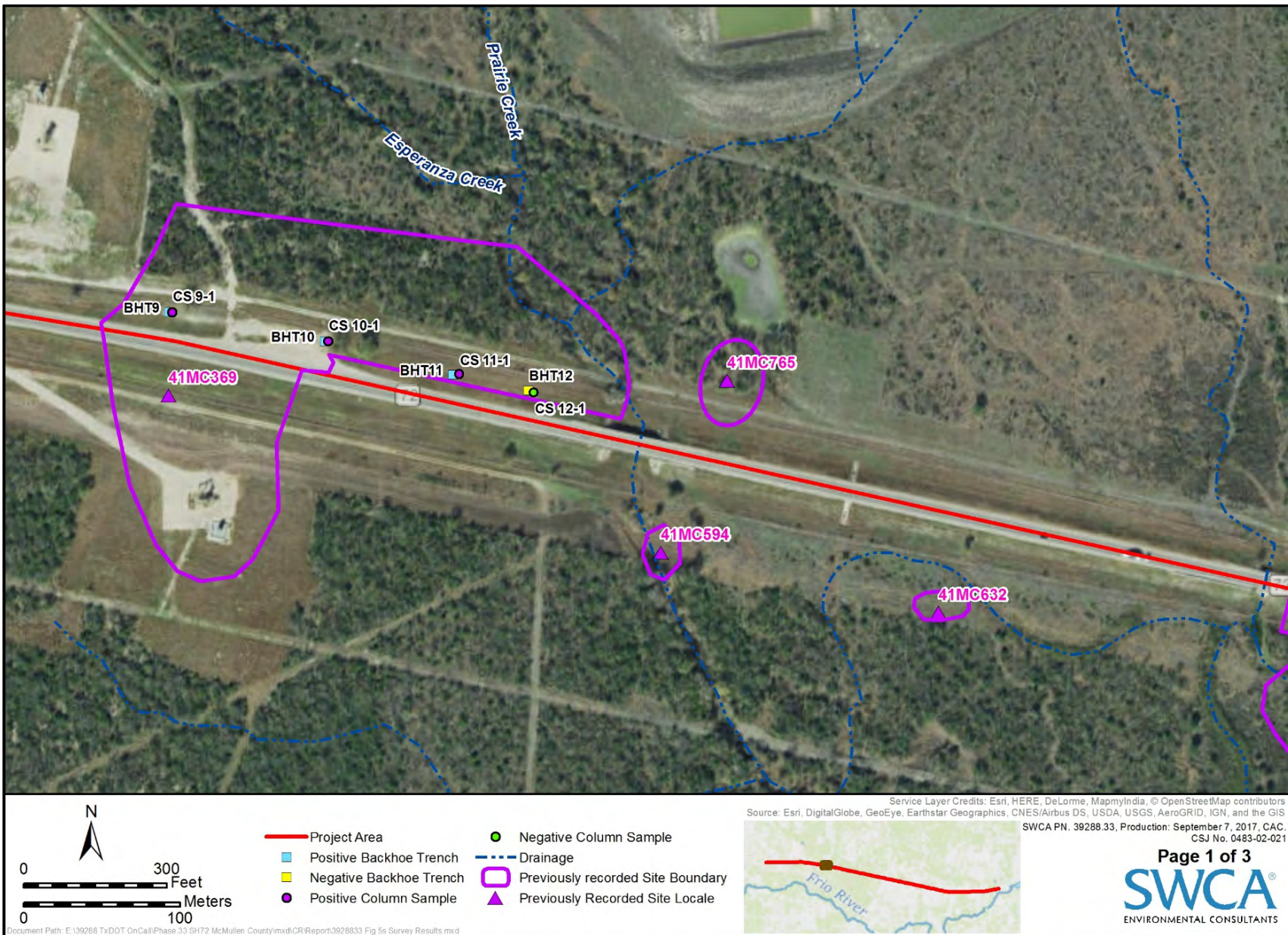


Figure 5a. Survey results

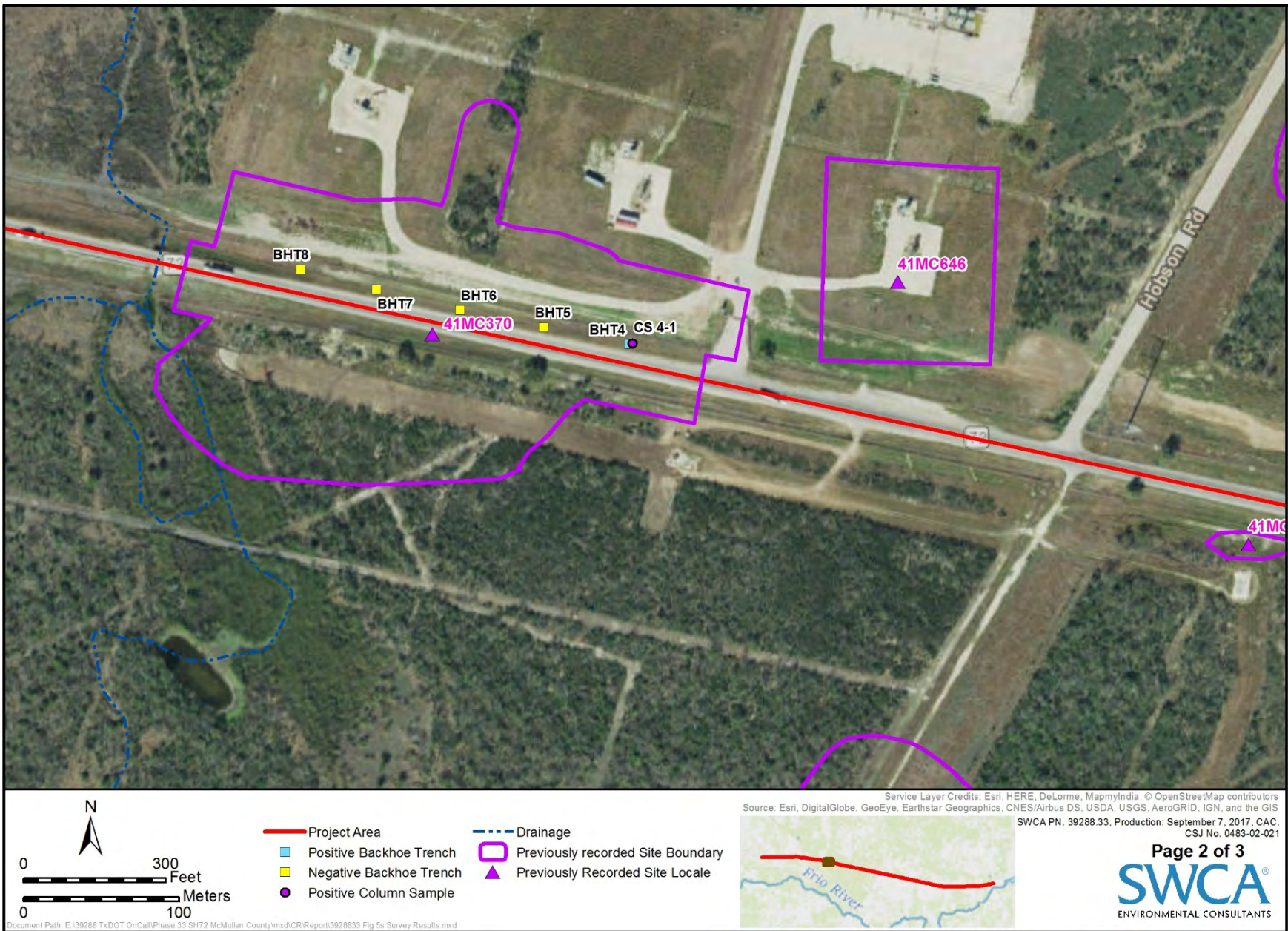


Figure 5b Survey results.

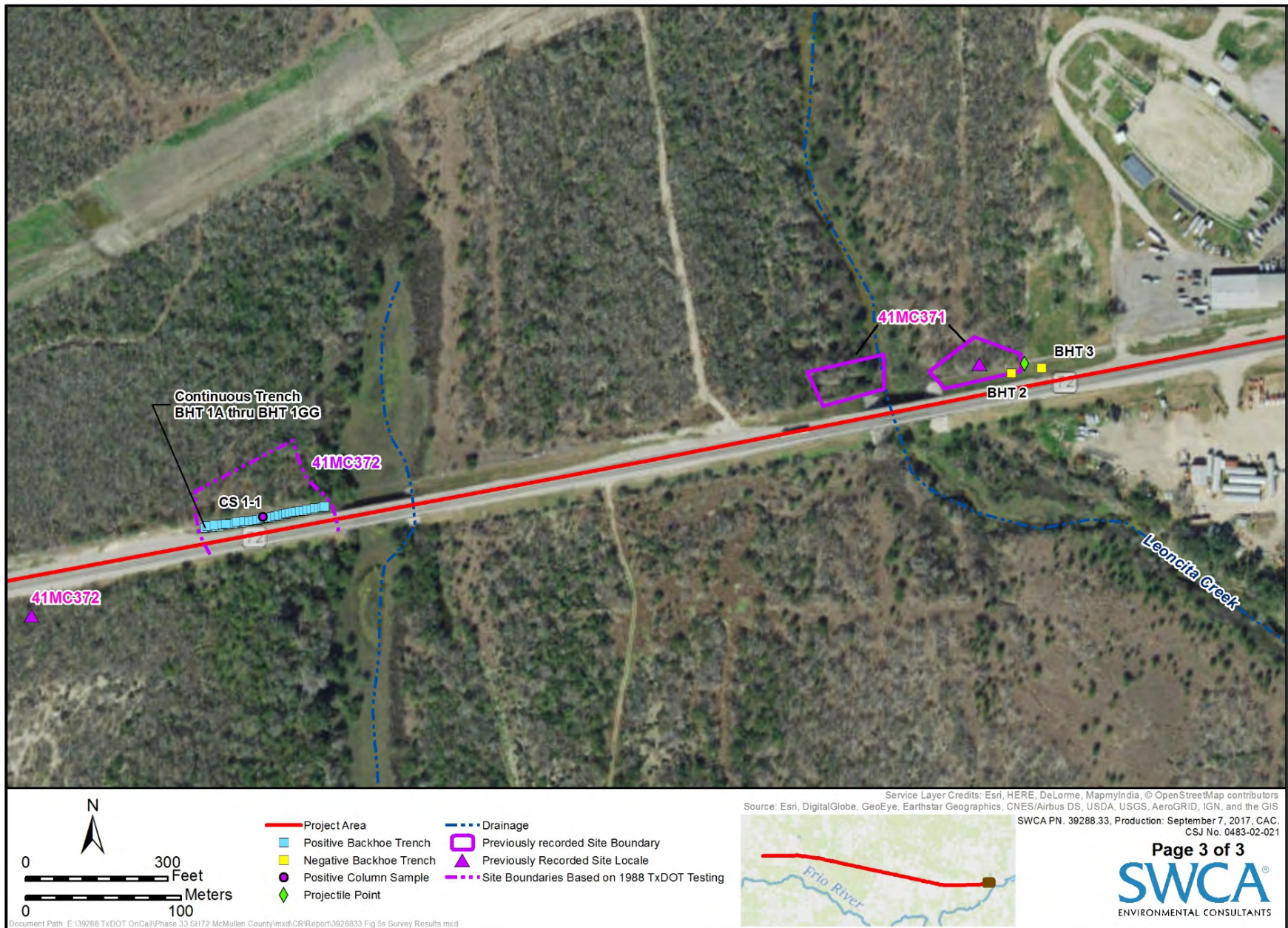


Figure 5c. Survey results.

- **Backhoe Trenching:** SWCA excavated a total of 44 BHTs and six (6) column samples within existing TxDOT ROW of the proposed project APE (Appendices A and B). A 75-m-long trench, consisting of 33 continuous trenches (BHT1A–BHT1GG), and one column sample (CS 1-1) were placed along the north SH 72 ROW within the 41MC372 site boundary. Two trenches (BHT2–BHT3) were placed along the north SH 72 ROW within the 41MC371 site boundary. Five trenches (BHT4–BHT8) and one column sample (CS 4-1) were placed along the north SH 72 ROW within the 41MC370 site boundary. Four trenches (BHT9–BHT12) and four column samples (CS 9-1, 10-1, 11-1, and 12-1) were placed along the north SH 72 ROW within the 41MC369 site boundary. The BHTs were excavated to varying depths, ranging from a minimum of 25 cm below surface (cmbs) (BHT6) to a maximum of 164 cmbs (BHT2) to assess the potential for deeply buried cultural deposits. Trench dimensions were typically 90 cm wide, 7 m long, and excavated to pre-Holocene deposits.

The stratigraphy in the trenches varied somewhat; however, the identified stratigraphy typically consisted of three or four strata in profile. The upper disturbed stratum consisted of a brown (10YR 3/2) to dark grayish brown (10YR 4/2) silt loam or sandy clay loam with modern trash and construction fill mixed with cultural debris. This stratum typically extended from 0–30 cmbs, although some disturbed fill extended as deep as 160 cmbs (i.e., BHT2). Some profiles (e.g., BHT3) also had a distinct 5- to 17-cm-thick disturbed humate layer above the disturbed fill (Figure 6) The second stratum consisted of a brown (10YR 4/3) to grayish brown (10YR 5/2) silt loam with 1 to 5 percent pebbles, gravels, and concretions overlying pale brown (10YR 6/3) to light yellowish brown (10YR 6/4) sandy loam with calcium carbonate filaments and nodules. The bottom stratum is likely a pre-Holocene unit, likely representing Pleistocene formation deposits mapped in the area. Results of the backhoe trenching for each site revisit are presented below.



**Figure 6.** Soil profile of BHT3 showing three strata; note that disturbed fill extends to 39 cmbs.

- **Site 41MC369 Revisit**

Site 41MC369 is a previously recorded prehistoric open campsite located on a terrace that slopes down to the east towards the Esperanza Creek floodplain. The site, initially recorded in 1986 by TxDOT, consists of lithic flakes, stone tools, utilized flakes, a Tortuga-like point, thermally altered rock and an exposed hearth-like feature composed of burned rock and clay eroding out of an existing two-track road (THC 2017a). Typical depth of cultural deposits was between 0 and 50 cmbs, and surface visibility was roughly 50 to 75 percent. Previous investigators noted portions of the site were severely disturbed by road construction; however, 50 to 75 percent of the site appeared to be intact.

TxDOT initially recommended the site as potentially eligible for the NRHP and as an SAL. After subsequent limited testing investigations, TxDOT recommended the site as not eligible for the NRHP or as an SAL. Later investigations in 2012 by Goshawk and in 2014 by SWCA yielded conflicting eligibility recommendations; the former investigations recommended the site as not eligible, but the later SWCA investigations recommended

an undetermined eligibility and site avoidance. Currently, the Atlas data list the site as having undetermined NRHP and SAL eligibility (THC 2017a).

SWCA revisited site 41MC369 on August 18, 2017. SWCA's investigations revealed that the portions of the site within the current APE are heavily disturbed by prior roadway construction, vegetation clearing, and the installation of buried utilities, including at least four buried utilities in the southern SH 72 ROW and two in the northern ROW (Figure 7). Disturbances in the southern SH 72 ROW precluded subsurface investigations; however, four BHTs (BHT9–BHT12) were excavated along the southern edge of the northern ROW (see Figure 5a; Appendix A). The BHTs revealed a 20- to 30-cm-thick disturbed fill section on top of a very compacted silt loam overlying a substrate with well-developed calcium carbonate nodules between 55 and 78 cmbs. The substrate, based on the pedogenic development, is inferred to predate cultural occupation in the area. Cultural materials were observed in the back dirt of all four trenches; therefore, column samples were excavated off the walls of each trench. A total of 11 lithic flakes were encountered in the column samples, but all were recovered from disturbed contexts (Figure 8; Appendix B). No cultural features or temporally diagnostic artifacts were identified on the ground surface, or within the BHTs or column samples.

**Summary.** Site 41MC369 is a previously recorded open campsite consisting of lithic flakes, thermally altered rock, and stone tools in association with a previously recorded subsurface hearth feature. SWCA's investigations focused on the previously surveyed areas in the current APE on the northern side of the existing SH 72 ROW and identified a light scatter of lithic flakes within the SH 72 fill section. Based on the sparse cultural material assemblage, lack of temporally diagnostic artifacts or cultural features, and substantial disturbances, SWCA recommends the portion of site 41MC369 within the current ROW does not contribute to the site's NRHP or SAL eligibility. No further work is recommended; however, the portions of the site outside the existing ROW are considered unevaluated for NRHP or SAL eligibility.



Figure 7. Existing disturbance along northern SH 72 ROW within site 41MC369.



Figure 8. Flakes recovered from BHT10, CS 10-1, 0 to 60 cmbs.



- **Site 41MC370 Revisit**

Site 41MC370 is a previously recorded prehistoric open campsite located on a terrace that slopes down to the west towards the Esperanza Creek floodplain. The site, initially recorded in 1986 by TxDOT, consists of a light to moderate scatter of lithic debris, occasional mussel shell, and thermally altered rock observed on surface and deflated burned rock features (THC 2017a). Typical depth of deposits was between 0 and 35 cmbs, and surface visibility was roughly 50 to 100 percent. Previous investigators noted the site was severely disturbed by road construction, with as little as 30 to 50 percent of the site remaining intact. Similar to site 41MC369, TxDOT initially recommended site 41MC370 as potentially eligible for the NRHP and as an SAL; however, following limited evaluative testing investigations, TxDOT recommended the site as not eligible.

Later investigations in 2012 by Goshawk resulted in the expansion of the initial site boundary. Hundreds of flakes, numerous tested cobbles, and expedient tools were observed in 2012 amid lag gravels, suggesting the site was also a lithic procurement or quarry site. SWCA observed a similar assemblage during their site revisit in 2014 and encountered seemingly intact, buried cultural deposits. The 2012 investigations by Goshawk recommended the site as not eligible, but SWCA recommended avoidance and an undetermined eligibility, due to the presence of intact cultural deposits in 2014. Currently, the Atlas data list the site as having undetermined NRHP and SAL eligibility (THC 2017a).

SWCA revisited site 41MC370 on August 18, 2017. Similar to site 41MC369, SWCA's investigations at site 41MC370 revealed that the portions of the site within the current APE are heavily disturbed by prior roadway construction and the installation of buried utilities, with at least four buried utilities in the southern SH 72 ROW and two in the northern ROW. In addition, most of this portion of the APE has been cut below grade (Figure 9). A total of five BHTs (BHT4–BHT8) were excavated along the southern edge of the northern ROW (see Figure 5b; Appendix A). The BHTs revealed a thick disturbed fill section ranging from 10 to 110 cm thick overlying a shallow substrate with well-developed calcium carbonate nodules, inferred to predate cultural occupation in the area. Cultural materials were only observed in the back dirt of BHT4. A column sample was excavated off the wall of the trench, but only three lithic flakes were observed within the upper 15 cm of disturbed fill (Figure 10; Appendix B). No cultural features or temporally diagnostic artifacts were identified on the ground surface, or within the BHTs or column samples.



**Figure 9.** Overview of northern portion of site 41MC370 showing road cut below grade, facing west.



**Figure 10.** Flakes recovered from BHT4, CS 4-1, 0 to 15 cmbs.

**Summary.** Site 41MC370 is a previously recorded open campsite consisting of lithic flakes, thermally altered rock, mussel shell, and deflated burned rock features. SWCA's investigations focused on the previously surveyed areas in the current APE on the northern side of the existing SH 72 ROW and identified a light scatter of lithic flakes within the SH 72 fill section. Based on the sparse material assemblage, lack of temporally diagnostic artifacts or cultural features, and substantial disturbances, SWCA recommends the portion of site 41MC370 within the current ROW does not contribute to the site's NRHP or SAL eligibility. No further work is recommended; however, the portions of the site outside the existing ROW are considered unevaluated for NRHP or SAL eligibility.

- **41MC371**

Site 41MC371 is a previously recorded prehistoric open campsite straddling both sides of Leoncita Creek within the northern side of the existing SH 72 ROW. The site, initially recorded in 1986 by TxDOT, consists of a light scatter of lithic flakes, thermally altered rock, and a single Los Corrientes ceramic sherd observed on the ground surface (THC 2017a). At the time of the original survey in 1986, the area was a manicured grass ROW with moderate ground surface visibility (approximately 50 percent). Previous investigators noted the site was severely disturbed by road construction with as little as 30 to 40 percent of the site remaining intact; however, evaluative testing was recommended to determine the extent of subsurface disturbances. As such, the site currently has an undetermined NRHP and SAL eligibility (THC 2017a).

SWCA revisited site 41MC371 on August 17, 2017. SWCA's investigations revealed that the portions of the site within the current APE are heavily disturbed by prior roadway and bridge construction and the installation of two fiber optic lines (Figures 11 and 12). Due to these disturbances, only two BHTs (BHT2–BHT3) were excavated within and near the site (see Figure 5c; Appendix A). The BHTs revealed an extensive disturbed fill section ranging from 40 to 160 cm thick overlying a relatively shallow substrate with well-developed calcium carbonate nodules, inferred to predate cultural occupation in the area. No cultural materials were observed in the BHTs, but SWCA archeologists observed a single sub-lanceolate point (Angostura-like) and a light scatter of lithic debris on the surface of 41MC371 within the existing ROW (Figure 13).



**Figure 11.** Overview of site 41MC371 showing road and bridge disturbances, facing west.



**Figure 12.** Overview of site 41MC371 showing utility disturbances, facing east.



**Figure 13.** Angostura-like, sub-lanceolate point from surface of site 41MC371. Lateral stem margins are heavily ground.

**Summary.** Site 41MC371 is a previously recorded open campsite consisting of lithic flakes, thermally altered rock, a Los Corrientes ceramic sherd, and one sub-lanceolate point (Angostura-like). SWCA's investigations focused on the previously surveyed areas in the current APE on the northern side of the existing SH 72 ROW, on the east side of Leoncita Creek, and identified a light scatter of lithic flakes and one Angostura-like projectile point in a heavily disturbed existing SH 72 ROW. Based on the sparse material assemblage, lack of cultural features and subsurface cultural materials, and substantial disturbances, SWCA recommends the portion of site 41MC371 within the current ROW does not contribute to the site's NRHP or SAL eligibility. No further work is recommended; however, the portions of the site outside the existing ROW are considered unevaluated for NRHP or SAL eligibility.

- **41MC372**

Site 41MC372 is a previously recorded prehistoric open campsite consisting of a light scatter of lithic debris and occasional thermally altered rock observed on surface. The site was originally recorded in 1986 by Al McGraw with TxDOT as part of investigations for SH 72 modifications. TxDOT subsequently conducted limited test excavations in 1988. Although the background review did not relocate a report of the previous studies, a map of the testing investigations shows a series of six BHTs and hand auger units placed in the temporary easement north of the current existing ROW. The annotated map shows human remains were identified in a small area located 20 m north of the SH 72 ROW. SWCA's investigations were designed, in part, to address the potential for additional human remains to be present in the existing ROW. Currently, the Atlas data list the site as having undetermined NRHP and SAL eligibility.

The original site form described the area as a gradual ridge and interfluvium located 150 m west of an old channel of Leoncita Creek called Hal's Lake. The site map, however, shows the site approximately 40 m west of the lake. Typical depth of deposits was between 0 and 50 cmbs, and surface visibility was roughly 50 percent. Previous investigators noted the site was severely disturbed by road construction, with as little as 30 to 50 percent of the site remaining intact.

SWCA revisited the site on August 17, 2017, focusing on mechanically trenching the northern side of the SH 72 existing ROW with a 75-m-long trench scrape (see Figure 5c). Within the ROW, the site area contains sparse, short grasses with moderate to high surface visibility. The area serves as an informal pull-off area and contains a high density of road kill and modern debris. Adjacent to the existing ROW, the site is thorny scrub with a mesquite overstory and understory of prickly pear, agarita, acacia, other thorny brush, and thin grasses. Modern disturbances are common, and the ROW has been substantially modified by prior roadway construction and multiple utilities, including buried utility installation. At least four buried utilities are marked on the southern side of the ROW, including high-pressure gas lines that prevented trenching south of the roadway (see Figure 5c; Figure 14). Two fiber optic lines were marked on the northern side adjacent to and paralleling the ROW boundary. The mechanical trenching was therefore conducted between the fiber optic lines and existing roadway.



**Figure 14.** Overview of 41MC372 prior to trenching, facing west. Note informal pull-off area beyond backhoe and buried fiber optic line along fence line.

Investigators observed a light scatter of lithic debris and several burned rocks in surface exposures. The 75-m-long scrape (BHT1A–BHT1GG) encountered an intact pedogenic profile of shallow cumulic soils with increasing clay and calcium carbonate content with depth (Figure 15). The typical profile contained dark grayish brown (10YR 4/2) silt loam in the upper 50 cm overlying a substrate with well-developed calcium carbonate nodules (Figure 16). The substrate, based on the pedogenic development, is inferred to predate cultural occupation in the area. No features, formal artifacts, or diagnostic artifacts were identified. Faunal remains and sparse lithic debris were noted in the upper part of the profile, typically in the upper 5 to 10 cm (Figure 17). No human remains, features, formal artifacts, or substantial cultural material concentrations were identified.

**Summary.** Site 41MC372 is a previously recorded open camp and prehistoric cemetery consisting of lithic flakes, thermally altered rock, and a previously recorded burial north of the survey area. SWCA’s investigations focused on the previously surveyed areas in the current APE on the northern side of the existing SH 72 ROW, and identified a light scatter of lithic flakes in a heavily disturbed existing SH 72 ROW. SWCA recommends the portion of site 41MC372 within the current ROW does not contribute to the site’s NRHP or SAL eligibility. No further work is recommended. However, the portions of the site outside the existing ROW are considered unevaluated for NRHP or SAL eligibility.



**Figure 15.** BHT 1 on 41MC372, facing west.



**Figure 16.** Typical profile on BHT 1B showing silty loams overlying calcareous substrate, facing southwest.



**Figure 17.** Modern faunal remains recovered from BHT 1 on 41MC372. Road kill was common in surface exposures.



- **Archeological Materials Identified:** Archeological materials were identified at each of the four previously recorded sites investigated within the APE. SWCA observed sparse lithic material, consisting of lithic flakes and tested cobbles, as well as few burned rocks within the back dirt and/or on the ground surface of all four sites within the heavily disturbed existing SH 72 ROW. A total of 11 lithic flakes were also encountered in the six excavated column samples; however, all materials were recovered from within a disturbed fill context. Additionally, one sub-lanceolate point (Angostura-like) was observed on surface of 41MC371 within the existing ROW and sparse faunal remains were identified within the upper 10 cm at site 41MC372.
- **APE Integrity:** The survey area within the current TxDOT easement has low stratigraphic integrity. Within each of the survey areas, approximately 50 to 90 percent of the total APE has been modified, leaving negligible potential for intact deposits. All areas along SH 72 have been substantially modified by prior highway construction, utilities, fences, agriculture, and other activities.

## Recommendations

- **Archeological Site Evaluations:** SWCA recommends that the evaluated portions of sites 41MC369 through 41MC372 within the existing SH 72 ROW are not eligible for listing in the NRHP or for designation as SALs.
- **Comments on Evaluations:** None.
- **Further Work:** No further cultural resources investigations are recommended within the existing 226-acre ROW. The current survey augments previously conducted surveys in 1986 and 2014; collectively, these assessments cover the entire APE.
- **Justification:** The available exposures, disturbances, BHTs and column samples afforded sufficient archeological data to adequately assess the survey areas. The evaluated portions of sites 41MC369–41MC372 lack integrity within the existing SH 72 ROW and none are recommended as eligible for the NRHP or as SALs. 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 and recommends no further archeological investigation prior to construction.

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### Appendix A. Backhoe Trench Data

Site	Trench	Depth (cmts)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC372	BHT-01A	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Column sample excavated. One flake encountered in level. Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-152	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.
41MC372	BHT-01B	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-152	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.

### Appendix A. Backhoe Trench Data

Site	Trench	Depth (cmts)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC372	BHT-01C	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-93	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.
41MC372	BHT-01D	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-93	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.

### Appendix A. Backhoe Trench Data

Site	Trench	Depth (cmbs)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC372	BHT-01E	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-117	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.
41MC372	BHT-01F	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-117	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.

### Appendix A. Backhoe Trench Data

Site	Trench	Depth (cmbs)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC372	BHT-01G	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-108	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.
41MC372	BHT-01H	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-108	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.

### Appendix A. Backhoe Trench Data

Site	Trench	Depth (cmts)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC372	BHT-011	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-106	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.
41MC372	BHT-01J	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-106	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.

### Appendix A. Backhoe Trench Data

Site	Trench	Depth (cmts)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC372	BHT-01K	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-97	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.
41MC372	BHT-01L	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-97	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.



### Appendix A. Backhoe Trench Data

Site	Trench	Depth (cmts)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC372	BHT-01M	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-92	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.
41MC372	BHT-01N	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-87	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.

### Appendix A. Backhoe Trench Data

Site	Trench	Depth (cmts)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC372	BHT-01O	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-63	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.
41MC372	BHT-01P	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-86	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.

### Appendix A. Backhoe Trench Data

Site	Trench	Depth (cmts)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC372	BHT-01Q	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-102	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.
41MC372	BHT-01R	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-89	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.

### Appendix A. Backhoe Trench Data

Site	Trench	Depth (cmts)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC372	BHT-01S	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-82	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.
41MC372	BHT-01T	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-89	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.

### Appendix A. Backhoe Trench Data

Site	Trench	Depth (cmts)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC372	BHT-01U	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-79	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.
41MC372	BHT-01V	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-91	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.

### Appendix A. Backhoe Trench Data

Site	Trench	Depth (cmts)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC372	BHT-01W	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-101	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.
41MC372	BHT-01X	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-98	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.

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Site	Trench	Depth (cmbs)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC372	BHT-01Y	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-103	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.
41MC372	BHT-01Z	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-108	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.

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Site	Trench	Depth (cmbs)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC372	BHT-01AA	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-106	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.
41MC372	BHT-01BB	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-116	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.



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Site	Trench	Depth (cmbs)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC372	BHT-01CC	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-95	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.
41MC372	BHT-01DD	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-117	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.

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Site	Trench	Depth (cmts)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC372	BHT-01EE	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-70	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.
41MC372	BHT-01FF	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-101	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.

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Site	Trench	Depth (cmts)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC372	BHT-01GG	0-15	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (5%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (4%, fine).	Clear and smooth	Modern animal bone and trash throughout level.
		15-47	10YR 4/2	Dark grayish brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; roots and rootlets (1-2%), insect burrows (1-2%), root casts (1-2%), calcium carbonate nodules (1-2%, fine), chert gravels (1%, round to subangular- <3 cm), snail shell fragments (2%), mussel shell (4%).	Clear and smooth	Some 10YR 6/3 mottles.
		47-79	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Silt loam	Friable, subangular, fine to medium size and moderate grade; roots and rootlets (rare), insect burrows (1%), root casts (<1%), calcium carbonate nodules (5-10%, <1 cm).	Unobserved	Calcium carbonate increasing in frequency and size.
41MC371	BHT-02	0-29	10YR 4/2 (upper)-10YR 6/2	Light grayish brown (upper) to light brownish gray	Silt loam	Friable, subangular blocky, fine size and weak grade; roots and rootlets (5-10%), gravels (15-20%, cobbles (1%)	Clear and smooth	Upper 15 cm is the humate layer, with modern debris (trash, metal wires, glass, etc.). Some mottling with 10YR 4/2 and 10YR 6/2. Lower boundary slopes slightly west, towards the creek.
		29-117	10YR 3/1 to 10YR 3/2	Very dark gray to very dark grayish brown	Silty clay loam	Firm, angular blocky, medium to coarse size and moderate to strong grade; rootlets (1%), worm burrows and root casts (<1%), gravels and cobbles (2-5%), mussel shell fragments (1%), and calcium carbonate (1-2%).	Clear and smooth	Disturbed fill, still some modern trash throughout level. Lower boundary slopes slightly west, towards the creek.
		117-160	10YR 3/2	Very dark grayish brown	Silty clay loam	Firm to extremely firm, angular, medium size and weak grade; rootlets (<1%) root casts (<1%), rare gravel.	Clear and smooth	Possibly disturbed, heavily compacted. Lower boundary slopes slightly west, towards the creek.
		160-164	10YR 5/4	Yellowish brown	Sandy loam	Firm, angular, fine to medium size and a weak grade; rootlets (<1%), root casts (1%), calcium carbonate (1-2%).	Unobserved	Undisturbed, pre-Holocene.

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Site	Trench	Depth (cmts)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC371	BHT-03	0-39	10YR 4/2 (upper)-10YR 6/2	Light grayish brown (upper) to light brownish gray	Silt loam	Friable, subangular blocky, fine size and weak grade; roots and rootlets (5-10%), gravels (15-20%, cobbles (1%)	Clear and smooth	Upper 17 cm is the humate layer, with modern debris (trash, metal wires, glass, etc.). Some mottling with 10YR 4/2 and 10YR 6/2. Lower boundary slopes slightly west, towards the creek.
		39-83	10YR 4/3	Brown	Silt loam	Friable to firm, subangular blocky, medium size and moderate grade; rootlets (1-2%), snail shell fragments (1%), root casts (1-2%), mycorrhizal fungi (2-3%), worm casts (1%).	Clear and smooth	-
		83-159	10YR 7/4-6/4	Very pale brown to light yellowish brown.	Sandy loam	Friable, angular, fine to medium size and a weak grade; rootlets (<1%), root casts (1%), calcium carbonate (1-2%), mycorrhizal fungi (2-3%; near top of level).	Unobserved	Undisturbed, pre-Holocene.
41MC370	BHT-04	0-15	10YR 4/2	Dark grayish brown	Silty clay loam	Friable, subangular blocky, medium size and moderate grade; roots and rootlets (2-5%), root casts (1-2%), worm casts (1-2%), gravels (2-5%), pebbles (rare).	Clear and smooth	Column sample excavated. Three flakes encountered in level. Modern trash (beer bottle fragments) found throughout level.
		15-61	10YR 5/3	Brown	Silty clay loam	Friable, angular blocky, medium size and moderate grade; rootlets (1-2%), 10YR 4/2 mottles (fine, few, and distinct), root casts (2%), calcium carbonate filaments (2%).	Clear and smooth	Pre-Holocene level
		61-69+	10YR 6/3-6/4	Pale brown to light yellowish brown.	Silt loam	Firm, angular, medium size and moderate grade; root casts (2%), calcium carbonate (5%, nodules and filaments).	Unobserved	-
41MC370	BHT-05	0-21	10YR 4/2	Dark grayish brown	Silty clay loam	Friable, subangular blocky, medium size and moderate grade; roots and rootlets (2-5%), root casts (1-2%), worm casts (1-2%), gravels (2-5%), pebbles (rare).	Clear and smooth	Modern trash (beer bottle fragments).
		21-51	10YR 6/3	Pale brown	Sandy clay loam	Friable, angular blocky, medium size and moderate to weak grade; rootlets (2%), 10YR 4/2 and 10YR 6/6 mottles (fine to medium, common, and distinct), calcium carbonate (2-5%).	Clear and smooth	Pre-Holocene level. Calcium carbonate increases with depth.
41MC370	BHT-06	0-10	10YR 5/3	Brown	Silt loam	Loose to friable, subangular blocky, coarse size and weak grade.	Abrupt and smooth	Modern overburden with modern roadside debris throughout level.
		10-25	7.5 YR 6/3	Light brown	Clay loam	Firm, subangular blocky, coarse size and weak grade.	Unobserved	Road is cut below grade. Holocene deposits have been stripped away. Very calcareous substrate.

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Site	Trench	Depth (cmts)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC370	BHT-07	0-15	10YR 4/2	Dark grayish brown	Silty clay loam	Friable, subangular blocky, medium size and moderate grade; roots and rootlets (2-5%), root casts (1-2%), worm casts (1-2%), gravels (2-5%), pebbles (rare).	Clear and smooth	Modern trash (beer bottle fragments).
		15-35	10YR 6/3	Pale brown	Sandy loam	Loose, subangular blocky to crumbly, fine size and weak grade; rootlets (2%), gravels and cobbles (20-40%), 10YR 6.6 to 10YR 6/8 mottles (few and distinct).	Clear and wavy	The southern wall contains a 1 cm lens of 10YR 6/8 between levels 2 and 3. This lens is less observable on the northern wall.
		35-40	10YR 7/2	Light gray	Sandy loam (very fine)	Friable, subangular blocky to crumbly, fine size and weak grade; 10YR 6/6 mottles (very few), calcium carbonate (5%)	Unobserved	-
41MC370	BHT-08	0-10	10YR 5/3	Brown	Silt loam	Loose to friable, medium to coarse size and weak grade; abundant gravels.	Abrupt and smooth	Modern overburden
		10-110	10YR 2/1 (varied)	Black	Clay	Extremely firm; common gravels	Abrupt and smooth	Fill section.
		110-113	7.5YR 6/3	Light brown	Clay	Firm; well-developed calcium carbonate nodules	Unobserved	Pre-Holocene
41MC369	BHT-09	0-20	10YR 4/2 to 10YR 3/2	Dark grayish brown to brown	Silt loam	Friable to firm, subangular blocky, medium to coarse size and moderate to strong grade; roots and rootlets (1-2%), root casts (1-2%), worm casts (1-2%), mycorrhizal fungi (1-2%).	Clear and smooth	Column sample excavated. One flake encountered in level.
		20-60	10YR 5/2	Grayish brown	Silt loam	Firm, subangular blocky, medium size and moderate grade; roots and rootlets (<1%), root casts (<1%), worm casts (1-2%), mycorrhizal fungi (1-2%), calcium carbonate (2-5%).	Gradual and smooth	-
		60-79	10YR 6/2	Light brownish gray	silt loam	Friable, subangular blocky, medium size and moderate grade; calcium carbonate (10-20%, increasing with depth), roots and rootlets (rare),. Root casts (rare).	Unobserved	-
41MC369	BHT-10	0-10	10YR 4/2	Dark grayish brown	Silt loam	Subangular blocky; Gravels and modern debris present	Clear and smooth	Column sample excavated. Two flakes were encountered within level.
		10-78	10YR 5/3	Brown	Silt loam	Subangular blocky; snail shells present	Clear and smooth	Two flakes were encountered within level.
		78-97	10YR 6/3	Pale brown	Silt loam	Subangular blocky.	Unobserved	Pre-Holocene level. No cultural material encountered.

### Appendix A. Backhoe Trench Data

Site	Trench	Depth (cmts)	Munsell	Soil Color	Soil Texture	Horizon Discussion	Lower Boundary	Comments
41MC369	BHT-11	0-21	10YR 3/2 to 10YR 4/2	Brown to dark grayish brown	Sandy clay loam	Friable, subangular blocky to crumbly, fine to medium size and weak to moderate grade; roots and rootlets (2-5%), gravels (10%), 10YR 7/4 and 10YR 2/1 mottles (abundant and distinct).	Clear and smooth	Column sample excavated. Six flakes encountered within level. This level is disturbed.
		21-42	10YR 2/1	Black	Sandy clay loam	Friable, subangular blocky, medium size and moderate grade; rootlets (2%), 10YR 3/2 mottles (faint, few, and fine).	Gradual and smooth	-
		42-56	10YR 5/2	Grayish brown	Silt loam	Firm, subangular blocky, medium size and moderate grade; roots and rootlets (<1%), root casts (<1%), worm casts (1-2%), mycorrhizal fungi (1-2%), calcium carbonate (2-5%).	Gradual and smooth	-
		56-73	10YR 6/2	Light brownish gray	silt loam	Friable, subangular blocky, medium size and moderate grade; calcium carbonate (10-20%, increasing with depth), roots and rootlets (rare),. Root casts (rare).	Unobserved	-
41MC369	BHT-12	0-30	10YR 5/2	Grayish brown	Clay loam	Firm, subangular blocky; very gravelly.	Abrupt and smooth	Column sample excavated. No artifacts in level. Level is fill section.
		30-55	10YR 5/2	Grayish brown	Clay loam	Extremely firm, subangular blocky; few gravels.	Diffuse and smooth	No cultural material
		55-75	10YR 6/2	Light grayish brown	Clay loam	Extremely firm, subangular blocky; very calcareous.	Diffuse and smooth	No cultural material
		75-107	7.5YR 6/3	Light brown	Clay loam	Extremely firm, subangular blocky; calcium carbonate nodules.	Unobserved	No cultural material

## Appendix B. Column Sample Data

Site	Column Sample #	Depth (cmbs)	Munsell	Soil Color	Soil Texture	Inclusions	Comments/Cultural Material
41MC372	BHT1-CS01	0-15	10YR 5/2	Grayish brown	Clay loam	Gravels and modern roadside debris.	One flake was encountered. Level is heavily disturbed.
		15-25	10YR 4/2	Dark grayish brown	Clay loam	Few gravels	-
		25-45	7.5YR 7/3	Pink	Clay loam	Common calcium carbonate nodules	-
41MC370	BHT4-CS01	0-15	10YR 4/2	Dark grayish brown	Silty clay loam	Pebbles (1%), Gravels (5%), roots and rootlets present.	One tertiary flake and two secondary flakes were encountered. Level is heavily disturbed fill.
		15-20	10YR 4/3	brown	Silty clay loam	Calcium carbonate (2%), 10YR 4/2 mottles.	Terminated at 20 cmbs, in pre-Holocene deposits.
41MC369	BHT9-CS01	0-20	10YR 4/2-3/2	Dark grayish brown to very dark grayish brown	Silty loam	-	One tertiary flake was found within the first 5 cmbs, which was determined to be disturbed fill.
		20-40	10YR 5/2	Grayish brown	Silty loam	Calcium carbonate (2-3%).	Increasing compaction and calcium carbonate with depth. Pre-Holocene level.
		40-60	10YR 5/2	Grayish brown	Silty loam	Calcium carbonate (3-5%).	Terminated at compact/pre-Holocene soils.
41MC369	BHT10-CS01	0-20	10YR 4/2	Dark grayish brown	Silty loam	Gravels and modern debris.	Two flakes encountered in level. Level is heavily disturbed.
		20-40	10YR 5/3	Brown	Clay loam	-	One flake encountered in level.
		40-60	10YR 5/3	Brown	Clay loam	-	One flake encountered in level.
		60-75	10YR 5/3	Brown	Clay loam	-	No cultural material encountered.
41MC369	BHT11-CS01	0-20	10YR 3/2-4/2	Very dark grayish brown to dark grayish brown	Sandy clay loam	Gravels (10%), 10YR 7/4 and 10YR 2/1 mottles (abundant).	Three tertiary flakes, two secondary flakes, and 1 primary flake were found within the first 0 to 15 cmbs. This level was determined to be heavily disturbed fill.
		20-40	10YR 2/1	Black	Sandy clay loam	10YR 3/2 mottles, gravels (rare).	No cultural material encountered.
		40-60	10YR 5/4-5/6	yellowish brown	Sandy loam	Calcium carbonate	No cultural material encountered. Extremely compact.
41MC369	BHT12-CS01	0-30	10YR 5/2	Grayish brown	Clay loam	Gravelly soil.	Level is fill section, which has been removed mechanically.
		30-55	10YR 5/2	Grayish brown	Clay loam	Few gravels	No cultural material encountered.
		55-75	10YR 6/2	Light brownish gray	Clay loam	-	No cultural material encountered.

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



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