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Cultural Resources Survey of the Lone Star Express II Pipeline Project - Loop 2, in Nolan, Taylor, Callahan, and Eastland Counties, Texas

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GRAY & PAPE
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Lead Agency:
The United States Army Corps of Engineers, Fort Worth District

SWF-2019-00234

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ABSTRACT

Gray & Pape, Inc., of Houston, Texas, on behalf of Lonestar NGL Pipeline, LP, conducted an intensive pedestrian cultural resources survey within permitted areas of the 117.85-kilometer (73.23-mile) long Lone Star Express II Pipeline Project – Loop 2, in Nolan, Taylor, Callahan, and Eastland Counties, Texas. The lead agency for the project has been identified as the United States Army Corps of Engineers, Fort Worth District (Permit No. SWF-2019-00234). Thus, survey efforts concentrated on areas anticipated to be under the jurisdiction of the United States Army Corps of Engineers (permit areas). Within Loop 2, the total Area of Potential Effects within the permit areas measures approximately 125.9 hectares (311 acres). This area encapsulates approximately 29 kilometers (18 miles) of the proposed project alignment. The procedures to be followed by the United States Army Corps of Engineers to fulfill the requirements set forth in the National Historic Preservation Act, other applicable historic preservation laws, and Presidential directives as they relate to the regulatory program of the United States Army Corps of Engineers (33 CFR Parts 320-334) are articulated in the Regulatory Program of the United States Army Corps of Engineers, Part 325 - Processing of Department of the Army Permits, Appendix C - Procedures for the Protection of Historic Properties.

All fieldwork and reporting activities were completed according to a scope of work submitted to the United States Army Corps of Engineers and the Texas Historical Commission and accepted standards set forth by the Texas Historical Commission and the Council of Texas Archeologists and in accordance with Section 106 of the National Historic Preservation Act.

A records and literature review of the project location prior to the survey identified 17 previously recorded archaeological resources, one cemetery, one historic marker, and 17 previously conducted surveys within a 0.8-kilometer (0.5-mile) radius of the Loop 2 segment. Of those, six recorded archaeological resources are within 91 meters (300 feet) of the project corridor and four previous surveys intersect the project alignment. Fieldwork on Loop 2 was initially conducted in Spring 2019, with supplemental investigations taking place in August, October, and November of 2019. Survey of Loop 2 required approximately 2,320 person-hours to complete and involved archaeological reconnaissance and shovel testing throughout anticipated permit areas within the project corridor. In total, approximately 677 shovel tests were excavated within permit areas and beyond in cases of site delineation, of which six within the APE were positive for cultural materials. A total of 14 mechanical auger tests were conducted within Permit Area 6 at Mulberry Creek. All were negative for cultural materials.

Five previously recorded resources: 41NL318, 41TA353, 41TA354, 41TA314, and 41CA27; six new resources: 41TA396, 41TA397, 41TA398, 41TA399, 41CA42, and 41CA43; and two isolate finds were identified within Loop 2 permit areas. Materials were identified adjacent to one additional previously identified resource, 41TA371, located outside of Project Permit Areas. The material consisted of only two artifacts found on the surface in a disturbed context. Thus, the site was not expanded into the current Area of Potential Effects.

Four resources are of a historic age or have a historic component: 41NL318, 41TA396, 41TA397, and 41TA399. Historic components generally consist of early to mid-twentieth century and twentieth-century materials representative of trash dumps. Site 41NL318 contains a remnant of a private drive/road and associated wooden bridge. The remainder of the resources are prehistoric. Prehistoric site contents consist nearly entirely of surface scatters of artifacts, with artifact classes largely the same across each, consisting mainly of debitage, with varying numbers of cores and bifaces. On very few occasions, a

preform or utilized flake were also observed. In general, the resources appear to represent raw material procurement areas due to the abundant chert deposits available in the rocky soil. Activities are believed to have been largely limited to the procurement and testing of cobbles and expedient manufacture of bifaces. It appears that more refined tool manufacture was taking place elsewhere. Resources 41NL318, 41TA353/354, 41TA396, and 41TA314 contained the only diagnostic prehistoric artifacts identified during survey. Site 41TA353/354 contained Elam and Carrollton type projectile points and Site 41NL318 contained a Clear Fork Uniface, all of which can date to the middle to transitional Archaic. Sites 41TA396 and 41TA314 each contained a likely Marshall dart point which dates to the Late Middle Archaic. No artifacts were collected. No cultural features or historic-age standing resources were encountered in the field. The resource areas identified within the pipeline survey corridor have been previously disturbed by adjacent pipeline construction. Shovel test results at nearly all permit areas identified subsoils, cemented soils, or bedrock and gave indications of soil deflation or truncating, erosion, and past land modifications such as terracing and grading.

Mulberry Creek in Taylor County, Permit Area Number 6, was targeted for deep testing based on geomorphological data, and field results and discussions with the Field Archaeologist. Deep test results indicated a lack of A horizon soils and showed no potential for deeply buried cultural material or paleosols within the anticipated depth of impacts at the location.

Based on the overall lack of soil deposition, few diagnostics, and lack of integrity, it is the opinion of Gray & Pape, Inc. that the portions of recorded resources that are located within the proposed right-of-way do not retain the potential to provide significant research value and are thus recommended not eligible for the National Register, under Evaluation Criterion D or for State Antiquities Landmark status. Gray & Pape, Inc. recommends no additional archaeological work for these resources or surveyed permit areas of the project. However, Gray & Pape, Inc. recommends that an unanticipated discoveries plan be put into place in the event that such discoveries take place during construction.

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1.0 INTRODUCTION

EDGE Engineering and Science, LLC (EDGE) of Houston, Texas, contracted with Gray & Pape, Inc. (Gray & Pape), of Houston, Texas, and Horizon Environmental Services, Inc. (Horizon) to perform an intensive pedestrian cultural resources survey within portions of the Area of Potential Effects (APE) of the Lone Star Express II Pipeline Project-Loop 2, located in Nolan, Taylor, Callahan, and Eastland Counties, Texas.

The lead agency for permitting purposes has been determined to be the United States Army Corps of Engineers, Fort Worth District (Corps or USACE). Thus, survey efforts were conducted within portions of the APE anticipated to be within Corps permit areas. The procedures to be followed by the USACE to fulfill the requirements set forth in the National Historic Preservation Act (NHPA), other applicable historic preservation laws, and Presidential directives as they relate to the regulatory program of the USACE (33 CFR Parts 320-334) are articulated in the Regulatory Program of the USACE, Part 325 - Processing of Department of the Army Permits, Appendix C - Procedures for the Protection of Historic Properties. All fieldwork and reporting activities were completed with reference to standards set by the Texas Historical Commission (THC) and the Council of Texas Archeologists (CTA). Loop 2 is located on private property. The following report includes the results of the archaeological survey completed within anticipated permit areas along approximately 117.85 kilometers (73.23 miles) of centerline in Loop 2.

1.1 Project Overview

Lone Star NGL Pipeline, LP (Lone Star), proposes to construct a new pipeline loop in Nolan, Taylor, Callahan, and Eastland Counties, Texas, referred to as the Lone Star Express II Pipeline Project – Loop 2 (LSXII – Loop 2 or Project). The LSXII – Loop 2 Project will be approximately 117.85 kilometers (73.23 miles) long and will be used to transport natural gas liquids (NGL). The purpose of the proposed Lone Star Express II Pipeline Project is to add approximately 400,000 barrels per day of NGL capacity to the existing Lone Star Express system which will help alleviate infrastructure constraints out of the Delaware and Permian basins in West Texas. The proposed Loop 2 portion of the Project will increase system capacity between the existing LSX2 Pump Station in Nolan County and the existing LSX3 Pump Station in Eastland County, Texas. The proposed pipeline loop will generally be constructed within existing utility corridors and has been designed to parallel the existing Lone Star Express I Pipeline. New permanent facilities will be constructed alongside the existing Lone Star Express Pipeline facility locations where possible. Construction is currently scheduled to begin on September 1, 2019. The anticipated in-service date for is January 2020.

Loop 2 intersects 11 USGS 7.5-minute topographic quadrangle maps (Figure 1-1, Table 1-1). Loop 2 begins approximately 16 kilometers (9.94 miles) east-southeast of Sweetwater in Nolan County and continues southeast approximately 117.85 kilometers (73.23 miles) through Taylor, Callahan, and Eastland Counties before terminating approximately 13.25 kilometers (8.24 miles) south-southwest of Cisco in Eastland County. Along the path of Loop 2, the APE is largely collocated with an existing pipeline corridor and intersects several major and county roads, unimproved roads, and agricultural fields. The anticipated Corps Permit Area/APE for Loop 2 consists of approximately 125.9 hectares (311 acres) encapsulating approximately 29 kilometers (18 miles) of Project centerline. The breakdown of area/length per county is provided in Table 1-2. Loop 2 also crosses approximately 35 natural waterways (Table 1-3).

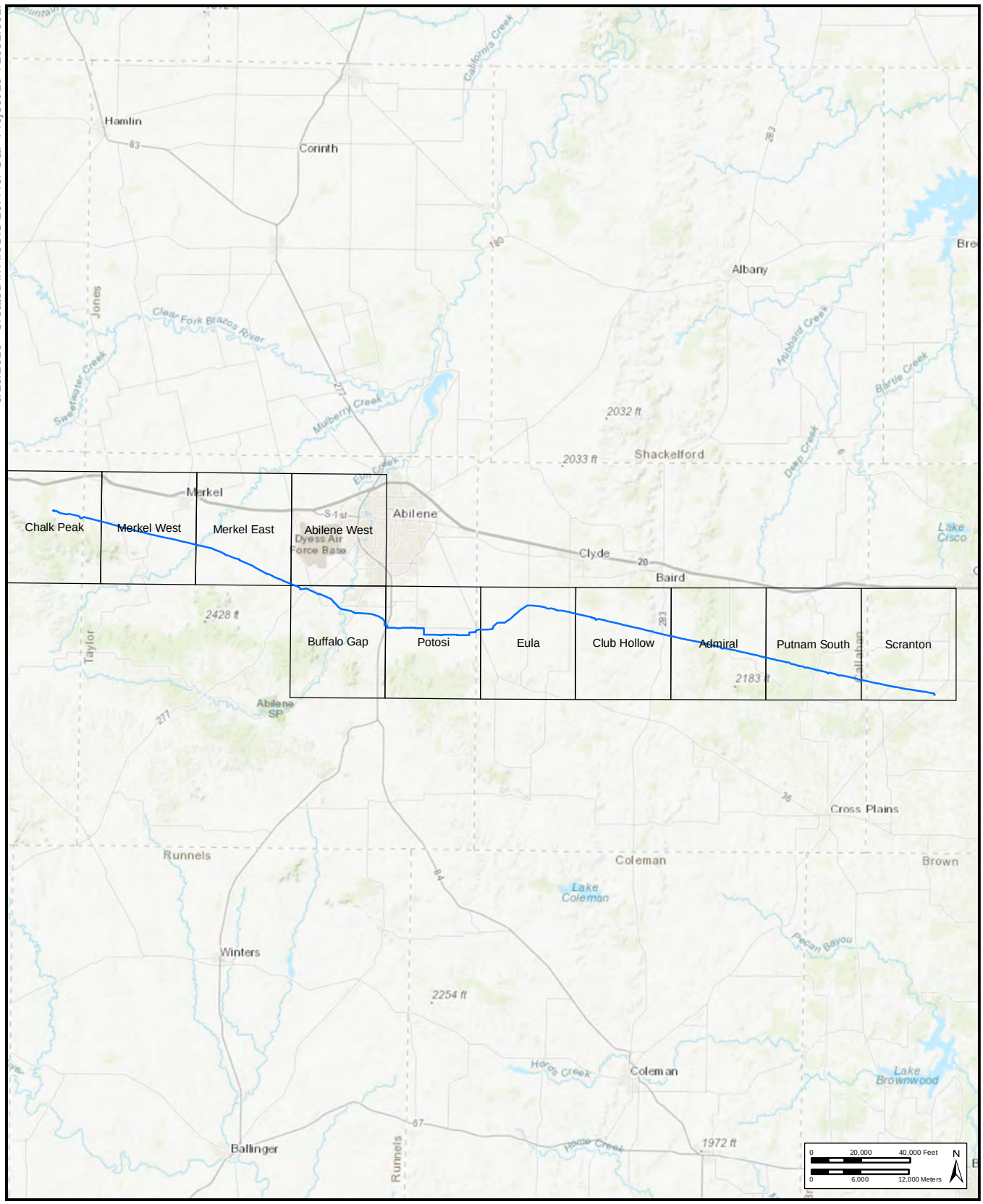

Figure 1-1
Project location in Nolan, Taylor, Callahan, and Eastland Counties, Texas.

Project Location
USGS Quadrangle Boundary

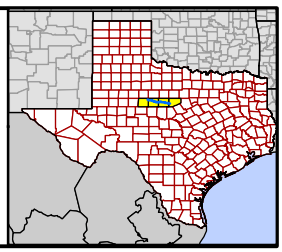

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Table 1-1. USGS Quadrangles Intersecting Loop 2.

USGS Quad ID	Name	State	Date Revised	Date Published	Date Photo Revised
32100-D2	Chalk Peak	Texas	-	84	-
32100-D1	Merkel West	Texas	-	84	-
32099-D8	Merkel East	Texas	-	84	-
32099-D7	Abilene West	Texas	74	76	-
32099-C7	Buffalo Gap	Texas	-	84	-
32099-C6	Potosi	Texas	-	84	-
32099-C5	Eula	Texas	-	84	-
32099-C4	Club Hollow	Texas	-	69	-
32099-C3	Admiral	Texas	-	70	-
32099-C2	Putnam South	Texas	-	70	-
32099-C1	Scranton	Texas	-	69	-

Table 1-2. Permit Areas by County.

County	Permit Area Count	Acres	Miles
Nolan	1	3.42	0.22
Taylor	28	155.8	9.0
Callahan	31	126.6	8.4
Eastland	6	23.4	1.4
Total	**665**	**309.2**	**19.0**

Table 1-3. Natural Waterways Crossed by Loop 2.

Waterway Name
West Fork Brushy Creek
Mexia Creek
Elm Creek
Bull Wagon Creek
Little Bitter Creek
Button Willow Creek
Mulberry Creek
Cedar Creek
Cat Claw Creek
East Fork Brushy Creek
Brushy Creek
South Fork Leon River
Battle Creek
Lytle Creek
Little Elm Creek
North Prong Pecan Bayou
Kaiser Creek
Unnamed Tributary of Mulberry Creek
Unnamed Tributary of Deep Creek
Unnamed Tributary of Little Elm Creek
Unnamed Tributary of Mexia Creek
Unnamed Tributary of Bull Wagon Creek
Unnamed Tributary of Elm Creek
Unnamed Tributary
Unnamed Tributary
Unnamed Tributary of Cedar Creek
Unnamed Tributary of South Fork Leon River
Unnamed Tributary of Battle Creek
Unnamed Tributary of Mexia Creek
Unnamed Tributary of Lytle Creek
Unnamed Tributary of Little Elm Creek
Unnamed Tributary of Deep Creek
Club Hollow
Unnamed Tributary of North Prong Pecan Bayou
Unnamed Tributary of North Prong Pecan Bayou

1.2 Report Organization

This report is organized into seven numbered chapters and six lettered appendices. Chapter 1.0 provides an overview of the Project. Chapter 2.0 presents an overview of the environmental setting and geomorphology. Chapter 3.0 presents a discussion of the cultural context associated with the APE. Chapter 4.0 presents the research design and methods developed for this investigation. The results of this investigation are presented in Chapter 5.0. Chapter 6.0 presents the investigation summary and provides recommendations based on the results of field survey. A list of literary references cited in the body of the report is provided in Chapter 7.0. Maps of the field survey coverage for Loop 2 are displayed in Appendix A. Maps illustrating shovel test coverage in Permit Areas is displayed in Appendix B, however for more detailed test coverage of cultural resources see the individual site plan maps provided within the body of the text in Chapter 5.0. Appendix C contains a log of all excavated shovel tests.

Appendices D through F contain condensed versions of deed research documentation for the properties containing cultural resources 41TA396, 41TA397, and 41TA399.

1.3 Acknowledgements

Fieldwork on Loop 2 was conducted from April 2 to May 2019, with supplemental investigation taking place on August 6, from October 1 to 13, and again November 5 and 6, 2019. required approximately 2,320-person hours to complete. The Project was managed by Senior Principal Investigator Tony Scott. Field activities within Loop 2 were conducted by Gray & Pape Field Leaders Marcia Vehling, Chris Baltz, Monte Lawton, Charlie Rose, Kyle Mayer, and Jacob Hilton. Field Technicians included Amanda Kleopfer, Hilda Torres, Robert Beckwith, Marie Swartz, Katrina Miller, Kaitlin Roberts, Steven Sykes, Petrina Kelly, Kyle Potter, and Luis Gonzalez. Field efforts were also conducted by Horizon Field Leader Elizabeth Sefton and Field Technicians McKinzie Froese, Dan Cambiano, Foster Duncan, and Steven Schooler under the guidance of Horizon Project Manager Jesse Owens. The report was prepared by Tony Scott, Hilda Torres, Amanda Kleopfer, and Ryan VanDyke. Prehistoric and Historic artifacts analysis was performed by Gray & Pape Lab Supervisor Eric Edelbrock and Lab and Curation Specialist Jacob Hilton. Architectural Historian Ryan VanDyke performed archival research for properties containing identified historic sites. Graphics were produced by Tony Scott. Jessica Bludau edited and produced the report.

Gray & Pape extends a special thank you to Lone Star Construction Manager Mike Churchman, Assistant Construction Manager Clyde McDonald, and Pipeline Inspectors Bill Laird, Shane Holdridge, Mark Salmon, and Patrick Hill, whose assistance and knowledge was instrumental in the timely and safe completion of the survey effort.

2.0 ENVIRONMENTAL CONTEXT

2.1 Physiography and Geomorphology

Most of the Project is situated in the North Central Plains area of the Interior Plains physiographic region. Nolan, Taylor, and Callahan Counties are characterized by the North Central Plains Physiographic region. The rolling terrain was created by the effects of erosion from ancient streams, leaving a landscape that is also steeply sloped in areas of highly dissected riverine edges (Bureau of Economic Geology [BEG] 1996). The northern portions of Nolan County consist of rolling uplands, while the southern areas contain plateaus intersected by valleys (Texas State Historical Association [TSHA] 2019). Taylor County is characterized by nearly level sloping plains and escarpments which separate it from the Edwards Plateau (Natural Resource Conservation Service [NRCS] 2019). Callahan County is split east-west by the Callahan Divide which separates the watersheds of the Brazos and Colorado Rivers (TSHA 2019). A portion of southeast Callahan County lies within the Edwards Plateau natural region and has undulating to hilly grassy plains which slope eastward (NRCS 2019). Eastland County lies within the Grand Prairie Physiographic region. The southern part of the county contains a rolling sandy surface, while the northern and east-central regions have a broken hilly morphology (NRCS 2019).

2.2 Surface Geology

Loop 2 crosses 18 geological formations (Table 2-1). The surface deposits across the length of Loop 2 primarily consist of Permian-age mudstone or shale underlain by limestone, mudstone, sandstone, or siltstone.

Table 2-1. Geologic Groups/Formations Intersected by Loop 2.

Label	Formation/Group	Age	Rock Type 1	Rock Type 2
Ka	Antlers Sand	Early Cretaceous	sand	clay or mud
Pad	Admiral formation	Permian; Wolfcamp Series	mudstone	limestone
Pb	Blaine Formation	Permian; Guadalupe Series	mudstone	evaporite
Pbe	Bead Mountain Formation	Permian; Leonard Series	shale	limestone
Pcf	Clear Fork Group	Permian; Leonard Series	mudstone	sandstone
Pcj	Coleman Junction Formation	Permian; Wolfcamp Series	mudstone	limestone
Pec	Elm Creek Formation	Permian; Leonard Series	shale	mudstone
Pgc	Grape Creek Formation	Permian; Leonard Series	shale	limestone
Pjv	Jagger Bend and Valera Formations, undivided	Permian; Leonard Series	shale	mudstone
Plu	Lueders Formation	Permian; Leonard Series	shale	limestone
Pmo	Moran Formation	Permian; Wolfcamp Series	mudstone	sandstone
Ppu	Pueblo Formation	Permian; Wolfcamp Series	mudstone	sandstone
Psa	San Angelo Formation	Permian; Guadalupe Series	mudstone	siltstone
Psb	Santa Anna Branch Shale	Permian; Wolfcamp Series	mudstone	shale
Pse	Sedwick Formation	Permian; Wolfcamp Series	mudstone	sandstone
Pta	Talpa Formation	Permian; Leonard Series	shale	limestone
Qal	Alluvium	Holocene	sand	silt
Qu	Quaternary Deposit, undivided	Quaternary	sand	silt

2.3 Soils

Loop 2 intersects approximately 80 soils spread across the four counties (United States Department of Agriculture – Natural Resources Conservation Service, Soil Survey Office [USDA-NRCS SSO] 2008). Loop 2 is represented by the Tillman-Vernon-Hollister and Windthorst-Chaney-Duffau soil associations (BEG 2008). Tillman-Vernon-Hollister association is generally characterized as reddish well-developed soils that can be moderately deep before transforming into sandstone and mudstone bedrock (USDA-NRCS SSO 2008). Windthorst-Chaney-Duffau association forms on rolling landscapes that are covered with Cretaceous age sandstone, shale, and limestone outcrops. Duffau and Windthorst soils are deep, highly weathered soils that are highly susceptible to erosion. Chaney soil is characterized by deep clayey subsoils that transform into claystone or shale (USDA-NRCS SSO 2008).

The soils in Nolan County are dark brown with very gravelly clay loam over cracked limestone bedrock in the rangelands. Soils of the uplands are grayish brown with gravelly clay loam overlying white caliche. The hills and ridges have calcareous reddish-brown loam over red mottled sandstone (NRCS 2019). Taylor County has loamy surface soils that are reddish to brownish over clayey subsoils that have accumulated lime (TSHA 2019). Callahan County soils are a light to dark loam with clayey to loamy subsoils, although the soils in the southeast portion of the county are light with loamy to sandy surface layers and clayey subsoils (TSHA 2019). Eastland County's soils are loamy sand underlain by sandy clay in the uplands which are dissected by numerous streams and drainages. The soils of the ridgetops and hillsides are shallow with stony sandy loam over clay, sandy clay, and sandstone or limestone (NRCS 2019).

2.4 Natural Environment

Most of the Project area is characterized by the scrub brush and grasslands of the Rolling Plains (BEG 2000). In some places, however, the scrub brush and grasses are entirely replaced with agricultural crops (BEG 2000). Local plants include buffalo grass, various short grasses, juniper, and mesquite. Wildlife include the critically endangered lesser prairie chicken, as well as mammal species such as deer, fox, raccoon, skunk, opossum, badger, ringtail cat, bobcat, coyote, and peccary (Griffith et al. 2007). Other species inhabiting the area include waterfowl, rattlesnake, raptor, and jackrabbit (Lowther 1981). Loop 2 lies within the Kansan biotic province which contains grassland species, along with some Austroriparian species (Blair 1950).

2.4.1 Climate

The western portion of the Project area has a semi-arid climate that becomes subhumid in the eastern areas. Rainfall is typically less than 71 centimeters (28 inches), most of which falls during spring and early summer storms. Summer temperatures can be intense, but a large diurnal range and low humidity results in relatively cool evenings, even in the hottest times of the year. Winters are generally mild with occasional light snowfall, but sudden drops in temperature can vary (Moore 1977; Conner 1976; Clower 1981; Lowther 1981).

2.5 Land Use

Land use is largely agricultural throughout the Project area. A small portion of Loop 2 crosses a suburban area on the outskirts of Abilene in Taylor County. Portions of the Project not used for agriculture are generally covered by grasses and scrub brush. Much of the Project length is collocated and shows clear signs of disturbance from adjacent pipeline corridors and supporting infrastructure.

3.0 CULTURAL CONTEXT

3.1 Prehistoric Context

Prehistoric sites in the Southern High Plains and Central Plains regions are commonly found on the surface and in mixed context (Meltzer 1987). Sites are typically located along the remnants of draws, playas, and larger salina basins that have been filled in by eolian processes (Johnson and Holliday 2004). The majority of known prehistoric Clovis, Folsom, and Late Paleoindian archaeological sites in Texas are found in portions of the High Plains region near New Mexico and western Oklahoma. The general area was near the southernmost reach of now extinct megafauna in the United States and included mammoth and a large form of bison, which were frequently hunted by prehistoric groups.

Sites with historic components in the region date as far back to the 1700s as was recorded in Blanco Canyon. Most historic sites in the area represent materials left behind by Hispanic sheepherders called *pastores*, European buffalo hunters, military outfits, and Anglo dumpsites (Perttula 2004).

Archaeological materials that have contributed to the development of a five-period cultural chronology, as developed by Kelley (1964) and Prikryl (1990) in the area based on excavations at a handful of intact sites. For the purpose of this report an attempt is made to generalize these periods in the following paragraphs; however, it should be noted that cultural periods are not equally represented across the varying ecological and physiographic areas that the Project intersects.

3.2 Paleoindian Period

The Paleoindian period falls within the latter part of the Pleistocene and into the early Holocene. It is generally agreed to have begun as far back as 11,500 years before present (B.P.) and continued until 8,500 B.P. and is marked by ubiquitous hunting and on-site butchering of megafauna in small nomadic groups.

The Paleoindian period is further subdivided into three more specific periods marked by projectile point technologies (Frison 1991; Holliday 1997; Wheat 1972; Wormington 1957). These include the well-known Clovis, Folsom, and Late Paleoindian periods. The Clovis period is thought to have endured at least 500 years during the latter part of the Pleistocene and its lithic technology is the oldest known in North America. Clovis points are lanceolate-shaped with short flutes (Turner and Hester 1993). Clovis points are large, heavy, and well-made tools that were used for puncturing the thick flesh of large game. The Folsom period, from 10,800-10,300 B.P., is also defined by a large fluted lanceolate-shaped point. Folsom points look similar to the Clovis point, but are thinner, more symmetrical, evenly chipped on the edges, and have a single classic flute all the way up the center of the point (Turner and Hester 1993). The Late Paleoindian period, from 10,000-8,500 B.P, is characterized by excellent craftsmanship of long, thin, narrow, lanceolate points without flutes. Instead, these points have parallel flakes and are ground with thinned bases typically accomplished with a few vertical flakes (Turner and Hester 1993). Paleoindian sites of note located in the Southern High Plains and Central Plains regions include the Lone Wolf Creek (41MH23), Midland (41MD1), and McClean (41TA29) sites.

3.3 Archaic Period

Following a transition to a warmer climate, the Archaic period is accepted to have lasted between 8,500-1,250 B.P. The Archaic period is marked by an adaptation to less abundant water resources and to more dependence on vegetation as a food source than compared to people living in the Paleoindian period

(Johnson and Holliday 2004). The Archaic period is further subdivided into two periods, known as the Early and Late Archaic periods, which the former is characterized by a lack of occupational sites in the area during a time called the Altithermal when the land was hot, dry, and dusty. The Late Archaic is defined by a sudden increase in the number of sites around 4,500 B.P., when a noticeably milder climate with less hostile conditions returned to the area (Antevs 1954; Hughes 1991). Archaic sites are commonly associated with fewer megafauna kill sites than earlier Paleoindian sites. Such sites are often associated with an array of stemmed and later barbed dart points, ground stones, and hearths lined with burned stone and caliche-cobbles (Hofman 1989).

3.4 Late Prehistoric Period

The Archaic period was followed by the development of ceramic technology and the bow and arrow. These two inventions made way for significant sociocultural changes including a shift toward sedentism and decreased mobility. These developments are the hallmarks of the Late Prehistoric period, which lasted from A.D. 200-1450.

Because of more specific diagnostic traits associated with the Late Prehistoric, it is further subdivided into the Woodland period (A.D. 200-1450), the Palo Duro Complex (A.D. 500-1100), and the Antelope Creek Phase (A.D. 1200-1450). The Lake Creek Site in the Texas Panhandle represents the Woodland Period in the High Plains, which is characterized by cordmarked ceramics, corner-notched Scallorn arrow points, and a large assemblage of lithic flake tools (Hughes 1962). Palo Duro Complex Sites are defined by the use of pit houses and evidence of plant food procurement and processing. The first evidence of such was gathered during excavations by Willey and Hughes (1978) of the Deadman's Terrace Site, more commonly called Deadman's Shelter.

Finally, the Antelope Creek Phase, sometimes called the Antelope Creek Focus, is the most distinctive and well-known of the Late Prehistoric periods in the Panhandle. Hughes (1991:31) documents the highest density of Antelope Creek Sites occurring along the Canadian breaks. Antelope Creek sites are best known by their pueblo-like structures with numerous rooms. These sites are also commonly identified by the presence of bone tools, made from butchered bison, scrapers, grinding slabs for plant processing, and sometimes obsidian (Hughes 1991).

3.5 Protohistoric Period

The Protohistoric period dates from A.D. 1450 to AD 1600. It is defined by documented trade activities with neighboring Pueblos, increased ceramic production projectile points that seem to be confined to one of two subdivisions of the Protohistoric. The Tierra-Blanca Complex and the Garza Complex are contemporary. The Tierra-Blanca Sites are thought to have traded with the New Mexico Pueblos and are typically identified by the presence of larger villages (Hughes 1991). The Garza Complex is associated with the Garza point type which seems to only appear at Garza Complex sites. Other point types found at Garza Complex sites include the Washita, Harrell, Lott, and Fresno (Hughes 1991).

3.6 Historic Period

Several Native American tribes are known to have inhabited the area prior to Spanish contact in 1541; these include the Apache, Comanche, Kiowa, and Kiowa-Apache (Newcomb 1961). In the nineteenth century, the area was inhabited by the Kiowa and Comanche tribes, who preferred free range over Oklahoma's reservations (Whitlock 1970). By then, the Comanche had displaced the Apache. It is widely known that by the nineteenth century, aboriginal groups remaining in the High Plains had begun exploiting horses for use during hunting and raiding. During that time, the Comanche were assigned by the Army to reservation life in Oklahoma (Newcomb 1961).

3.7 Historical Context of the Region

The earliest written descriptions of the north-central region of Texas come as a result of Spanish exploration of the areas to the north and west of the current Project. The cliff on the north facing of the Canadian River was seen by Francisco Vásquez de Coronado in 1541 on his way east from Cíbola, leading him to name the plateau the Llano Estacado, or *Palisaded Plain*. In addition to recording the initial explorations of the Llano Estacado, Coronado developed the region's orientation toward the Hispanic Southwest. Coronado's efforts were mimicked by Juan de Oñate during an early seventeenth century expedition along the Canadian River. In 1872, the Llano Estacado was described by General Randolph Marcy as a "great North American desert" with "not a tree, bush or water" (Whitlock 1970).

At the time, buffalo herds were common across the Llano Estacado. In the 1870s, conflict between American buffalo hunters and regional Native-American tribes reached its apex in the Red River War. Military defeat and the slaughter of the buffalo herds forced the Comanches, Kiowa, Cheyenne, and Arapaho off the plains to reservations (Haley 2010).

White settlement in the region remained sparse early on due to risk of hostilities with tribes such as the Comanche. Large cattle ranches and agriculture (mainly cotton) became the primary industry in the region with subsequent booms and bust within the petroleum and natural gas industries continuing to be the major driver of development of the region into the present day (Long 2010).

4.0 FIELD METHODOLOGY

This cultural resource investigation was designed to identify and assess new and previously recorded cultural resources that may be impacted by the proposed Project. Desktop assessment and modeling were performed prior to initiating field investigations to better understand cultural, environmental, and geological settings. Results of the desktop assessment were then used to develop the field methodology.

4.1 Site File and Literature Review

The background literature search included a review of previously conducted cultural resource surveys in the vicinity of the proposed Project area, and of any historic document pertaining to the history of the area. Site file research was performed to identify all previously recorded archaeological sites within a 0.8-kilometer (0.5-mile) study radius of the Project area and any recorded historic structures eligible for the National Register of Historic Places (NRHP) or State Antiquities Landmark (SAL) listing located adjacent to the Project area. Site file research was done by reviewing records maintained by the Texas Archeological Research Laboratory in Austin, Texas, and by consulting THC.

Historical topographic maps and aerial photographs when available were reviewed to identify any historic structures, residential, and other structures that might be located close to or within the Project area. Historical maps of Texas and Texas counties were also reviewed in order to better understand the history of the region and to identify any potential historic trails and important historic sites located or crossing the Project area.

4.2 Field Methods

4.2.1 Intensive Pedestrian Survey

The Project was subjected to pedestrian survey within permit areas. Permit areas were based on water features which were field delineated by biological field crews in conjunction with the cultural resource survey. The permit areas for each water feature were assessed on a case-by-case basis but in general comprised the first terrace to first terrace of large perennial creeks and rivers that intersect the APE. For smaller streams and water features without terraces, a minimum baseline buffer area placed to either side of the water feature was assessed. These buffer areas consist of 180 linear meters (600 linear feet) to either side of larger perennial and intermittent drainages and 100 linear meters (300 linear feet) to either side of some intermittent and ephemeral drainages, wetlands, and catch basins. Based on the project's typical corridor width of 39.6 meters (130 feet), two transects were investigated, with additional transects added as needed for wider temporary workspaces. Transects were spaced no more than 30 meters (100 feet) apart. Because most of the project APE is collocated with an existing pipeline corridor, which at times subsumes half or more of the total corridor width, one survey transect was often within an existing pipeline easement. Existing easements were routinely maintained and often displayed greater than 70 percent surface visibility. Survey transects overlapping existing easements, excessive slope, or standing water were at a minimum subjected to pedestrian surface inspection/walkover, and also judgmentally shovel tested where warranted to confirm/refute suspected subsurface disturbance. Digital photography aided documentation of the existing conditions of the Project area and fieldwork methods, with photograph locations recorded on field maps and logged with a Global Positioning System (GPS) unit.

Shovel testing within permit areas was attempted along each transect at a number which met or exceeded Texas State Minimum Archaeological Survey Standards regardless of surface visibility. Shovel tests were generally spaced at intervals between 30 and 60 meters (100 and 200 feet). In areas of clear previous disturbance or areas of lower probability for

cultural resources, shovel tests were not typically conducted at a distance greater than 100 meters (328 feet). Shovel tests were attempted to depths of 1 meter (3.3 feet) or until culturally sterile subsoil was reached, except where bedrock was present at shallow depths, or where potential existing pipelines were present.

All shovel tests measured approximately 30 centimeters by 30 centimeters (1 foot by 1 foot). When possible, all soil was screened through 0.64-centimeter (0.25-inch) wire mesh. Vertical control of each shovel test was maintained by excavating in arbitrary 10-centimeter (4-inch) levels with reference to the parent soil stratum. The profile of each shovel test was inspected for color and texture change potentially associated with the presence of cultural features. Descriptions of soil texture and color followed standard terminology and soil color charts (Munsell 2005). Additional information such as mottling, evidence of disturbance, and moisture level was also recorded. All shovel test data were recorded in one of two formats for analysis: 1) a GIS file which had the appropriate attribute columns set up for population in the field, or 2) standardized paper forms. All shovel tests were backfilled after excavation and documentation. The excavated shovel tests were placed on field maps and points were taken with a GPS unit.

At each permit area location, a summary of the results of activities along with recommendations was provided to the Principal Investigator on a daily basis. These summaries were then submitted to the client. At regular intervals while survey was in progress shovel test forms were submitted to the Principal Investigator for review. Any need for additional work such as deep testing was based on the field results in coordination with the Field Archaeologist and arranged with the client.

4.2.2 Deep Testing

As documented in Chapter 5.2 below, shovel test results in nearly all permit areas indicated deflated soils with subsoil or bedrock near the surface. This is likely due to previous erosion and disturbance as a result of previous pipeline installations, the existing ROW of which subsumes the majority of the current APE. However, the location of Permit Area Number 6 at Mulberry Creek in Taylor County was identified as a candidate for deep testing. This determination was based on geomorphological data, and field results and discussions with the Field Archaeologists. The location is mapped for Holocene-age alluvial deposits which have the potential for a deep A horizon. Shovel test results at the location could not confirm that subsoils were reached and as a result, deep testing for the location was advised by the Field Archaeologist. The methodology for deep testing was formulated in conjunction with agency coordination. Agency consultation concurred with the use of machine auguring at the location. Auger tests were placed at 50-meter (164-foot) intervals, conducted along a single transect placed outside of the existing pipeline right-of-way (ROW) for safety concerns. Mechanical auguring was conducted with reference to the most recent draft of the Council of Texas Archeologists (CTA) guidelines. Soil matrix removed during auguring was placed on plastic tarp to keep it separated from the surrounding vegetation. The removed material was monitored for texture and color changes and screened using ¼-inch mesh. Descriptions of soil texture and color followed standard terminology and the Munsell (2005) soil color charts. The locations of all deep tests were recorded with a sub-meter accurate GPS data collector and recorded on field maps.

4.2.3 Site Definition

Surface visibility along the entire Project length was generally 70 percent or greater. Thus, all previously recorded sites that intersect the APE within permit areas were subjected to surface inspection supplemented by a sample of shovel tests placed at regular intervals within the previously established site boundary to check for deposition and density. A minimum of six radial shovel tests were typically attempted conducted in cardinal directions around the site

boundary within the limits of the APE. Delineation tests were typically conducted in 10-meter (33-foot) intervals but increased or decreased at the Field Archaeologist's discretion based on contributing field factors such as surface expression, previously established site size, previous disturbance, landforms, amount of surface visibility, and perceived areas of surface density. Delineation tests were generally pursued until reaching two consecutive negative tests beyond the established site boundary.

Newly identified sites were delineated in the same manner. Positive shovel tests, artifacts visible on the surface, and site boundaries were recorded on Project maps and via sub-meter accurate GPS. Newly identified sites and revisited previously recorded sites were also documented on standardized archaeological site forms.

For each cultural resource identified, including structures or other resources within or immediately adjacent to the APE, photographs were taken of the general vicinity and of any visible features, if present. A sketch map was prepared showing site limits, feature locations, permanent landmarks, topographic and vegetation variations, sources of disturbances, and total number of tests performed within and near the site. Artifacts recovered from shovel tests were not to be collected. All discovered artifacts were photographed in the field and placed in the backfilled shovel test or left on the surface. Locations of all positive tests were recorded with the GPS.

Each identified resource was given a temporary field site number. Site forms were submitted for each cultural site identified. Revisit site forms were completed for previously recorded sites re-identified in the field. State-issued trinomial site numbers were requested for cultural sites but not for identified isolates.

If any architectural resources had been identified, these would have been recorded on corresponding field forms. Details of form, construction, material, style, condition, and alteration would be recorded both on the forms and photographically for each structure. All documentation would be reviewed by a qualified Architectural Historian who would decide if additional information or a personal field inspection was necessary at the survey level.

4.3 Archival Research

Historical research was conducted for three sites in Taylor County and one site in Nolan County, which were identified at the request of the USACE. A wide variety of sources, including historic maps, aerial photography, and local historic records were consulted. Gray & Pape reviewed historic topographic quadrangle maps, historic aerials, and Google Earth historic aerial imagery. Deed research was conducted at the Taylor County Clerk's Office for the three historical sites within Taylor County. In-depth deed genealogical research was conducted on the names of previous owners for each site. In addition, historical General Land Office Maps, atlas maps, Ancestry.com, Find-a-Grave.com, and United States Census Records were consulted.

4.4 Laboratory Analysis

4.4.1 Artifact Analysis

Artifacts encountered in the field were not collected; thus, no lab analysis was conducted. Artifacts were instead described and classified in the field as best as possible and representative samples were photographed. Data recorded in the field for uncollected artifacts included general attributes such as form (if identifiable), material, functional classification (if identifiable), and counts.

4.5 Curation

No diagnostic or non-diagnostic artifacts were collected in the course of the current survey. Gray & Pape will maintain Project records in their curation facility in Houston.

5.0 RESULTS OF INVESTIGATIONS

5.1 Result of Site File and Literature Review

A search of the Texas Archeological Sites Atlas, maintained by the THC, determined that no National Register properties intersect the Project alignment within Loop 2. The same research identified that 17 previously recorded archaeological sites, 17 previously conducted archaeological surveys, one historical marker, and one cemetery had been recorded within the 0.8-kilometer (0.5-mile) study radius of the Project area.

5.1.1 Previously Recorded Surveys

According to a search of the Texas Archeological Sites Atlas, at least 17 previous surveys have been conducted within a 0.8-kilometer (0.5-mile) study radius of Loop 2 (Table 5-1, Appendix A). Four of those surveys intersect the Project alignment; however, these consist of narrow survey corridors and none significantly overlap the current Project. The most recent of these surveys were conducted by Tetra Tech, AR Consultants, and Horizon. Projects included the Colorado City to Corsicana Pipeline and the BridgeTex North Pipeline. A review of reports associated with these and other surveys in the vicinity indicated a mix between 100 percent survey coverage and survey of USACE jurisdictional water crossings. Survey findings suggest that while archaeological sites are not uncommon in the general vicinity, they do not typically contain the information that would result in a recommendation for eligibility. Some of these resources are discussed further in-depth below.

5.1.2 Previously Recorded Archaeological Sites

Per a search of the Texas Archeological Sites Atlas, 17 previously recorded archaeological sites occur within the 0.8-kilometer (0.5-mile) study radius of the Project area. Those 17 resources, or at least portions of them, have been previously determined to be ineligible for listing on the National Register. Of those 17 resources, six are located within 91 meters (300 feet) of the Project APE (Table 5-2). Four of the resources that are potentially within permit areas were re-identified during survey and are described in greater detail in Section 5.2.2 of this report.

5.1.3 Historical Markers

One historical marker is recorded within 0.8 kilometers (0.5 miles) of the Project. Marker number 3343, entitled "Merchant Home" was established in 1962 (THC 2019). Historical marker 3343 is located approximately 290 meters (951.44 feet) north of the Project corridor at its closest (Figure A21). It is located approximately 7.57 kilometers (4.7 miles) south-southeast of Baird, Texas.

5.1.4 Cemeteries

Only one cemetery is located within the 0.8-kilometers (0.5-miles) radius of the Loop 2 Project area. Eula Cemetery (CA-C016) is located approximately 515 meters (1,689.63 feet) south of the project corridor at its closest (Figures A16/A17). Eula Cemetery (CA-C016) is located east of County Road 241 near Abilene, Texas, and contains approximately 815 memorials.

Table 5-1. Previously Recorded Area and Linear Surveys within 0.8 Kilometers (0.5 Miles) of the Proposed Loop 2 Project Area.

Project Type	Date	TAC Permit No.	Sponsor/Agency	Investigating Firm	Report Author	THC Review Date
Linear Survey	2/1976	-	Environmental Protection Agency (EPA)	-	-	-
Area Survey	9/1/1983	-	Texas Department of Transportation	-	-	-
Linear Survey	10/1984	-	SCS	-	-	-
Area Survey	1/1/1989	-	AF	-	-	-
Area Survey	4/1/1995	-	AF	-	-	-
*Linear Survey	11/1999	-	Texas Department of Transportation	-	-	-
Linear Survey	10/2000	-	USDA-RUS	-	-	-
*Linear Survey	1/2001	-	USDA-RD	-	-	-
Linear Survey	5/2001	2606	City of Abilene	-	-	-
Linear Survey	5/2001	2606	City of Abilene	-	-	-
Linear Survey	7/2001	2606	City of Abilene	-	-	-
*Linear Survey	9/1/2001	2678	City of Abilene	AR Consultants	Skinner, S. Alan	1/3/2001
Area Survey	7/1/2013	6480	Corps of Engineers	Horizon Environmental Services	Brownlow, Russell K., et al.	-
Area Survey	12/1/2013	-	Corps of Engineers	Horizon Environmental Services	Brownlow, Russell K.	-
*Area Survey	5/2/2014	-	Sunoco Pipeline, L.P.	Tetra Tech, Inc.	-	-

*Indicates an intersection with the current project.

Table 5-2. Previously Recorded Archaeological Resources within 91 Meters (300 Feet) of the Loop 2 Project Area.

Trinomial	Site Type	Cultural Affiliation	Materials observed	Record Date	NRHP Status	NRHP Review Date
41CA27	Open Campsite and Lithic Scatter	Unknown Prehistoric	Tertiary flakes, scattered fire cracked rock (FCR).	2015	Ineligible	2015
41NL318	Lithic Procurement site and Lithic Scatter	Unknown Prehistoric	Tested cobbles, flakes, 3 crude bifaces, 1 preform.	2014	Ineligible	2014
41TA314	Lithic Scatter	Unknown Prehistoric	20 flakes, 1 core.	2013	Ineligible within ROW	2013
41TA353	Open Campsite and Lithic Scatter	Unknown Prehistoric	100 flakes, 10 cores, 1 biface.	2015	Ineligible within ROW	2015
41TA354	Open Campsite and Lithic Scatter	Unknown Prehistoric	100 flakes, 10 cores, 1 biface.	2015	Ineligible	2015
41TA371	Historic Artifact Scatter	Historic	Brick, decorated whiteware, clear, green, blue, amber, aqua, and milk glass, metal	2018	Unknown	N/A

5.2 Results of Field Investigations

Fieldwork included archaeological reconnaissance throughout USACE permit areas of the APE. Crews from both Gray & Pape and Horizon conducted field survey. In total, 65 permit areas were surveyed (Table 5-3). These entailed approximately 120 water features consisting of streams, rivers, wetlands, and ponds/catch basins were tested. These areas included more than 160 different parcels. A total 677 shovel tests were excavated: 652 within permit areas and 25 during site delineation outside of permit areas. Of those, six were positive for cultural materials resulting in the re-identification of five previously recorded resources, the discovery of six new resources, and two isolate finds (arranged by milepost in Table 5-4). Artifacts that may be associated with one additional previously recorded resource were identified within the Project APE but outside of permit areas (Table 5-5). Resource and artifact descriptions are provided in more detail in Sections 5.2.2 to 5.2.5, below. For organization and to discern jurisdictional versus non-jurisdictional, and previous versus new resources, discussions of resources are broken into four categories with corresponding subsections: 5.2.2.) Re-identified Previously Recorded within Jurisdictional Areas; 5.2.3) Newly Recorded Resource within Jurisdictional Areas; 5.2.4) Newly Recorded Isolates within Jurisdictional Areas; and 5.2.5) Previously Recorded Non-Jurisdictional Resources. Each resource within each subsection is arranged in order along the along the alignment from west to east.

5.2.1 Loop 2 General Characteristics

Loop 2 extends throughout Nolan, Taylor, Callahan, and Eastland Counties. This portion spans approximately 117.85 kilometers (73.23 miles) and 1,077.64 hectares (2,662.91 acres).

The vicinity of the loop is split between pasture/scrub brush (Figure 5-1) and farmland (Figure 5-2). Surface visibility generally ranged from 70 to 100 percent. Almost the entire survey corridor has been previously impacted by pipeline installation, maintenance, or subsequent erosion, county roads, and unimproved roads that cross the APE. Within Loop 2, 677 shovel tests (see Appendices B and C). While the project intersects areas mapped for at least 80 soils series, permit areas most often intersected areas mapped for Pedernales, Sagerton, Chaney, and Cisco-Hext-Pedernales Association soils series. These soils typically have an A horizon below 30 centimeters (12 inches).

The typical shovel test profile for the loop consisted of reddish-brown clay or 7.5YR 4/4 sand followed by bedrock (Appendix C). The depth of the surface and subsurface layers was typically shallow (35 centimeters [13.78 inches]), indicating past impact by erosion or land modification. In most tests, these layers were underlain by bedrock. Because of this, very few tests approached 100 centimeters (33 inches). Approximately 108 shovel tests showed evidence of disturbance displayed as mottled soils containing larger quantities of calcium carbonate or gravels throughout. These tests typically were located within or very near the existing pipeline corridor limits.

5.2.2 Revisits of Previously Recorded Resources Located within Jurisdictional Areas

Five previously recorded resources that intersect the Loop 2 permit areas were re-identified during survey. The resources were re-identified by either Horizon or Gray & Pape crews. In some cases described below, Horizon performed the site investigation within the APE and Gray & Pape conducted delineation work outside of the APE to better define the site boundary. Results at each re-identified resource are described below. The sites are organized as they fall on the pipeline west to east.

Figure 5-1. Example of scrub brush vegetation coverage observed in Loop 2. View is to the southeast.

Figure 5-2. Example of agricultural areas observed in Loop 2. View is to the southeast.

Table 5-3. Survey Results within Permit Areas of the Loop 2 Project Area.

Permit Area No.	Parcels	Miles	Acres	UTM E	UTM N	Shovel Test Count	Deep Test Count	Resources Identified	Appendix A Figure	Appendix B Figure
1	LSX-NO-092.000	0.2	3.4	389697.5	3591167.0	10	-	41NL318	A1	B1
2	LSX-TA-009.000	0.2	2.8	397071.1	3589422.6	7	-	-	A3	B2
3	LSX-TA-009.000	0.1	2.0	397500.4	3589391.4	11	-	41TA396	A3	B3
4	LSX-TA-013.000, LSX-TA-014.000 / LSX-TA-015.000 / LSX-TA-016.000 / LSX-TA-017.000	0.1	2.0	399450.0	3588878.2	5	-	-	A4	B4
5	LSX-TA-018.000, LSX-TA-019.000	0.1	2.5	400780.8	3588566.7	9	-	41TA397	A4	B5
6	LSX-TA-031.000 - LSX-TA-034.000	1.0	18.5	406702.7	3587214.3	31	13	41TA353/41TA354	A5-A6	B6
7	LSX-TA-034.000, LSX-TA-035.100, LSX-TA-036.000	0.1	2.5	408032.2	3586888.4	1	-	-	A6	B7
8	LSX-TA-037.000 - LSX-TA-039.000	0.3	4.5	409068.5	3586431.8	8	-	-	A6	B8
9	LSX-TA-040.000	0.4	6.7	410915.3	3585661.2	33	-	41TA314	A7	B9
10	LSX-TA-040.100, LSX-TA-041.000	0.2	2.4	411598.9	3585353.3	4	-	-	A7	B10
11	LSX-TA-046.000	0.2	3.8	414984.3	3583725.3	7	-	-	A8	B11
12	LSX-TA-046.000, LSX-TA-050.000	0.7	11.5	415899.0	3583293.3	20	-	41TA398, TA-50-ISO-01	A8	B12
13	LSX-TA-050.000-LSX-TA-052.000	0.8	14.3	417094.2	3582790.4	26	-	-	A8	B13
14	LSX-TA-053.000, LSX-TA-054.000	0.3	4.0	418408.7	3582242.6	7	-	-	A9	B14
15	LSX-TA-066.000, LSX-TA-067.000	0.1	3.5	420077.5	3581720.5	9	-	-	A9	B15
16	LSX-TA-068.000-LSX-TA-070.000	0.1	2.7	421181.8	3581273.3	2	-	-	A9	B16
17	LSX-TA-071.000-LSX-TA-073.000	0.3	4.4	421863.1	3581034.5	5	-	-	A9	B17
18	LSX-TA-078.000, LSX-TA-081.000	0.4	7.9	423906.8	3579446.1	19	-	-	A10	B18

Permit Area No.	Parcels	Miles	Acres	UTM E	UTM N	Shovel Test Count	Deep Test Count	Resources Identified	Appendix A Figure	Appendix B Figure
19	LSX-TA-081.000-LSX-TA-083.000	0.2	3.6	425401.7	3579013.7	6	-	-	A10	B19
20	LSX-TA-087.000	0.2	2.5	426302.5	3578892.3	6	-	-	A11	B20
21	LSX-TA-089.000-LSX-TA-090.000	0.4	7.0	428209.3	3578645.1	7	-	-	A11	B21
22	LSX-TA-094.250, LSX-TA-094.260, LSX-TA-094.260	0.2	2.9	429653.3	3577138.9	13	-	-	A12	B22
23	LSX-TA-094.270, LSX-TA-094.280, LSX-TA-094.290, LSX-TA-094.305, LSX-TA-094.310	0.3	5.8	430313.1	3577082.4	21	-	-	A12	B23
24	LSX-TA-123.000-LSX-TA-125.000	0.6	12.0	432451.8	3577119.6	36	-	41TA399	A12	B24
25	LSX-TA-134.000, LSX-TA-137.000, LSX-TA-137.500	0.3	4.7	437267.1	3576237.5	6	-	-	A14	B25
26	LSX-TA-137.500	0.1	2.2	437737.4	3576240.3	5	-	-	A14	B26
27	LSX-TA-138.000, LSX-TA-138.100	0.2	2.9	438565.0	3576205.4	5	-	-	A14	B27
28	LSX-TA-138.000, LSX-TA-138.100, LSX-TA-139.000, LSX-TA-139.100, LSX-TA-140.000	0.3	4.4	438975.7	3576210.0	8	-	-	A14	B28
29	LSX-TA-142.000, LSX-TA-142.100, LSX-TA-143.000, LSX-TA-145.000, LSX-TA-146.000 / LSX-CA-001.000	0.8	13.5	440161.3	3576525.7	15	-	-	A14	B29
30	LSX-CA-009.000-LSX-CA-010.000	0.5	7.6	443706.7	3577720.4	10	-	-	A15	B30
31	LSX-CA-021.000 / LSX-CA-022.000, LSX-CA-022.001	0.2	2.9	446966.2	3579830.9	2	-	-	A16	B31
32	LSX-CA-025.100	0.1	2.2	448240.7	3579764.2	7	-	-	A16	B32
33	LSX-CA-027.000	0.1	2.0	448937.4	3579673.6	5	-	-	A17	B33
34	LSX-CA-028.000	0.2	3.3	450250.7	3579426.8	6	-	-	A17	B34
35	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	0.2	3.9	452394.3	3578967.7	9	-	-	A17	B35

Permit Area No.	Parcels	Miles	Acres	UTM E	UTM N	Shovel Test Count	Deep Test Count	Resources Identified	Appendix A Figure	Appendix B Figure
36	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	0.1	2.6	453777.9	3578650.8	8	-	-	A18	B36
37	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	0.1	2.1	454804.4	3578415.7	5	-	-	A18	B37
38	LSX-CA-037.000 -LSX-CA-039.000	0.7	11.2	457156.3	3577862.8	8	-	-	A19	B38
39	LSX-CA-039.000	0.2	3.5	459346.6	3577346.5	19	-	41CA42, CA-39-ISO-02	A19	B39
40	LSX-CA-045.000, LSX-CA-045.100	0.7	11.7	463301.1	3576412.4	34	-	41CA27	A20	B40
41	LSX-CA-045.200, LSX-CA-046.000	0.5	6.4	465395.7	3575917.4	10	-	-	A21	B41
42	LSX-CA-046.000	0.1	1.4	465928.7	3575797.9	2	-	-	A21	B42
43	LSX-CA-046.000	0.2	2.0	467347.7	3575503.7	3	-	-	A21	B43
44	LSX-CA-051.000	0.2	2.9	469387.3	3575037.0	6	-	-	A22	B44
45	LSX-CA-052.000, LSX-CA-053.000	0.1	2.0	470248.7	3574848.6	3	-	-	A22	B45
46	LSX-CA-054.000 / LSX-CA-055.000, LSX-CA-056.000 / LSX-CA-057.000	0.3	5.8	471722.9	3574516.0	7	-	-	A22	B46
47	LSX-CA-056.000 / LSX-CA-057.000	0.3	6.0	472353.1	3574373.7	5	-	-	A22	B47
48	LSX-CA-061.000	0.1	1.9	473741.4	3574043.4	5	-	-	A23	B48
49	LSX-CA-062.000-LSX-CA-064.000	0.1	2.2	474440.4	3573877.3	6	-	-	A23	B49
50	LSX-CA-064.000, LSX-CA-065.000	0.4	7.3	474958.8	3573759.3	19	-	-	A23	B50
51	LSX-CA-067.000	0.2	3.0	476524.0	3573394.4	5	-	-	A24	B51
52	LSX-CA-071.000, LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	0.4	7.0	479191.9	3572791.8	10	-	-	A24	B52

Permit Area No.	Parcels	Miles	Acres	UTM E	UTM N	Shovel Test Count	Deep Test Count	Resources Identified	Appendix A Figure	Appendix B Figure
53	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	0.1	1.9	480392.4	3572453.1	8	-	-	A24	B53
54	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	0.1	1.9	480672.8	3572342.5	4	-	-	A25	B54
55	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	0.2	4.0	481027.9	3572294.2	15	-	-	A25	B55
56	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	0.2	2.7	481405.7	3572158.3	11	-	-	A25	B56
57	LSX-CA-076.000 / LSX-CA-077.000	0.4	6.8	483461.7	3571733.7	10	-	-	A25	B57
58	LSX-CA-076.000-LSX-CA-078.000	0.3	5.0	484050.4	3571541.6	16	-	41CA43	A25	B58
59	LSX-CA-083.000	0.2	3.3	486887.2	3570955.6	4	-	-	A26	B59
60	LSX-EA-001.000	0.4	6.2	489351.6	3570420.7	4	-	-	A27	B60
61	LSX-EA-002.000-LSX-CA-078.000	0.2	3.9	490121.2	3570251.3	4	-	-	A27	B61
62	LSX-EA-006.000, LSX-EA-007.000	0.1	2.0	491441.6	3569968.6	4	-	-	A27	B62
63	LSX-EA-008.000, LSX-EA-008.500	0.1	1.7	491903.3	3569878.0	5	-	-	A27	B63
64	LSX-EA-014.000, LSX-EA-015.000	0.4	5.9	494133.3	3569471.0	12	-	-	A28	B64
65	LSX-EA-016.000	0.2	3.8	495185.7	3569293.9	15	-	-	A28	B65
Total		18	310.9			648	13			

Table 5-4. Identified Resources within the Loop 2 Permit Areas.

Trinomial	MP Begin	MP End	Site Type	New Site?	Cultural Affiliation	Previous Materials Observed	Record Date	Previous NRHP Status	NRHP Review Date	Current Materials Observed	Current Eligibility Rec	Appendix A Figure	Appendix B Figure	Report Figure
41NL318	109.28	109.58	Prehistoric lithic scatter and procurement site	No	Unknown Prehistoric	Remnants of a hearth consisting of 150 pieces of lithic debitage and about 24 pieces of FCR	3/25/ 2014	Ineligible	8/18/ 2014	Approximately 100+ flakes, 5 chert cores, 3 bifaces, 1 preform, 20 FRC, 2 tools	Ineligible within ROW	A1	B1	5-4
41TA396	114.45	114.48	Prehistoric lithic scatter and mid-20th century historic scatter	Yes	Multicomponent Unknown Prehistoric / Late Middle Archaic and Mid-20th century historic	N/A	5/28/ 2019	N/A	N/A	20+ flakes, 1 biface, 1 projectile point, 30+ historic ceramics, 150+glass, 25+ metal debris, 10 brick	Ineligible within ROW	A3	B3	5-35
41TA397	116.45	116.50	Mid-20th century historic scatter	Yes	Mid-20th century historic	N/A	5/28/ 2019	N/A	N/A	12+ glass, 10+ historic ceramics, 1 metal	Ineligible within ROW	A4	B5	5-43
41TA353/ 354	120.32	120.59	Combined boundaries of two prehistoric lithic scatter	No	Unknown Prehistoric	Scattered FCR, a pointed biface, hammerstones, an expedient tool, modified flakes, scrapers, flakes, a spokeshave, and a possible Martindale dart point	1/16/ 2015	Ineligible	2015	200+ flakes, 2 bifaces, 1 uniface, 12 cores, 1 hammerstone, 2 manos, 9 tools, 2 projectile points, 2 preforms, 200+ FCR	Ineligible within ROW	A5-A6	B6	5-11
41TA314	123.09	123.15	Prehistoric lithic scatter	No	late to transitional archaic	FCR, a Marcos dart point, utilized flakes, as well as secondary and tertiary flakes	6/18/ 2013, 2/4/ 2015	Ineligible within ROW	2013	25 flakes, 2 cores, 12 FCR	Ineligible within ROW	A6-A7	B9	5-24
41TA398	126.47	126.93	Prehistoric lithic scatter	Yes	Unknown Prehistoric	N/A	5/28/ 2019	N/A	N/A	34+ flakes, 1 utilized flake, 5 bifaces, 1 uniface, 6 cores, 1 scraper	Ineligible within ROW	A8	B12, B13	5-48
TA-50-ISO-01	127.25		Isolate	Yes	Unknown Prehistoric	N/A	5/28/ 2019	N/A	N/A	2 flakes (1 utilized).	Ineligible	A8	B13	5-73
41TA399	138.68	138.75	1930s-1950s trash dump	Yes	1930s-1950s	N/A	5/28/ 2019	N/A	N/A	400+ fragments of clear, brown, green, cobalt bottle glass, 100+ whiteware and other ceramics, 30 brick ("ABILENE"), 25 galvanized metal and aluminum	Ineligible	A12	B24	5-52

Trinomial	MP Begin	MP End	Site Type	New Site?	Cultural Affiliation	Previous Materials Observed	Record Date	Previous NRHP Status	NRHP Review Date	Current Materials Observed	Current Eligibility Rec	Appendix A Figure	Appendix B Figure	Report Figure
41CA42	156.98	157.02	Prehistoric lithic scatter	Yes	Unknown Prehistoric	N/A	5/28/2019	N/A	N/A	13 flakes, 1 worked, 3 cores	Ineligible within ROW	A19	B39	5-65
CA-39-ISO-02	157.09		Isolate	Yes	Unknown Prehistoric	N/A	5/28/2019	N/A	N/A	1 biface	Ineligible	A19	B39	5-65
41CA27	159.75	159.79	Open Campsite and Lithic Scatter	No	Unknown Prehistoric	Tertiary flakes, scattered FCR.	2015	Ineligible	2015	2 flakes, 1 mussel shell along waterway cutbank	Ineligible within ROW	A20	B40	5-28
41CA43	172.94	172.96	Prehistoric lithic scatter	Yes	Unknown Prehistoric	N/A	5/28/2019	N/A	N/A	10 flakes	Ineligible within ROW	A25	B58	5-69

Table 5-5. Identified Resources outside Loop 2 Permit Areas.

Trinomial	MP Begin	MP End	Site Type	New Site?	Cultural Affiliation	Previous Materials Observed	Record Date	Previous NRHP Status	NRHP Review Date	Current Materials Observed	Current Eligibility Rec	Appendix A Figure	Appendix B Figure	Report Figure
41TA371	132.12	132.17	historic scatter	No	Historic	brick, glass, miscellaneous metal, and a spark plug	2/2/2018	N/A	N/A	1 glass, 1 scraper	Ineligible within ROW	A10	B18	5-75

5.2.2.1Resource 41NL318

Background/Previous Work

Resource 41NL318 was originally recorded in 2013 and 2014 by Tetra Tech, Inc. for the Permian Express Pipeline II survey (Karpinski et al. 2014). The resource was recorded as a small surface scatter representing a briefly-occupied resource procurement or processing camp. The resource was recorded on a low, eroded, gravelly ridge located adjacent to a pond formed from an unnamed tributary of Noodle Creek, approximately 70 meters (230 feet) west of County Road (CR) 222 (White Flat Road). The site includes the possible remnants of a hearth consisting of about 24 pieces of fire cracked rock (FCR) along with 150 pieces of lithic debitage. No diagnostic artifacts were identified within the site. The resource was found to be largely disturbed with erosion being the primary cause of disturbance. Additional impacts were contributed to artifact collecting, building of a cattle pond, adjacent farm road, and a nearby road-side refuse pile. The resource was not recommended for further work and was later determined to be ineligible within the pipeline ROW (THC 2019).

Current Investigation

Resource 41NL318 was revisited on April 9, 2019, by Horizon. The resource is located in Permit Area 1 to either side of CR 222. The site to the west of CR 222 is composed of two nearly level uplands dissected by an inlet of the adjacent pond. The site to the east of CR 222 rises sharply and contains two ridgetops within the ROW. The APE within the resource generally measures 40 meters (131 feet) wide with two areas of expanded workspace measuring approximately 47 meters (156 feet) wide. Of that amount, only approximately 30 meters (100 feet) of APE is located within an existing pipeline ROW. The site as originally mapped is now nearly completely within the existing pipeline ROW. No FCR or concentrations of FCR were observed at the original site location or in the expanded site area. The location within the existing ROW is sparsely covered by grasses with the ground surface visibility decreasing outside of the ROW (Figure 5-3). The area is currently being used as a cattle pasture and has been impacted by flooding, erosion, existing pipelines and berming for erosion control and the nearby man-made pond. The resource primarily consists of a surface scatter located to the east/south side of the tributary and pond.

Figure 5-3. Location of Site 41NL318. View is to the east.

Initial investigation by Horizon consisted of pedestrian walkover and shovel tests excavated at 30-to 60-meter (100-to 200-foot) intervals within the APE (Figure 5-4). Observed artifacts include approximately 30 flakes, tested cobbles, 3 crude bifaces, and one preform (Table 5-6; Figure 5-5). Of the eight shovel tests placed within and outside of the original resource boundary/APE, one was positive for a single chert flake observed at between 20 and 30 centimeters (8 to 12 inches) below ground surface.

Table 5-6. Artifact Assemblage Observed at 41NL318.

Depth	Flakes	Tools	Bifaces	Cores	Preform	FCR
Surface	100+	2	3	5	1	20
0-10	-		-	-	-	
10-20	-		-	-	-	
20-30	1		-	-	-	
30-40	-		-	-	-	
40-50	-		-	-	-	

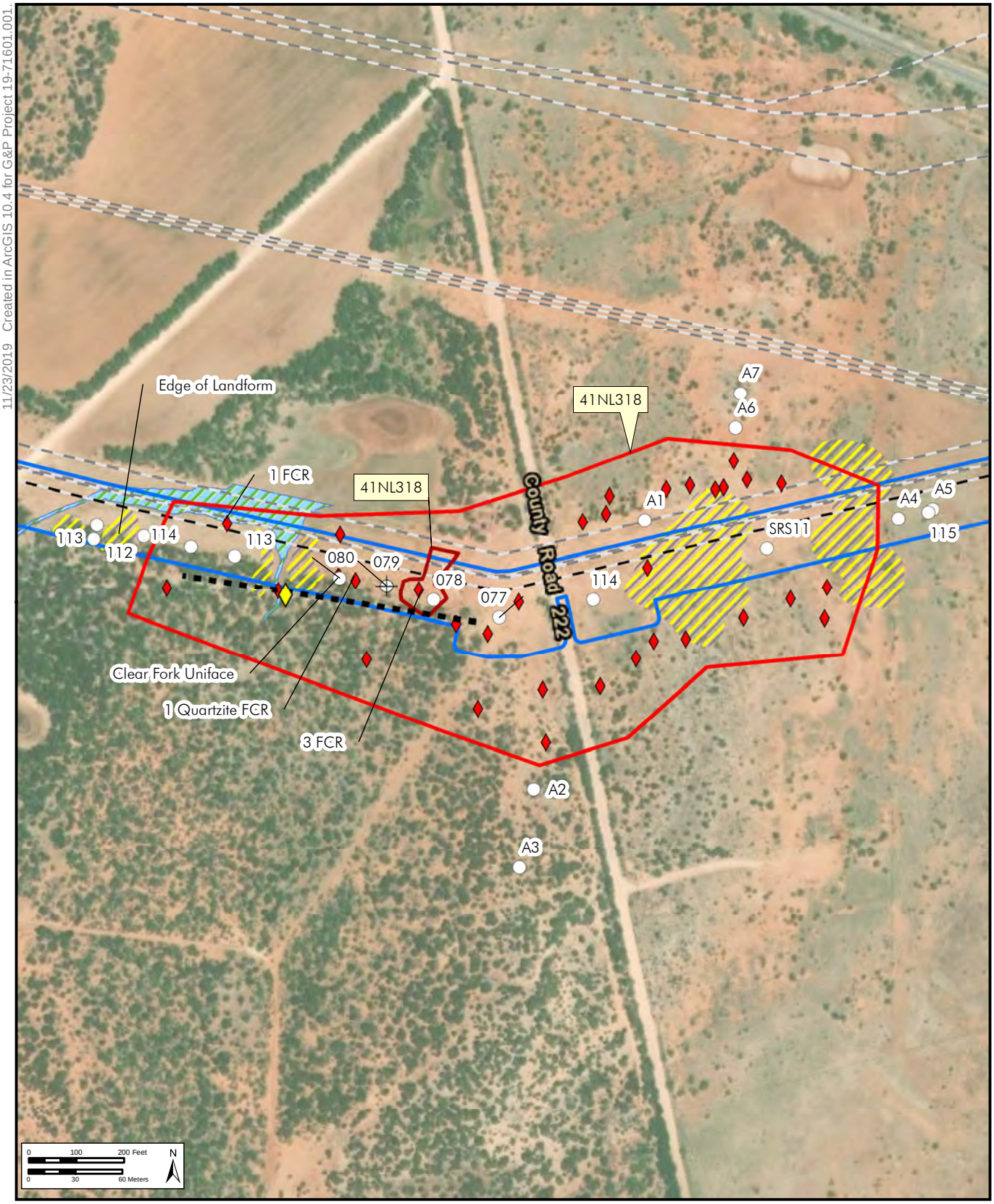

Figure 5-4
Plan view of Resource 41NL318.

- Project Centerline
- Survey Corridor / APE
- New / Confirmed Site Boundary
- Previously Recorded Site Area
- Existing Pipelines
- Field-Delineated Water Feature
- Surface Find
- Bridge Location
- Observed Berm
- Positive Shovel Test
- Negative Shovel Test
- Slope

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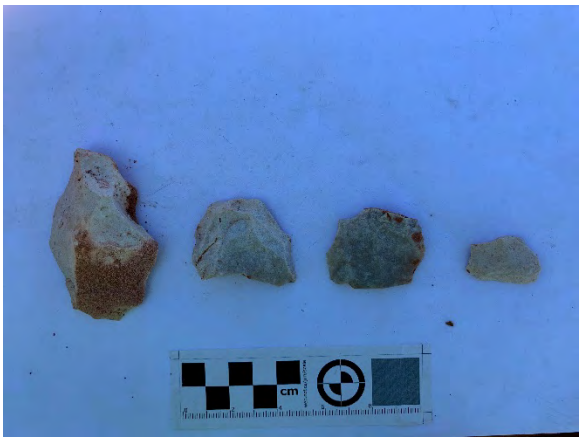

Figure 5-5. Representative materials identified on the surface within Resource 41NL318.

On April 16, 2019, Gray & Pape revisited the site to attempt to delineate the site limits to the north and south by surface inspection and shovel testing. Surface survey beyond the APE identified additional debitage and tested cores. Thirteen additional shovel tests were placed around the visible limits of the surface scatter outside of the APE. These tests were spaced between 20 and 30 meters (67 and 39 feet) apart due to the high visibility of the surface, erosion exposed subsoil visible at the surface, and observed landforms that the site occupies. Of the 13 additional shovel tests, none were positive for additional cultural materials.

The resultant resource is greatly expanded from the original site boundary and measures approximately 450 meters (1,500 feet) east-west by 180 meters (590 feet) north-south. Soils mapped for the location consist of Sagerton clay loam, Nipsum clay loam, Dermott soils, and Knoco clay (NRCS 2019). These soils typically have a shallow surface layer of brown (7.5YR 4/2) clay loam followed by a B horizon of brown (7.5YR 4/2) to reddish brown (5YR 5/4) clay. The soil is carbonate rich and impenetrable at shallow depths. A typical shovel profile within the resource/APE consists of a surface layer of red, dark brown, to reddish brown (5YR 4/4) clay to a depth of 20 to 30 centimeters (8 to 12 inches) followed by compact subsoil clay or bedrock (Appendix C). This suggests the location has experienced severe erosion and lacks an A horizon.

Agency Revisit

The site was revisited by Gray & Pape and representatives of the USACE on October 29, 2019. During a walk over of the portion of the site located west of CR 222, the USACE representative observed approximately 100 chert flakes of mixed primary, secondary, and tertiary stages. All lithic materials appear to be of Edwards chert and are white to gray to color. Two formal tools were also observed on the surface. These include a worked uniface and a Clear Fork Uniface. In addition to the lithic artifacts observed at the site, approximately 20 FCR were observed scattered inside the ROW within and outside the immediate vicinity of the original boundary of 41NL318 (Figure 5-6).

Figure 5-6. Fragments of FCR located within the original boundary of Site 41NL318.

Diagnostic Artifact Analysis

The Clear Fork Uniface (commonly called a gouge) measures approximately 8 centimeters (3.1 inches) in length, 4 centimeters (1.6 inches) across at its distal end, and 1.5 centimeters (0.6 inches) across at its proximal end (Figure 5-7). The object is trapezoidal in cross-section measuring approximately 5 to 6 centimeters (2 to 2.4 inches) tall with a steep edge on the distal (working) end. Clear Fork Bifaces and Unifaces are prevalent through south Texas up through central north Texas. Temporally, they begin in the Paleo-Indian period and continue into the

Figure 5-7. Clear Fork Uniface (Gouge) observed on the surface at Site 41NL318.

Middle Archaic (Turner and Hester 1985 [1999 reprint] page 246-249).

Along the southern edge of the APE the USACE representative observed a previously unrecorded berm and bridge (Figure 5-8) partially inside the ROW and immediately south of the proposed ROW. The berm is oriented slightly southeast – northwest and roughly parallels the ROW along its southern edge for approximately 100 meters before continuing further away from the APE. The berm consists of local caliche gravel. The associated bridge is located approximately 3 meters (10 feet) south of the APE and is composed of a mixture of creosote timbers and roughhewn cedar planks. Portions of the supports are reinforced with sheet metal.

Preservation of the berm varied along its length, but it generally measured approximately 1.5 to 2 meters (5 to 6.5 feet) wide and 10 to 20 centimeters (4 to 8 inches) high. The berm did not appear to continue east across CR 222 and became undiscernible about 50 meters (164 feet) west of the road. Further, the berm does not appear to exist on the east side of CR 222

Figure 5-8. Section of berm that crosses the parcel and associated bridge located south of the APE.

and was only observed on the west side of the road.

Archival Research

The site is located on White Flat Road (FM 222) approximately 0.27 miles south of the road's intersection with the Gulf, Colorado & Santa Fe Railroad in Nolan County. Site 41NL318 is partially within of Abstract 311, Section 45 and Abstract 56, both in Block 19, Texas & Pacific Railway Company (T&P RY CO) Survey. Historic maps and aerials were reviewed for additional information regarding 41NL318 (Table 5-7). According to the General Land Office (GLO) records, the north half of Section 56 was originally assigned to O.E. Templin; however, no date of the transaction is available (GLO 2019a). The entire 640 acres of Section 45 was granted to the T&P Ry Co. on May 5, 1876 (GLO 2019b). GLO maps from 1880 identifies the file numbers in Section 45 as S14515 and Section 56 as F38427. No individual is shown as the owner of either section. Both sections have east-west running drainages and the site 41NL318 is located between the drainages. No buildings or activities are shown within the sections.

Table 5-7. Historical maps and aerials for 41NL318.

Type	Date	Notes
GLO Map	1880	Land assigned as Sec 45 and Sec 56 of T&P Ry Co Survey – no individual owner; east-west running drainages
GLO Map	1879	Land assigned as Sec 45 and Sec 56 of T&P Ry Co Survey – no individual owner; only Sec 56 has drainage
Sweetwater Quad Topo Map	1893	Unnamed drainage to the west; no buildings or activities within site
Soil Survey Map	1922	Gulf, Colorado & Santa Fe Railroad to the north of the site boundaries; no buildings or activities within site
Highway Map	1936	Building shown to west of White Plain Road (FM 222) in general vicinity of site
Big Spring Quad Topo Map	1954	Drainage shown to east and west of site; current configuration of roads visible; no buildings or activities within site boundaries
Merkel Quad Topo Map	1957	Road from White Flat Road through site, building to west and outside site boundaries, ponds to north and southwest; pipeline to the north and intersecting railroad
Atlas Map	1982	No buildings or structures within site
Aerial Photo	1997	Dirt road and irrigation ditch through site; building complex to west and outside site boundaries; site vegetated with trees and undeveloped to west of White Flat Road; site to east of White Flat Road is clear-cut crop or pastureland

The 1890 GLO map shows file numbers in each section with the north half of Section 56 as 49831 and the same number in Section 45, but with 2/1040 below the S14515. Only the southern drainage through Section 56 is shown, but no activities or buildings are shown in either section.

A 1922 United States Department of Agriculture (USDA) soil survey map shows Herndan as a stop on the Gulf, Colorado & Santa Fe Railroad to the northwest of the site boundaries. Toland is shown as a stop on the same railroad but is to the east of the site and within Taylor County. No activities or buildings are shown within the site boundaries. A 1936 highway map of Nolan County shows White Flat Road and a dwelling is shown between two drainages on the west side of the road, about halfway between Adrian Road (FM 130) and the east leg of White Flat Road (FM 222). A second dwelling is located on the west side of White Flat Road (FM 222) at the east leg curve of the road.

The 1954 Big Spring quad topographic map shows that the site is bisected by White Flat Road (FM 222) and that White Flat Oil Field is located to the northeast of the site. The 1957 Merkel quad topographic map shows a dirt road traveling west through the site from White Flat Road (FM 222) and leading to a structure, which is outside the site boundaries. Several small ponds and a north-south drainage are located to the north and south of the site. The pipeline is shown to the north of the site, as is the railroad. The 1982 county atlas map shows no house on the west side of White Flat Road (FM 222) in the general vicinity of site 41NL318, but the dwelling at the corner of White Flat Road (FM 222) is labeled as Lula L. Hale, Trent, 2.

The 1997 aerial shows the current configuration of the unidentified access roads to the west of the site boundaries. A faint dirt road is visible running west through the site boundaries from White Flat Road (FM 222) and an irrigation ditch is shown running northeast through the site to the ditches along White Flat Road (FM 222). The site to the east of White Flat Road (FM 222) is clear-cut agricultural crop or pastureland. The west side of the site has the dirt road and

the irrigation ditch, as well as is covered with vegetation. No buildings or structures are visible within the site boundaries. A cluster of small structures is located to the west of the site boundaries and corresponds with the location of the building shown on the 1957 quad map, which is also likely the building shown on the 1936 highway map, as the scale is often difficult to infer. In subsequent aerials, the irrigation ditch appears as a cleared corridor.

While the identified berm and bridge were initially thought to be associated with a private rail or rail spur, historic maps indicate the berm is a former private road/drive. The road appears on a 1957 topographic map and appears to pass a residence location located beyond the site boundary and APE (Figure 5-9). The road path has changed slightly since then and it is unclear when it was abandoned; however, it does not appear in the same location on a 1984 topographic map.

Historic maps and aerials reveal that no houses or buildings were located within the boundaries of 41NL318. Additionally, no historically significant events are known to have occurred at the location of site 41NL318 or in association with any persons listed on the chain of title.

Site Summary

The amounts and types of materials observed at the site suggest the site was a procurement location. The resource overall appears to have experienced moderate erosion and deflation, with only one of 9 shovel tests conducted within the site boundary/APE containing material below surface. The sparsity of subsurface deposits within the APE, few diagnostics, and shallow soils recorded during the current effort suggests the resource is not significant and is of low research value. Archival research indicates no historically significant events are known to have occurred at the location of site 41NL318 or in association with any persons listed on the chain of title. The site portion located within the APE does not retain the potential to provide significant research value and is thus recommended not eligible for the National Register, under Evaluation Criterion D.

5.2.2.2 Resources 41TA353/41TA354

Background/Previous Work

Resources 41TA353 and 41TA354 were first recorded in 2015 by Turpin and Sons, Inc. (TAS) for the Lone Star Express 24 project (Burgess and Burgess 2015). The resources were originally recorded as open camp locations of unknown prehistoric affiliations. The sites were investigated by TAS by pedestrian survey and an undocumented number of shovel tests. Both resources were discovered to be eroded and deflated with little to no soil depth. Neither of the resources were recommended for further work. Both resources were later determined to be ineligible within the pipeline ROW (THC 2019).

Site 41TA353 consisted of a lithic and FCR concentration located immediately west of Farm-to-Market (FM) 1235 along the existing pipeline ROW. The ground surface was reported to be highly eroded with widely scattered FCR in two barely recognizable concentrations suggesting displacement. Artifacts were reported to entail dozens of secondary and tertiary flakes, a probable Martindale dart point, one pointed biface, a hammerstone, an expedient tool, and a modified flake. Based on the Martindale point, site was estimated to date to the Early Archaic period.

Site 41TA354 was recorded about 160 meters west (525 feet) west of Site 41TA353, as a lithic scatter on a small deflated ridge/hill overlooking Mulberry Creek to the west. The site was reported to contain about 100 pieces of debitage, an unrecorded number of stone tools, and a remnant thermal feature indicated by the presence of FCR.

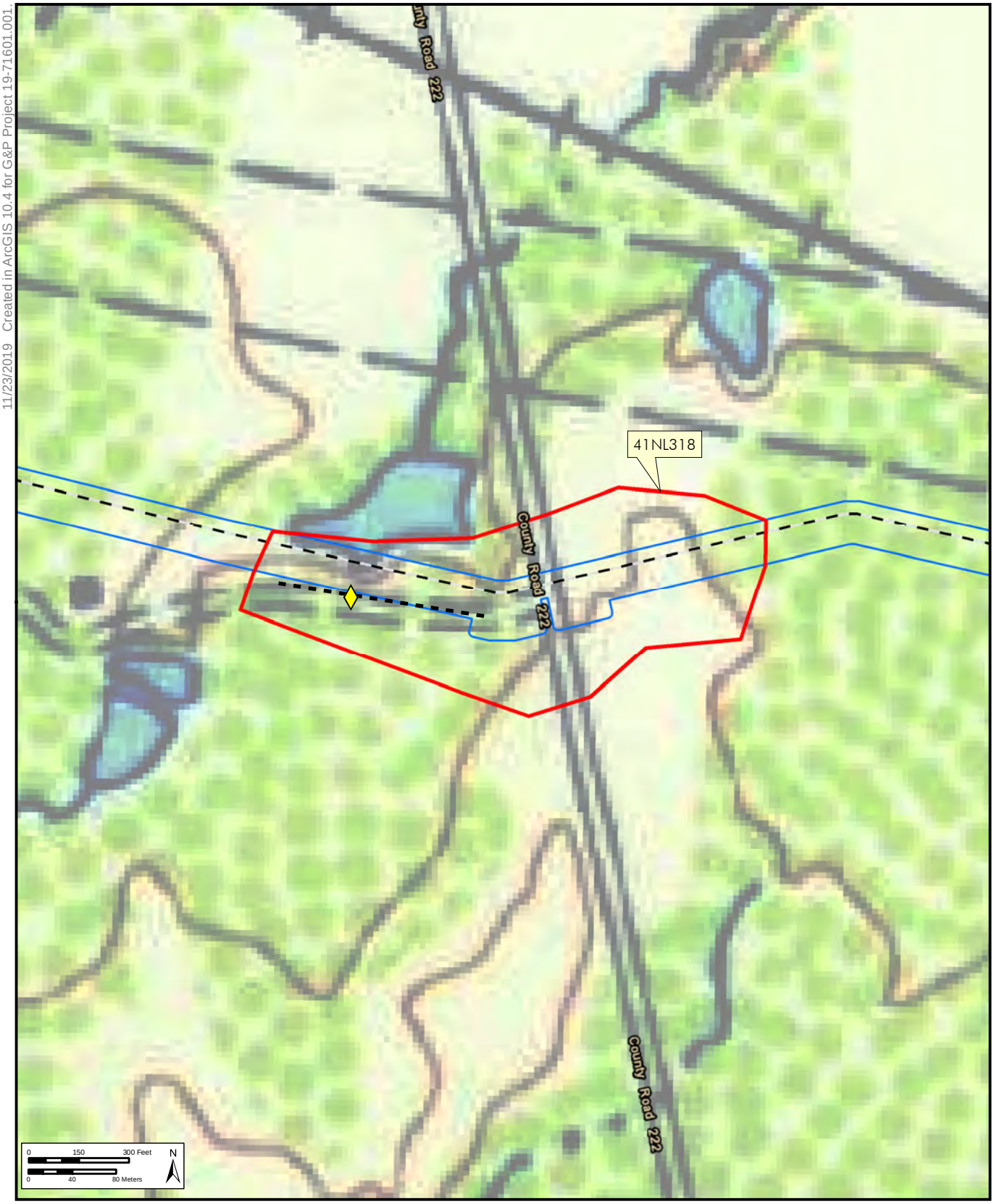

Figure 5-9
Observed berm and bridge overlaid on a topographic map circa 1957.

Bridge Location
Observed Berm
Project Centerline
Survey Corridor / APE
New / Confirmed Site Boundary

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Current Investigation

Resources 41TA353 and 41TA354 were revisited by Gray & Pape on April 10, 2019. The resource is located within Permit Area 6 to either side of FM 1235 but primarily to the west. The APE within the resources generally measures 40 meters (131 feet) wide with two areas of expanded workspace measuring approximately 47 meters (156 feet) wide (Figure 5-10 and 5-11). The location within the existing ROW is covered by short grasses but is largely exposed subsoil, rock, and cemented caliche, offering high surface visibility (Figure 5-10). The resource consists of a long, lithic scatter. Current investigation of the former resource boundaries within the corridor found that cultural materials continue between the two previously recorded resources, although somewhat sparsely as they are separated a wide low plain associated with the adjacent pond; therefore, the two boundaries have been combined. The resultant combined boundary measures approximately 450 meters (0.28 miles) east to west and 190 meters (623 feet) north to south. The landscape to the west of the site slopes sharply down from a high ridge to the adjacent waterway. The potion of the site located east of FM 1235 descends down from the road as well and is composed entirely of previous workspace with subsoil and rock visible on the surface. The resource likely extends further beyond the established boundary to the north and south but was not followed beyond that for the current project.

Initial survey of the APE recorded surface artifacts consisting of approximately 38 flakes, 7 cores, and one biface (Figure 5-12). The location of previously recorded Site 41TA354 was revisited a second time by Gray & Pape on August 7, 2019. Surface visibility was excellent, ranging from 90 to 100 percent. The location consists of a small deflated ridge that rises approximately 4.5 to 6 meters (15 to 20 feet) above the surrounding landscape (Figures 5-11 and 5-13).

Figure 5-10. Location of Site 41TA353. View is to the east.

Based on the previous site boundary the northern half of the site located within the existing ROW is gone, leaving a sharp cut bank at the northern limit of the remaining ridge. The east and west sides of the ridge are steeply sloped and largely composed of rock. An artifact scatter was observed on the surface of what remains of the ridge top. The scatter measures approximately 27 meters (88.6 feet) north-south. The artifact scatter measures approximately 16 meters (52.5 feet) at its widest point east-west but quickly narrows to a width of about 4 meters (13.12 feet) to the south.

Artifacts identified on the surface included 50+ chert debitage, 1 sandstone hammerstone (Figure 5-14 and 5-15), 1 sandstone mano (Figure 5-16), 2 multidirectional chert cores (Figure 5-13), 1 chert projectile point (Figure 5-14), 5 expedient edge-modified chert tools (Figure 5-17), 2 chert preforms (Figure 5-18), and 6+ pieces of FCR. Two attempted projectile points observed on the surface were either incomplete (Figure 5-19) or too fragmentary for cross dating. A third, however, was intact enough to yield a potential date for the site.

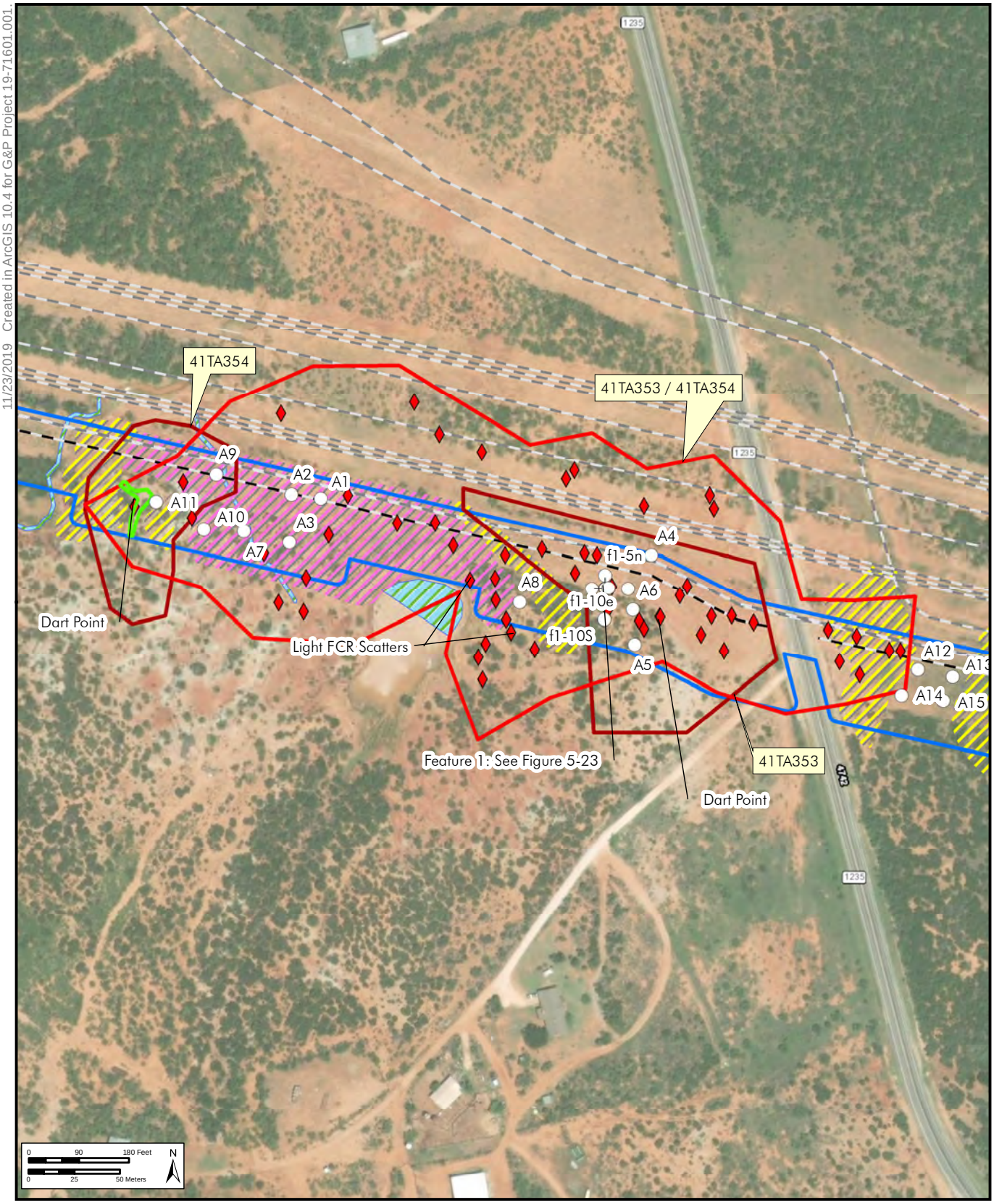

Figure 5-11
Plan view of combined Resources 41TA353/354.

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- Project Centerline
- Survey Corridor / APE
- New / Combined Site Area
- Previously Recorded Site Area
- Existing Pipelines
- Field-Delineated Water Feature
- Surface Find
- Positive Shovel Test
- Negative Shovel Test
- Deflated Ridge
- Slope
- Low Area

Figure 5-12. Biface identified on the surface within the originally mapped boundary of Site 41TA353.

Figure 5-13. Deflated ridge within the limits of the original site boundary of 41TA354.

Figure 5-14. Sandstone hammerstone identified within the original boundary of Site 41TA354.

Figure 5-15. Alternate view of the sandstone hammerstone observed on the surface within the original boundary of Site 41TA354.

Figure 5-16. Possible mano (bottom) and source material (top) observed on the surface within the original boundary of Site 41TA354.

Figure 5-17. Multidirectional core observed on the surface within the original boundary of Site 41TA354.

Figure 5-18. Expedient/edge-modified tool observed on the surface within the original boundary of Site 41TA354.

Figure 5-19. Attempted projectile point observed on the surface within the original boundary of Site 41TA354.

Soils mapped for the location consist of Knoco-Badland complex, 1 to 12 percent slopes. Knoco soils contain a shallow surface layer of red (2.5YR 4/6) clay and reddish brown (2.5YR 5/4) clay followed by subsoil (C horizon) of reddish brown (2.5YR 5/4) dense clay and non-cemented claystone (NRCS 2019). Of the 11 shovel tests conducted within the site boundary/APE during survey none were positive for buried cultural material. Nearly all others showed signs of disturbance or erosion as indicated by the presence of subsoil and rock at the surface. A typical shovel test profile within the southern edge of the APE just outside of the existing ROW consisted of a surface layer of brown (7.5YR 4/4 to 7.5YR 4/2) sandy loam to a depth of 50 centimeters (20 inches) or less before hitting extremely hard subsoil clay or bedrock (Appendix C). Tests within the ROW recorded much less soil (typically 10 centimeters [4 inches]) prior to hitting rock. This suggests some amount of soil is present at the southern limits of the APE, but the lack of buried cultural materials suggest the site is limited to the surface.

Agency Revisit

The combined boundary of Site 41TA353/354 was revisited again by Gray & Pape along with representatives of the USACE on October 29, 2019. During a walk over of the site, the USACE representative observed a dart point on the surface at erosional water path/rill (described below). USACE observed at least 200 FCR across the larger 41TA353/41TA354 site, with concentrations in approximately three areas and a steady FCR scatter across the general site area. FCR concentrations include one discreet feature (Feature 1 described below) and two additional diffuse FCR scatters, outside the original 41TA353 or 41TA354 site boundaries, but within the larger revised 41TA353/41TA354 site boundary near an existing stock pond. One of these scatters consisted of approximately 12 large (15-20 centimeter [5 to 8-diameter]) FCR that may represent a single use hearth feature based on the lack of fracturing. USACE also observed one formal biface fragment and one formal uniface fragment inside 41TA353 on the surface. 100-200 flakes, 2 cores, and 4 expedient tools were also observed across site 41TA353/41TA353.

In total the site contains over 230+ lithics and 200+ FCR (Table 5-8). Flakes represented all stages of processing but primarily of early to mid-stages as most were large and contained cortex. All material was of local (likely Edwards) chert and nearly all exhibited a gray color. Two diagnostics identified at the site are discussed in more detail below.

Table 5-8. Artifact Assemblage Observed at 41TA353/354.

Depth	Flakes	Bifaces	Uniface	Cores	Hammerstone	Mano	Tools	Projectile Point	Preforms	FCR
Surface	200+	2	1	12	1	2	9	2	2	200+
0-10	1	-		-	-	-	-	-	-	-
10-20	-	-		-	-	-	-	-	-	-
20-30	-	-		-	-	-	-	-	-	-
30-40	-	-		-	-	-	-	-	-	-
40-50	-	-		-	-	-	-	-	-	-

Diagnostic Artifact Analysis

A total of two diagnostic artifacts were observed within the expanded site boundary:

The first is a small, stubby projectile point (Figure 5-20) with a triangular blade and random flaking pattern was located on the surface of the deflated ridge among the scatter of debitage, cores and other stone tools in the previously recorded boundary of Site 41TA354 (Figure 5-20).

Figure 5-20. Elam dart point observed on the surface within the original boundary of Site 41TA354.

It has a maximum length of 29 millimeters (1.14 inches) with evidence of heavy resharpening at the distal end. Although the barbs have been damaged, the maximum width across the shoulders measures 24 millimeters (0.94 inches). The stem is slightly contracting and measures 9 millimeters (0.35 inches) in length and 14 millimeters (0.55 inches) in width. Based on these attributes, the point most likely represents an Elam dart point. These have a distribution primarily in North central Texas into east Texas and are dated to the Late Archaic Period (Turner, Hester, and McReynolds 2011).

The second diagnostic observed at the site consists of a small to medium sized (approximately 4-centimeter [1.5-inch]) broad triangular dart point (Figure 5-21) identified on or adjacent to an erosional flowline/rill leading into the existing pipeline ROW.

Figure 5-21. Modified Carrollton or Edgewood type dart point observed on the surface within the original boundary of Site 41TA353.

The point is composed of gray/black waxy (possibly due to heat treatment) chert with fossil inclusions. It has a maximum length of 37.5 millimeters (1.47 inches). The maximum width across the shoulder/body measures 25 millimeters (0.98 inches). The stem is slightly contracting and measures 10 millimeters (0.39 inches) in length and 10 millimeters (0.39 inches) in width. The body has a plano-convex cross section and the stem is slightly contracting.

This point appears to be reworked, missing portions of base and shoulders, but based on general size, flaking, and shape this could be a type dart such as shows affinity with Carrollton or possibly Edgewood dart points dating to the middle archaic to transitional archaic (Turner and Hester1985 [1999 reprint] page 85).

Supplemental Investigation of Feature 1

One concentrated and discreet thermal feature was observed inside the original boundary of site 41TA353. Feature 1 contained approximately 50 FCR in a 1-meter (3.3-foot) diameter concentration within the existing ROW (Figure 5-22). The concentration included a groundstone mano that has been fire cracked. The feature is located within the existing ROW and may represent one of the features mentioned in the original site record. At the request of the USACE, Gray & Pape revisited the site on November 5, 2019 to further investigate the feature in an attempt to discern if any subsurface portion of the feature remains intact.

Figure 5-22. Feature 1: discreet FCR scatter within the existing ROW and previously recorded site limits of 41TA353. View is to the southeast.

Two shovel tests were excavated within the feature and five others were placed around the feature at 5 to 10-meter (16 to 33-foot) intervals (Figure 5-23). Only one test (F1-1), performed at the center of the feature, contained subsurface material: one primary flake located just below the surface. The remaining tests were negative for any cultural materials or deposits suggestive of a thermal feature. Shovel Test F1-1 contained a profile of 2.5YR 5/8 clay and stone with a slight amount of what likely consists of windblown silt at the surface. Soils in and around the feature as indicated by Test F1-1 were very shallow and barely penetrable, reaching at most 20 centimeters (8 inches) through hard clay and rock (Appendix C).

Site Summary

The location has been previously disturbed by pipeline installation, and erosion/displacement. While a deflated feature was identified within the existing ROW, shovel testing in and around the feature produced no intact subsurface evidence of thermal activity. Rather, tests displayed a shallow, disturbed, or deflated soil and artifacts appear to be limited to the surface within the location. Of the total of 18 shovel tests conducted within the resource boundary/APE, only one contained cultural materials: a single flake just below surface. Although Feature 1 and two other clusters of FCR display some amount of spatial integrity, the lack of subsurface deposits within the APE and signs of disturbance observed during the current effort suggests the resource overall is not significant within the ROW. The site portion located within the APE does not retain the potential to provide significant research value, such as radiocarbon dating, and is thus recommended not eligible for the National Register, under Evaluation Criterion D.

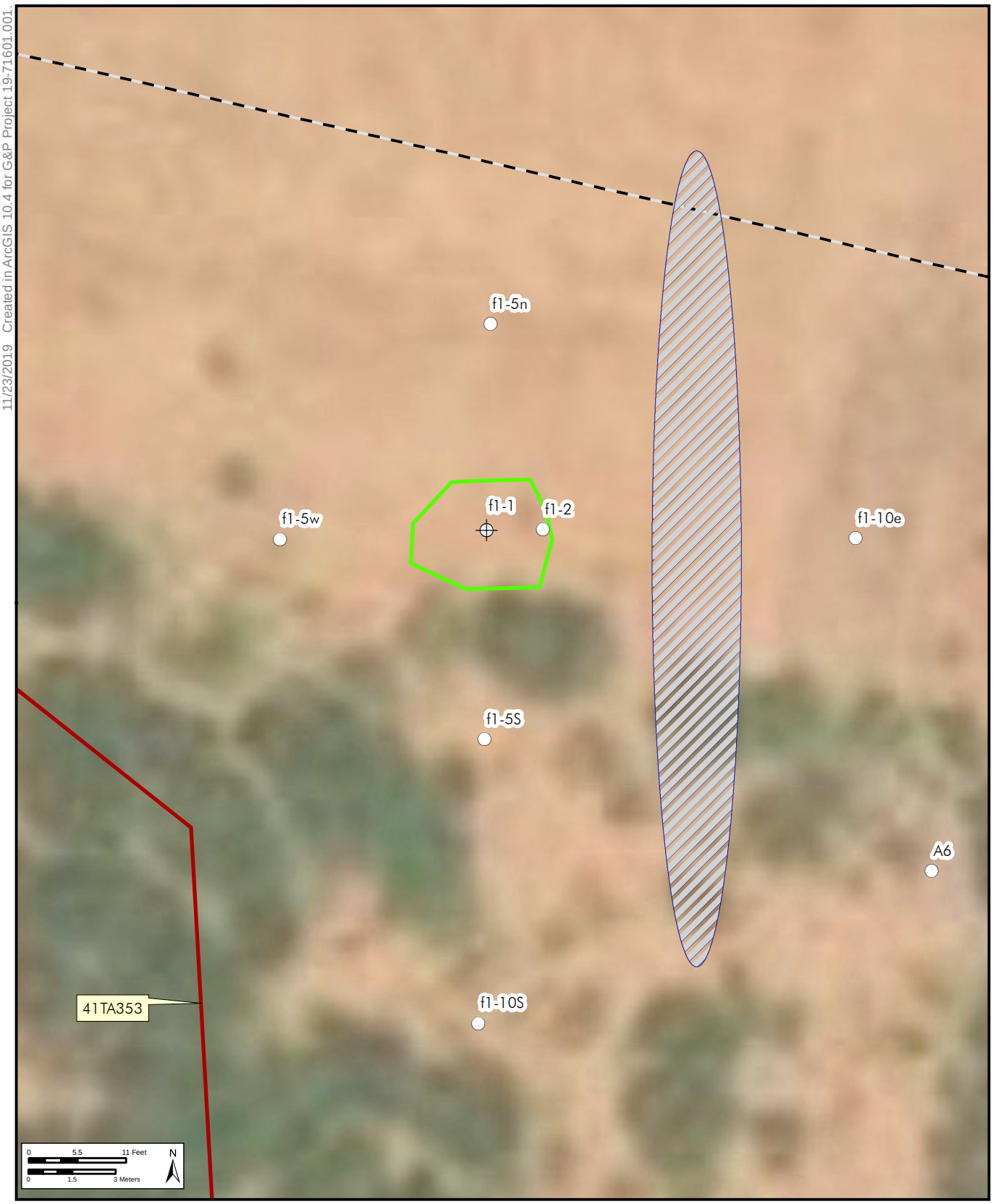

Figure 5-23
Plan view of the investigation of Feature 1 within the previously recorded boundary of 41TA353.

Project Centerline
Feature 1
Previously Recorded Site West Edge
Positive Shovel Test
Negative Shovel Test
Erosion Control Berm

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5.2.2.3Site 41TA314

Background/Previous Work

41TA314 was originally recorded by Horizon in 2013 for the BridgeTex Pipeline ROW survey (Brownlow et al. 2014). The resource consists of a low-density surficial lithic scatter of unknown prehistoric affiliation. The site sits along a gentle slope directly west of Bull Wagon Creek. Horizon investigated the site within the Project ROW by pedestrian survey and six shovel tests. The observed artifact assemblage consisted of two retouched flakes, one secondary flake, and two tertiary flakes, all comprised of chert. No temporally diagnostic formal tools preserved floral or faunal remains, or thermally altered rocks, were noted on the site. All six shovel tests were negative for cultural materials or features. Horizon did not investigate the entire site boundary beyond the ROW; however, based on the lack of temporally diagnostic stone tools, any preserved floral or faunal remains, or stratified, buried cultural deposits within the ROW, Horizon recommended that the portion of site located within the ROW would not contribute to the site's overall NRHP eligibility status. The resource was not recommended for further work and was later determined to be ineligible within the pipeline ROW (THC 2019).

The resource was revisited by TAS in 2015 for the Lone Star Express 24 survey (Burgess and Burgess 2015). As a result, the site size was roughly doubled and expanded to the south-southwest. TAS investigated the site by pedestrian survey and the excavation of six shovel tests within the Project ROW and corresponding expanded site boundary. Observed surface cultural material included a few scattered FCR but no intact thermal features, and about 50 lithics including: a Marcos dart point, utilized flakes, as well as secondary and tertiary flakes. Of the six excavated shovel tests, only one was positive, containing a single flake between 0 and 10 centimeters (0 and 4 inches) below ground surface. Based on the identified Marcos dart point, the resource was considered to be of Late to Transitional Archaic temporal affiliation. The area has been disturbed by bioturbation and existing pipelines. Two brush piles observed by TAS at the time also suggested brush clearing. As a result of survey, TAS determined the site to be deflated. No further investigations were recommended due to the low potential for subsurface deposits.

Current Investigation

Resource 41TA314 was revisited by Gray & Pape on April 10, 2019. The resource is located within Permit Area 9. The APE at the location predominantly measures 40 meters (131 feet) wide with one area of expanded workspace extending to 55 meters (180 feet) (Figure 5-24). The location within the existing ROW is covered by short grasses offering good surface visibility which decreases significantly beyond the ROW to the south (Figure 5-25). The location appears to be primarily used for cattle grazing. The resource consists of a sparse surficial lithic scatter. Surface artifacts observed during the initial survey consist of approximately 20 flakes and one chert core (Table 5-9). These were all located within the expanded site boundary recorded by TAS in 2015, which is now entirely within the existing pipeline ROW (Figure 26). Investigation in April 2019 consisted of pedestrian walkover and nine shovel tests excavated at 30 to 50-meter (100 to 164-foot) intervals: three tests within the site boundary and six tests within the surrounding APE (Figure 5-24).

Soils mapped for the location consist of Tillman clay loam which consist of surface layers of brown (7.5YR 5/3 to 4/3) loam and clay loam (NRCS 2019). A representative shovel test profile placed outside of the existing ROW consisted of brown (7.5YR 4/4) sandy loam to a depth of 25 centimeters (10 inches) followed by compact brown (7.5YR 4/4) clay to a depth of 35 centimeters (14 inches) before hitting extremely hard subsoil clay or bedrock. This profile closely matches soils mapped for the location.

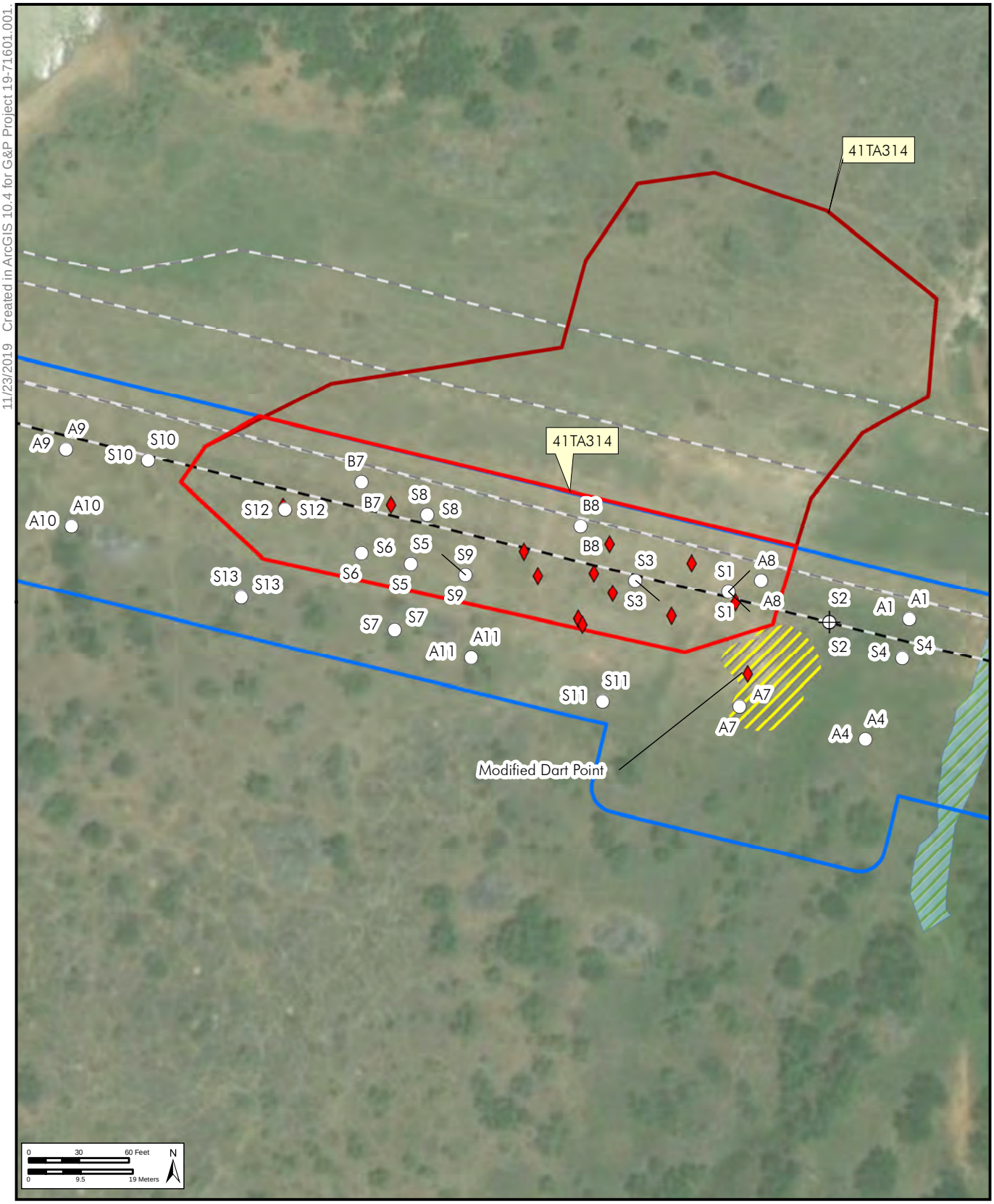

Figure 5-24
Plan view of Resource 41TA314.

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- Project Centerline
- Survey Corridor / APE
- New / Confirmed Site Area
- Previously Recorded Site Area
- Existing Pipelines
- Field-Delineated Water Feature
- Surface Find
- Positive Shovel Test
- Negative Shovel Test
- Eroded Slope

However, within the existing ROW soils were typically much shallower, composed of very compact silty clay, and containing numerous rock fragments and gravels. This was particularly the case in the western portion of the site/APE which is at a higher elevation on the hillside and appears to have experienced more erosion.

Figure 5-25. Location of Site 41TA314. View is to the east.

Table 5-9. Artifact Assemblage Observed at 41TA314.

Depth	Flakes	Cores	FCR
Surface	25	2	12
0-10	1	-	
10-20	-	-	
20-30	-	-	
30-40	-	-	

Figure 5-26. Representative materials identified on the surface within Resource 41TA314.

Supplemental Investigation

A supplemental survey of the site by Gray & Pape took place on November 5, 2019. During the revisit, approximately 14 primary or secondary stage flakes were observed as well as two cores and two worked unifaces. Photographs from the previous survey confirm that several of the artifacts were identified during the site visit in April. One new, potentially diagnostic dart point was observed on the surface during the November revisit. This is discussed further below. All artifacts were composed of a local (likely Edwards) chert of waxy gray to grainy white chert. As well as lithics, about a dozen FCR were also observed spread within the existing ROW but not in any discernable clusters or association with cultural lithics.

Supplemental work in November 2019 resulted in the excavation of an additional 13 shovel tests: six tests within the site boundary and seven within the surrounding APE. One of these tests was in the immediate vicinity of the damaged projectile point. Of all 22 tests placed in and surrounding the site, only one was positive for cultural materials. Shovel Test S2, located at the bottom of the adjacent slope, contained a single primary or secondary flake between the surface and 5 centimeters (2 inches) depth.

Diagnostic Artifact Analysis

One damaged medium sized corner-notched dart point was observed on the surface of an eroded slope southeast of the previously recorded site boundary (Figure 5-27). The distal end is broken, and one side is heavily damaged at the shoulder with evidence of reworking. The stem is slightly expanding and parallels the blade edge. The tip of the barb is also damaged. Extrapolation of the barb indicates a rather deep notch. It has a maximum length of 47 millimeters (1.85 inches). Although the barbs have been damaged, the maximum width across the shoulders measures 35 millimeters (1.38 inches). The stem (also modified) measures 8 millimeters (0.31 inches) in length and 15 millimeters (0.59 inches) in width.

Damage and modification of this point curtails a clear diagnostic typing. But the deep barb and slightly expanding stem shows affinity to Marshall dart points. Marshall points date to the middle Archaic and are found primarily in central Texas (Turner and Hester 1985 [1999 reprint] page 149-150).

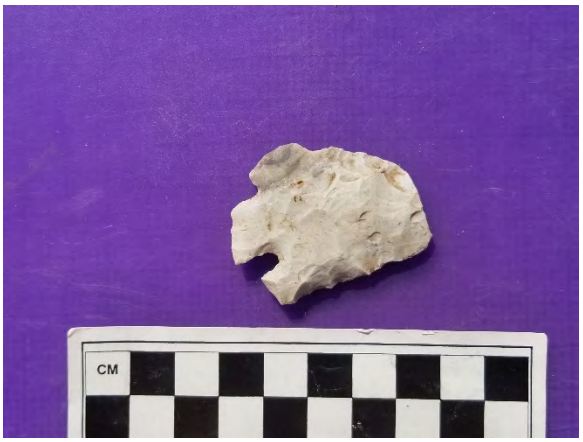

Figure 5-27. Damaged/modified dart point (possible Marshall) observed on an eroded slope southeast of Site 41TA314.

Site Summary

The resource likely extends to the north as indicated by the previously recorded site boundary; however, this portion of the site was not re-examined during the current survey effort. The portion of the site located within the APE is largely limited to the existing pipeline corridor and is clearly disturbed. Although what appear to be natural soil profiles were observed within the APE beyond the existing pipeline ROW, tests placed in these areas produced no subsurface cultural materials or features. Of the ten shovel tests conducted within the site boundary/APE only one was positive: a single flake within colluvial material at the base of the slope. The overall lack of subsurface deposits within the APE, lack of diagnostics in good context, and signs of disturbance observed during the current effort suggests the resource is not significant within the current APE. No further work is recommended for the site. The site portion located within the APE does not retain the potential to provide significant research value and is thus recommended not eligible for the National Register, under Evaluation Criterion D.

5.2.2.4 Resource 41CA27

Background/Previous Work

Resources 41CA27 was first recorded in 2015 by TAS for the Lone Star Express 24 project (Burgess and Burgess 2015). The resource was originally recorded as a small open camp location of unknown prehistoric affiliations. The site is located on a terrace alongside Mexia Creek approximately 100 meters (328 feet) west of Highway 283. The site was reported to consist of surface finds of two FCR concentrations and approximately 15 mostly tertiary flakes, one of which was of chalcedony. No intact features or more formal artifacts were identified at the site. The site was reported to have been damaged by erosion and adjacent pipeline construction as well as a two-track road which passes through the site. The site was not considered to be eligible for listing on the NRHP. In 2015, the THC determined the site to be ineligible (THC 2019).

Current Investigation

The location of Site 41CA27 was revisited by Gray & Pape on April 11, 2019. The location intersects the APE at Permit Area 40. The APE at the location measures 55 meters (180 feet) wide, with approximately 45 meters (148 feet) of that width located within an existing pipeline ROW (Figure 5-28). The northern edge of the APE, and a portion of the previously recorded site boundary, consists of a wide gully and slope, likely the result of flooding from an adjacent fork of Mexia Creek and subsequent erosion or truncation of the landscape as a result of previous pipeline installation. The existing ROW south of the gully is nearly level but also appears disturbed, with a great deal of rock and short grasses on the surface which allowed good surface visibility (Figure 5-29). Surface visibility is decreased beyond the ROW which is covered by longer grasses and scrub brush. Besides having been impacted by the existing pipelines, access roads and also cut through the mapped site location.

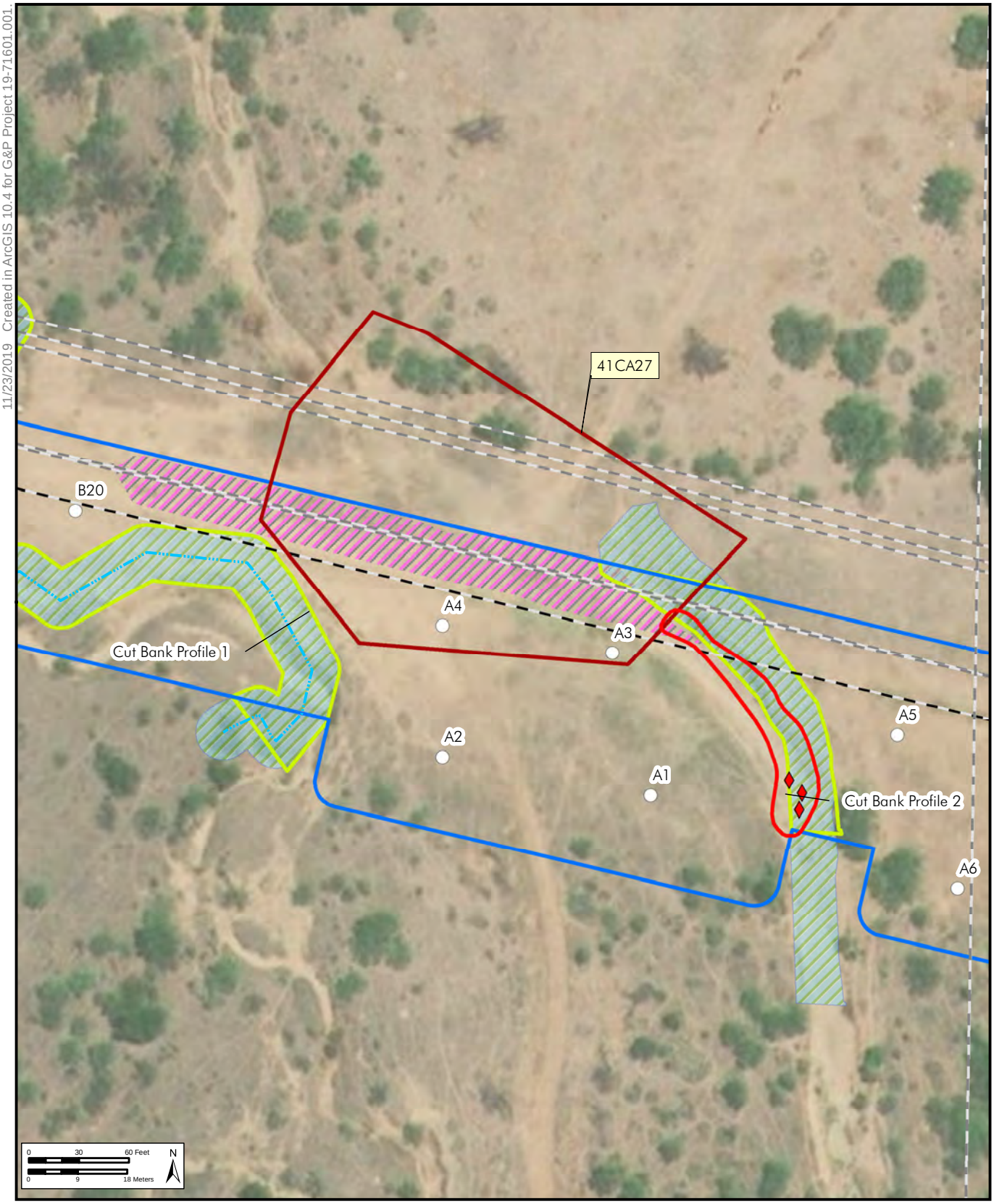

Figure 5-28
Plan view of Resource 41CA27.

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- Project Centerline
- Survey Corridor / APE
- New / Confirmed Site Area
- Previously Recorded Site Area
- Existing Pipelines
- Field-Delineated Water Feature
- Positive Shovel Test
- Negative Shovel Test
- Surface Find
- Cut Bank Inpsection Areas
- Low Area

Figure 5-29. Location of Site 41CA27 showing the east fork of Mexia Creek (background) and portion of the low/eroded north side of the APE (center left). View is to the east.

Investigation of the resource consisted of pedestrian walkover and shovel testing. Gray & Pape observed no cultural materials on the surface during survey. Two shovel tests were placed within the mapped site location, both were negative for cultural materials but did show signs of disturbance. Another four tests were conducted within the ROW south of the site, all of which were negative for cultural materials.

Soils mapped for the location consist of Frio-Gageby association, frequently flooded. Frio soils consists of successive A horizon layers of dark grayish brown (10YR 4/2) silty clay, clay loam, and silty clay loam to a depth of 102 centimeters (40 inches) followed by a B horizon of grayish brown (10YR 5/2) silty clay to a depth of 203 centimeters (80 inches) (NRCS 2019). Gageby soils consist of a surface layer (A horizon) of brown (7.5YR 4/2) clay loam to a depth of 18 centimeters (7 inches). That is followed by a subsurface (A2 horizon) of brown (7.5YR 4/2) sandy clay loam to a depth of 61 centimeters (24 inches). Below that is successive B horizons of yellowish red (5YR 5/6) sandy clay loam to a depth of 203 centimeters (80 inches).

Shovel tests placed within the mapped site boundary consist of mottled brown (7.5YR 4/4) and yellowish red (5YR 5/6) sandy clay loam to a depth of 5 to 10 centimeters (2 to 4 inches) before the density of the soil and rock became impenetrable (Appendix C). This profile suggests soils within the site boundary are deflated and or truncated. Shovel tests located at the southern margins of the existing ROW to the south contained thicker soil deposition, containing a profile of brown (7.5YR 4/4) sandy loam to a depth of 50 centimeters (20 inches) followed by hardpan silty clay and bed rock.

Agency Revisit

The site was revisited by Gray & Pape and representatives of the USACE on October 29, 2019. During a walk over, the USACE representative observed approximately 12 FCR in the existing ROW. In addition, one modified flake, one bifacial edge failure flake (Figure 5-30, Table 5-10)), and one mussel shell fragment were identified within the APE but outside the recorded site boundary along a stream profile east of the known 41CA27 boundary (Figure 5-28). Both flakes were composed of local (likely Edwards) chert and were of gray coloration. Based on these finds, the site boundary has been expanded to the east along the edge of the waterway. The original recorders of 41CA27 observed FCR features and based on USACE's observations these features were likely north of the proposed ROW. USACE observed FCR scattered along the surface north of the proposed ROW that may represent FCR features impacted by previous pipelines.

Figure 5-30. Bifacial edge failure flake observed on the surface of the cut bank at Site 41CA27.

Table 5-10. Artifact Assemblage Observed at 41CA27.

Depth	Flakes	FCR	Mussel Shell
Surface	2	12	1
0-10	-	-	-
10-20	-	-	-
20-30	-	-	-
30-40	-	-	-

Supplemental Investigation

As stated above, waterways to either side (west and east) of the previously recorded site boundary were inspected for any cultural materials or buried features (Figure 5-28). A profile for each waterway was recorded to supply additional information on the soils present in the location.

Cut Bank Profile 1 – West Waterway

The west waterway was dry at the time of the visit and although it contained a good deal of vegetation along its bank, visibility was good overall (Figure 5-31). A profile of the bank, taken from the east bank, consists of uniform compact 7.5YR 6/4 silty clay loam (Figure 5-32). This profile continued from the surface all the way to the bottom of the cut, which was approximately 2 meters (6.6 feet). In places where the bank was sharply cut, small sized rock was observed protruding at all levels and especially at the base of the profile. No cultural materials, buried surfaces, features, or potential cultural horizons were observed within the cutbank either at the profile or anywhere along the cut bank within the APE.

Figure 5-31. West fork of Mexia Creek located just west of the previously recorded boundary of Site 41CA27. View is to the east.

Figure 5-32. Cut Bank Profile 1 located in the western fork of Mexia Creek. Profile is located in the east cut bank. View is to the northeast.

Cut Bank Profile 2 – East Waterway

The east waterway was likewise dry at the time of the visit, containing less vegetation as the banks are more eroded along its bank than to the west. Visibility was very good overall (Figure 5-33). A profile of the bank, taken from the west bank, consists of uniform 7.5YR 6/4 compact silty clay loam. Several small to medium rocks are observed protruding at all levels down to the base of the cut where rock becomes large and increasingly dense. The base of the cut is approximately 2 meters (6.6 feet) at the deepest. One small mussel shell fragment was observed in the profile approximately 35 centimeters (13.78 inches) below surface. As stated above, a one modified flake, one bifacial edge failure flake was also observed nearby in this area. Other than these few artifacts, no cultural materials, buried surfaces, features, or potential cultural horizons were observed within the cutbank either at the profile or anywhere along the cut bank within the APE.

Figure 5-33. Cut Bank Profile 2 located in the eastern fork of Mexia Creek. Profile is located in the west bank. Note mussel shell in center of picture. View is to the west.

Site Summary

The small portion of previously recorded site located within the APE appears to have been impacted by previous pipelines and erosion as evidenced by a low washed out area and truncated adjacent landscape. The area inside the APE south of the site is relatively small and likewise impacted. Inspection of the surface within the previously recorded site boundary within the APE produced no cultural materials aside from a few scattered FCR within the low pipeline corridor and adjacent slope. Shovel tests conducted within and outside the site boundary produced no cultural materials. Inspection of the cut banks of two forks of Mexia Creek produced only a few artifacts out of context. Soil deposits suggest deflated or truncated soils within the existing ROW due to previous pipeline installations. Soils observed in the cut bank showed no evidence of buried surfaces or cultural horizons. The bulk of the resource is likely to the north of the APE as observed during the revisit by the USACE. Any portions of the site located along the previously installed pipelines are likely destroyed. No further work is recommended for the location. No attempt was made to investigate outside of the APE to the north during the current effort.

5.2.3 Newly Identified Resources within Jurisdictional Areas

Six new resources were identified as a result of survey within jurisdictional permit areas in Loop 2. These are described below in order of appearance on the alignment from west to east.

5.2.3.1 Resource 41TA396

Resource 41TA396 was identified by Horizon on April 10, 2019. The resource consists of a mid-twentieth century trash dump and sparse prehistoric lithic scatter. The resource is located in Permit Area 3, approximately 0.5 kilometers (0.3 miles) north of CR 386 and 0.9 kilometers (0.6 miles) west of CR 349. The location is on a moderate slope between an upper and lower terrace roughly 65 meters (213 feet) east of a wetland and around the northern perimeter of a

man-made pond. The site is nearly entirely located within the existing pipeline corridor covered by short grasses offering good surface visibility (Figure 5-34). The landscape drops off significantly to the south of the existing ROW (Figure 5-35). The APE at the location measures 40 meters (131 feet) wide, with approximately 30 meters (100 feet) of that distance within an existing pipeline ROW. The resource boundary within the corridor measures approximately 50 meters (164 feet) east-west by 40 meters (131 feet) north-south. The location also appears to be bisected by a two-track road.

Figure 5-34. Location of Site 41TA396. View is to the southeast.

Investigation of the APE consisted of pedestrian survey and the excavation of shovel tests spaced between 15 and 20 meters (49 and 66 feet) (Figure 5-35). Historic materials observed on the surface within the resource include at least five ceramic fragments, 10 glass shards (Figure 5-36), 10 brick fragments, and 10+ metal and construction debris. Observed prehistoric materials include at least ten flakes of mostly mid to late stage, one biface, and one projectile point (Table 5-11, Figure 5-37). A total of six shovel tests were conducted at the location: five within and one beyond the west edge of the site boundary.

Supplemental Investigation

A supplemental visit of the site by Gray & Pape took place on November 5, 2019 to further delineate the site and collect diagnostic information of the historic artifacts. Gray & Pape observed approximately 150+ glass fragments representative of multiple vessels, a more limited number of ceramic fragments (25+), 1 brick fragment and approximately 10 metal fragments. In addition to the historic artifacts, approximately 12 flakes were observed. These consisted of secondary and tertiary stage and were all composed of local (Edwards or similar material) chert of gray or tan coloration. Three additional shovel tests were conducted within at the location: two within and one beyond the east edge of the site boundary. Further, areas of project corridor to the east and west of the site were graded at the time of supplemental work. Grading penetrated approximately 15 to 20 centimeters (6 to 8 inches) below surface (Figure 5-38). These areas were inspected for additional materials or features. None were observed.

Table 5-11. Artifact Assemblage Observed at 41TA396.

Depth	Flakes	Bifaces	Projectile Point	Historic Ceramics	Glass	Metal Debris	Brick Fragments
Surface	20+	1	1	30+	150+	25+	10
0-10	1	-	-	-	-	-	-
10-20	-	-	-	-	-	-	-
20-30	-	-	-	-	-	-	-
30-40	-	-	-	-	-	-	-
40-50	-	-	-	-	-	-	-

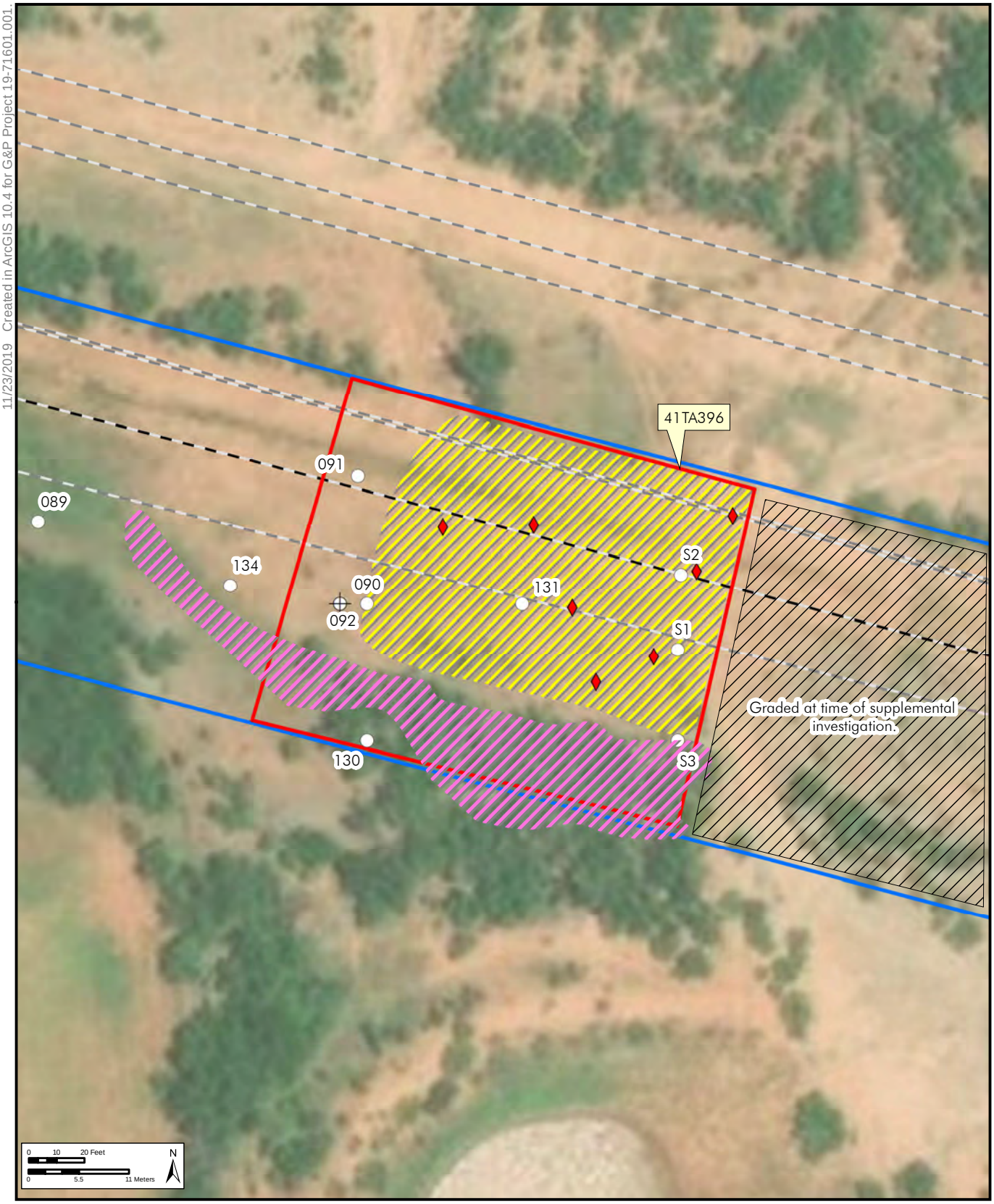

Figure 5-35
Plan view of Resource 41TA396.

GRAY & PAPE
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- Project Centerline
- Survey Corridor / APE
- New Site Area
- Existing Pipelines
- Surface Find
- Positive Shovel Test
- Negative Shovel Test
- Slope
- Drop Off

Figure 5-36. Sample of glass styles and colors observed at Site 41TA396.

Figure 5-37. Representative prehistoric materials identified on the surface within Resource 41TA396.

Figure 5-38. Graded section of pipeline workspace located east of Site 41TA396. View is to the south.

Between the two site visits, a total of nine shovel tests were excavated at the location: eight within the site and one beyond the west edge of the boundary. Soils mapped for the location include Clairemont silty clay loam and Pitzer-Weymouth complex (NRCS 2019). A typical shovel profile within the resource consisted of red (2.5YR 4/6) clay subsoil to a depth of 40 centimeters (16 inches) (Appendix C). This profile was confirmed by what was observed in the graded sections of pipeline workspace located beyond the site. The soil was extremely compact at the location and contained numerous calcium carbonate concretions. Of eight shovel tests conducted within the scatter, only one was positive for buried cultural material. This test produced a single chert flake between 0 and 10 centimeters (4 inches) below the ground surface. This test is located at the bottom of the slope and is likely colluvial. The resource does not likely continue beyond the ROW to the north and south due to existing disturbances, however, a corral located approximately 50 meters (164 feet) north of the ROW may be a source for some of the construction debris.

Diagnostic Artifact Analysis

Historic artifacts date to the mid to late twentieth century as evidenced by color, seams, finish, and makers marks. Among the assemblage are artifacts that include aqua, green, clear, cobalt, opaque white, and brown colored glass (Figure 5-36), ferrous metal and can fragments and ceramics that include a few fragments of whiteware, or ironstone, hand painted whiteware, and porcelain. Overall, the majority of the artifacts largely post-date 1915 and extend to into the mid-twentieth century. Specific diagnostic examples include a fluted or paneled colorless possible twentieth century soda bottle; likely cosmetic jar with a continuous threaded finish (usually machine-made and 20th century); standardized machine-made glass jar with thread finish (after 1930s per Deiss 1981:95; Leif 1965:29) (Figure 5-40), machine-made bottle with a crown finish (after 1915) (Figure 5-41).

Figure 5-39. Clear glass jar with continuous thread finish.

Figure 5-40. Crown finish on beverage bottle.

The lone prehistoric diagnostic artifact consists of a projectile point with the following characteristics. It measures 39 millimeters (1.5 inches) long overall (after resharpening). It consists of a triangular to ovoid blade, with a random flaking pattern. The barbs span a total of 35 millimeters (1.38 inches) with one barb longer than the other and appears to have been re-sharpened with recurvate edges. The stem is slightly expanding, measuring 12 millimeters (0.47 inches) long by 21 millimeters (0.83 inches) wide. The base of the stem appears to be thinned and ground with a slightly convex edge. Based on these attributes, the point mostly likely represents a Marshall dart point. These have a distribution primarily in central Texas, contemporary with Pedernales, dated to the Late Middle Archaic (Turner, Hester, and McReynolds 2011).

Figure 5-41. Probable Marshall dart point identified on the surface within resource 41TA396.

Archival Research

Archival research of the property was undertaken to further investigate the historic component of the resource. A limited title search was conducted by Lone Star NGL Pipeline LP by the Taylor County Clerk's Office (Table 5-12). The property is located at 2843 FM 1085 in Taylor County. The current parcel (Property ID 69643) is part of Abstract A-375 and contains 397 acres in Section 61, Block 19, Texas & Pacific Railway Company (T&P RY CO) Survey. The current owner, Janet A Whisenhunt also owns the 160-acre parcel to the north in Abstract A-1251, Section 52, Block 19 of the T&P RY CO Survey. Transactions prior to 1980

Table 5-12. Deed Research Results for 41TA396.

Grantee	Grantor	Grantor Sell Date	Description Type; Deed Volume/Page	Additional Information
Sunoco Pipeline, LP	Dink and Jan Whisenhunt	3/10/2014	Permanent Easement Agreement	397 acres Sec. 61, BLK 19, T&P Ry Co Survey, A-375; 40 ft for one pipeline
George D. Jones, Trustee	Dink and Jan Whisenhunt	1/4/1999	Deed of Trust; 2379/507	557 acres, Sec 61, Blk 19, T&P Ry Co Survey;
The Public	Dink and Jan Whisenhunt	3/291996	Homestead Affidavit and Designation	Part of 557 acres, Sec 61 & 52, Blk 19, T&P Ry Co Survey
Dink and Jan Whisenhunt	R.W. McDonnell	12/31/1992	Warranty Deed with Vendor's Lien; 1897/548	557 acres, Sec 61 & 52, Blk 19, T&P Ry Co Survey
R.W. McDonnell	Hardin-Simmons University, a corporation	5/28/1992	Warranty Deed; 1853/244	1816.7 acres being all Sec 60 & parts of Secs 65, 61, 52 and 49, Blk 19, T&P Ry Co Survey
Hardin-Simmons University, a corporation	First National Back of Abilene, Texas, Independent Executor of the Estate of William Arch Daniel, deceased	9/1/1983	Correction Warranty Deed; 1312/360	395 acres 61 Blk 19, T&P Ry Co Survey; Abst 375, 160 acres and Sec 52 Blk 19, T&P Ry Co Survey – corrects deed dated 4/15/1980

were not located by the County Clerk's Office or online. Historical maps and aerials were reviewed for additional information. According to the General Land Office (GLO) records, Abstract 375 was surveyed by the T&P Ry Co and assigned on August 27, 1874 (GLO 2019). A 1934 atlas of Taylor County identifies Section 61 of Block 19 of the T&P RR lands as unassigned. A 1940 map shows that the section was split into five different parcels. The boundaries for site 41TA396 are located within the western half, which was divided into two parcels, the northwest labeled Humble and the southwest labeled as --J Adcock, Merkel. The first initial of the owner is obscured by the Gulf, Colorado, and Santa Fe Railroad symbol. The Adcock family was rather large and consisted of several individuals with J as a middle initial. Ransom Jefferson Adcock was born on May 18, 1846 in Holly Springs, Mississippi and moved to Texas by 1880, where he was listed on the census in Navarro as a farmer (Ancestry 2019a, Find-a-Grave 2019a). He was married to Dorinda Anne Brown, who died in 1907 in Merkel, Texas. They had only one child, a daughter named Belle. However, Ransom had approximately six siblings, and at least one of them, Robert Alexander Adcock, also moved to Texas, but he lived in Gustine, Comanche County, Texas. Robert was married twice to Martha Ellen Brown Adcock (1855-1889) and to Elizabeth Louise Roberts Adcock (1871-1912) (Find-a-Grave 2019b). Robert had four children with his first wife, including son, Oscar Johnson Adcock (1880-1967), and eight with his second wife, including Ransom Jefferson Adcock (1898-1979). Ransom was born and died in Gustine, Comanche County, Texas; however, Oscar, while born in Navarro, Texas, died in Merkel in 1967. Oscar married Cora Lee Bankhead Adcock and has four children, including Oscar Johnson, Jr on April 21, 1916 in Merkel, Texas (Find-a-Grave 2019c). Oscar, Jr. married his wife, Loraine J. McGaughy Adcock, in 1938 and they moved to Fort Worth (Find-a-Grave 2019d). Oscar, Sr. was listed on

the 1910 census as a rural route mail clerk in Merkel and on the 1930 census as the postmaster of the Merkel Post Office (Ancestry 2019b, 2019c). Based on his age and residence, it is most likely that Oscar, Sr. was the owner of the Section 61 southwest corner in 1940. The exact transaction date and which Adcock purchased the southwest portion of Section 61 is unknown at this time. Historic maps and aerials reveal that no houses or buildings were located within the boundaries of 41TA396 (Table 5-13).

A chain of ownership extending back to 1980 was provided by Lone Star NGL Pipeline LP for the property on which site 41TA396 is located (Appendix D). According to the deeds, William Arch Daniel was the earliest known owner and his estate was sold by the First National Back of Abilene in 1980. William Arch Daniel, known as Arch, was born in Wood County on January 31, 1891. He was a rancher, farmer, and business owner who operated Daniel Wholesale Auto Parts in Abilene. Arch served in World War I and married to Nina Pearl Morrison on September 24, 1924. He was also a member of the First Baptist Church since 1928, Masonic Lodge No. 195 RAM, Knights Templar Council No. 10, a member of the Farm Bureau, and patron of the Order of Eastern Star, Cora Posey Chapter No. 1072 (Find-a-Grave 2019e).

Additional deeds were not found for this property during the search and a search of online records yielded the same result. A search of the Handbook of Texas Online for the names of past landowners reveals that no persons of historical significance are associated with this site. Additionally, no historically significant events are known to have occurred at the location of site 41TA396 or in association with any persons listed on the chain of title.

Site Summary

Aside from one flake discovered in what is likely a colluvial context, all of the identified materials were identified on the surface. The resource appears to have experienced heavy disturbance and deflation due to previous impacts, including the existing pipeline corridor, two-track road, and man-made pond. The location appears to be a dumping ground for historic and modern material associated with the adjacent ranchland and agricultural fields.

Table 5-13. Historical maps and aerials for 41TA396.

Type	Date	Notes
GLO Map	1859	Land unassigned – not shown on GLO map
GLO Map	1879	T&P RR, Block 19, Sec 61 unassigned to an individual but shown on map
GLO Map	1883	T&P RR, Block 19, Sec 61 unassigned to an individual but shown on map – "S. 14523 ptd" labeled within Sec. 61
Sweetwater Quad Topo Map	1893	Drainage to the north of the site; no buildings within or adjacent to site
Soil Survey Map	1922	Site located between T&P RR through Merkel to north and Gulf, Colorado, and Santa Fe Railroad to south – not within site boundaries
Atlas Map	1934	T&P RR, Block 19, Sec 61 unassigned to an individual but shown on map
Atlas Map	1940	Sec. 61, Block 19 split into 5 parcels; NW quarter – Humble, 7-5-33; NE – FC unknown, 1-5-31; NE – Hurley; SW – --J Adcock, Merkel; SE – C. Cormes, Merkel
Merkel Quad Topo Map	1957	FM 1085 and 386 visible, pipeline shown through site, pond to south; no buildings within or adjacent to site boundaries
Atlas Map	1972	no buildings shown within or adjacent to site boundaries; bridge on FM 1085 to west of site
Atlas Map	1982	no buildings shown within or adjacent to site boundaries; bridge on FM 1085 to west of site
Aerial Photo	1996	No buildings or structures; pond visible to the south of the site; cultivated cropland with plow marks to northeast and southwest; site is vegetated with possible cleared area or road in northeast corner of site boundaries

The prehistoric materials likewise are most likely out of context. Other than the lone projectile point found at the location, the relatively recent date and commonality of the historic materials, shallow soils, lack of features, and lack of associated historically significant persons or events identified during the current effort suggests the resource within the ROW is not significant. No further work is recommended for the location. The site portion located within the APE does not retain the potential to provide significant research value and is thus recommended not eligible for the National Register, under Evaluation Criterion D.

5.2.3.2 Resource 41TA397

Resource 41TA397 was identified by Horizon on April 15, 2019. The resource consists of a historic to modern trash dump and sparse surficial artifact scatter of mid-twentieth century domestic debris. The resource is located in Permit Area 5, approximately 7 meters (23 feet) north of CR 393 and 250 meters (831 feet) east of CR 126, west of a drainage associated with a man-made pond/catch basin (Figure 5-42 and Figure 5-42). The APE at the location measures between 24 to 55 meters (79 to 180 feet). The location at the time consisted of a slightly fallow wheat field so surface visibility was 100 percent (Figure 5-44). Observed surface materials include a sparse (50 or less) number clear bottle glass (including neck), brown glass, milk glass, whiteware ceramic, and unidentifiable metal fragments.

The scatter of items is lightly concentrated in the southern portion of the site near the road with fewer and fewer artifacts observed moving outward from there until they become outliers. No intact structures such as foundations were identified. The resource boundary within the APE measures approximately 85 meters (278.87 feet) east-west by 50 meters (164.04 feet) north-south. Six shovel tests were conducted within the densest area of the scatter, of which only one was positive for buried cultural material, consisting of a single whiteware fragment discovered in the top 10 centimeters (4 inches) below surface within the plow zone.

Supplemental Investigation

A supplemental visit of the site by Gray & Pape took place on November 5, 2019 to collect diagnostic information of the historic artifacts.

Figure 5-42. Conditions at Site 41TA397 in April 2019. View is to the east.

The materials present were very sparse and amounted to approximately a dozen glass fragments representative of multiple vessels, 10+ ceramic fragments, 1 ceramic tile fragment, and one metal harness buckle or industrial chain link (Figure (5-44) were observed on the surface (Table 5-14). Areas of project workspace located to the northwest of the site were graded at the time of supplemental work. Grading penetrated approximately 15 to 20 centimeters (6 to 8 inches) below surface. This area was inspected for additional materials or features. None were observed.

Soils mapped for the location consist of Sagerton clay loam and Rotan clay loam (NRCS 2019). A typical shovel test profile within the resource/APE consisted of a surface layer of yellowish red (5YR 4/6) silt to a depth of 10 centimeters (3.94 inches) followed by reddish brown (5YR 4/4) cemented subsoil clay to a depth of 25 centimeters (10 inches) (Appendix C). This profile suggests the soils may be truncated or deflated.

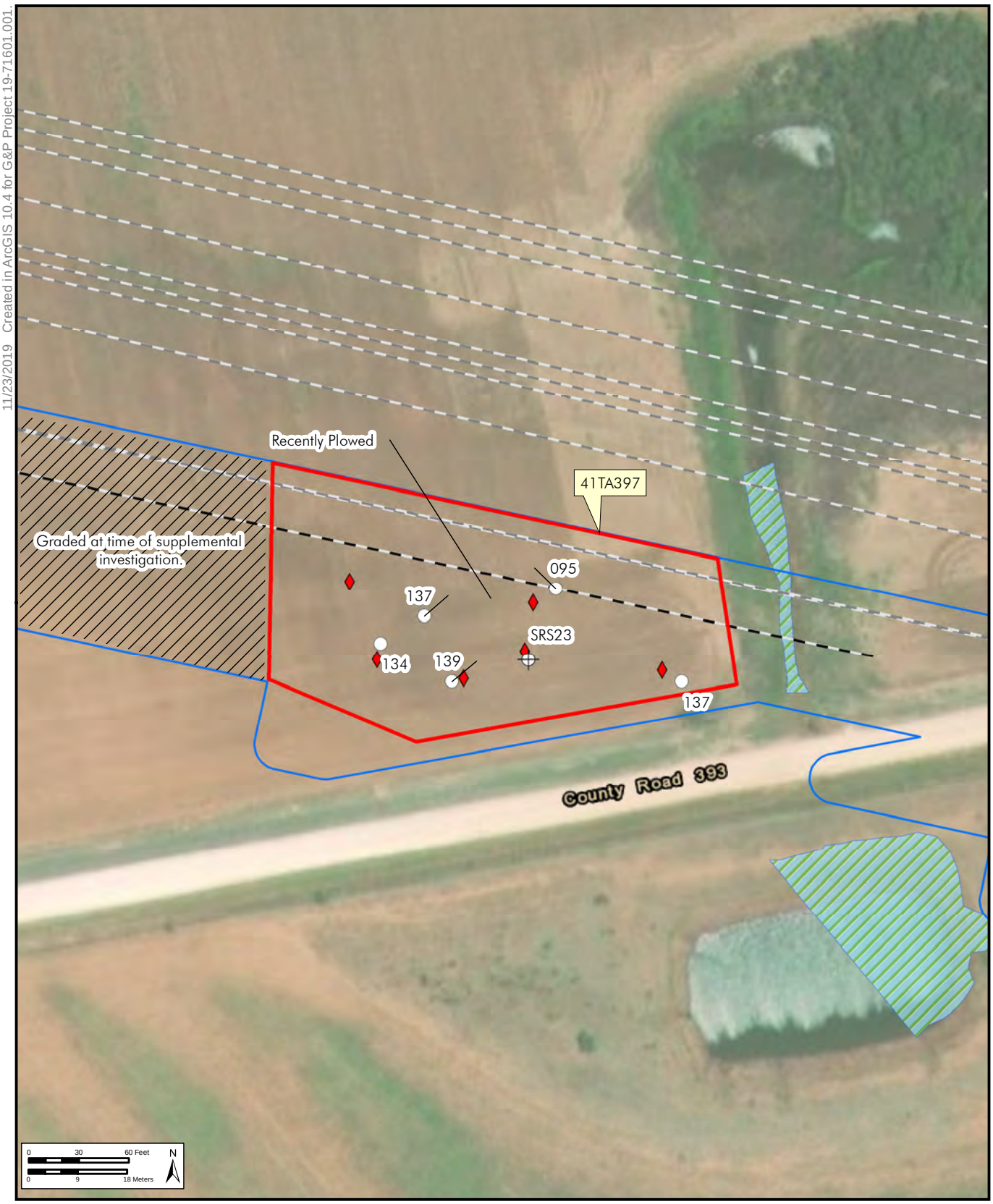

Figure 5-43
Plan view of Resource 41TA397.

GRAY & PAPE
HERITAGE MANAGEMENT

- Project Centerline
- Survey Corridor / APE
- New Site Area
- Existing Pipelines
- Field-Delineated Water Feature
- Surface Find
- Positive Shovel Test
- Negative Shovel Test

Observation of the adjacent graded portions of the workspace confirm the truncated or deflated conditions.

Figure 5-44. Harness buckle or industrial chain link.

Table 5-14. Artifact Assemblage Observed at 41TA397.

Depth	Glass	Historic Ceramics	Metal
Surface	12+	10+	1
0-10	-	-	-
10-20	-	-	-
20-30	-	-	-
30-40	-	-	-
40-50	-	-	-

Diagnostic Artifact Analysis

Historic artifacts observed at Site 41TA397 date to the mid to late 20th century as evidenced by color, seams, finish, and makers marks. Among the assemblage are artifacts that include clear and opaque white, and brown colored glass. Ceramics include a few fragments of whiteware, or ironstone, and one stoneware fragment. Overall, the majority of the artifacts largely post-date 1915 and extend to into the mid-twentieth century. Specific diagnostic examples include an embossed Hazel-Atlas maker's mark (1920-1964) (Figure 5-45) (Toulouse 1971: pg239) and a fragment of stoneware exhibiting a Bristol glaze (1920+) (Figure 5-46) (Greer 1999).

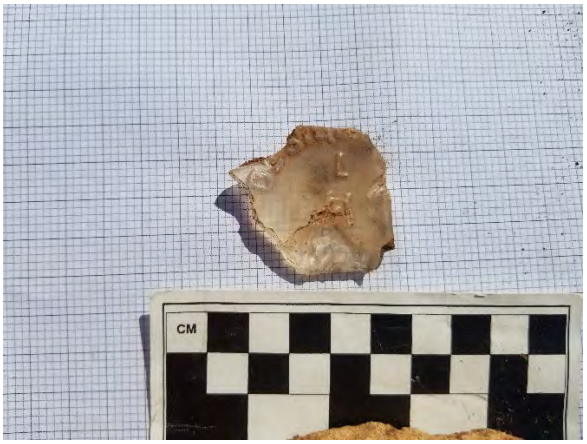

Figure 5-45. Glass bottle base with Hazel-Atlas maker's mark.


Figure 5-46. Stoneware with Bristol glaze.

Archival Research

Archival research of the property was undertaken. A limited title search was conducted by Lone Star NGL Pipeline LP by the Taylor County Clerk's Office. The property is located on FM 126 in Taylor County (Table 5-15). The current parcel (Property ID 28857) is part of Abstract A-751 and contains 160 acres (more or less) in the NW quarter of Section 6, Block 18, Texas & Pacific (T&P) Railway Company Surveys. Transactions prior to 1931 were not located by the County Clerk's Office or online. Historic maps and aerials were reviewed for additional information. A 1934 atlas of Taylor County identifies Section 6 of

Block 18 of the T&P RR lands as assigned to Theodore Heyck. According to the General Land Office (GLO) records, Heyck purchased 640 acres on April 7, 1893 (GLO 2019). The 1900 census records have Theodore Heyck in Abilene Ward 3, who was born in Jun 1825 in Germany (Ancestry 2019a). He immigrated to the US in 1852 and was not naturalized. His wife, Sophie, is recorded to have been born at sea in 1843 to German parents. His daughter, Annie, was born in 1876 in Texas. An earlier 1870 census shows that Heyck lived in Lavaca, Calhoun County with his wife, Sophie, son Adolph (3), and son, Theodore (1) (Ancestry 2019b). He was listed as a commission broker. His son, Theodore Jr., stayed in the area and married Francis Giraud Heyck in Harris County, Texas, where he died and was buried in 1925 (Find-a-Grave 2019a).

A 1940 map identifies the northwest quarter of Section 6, Block 18 as owned by G.R. Holloway and has a date of 5/7/31, which likely indicates that Holloway purchased the land in May of 1931 or was the listed owner of that property in May 1931. George R. Holloway was born in 1858 in Tennessee and died in 1933 in Merkel, Texas (Find-a-Grave 2019b). His wife, Virginia, was listed on the 1910 census as VT and born in Mississippi (Ancestry 2019c). They had six children ranging from 3 to 18 years old at home in 1910. Holloway was listed as a cattle and horse stockman and was self-employed in Merkel.

The exact transaction date and entity that Holloway purchased the approximately 160-acre property from is unknown at this time. A chain of ownership extending back to 1931 was provided by Lone Star NGL Pipeline LP for the property on which site 41TA397 is located (Appendix E).

Additional deeds were not found for this property during the search and a search of online records yielded the same result. Historic maps and aerials reveal that no houses or buildings were located within the boundaries of 41TA397 (Table 5-16). A topographic map dating to 1957 shows a structure located approximately 250 meters (820 feet) to the west, along CR 126 (NETR 2019). The structure is no longer present on maps dating after 1958 but two outbuildings are present until 1982. A search of the Handbook of Texas Online for the names of past landowners reveals that no persons of historical significance are associated with this site. Additionally, no historically significant events are known to have occurred at the location of site 41TA397 or in association with any persons listed on the chain of title.

Table 5-15. Deed Research Results for 41TA397.

Grantee	Grantor	Grantor Sell Date	Description Type; Deed Volume/Page	Additional Information
Lone Star NGL Pipeline LP	Sheri Shipman	2/7/2019	Right-of-Way Agreement	
Lone Star NGL Pipeline LP	Sheri Shipman	3/23/2015	Permanent Easement Agreement	
Sheri Shipman	Estate of Goldia L. Malone, deceased	5/21/1999	Probate; 389/739	Not listed in inventory as decedent had previously deeded out subject property; several warranty deeds from 1993-1999
Sheri Shipman	Goldia Malone	3/22/1993	Durable Power of Attorney; 1913/736	

Grantee	Grantor	Grantor Sell Date	Description Type; Deed Volume/Page	Additional Information
Goldia Malone, as Trustee of Goldia Malone Revocable Living Trust with Life Estate reserved for Grantor	Goldia Malone	3/1/1993	Quit Claim; 1913/733	
Gulf Refining Company	Goldia Malone, widow, Independent Executrix of Estate of Bob Malone, deceased	9/7/1951	Right-of-Way; 434/214	60 ft. pipeline
Goldia Malone	Estate of Bob Malone, deceased	12/1/1947	Probate	NW quarter, Sec 6, Block 18, T&P RR Co Land
Bob Malone	T.O. Massey, guardian to Lila Mae and J.H. Lowery	3/7/1944	Order Confirming Real Estate; 322/676	Cause 1538; sold Lila and J.H. Lowery's 1/5 interest in NW quarter, Sec 6, Block 18, T&P RR Co Land
T.O. Massey, guardian to Lila Mae and J.H. Lowery	Nora L. Pruitt	11/26/1943	Resignation of Guardianship	Mother, Nora Pruitt resigns as her children's guardian; Jones County Court appoints T.O. Massey
Bob Malone	Nora Pruitt & husband OD Pruitt; Opal Lowery Primrose & husband, E.E. Primrose; George G. Lowery & wife, Mabel Lowery; Ruth Lowery Shore & husband, R.E. Shore	9/27/1943	Warranty Deed with Vendor's Lien	Sold 4/5 interest in NW quarter, Sec 6, Block 18, T&P RR Co Land
Nora Pruitt, guardian for Opal Lowery (16), J.H. Lowery (13), and Lila Mae Lowery (9)	Cause No. 1538 – Guardianship of minors, Opal, J.H., and Lila Mae Lowery – County Court of Jones County	9/13/1937	Application for Guardianship	Nora L. Pruitt – widow of G.C. Lowery (deceased 5/5/1938, father of children); other children include Ruth and George Lowery (not minors), each child had 1/10 interest and widow had ½ interest in land
G.C. Lowery	G.R. and Virginia Holloway	10/2/1931	Warranty Deed; 237/412	160 acres; NW quarter, Sec 6, Block 18, T&P RR Co Land

Table 5-16. Historical Maps and Aerials for 41TA397.

Type	Date	Notes
GLO Map	1859	Land unassigned – not shown on GLO map
GLO Map	1879	T&P RR, Block 18, Sec 6, unassigned to an individual but shown on map
GLO Map	1883	T&P RR, Block 18, Sec 6, unassigned to an individual but shown on map – "F-3647 ptd" labeled within Sec.
Sweetwater Quad Topo Map	1893	Road to the north of site, drainage to the southwest; no buildings within or adjacent to site
Soil Survey Map	1922	Site located between T&P RR through Merkel to north and Gulf, Colorado, and Santa Fe Railroad to south – not within site boundaries, FM 126 partially visible to west of site; no buildings or activities within site shown

Type	Date	Notes
Atlas Map	1934	Sec. 6, Block 18 assigned to Theo. Heyck, 3647
Atlas Map	1940	NW quarter of Sec. 6, Block 18 assigned to G.C. Holloway (Merkel), Humble 5/7/31; north-south creek/drainage visible though middle of NW quarter
Merkel Quad Topo Map	1957	FM 126 and 393 visible, pipeline shown through site, possible building or structure to north of pipeline – unknown; building at northeast intersection of FM 126 & 393 – not within site boundaries
Atlas Map	1972	Possible driveway to structure – not shown in legend; no buildings shown
Atlas Map	1982	Possible driveway to structure – not shown in legend; no buildings shown
Aerial Photo	1996	No buildings or structures; pond visible to the northeast of the site; surrounding land is visible as cultivated cropland with plow marks

Site Summary

The size of the scatter was not pursued beyond the limits of the APE. However, inspection of graded areas northwest of the site confirms no artifacts are located beyond the site limits within the APE. Within the APE, Resource 41TA397 is characterized by a sparsity of historic artifacts and truncated or deflated soils, which suggests the resource is not significant. Aside from one glass fragment located within 10 centimeters (4 inches) below surface within the plow zone, no other artifacts were obtained from shovel tests. In addition to being disturbed by plowing, the site is located near the road where material is often pushed and/or dropped as vehicles turn and is likely removed from its original location on the property. No further work is recommended for the location. The site portion located within the APE does not retain the potential to provide significant research value and is thus recommended not eligible for the National Register, under Evaluation Criterion D.

5.2.3.3 Resource 41TA398

Resource 41TA398 was identified by Horizon on April 11, 2019. The resource consists of a sparse surface scatter of lithic artifacts. The resource is located in Permit Area 12 on a relatively flat dissected upland approximately 100 meters (328 feet) south of CR 311 and 800 meters (0.5 miles) east of CR 1235, east of an ephemeral drainage and west of an unnamed tributary of Little Elm Creek (Figures 5-47 and 5-48). The APE at the location measures 40 meters (131 feet) wide, with approximately 30 meters (100 feet) of that amount within an existing pipeline corridor. The location at the time of survey consisted of a recently plowed field (Figure 5-34).

Figure 5-47. Location of Site 41TA398. View is to the east.

Surface materials observed by Horizon within the APE consisted 10+ flakes, four bifaces, one uniface, one utilized flake, and one scraper (Figures 5-49 and 5-50, Table 5-17). Flakes represented all stages, but most were primary or secondary and still displayed cortex. All materials were from created local chert (likely Edwards) and were gray to tan in color. Horizon noted that most of the materials were observed in the eastern half of the site. No diagnostic artifacts were identified. Horizon conducted 10 shovel tests within the scatter spaced roughly 30 meters (100 feet) apart, all of which were negative for buried cultural materials.

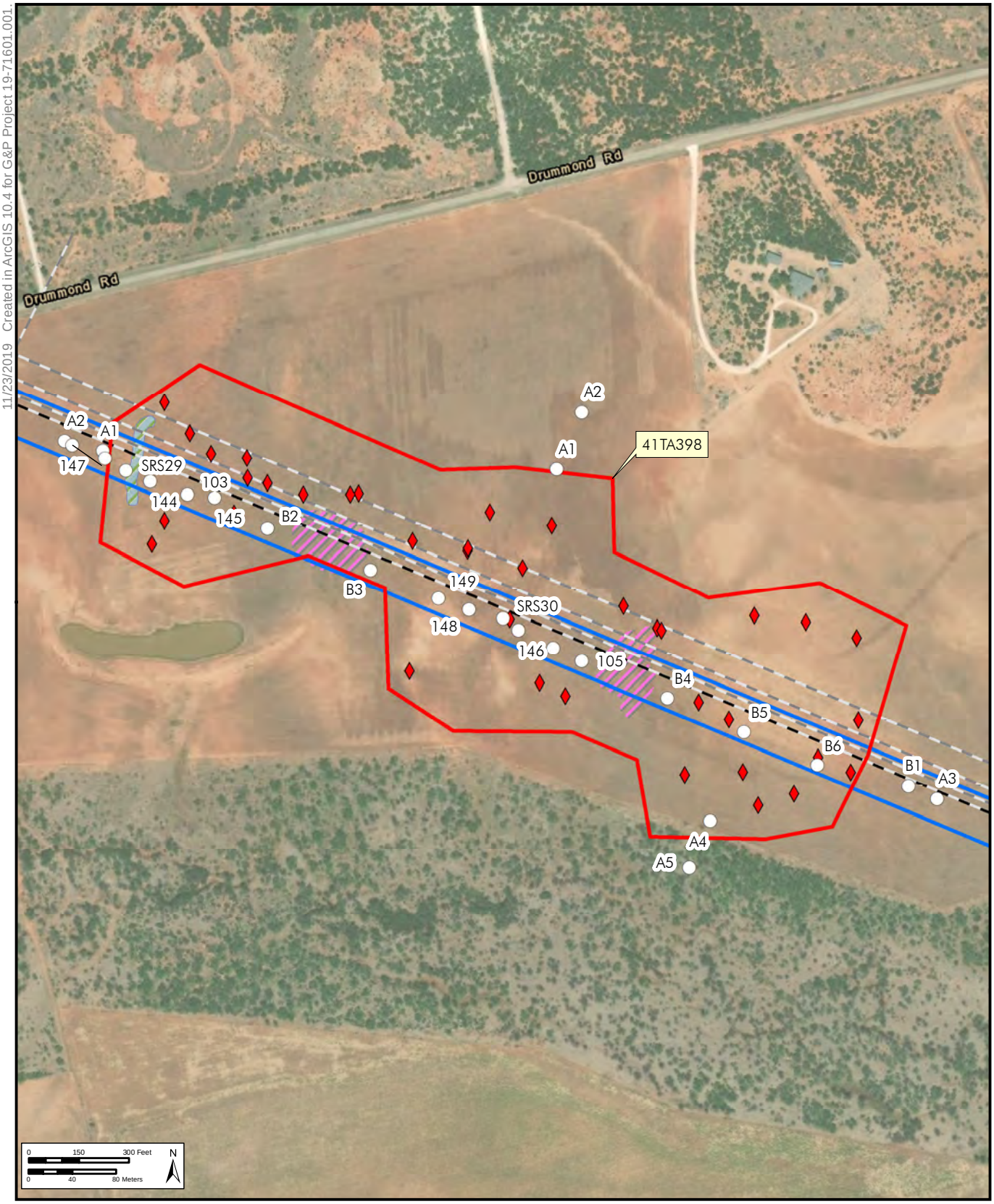

Figure 5-48
Plan view of Resource 41TA398.

GRAY & PAPE
HERITAGE MANAGEMENT

- Project Centerline
- Survey Corridor / APE
- New Site Area
- Existing Pipelines
- Field-Delineated Water Feature
- Surface Find
- Positive Shovel Test
- Negative Shovel Test
- Low Area

Figure 5-49. Representative flakes identified on the surface within Resource 41TA398.

Figure 5-50. Representative bifaces identified on the surface within Resource 41TA398.

On April 17, 2019, the site was revisited by Gray & Pape in an attempt to identify the site limits beyond the APE to the north and south. Investigation of the resource consisted primarily of pedestrian walkover and shovel tests on a judgmental basis outside the visual limits of the scatter. Gray & Pape observed an additional biface, six cores, and 24 flakes located outside of the APE to the north and south (Table 5-17). Gray & Pape conducted an additional six shovel tests within the site boundary/APE. All were negative for cultural materials. Gray & Pape also conducted four shovel tests to the north and south of the surface scatter outside of the APE. These were also negative for buried cultural materials. Of the 16 total shovel tests conducted within the limits of the scatter, none were positive for buried cultural materials.

The resultant boundary measures 752 meters (0.5 miles) northwest-southeast by 270 meters (886 feet) northeast-southwest with the extent of the resource extending a short distance beyond the ROW to the north and south. Soils mapped for the location consist of Tillman clay loam and Sagerton clay loam (NRCS 2019). These soils typically contain a shallow (18 centimeters [7 inches]) A horizon of brown (7.5YR 4/2, 4/3, 5/3 loam and clay loam. A typical shovel profile within the resource/APE consists of a surface layer of reddish brown (2.5YR 4/4) to yellowish red (5YR 4/6) silty clay loam to a depth of 10 to 30 centimeters (4 to 12 inches) followed by compact red (2.5YR 5/6) subsoil clay (Appendix C). This appears to represent the lower B or C horizon subsoils of the Sagerton or Tillman soils series. Some shovel tests contained bedrock underlying the clay at a depth of 30 centimeters (12 inches). This profile suggests the original surface of the location have been severely truncated.

Table 5-17. Artifact Assemblage Observed at 41TA398.

Depth	Flakes	Utilized flake	Bifaces	Unifaces	Cores	Scraper
Surface	34+	1	5	1	6	1
0-10	-	-	-	-	-	-
10-20	-	-	-	-	-	-
20-30	-	-	-	-	-	-
30-40	-	-	-	-	-	-
40-50	-	-	-	-	-	-

Site Summary

Resource 41TA398 is characterized by a number of surface artifacts that have likely been redeposited due to land modification and agriculture. No diagnostic materials were identified during survey. The soils at the location appear to be deflated/truncated due to agriculture and erosion. This combined with the lack of subsurface artifacts suggests the resource is not significant. No further work is recommended for the location. The site does not appear to retain the potential to provide significant research value and is thus recommended not eligible for the National Register, under Evaluation Criterion D.

5.2.3.4 Resource 41TA399

Resource 41TA399 was identified by Horizon on April 12, 2019. The resource consists of a surficial historic scatter and trash dump dating to the 1930s to 1950s. The resource is located in Permit Area 24 approximately 436 meters (0.3 miles) west of CR 106, on a very level ridgeline east of an intermittent drainage which flows into Cedar Creek (Figure 5-51). The APE at the location measures 55 meters (180 feet) wide. The location is sparsely wooded with several small push piles of brush and contains short grasses offering good surface visibility (Figure 5-51). The area appears to be used for cattle grazing as evidenced by many worn cattle paths through the location. The resource boundary measures approximately 120 meters (393.7 feet) east-west by 40 meters (131.23 feet) north-south.

Investigation of the resource consisted of pedestrian walkover and shovel tests excavated at between 10 and 30-meter (33 and 100-foot) intervals within the site (Figure 5-352). Observed materials include hundreds of fragments of glass, ceramics, metal, and other materials and a concentration of red brick (Table 5-18). These are discussed more below. Of the six shovel tests conducted within the resource/APE, none were positive for buried cultural materials.

Figure 5-51. Location of Site 41TA399. View is to the north.

Supplemental Investigation

Gray & Pape revisited the site on November 5, 2019 to perform additional delineation, map artifact concentrations, and collect additional information on diagnostic artifacts. Gray & Pape observed that the eastern portion of the site to the east contains a few metal items associated with cattle such as a feed trough, and associated farm implementation and downed barbed wire fencing. Many of the site's artifacts are located in the western edge and specifically contained within two concentrations (Figure 5-52). A total of nine supplemental shovel tests were conducted within the site boundary/APE to complete delineation. Five of those tests were conducted as part of investigation of two concentrations of artifacts. These are described in more detail below. In addition to the supplemental shovel tests, a cut bank along the waterway to the west was inspected for deeper materials or features.

The first concentration observed is a scatter of pressed bricks, stamped "ABILENE" (Figures 5-53 and 5-54). The concentration measures approximately 6 meters (20 feet) long by roughly 6.5 meters (21 feet) wide or 38 square meters (409 square feet). The concentration is located at the edge of the upland, just before a drop to a lower terrace. The brick is primarily on the surface although some have sunk into the

Figure 5-52
Plan view of Resource 41TA399.

GRAY & PAPE
HERITAGE MANAGEMENT

- Project Centerline
- Survey Corridor / APE
- New Site Area
- Existing Pipelines
- Field-Delineated Water Feature
- Contour
- Surface Find
- Positive Shovel Test
- Negative Shovel Test
- Cut Bank Inpsection
- Slope/Drop Off
- Low Area

ground slightly or have been trampled in by cattle. There are no other materials within the concentration that appear to be directly associated with the brick. Four shovel tests were placed in the area of the brick: one in the center (S1) and 3 around the perimeter (tests S2, S3, and 122). None were positive for additional materials below surface. Based on this, the brick does not appear to represent an in-situ feature.

Figure 5-53. Brick scatter within Resource 41TA399. View is to the north.

Figure 5-54. Red brick stamped "ABILENE."

The second concentration is composed of hundreds of glass, metal, and ceramic fragments spread over a narrow low terrace at the west edge of the site. The concentration measures approximately 25 meters (82 feet) long and 9 meters (29.5 feet) or approximately 217 square meters (259.5 square yards). The terrace is highly deflated with subsoil, gravels, and rock on the surface amidst the historic materials. A single shovel test was attempted within the scatter but was terminated after only 8 centimeters (3 inches) by the density and hardness of the soil. A total of 15 shovel tests were excavated as part of site delineation. None contained buried cultural materials. No testing was conducted outside of the site boundary to the east. This area is a sparsely vegetated fallow ag field which shows clear signs of subsoil at the surface. The centerline where it passes the site is partially overlapped by a rutted access road. The road ruts were inspected for materials and shovel tests were placed along the centerline where it passes the site, but this area was highly deflated and eroded. Tests immediately contacted compact subsoil.

Table 5-18. Artifact Assemblage Observed at 41TA399.

Depth	Glass	Historic Ceramics	Brick	Metal
Surface	400+	100+	30	25
0-10	-	-	-	-
10-20	-	-	-	-
20-30	-	-	-	-
30-40	-	-	-	-
40-50	-	-	-	-

Soils mapped for the location consist of Colorado soils and Sagerton clay loam which generally have a surface layer of brown (7.5YR 4/2) clay loam or light reddish brown (5YR 6/3) loam (NRCS 2019). A typical shovel profile within the resource/APE consists of heavily compacted red to strong brown (2.5YR 4/6 to 7.5YR 5/6) clay to a maximum depth of 30 centimeters (12 inches) followed by bedrock (Appendix C). This soil profile was verified in the cut bank west of the site, which contained a uniform 7.5YR 5/6 clay to a depth of 1 meter (39 inches). This profile suggests a B horizon of the Sagerton soil series.

Diagnostic Artifact Analysis

Historic artifacts observed at Site 41TA399 date to the mid to late 20th century as evidenced by color, seams, finish, and makers marks. Among

the assemblage are artifacts that include clear, brown, green, blue, and purple bottle glass, soda bottle base and neck fragments, milk glass jars, whiteware and other ceramics, vulcanized rubber fragments, an embossed white metal plate, a notched aluminum strip, metal can fragments, a drawer pull, a carbon rod from a battery, galvanized metal and aluminum fragments, and a concentration of red brick.

While there were many styles of brick made by the Abilene Pressed Company (renamed Abilene Brick Company in 1936) the style of Abilene brick observed at the site is modern and likely dates post WWII. The plant was in business until 1980 (Arrick/Orrick Genealogy 2019; Newspapers.com 2019). Other diagnostic artifacts are detailed in Table 5-19 and Figures F-55 to 5-62 below.

Table 5-19. Diagnostic historic artifacts observed at Site 41TA399.

Figure	Artifact	Comments
5-55	Clear bottle with the Owens-Illinois Glass base maker's mark	Maker's mark dates between 1929 -1954 (Toulouse, Julian Harrison; 1971 p403). Applied label dates to post-1935 (Deiss 1981:95).
5-56	Glass cosmetic jar, press molded, opaque white with continuous threaded finish, external	Continuous thread date to post 1919 (Deiss 1981:95; Leif 1965:29). Likely 1950s (Lindsey 2019).
5-57	Glass bottle, amber with embossed lettering and continuous thread finish	Listerine was prescription only until 1914. This bottle post-dates 1914 (Lindsey 2019).
5-58	Earthenware, Fiestaware, yellow	First manufactured by The Homer Laughlin China Company in 1936. (Huxford and Huxford 1984) (https://fiestafactorydirect.com/pages/our-history 2019).
5-59	Glass bottle, amber with maker's mark	Maker's mark D9 68 50 DES PAT. 128624. Patent filed by E. L. Du Pree of Chappaqua, NY on May 14, 1941. Patented Aug 5, 1941.
5-60	Glass cosmetic jar, press molded, opaque white with maker's mark	Maker's mark: MENTHOLATED 12 REG TRADE MARK. Yucca Company founded in 1889, Mentholated first produced in December 1894. Jar likely dates to the 20th century.
5-61	Furniture knob; pressed glass	19th to 20th century manufacture.
5-62	Earthenware vessel, whiteware with blue annular banding	Two blue painted annular bands. Likely 19th century.

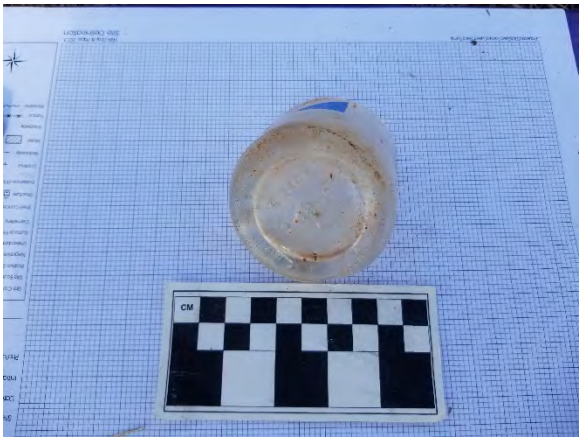

Figure 5-55. Beverage bottle with Owens-Illinois maker's mark on base.

Figure 5-56. Pressed glass cosmetic jar.

Figure 5-57. Embossed Listerine bottle.

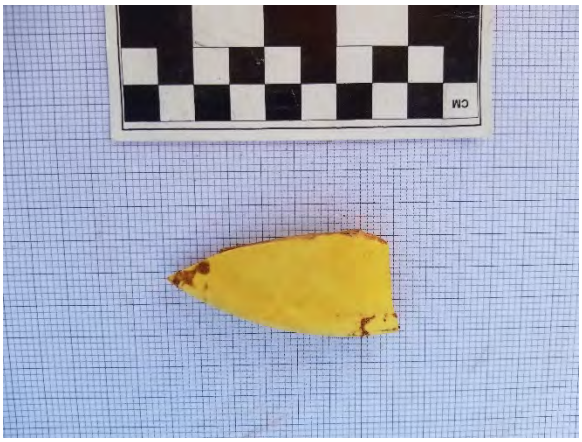

Figure 5-58. Yellow Homer Laughlin Fiestaware.

Figure 5-59. Amber bottle base with Design Patent # 128624.

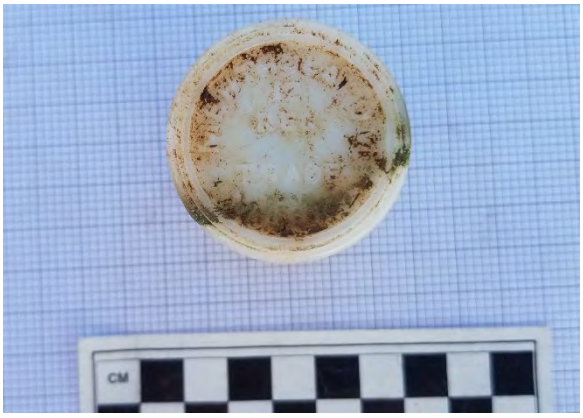

Figure 5-60. Mentholatum cosmetic/ointment jar.

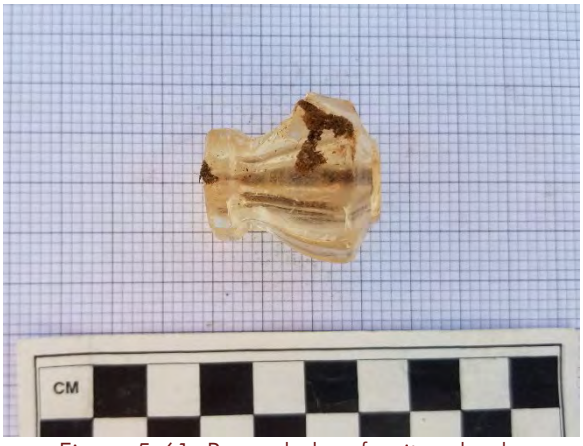

Figure 5-61. Pressed glass furniture knob.

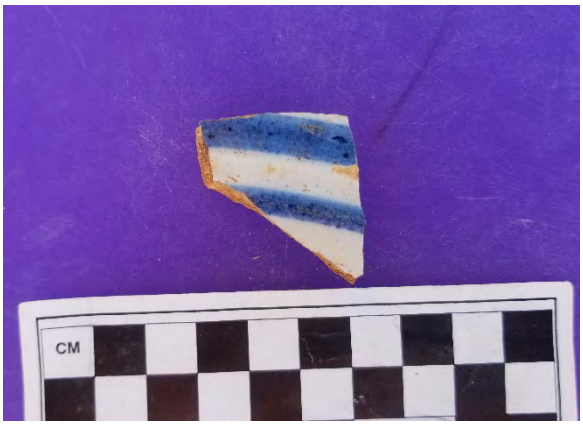

Figure 5-62. Blue annular banding on whiteware vessel.

Other artifacts that were not necessarily diagnostic but are important to note are a metal spoon and knife (Figure 5-63 and 5-64), and a thin metal band with rounded edges, that bore a decorative stamp for the Texas Centennial flanked by the dates 1836-1936. Much of the identified materials have an estimated date range from the 1910s-1950s with a few older pieces.

Figure 5-63. Metal spoon.

Figure 5-64. Metal tableware knife.

Archival Research

Archival research of the property was undertaken. A limited title search was conducted by Lone Star NGL Pipeline LP by the Taylor County Clerk's Office. The property is located on Highway 204 in Taylor County and was originally part of the Lunatic Asylum Lands. The current parcel (Property ID 109134) is part of Abstract 1258 and contains 48.283 acres in SE quarter of Section 26 of the Lunatic Asylum Lands. These lands were assigned by the Legislature on August 30, 1856 as part of an act which set apart and appropriated land for multiple Asylums and allocated 100, 000 acres of land to each institution. These lands were surveyed in Callahan, Comanche, Eastland, Jones, Shackelford, Stephens, Taylor, and Tom Green counties (Gammel 1898). Transactions prior to 1945 were not located by the County Clerk's Office or online (Table 5-20). Historic maps and aerials were reviewed for additional information (Table 5-21). A 1934 atlas of Taylor County identifies the southeast quarter of Section 26 of the Lunatic Asylum Lands as assigned to L.J. Gould. According to the General Land Office (GLO) records, Gould purchased 160 acres in the southeast quarter of Section 26 on March 15, 1884 (GLO 2019). A 1940 map identifies the southeast quarter of Section 26 of the Lunatic Asylum Lands as owned by G.A. Chrone. No information regarding either L.J. Gould or G.A. Chrone could be located in a genealogical records search.

Table 5-20. Deed Research Results for 41TA399.

Grantee	Grantor	Grantor Sell Date	Description Type; Deed Volume/Page	Additional Information
Lone Star NGL Pipeline LP	Anton and Kim Melnyk	5/9/2006	Permanent Easement Agreement; 3226/662	
Anton and Kim Melnyk	Tommie and Cecil Allen	5/8/2006	Warranty Deed; 3226/662	
Tommie and Cecil Allen	Donald R. and Carolyn Grubbs	2/23/1994	Warranty Deed; 1993/64, 61	
Tommie Allen and Donald R. Grubbs	Estate of Lucille A. Grubbs, deceased	1/27/1992	Probate – Application for Probate of Will as Muniment of Title; 295/684	Tommie and Donald are siblings – children of Lucille A. Grubbs; each received 50% interest – power of attorney granted on March 6, 1991
	Cecil and Tommie V. Allen	4/20/1976	Affidavit; 1027/949	States that the 2 acres, out of 52-acre tract, SE corner, Sec. 26, Lunatic Asylum Lands, is their homestead
Cecil and Tommie V. Allen	Troy Tony and Lucille Grubbs	6/24/1964	OUTSALE: Warranty Deed; 746/27	Conveys 2 acres out of 52-acre tract out of 120 acres out of SE corner of Sec. 26, Lunatic Asylum Lands
Troy Tony and Lucille Grubbs	Novel and Vida M. Baize	12/12/1962	Warranty Deed with Vendor's Lien; 697/411	Earlier deed is almost identical dated 4/24/1962 (677/223)
State Highway Commission	George D. and Alesa Kiker	5/25/1954	Deed; 485/524	Parcel B: 1.84 acres of which 1.011 acres are present in county road
George D. and Alesa Kiker	C.A. McGaughey et aux	10/15/1945	Deed; 339/289	

A chain of ownership extending back to 1945 was provided by Lone Star NGL Pipeline LP for the property on which site 41TA399 is located (Appendix F). Additional deeds were not found for this property during the search and a search of online records yielded the same result. Historic maps and aerials reveal that no houses or buildings were located within the boundaries of 41TA399. A search of the Handbook of Texas Online for the names of past landowners reveals that no persons of historical significance are associated with this site. Additionally, no historically significant events are known to have occurred at the location of site 41TA399 or in association with any persons listed on the chain of title.

Table 5-21. Historical maps and aerials for 41TA399.

Type	Date	Notes
GLO Map	1859	Land assigned as Sec 26 of Lunatic Asylum Lands – no individual owner; East Fork of Red Creek runs north-south through western half of section
GLO Map	1879	Sec 26 of Lunatic Asylum Lands, unassigned to an individual but shown on map with four quarter file numbers labeled as 2213 (in NW), 2385 (in NE), 2340 (in SE), and 2212 (in SW)
GLO Map	1883	Sec 26 of Lunatic Asylum Lands, unassigned to an individual but shown on map with four quarter file numbers labeled as 2213 (in NW), 2385 (in NE), 2340 (in SE), and 2212 (in SW)
Abilene Quad Topo Map	1890	Cedar Creek to the west and a drainage to the east; no buildings or activities within site
Soil Survey Map	1922	Abilene & Southern Railroad, Cedar Creek, and road in general vicinity of modern FM 126 to the west of site, road in general vicinity of modern FM 1750 to south; no buildings or activities within site
Atlas Map	1934	Section 26 of the Lunatic Asylum Lands assigned to L.J. Gould
Atlas Map	1940	Section 26 of the Lunatic Asylum Lands assigned by G.A. Chrone
Kirby Lake Quad Topo Map	1957	Drainage shown to the west and ponds to the north and south; site appears on edge of drainage field/wetland; current configuration of roads visible, building to southeast of site on the west side of Key Lane; no buildings or activities within site boundaries
Aerial Photo	1967	No buildings or structures; pond visible to the south of the site; surrounding land is visible as undeveloped land with vegetation; land to east is cultivated farmland with dirt roads and plow marks
Atlas Map	1972	No buildings or structures within site; buildings along FM 602 to north, two buildings along west side of FM 106, and two on the south side of Clark Road
Atlas Map	1982	No buildings or structures within site; multiple buildings along FM 602 to north, to east along FM 106, south along Clark Rd, and west along FM 126 and in the El Dorado Addition
Aerial Photo	1994	No buildings or structures; pond visible to the north of the site; surrounding land is visible as undeveloped land with dense vegetation; land to east is cultivated farmland with dirt roads and plow marks
Aerial Photo	2002	No buildings or structures; surrounding land is visible as undeveloped land with dense vegetation; land to east is cultivated farmland with plow marks

The 1967 aerial and 1958 topographic map show a structure located alongside CR 106. That structure appears to have been replaced with a modern structure that occupies the location. It's possible these materials date to the time of the earlier structure but it is impossible to say with certainty.

Site Summary

The resource may extend north of the corridor, but this area was not investigated. However, within the corridor, the resource is characterized by surface artifacts that are certainly displaced and lack of subsurface deposition. The location is severely deflated, and subsoil and numerous gravels and rock is encountered immediately. While producing several artifacts, the resource is not likely to add any additional information to the knowledge of historic occupation of the area beyond what has been recorded and is not recommended for further work. The site does not appear to retain the potential to provide significant research value and is thus recommended not eligible for the National Register, under Evaluation Criterion D.

5.2.3.5 Resource 41CA42

Resource 41CA42 was identified by Gray & Pape on April 4, 2019. The resource consists of a low-density surficial lithic scatter. The resource is located in Permit Area 39 approximately 0.88 kilometers (0.55 miles) west of CR 309, approximately 26 meters (85 feet) west of a wetland associated with Club Hollow Creek, and less than 5 meters (16.4 feet) east of a two-track road (Figure 5-65). The location is on gently sloping terrace that is currently scrub brush pasture and is sparsely covered by grasses and a great deal of rock at the surface, offering good surface visibility (Figure 5-66). The APE at the location measures 40 meters (131 feet) wide, with approximately 30 meters (100 feet) of that width located within an existing pipeline ROW. The resource boundary within the corridor measures 80 meters (262.47 feet) east-west by 30 meters (98.43 feet) north-south. A clear line of redeposited larger rocks was observed at the edge of the ROW within the APE. These consist of the results of back dirt sifting prior to backfilling the previous pipeline trench. The larger rocks are removed during the process, so they don't damage the pipe when the soil is backfilled on top of the pipe. Observed surface artifacts were comprised of approximately ten flakes, three chert cores, and one worked flake (Figure 5-67, Table 5-22). All the material was of local chert (Edwards) of gray to tan color. Flakes were largely of early stage as evidenced by cortex.

Table 5-22. Artifact Assemblage Observed at 41CA42.

Depth	Flakes	Cores	Work Flake
Surface	13	3	1
0-10	-	-	-
10-20	-	-	-
20-30	-	-	-
30-40	-	-	-
40-50	-	-	-

Supplemental Investigation

The site was initially only investigated by surface inspection as no shovel tests were allowed on the property per the landowner's request. Gray & Pape revisited the location on October 3, 2019 after the easement had been purchased for the project. A total of nine supplemental shovel tests were excavated in the location: four within the site and five surrounding. None of the shovel tests contained buried cultural materials.

Soils mapped for the area consist of Lueders-Speck association which consists of a shallow gravelly clay loam derived from residuum from indurated limestone (NRCS 2019). The typical soils profile of the association consists of A and B horizons of gravelly and cobbly clay to a depth of 33 centimeters (13 inches) before encountering fractured layered limestone.

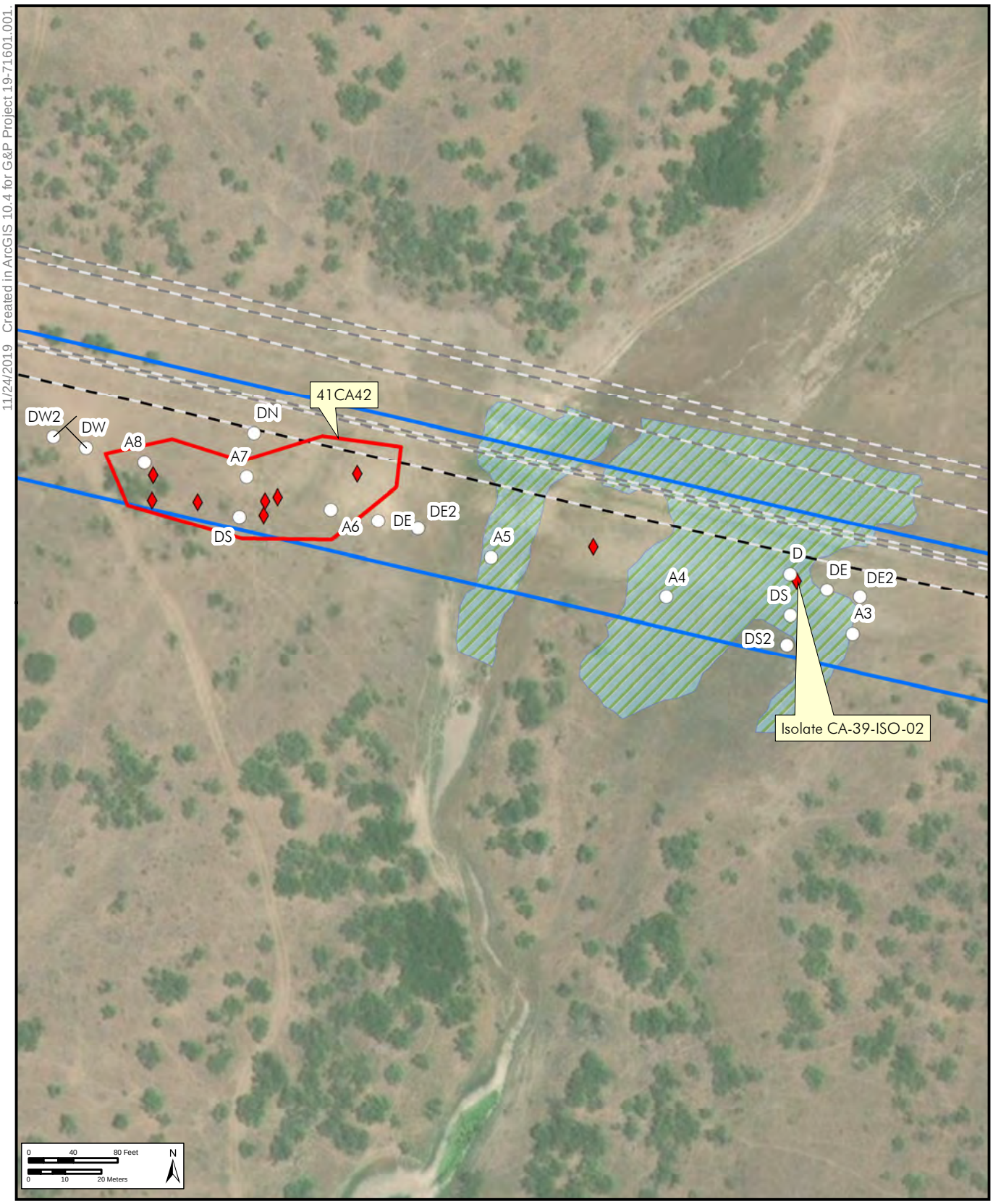

Figure 5-65
Plan view of Resources 41CA42 and CA-39-ISO-02.

GRAY & PAPE HERITAGE MANAGEMENT

- Project Centerline
- Survey Corridor / APE
- New Site Area
- Existing Pipelines
- Field-Delineated Water Feature
- Surface Find
- Positive Shovel Test
- Negative Shovel Test

Figure 5-66. Location of Site 41CA42. View is to the northwest.

Figure 5-67. Representative materials identified on the surface within Resource 41CA42.

Shovel tests conducted at the site exhibited shallow surface layers of reddish brown (5YR 4/3) silt loam to an average depth of 10 centimeters (4 inches) followed by a layer of bedrock. A few tests exhibited a second stratum consisting of dark reddish brown (5YR 3/2 to 3/3) silty clay to a maximum depth of 28 centimeters (11 inches) followed by bedrock.

Agency Revisit

The site was revisited by Gray & Pape and representatives of the USACE on October 29, 2019. During a walk over USACE observed three chert flakes, high surface visibility, and frequent rock exposure at this site. One flake observed during the visit appeared to be a blade, located outside of the site boundary to the east.

Site Summary

A nearby Isolate Find, CA-39-ISO-02, is likely associated with the site (discussed below). This find consists of a biface identified on the surface and is discussed later in the report. A small number of other artifacts were also observed east of the site during the agency visit in late October. However, the majority of the observed materials, although sparse, were identified west of the waterway within the site boundary as currently mapped (Figure 5-65). All of the artifacts are out of context. Of four shovel tests conducted within the site boundary, none were positive for cultural materials. The resource appears to have experienced moderate impacts from the previous pipeline installation. A great deal of bedrock is exposed on the surface and soils are quite shallow. This combined with the lack of subsurface artifacts suggests the resource is not significant. No further work is recommended for the location. The site does not appear to retain the potential to provide significant research value and is thus recommended not eligible for the National Register, under Evaluation Criterion D.

5.2.3.6 Isolate CA-39-ISO-02

Isolated Find CA-39-ISO-02 was identified by Gray & Pape on April 4, 2019. The find consists of a single chert biface of local material (likely Edwards) (Figure 5-68) that was discovered on the ground surface during pedestrian walkover. The find is located approximately 110 meters (361 feet) east-southeast of resource 41CA42, within a low grassy wetland associated with Club Hollow Creek (Figure 5-65). Initially, the location was only subjected pedestrian walkover.

Supplemental Investigation

Supplemental investigation was conducted on October 3, 2019 after the easement had been purchased for the project. This resulted in the excavation of six shovel tests: one at the find and five surrounding the location. Soils mapped for the area consist of Lueders-Speck association which consists of a shallow gravelly

clay loam derived from residuum from indurated limestone (NRCS 2019). The typical soils profile of the association consists of A and B horizons of gravelly and cobbly clay to a depth of 33 centimeters (13 inches) before encountering fractured layered limestone. Shovel tests resulted in a soil profile of an extremely shallow (5 centimeters [1 inch]) layer of reddish brown (5YR 4/3) silty loam followed by bedrock (Appendix C). This appears to verify the lack of soil deposition at the site.

Figure 5-68. Biface identified on the surface representing Isolate CA-39-ISO-02.

Shovel test delineation of the find did not identify cultural material exist at the location. The naturally occurring shallow soils at the location have been eroded further by previous pipeline impacts. The find is not likely to add to the knowledge of prehistoric occupation of the area and is not recommended for further work. The isolate does not retain the potential to provide significant research value and is thus recommended not eligible for the National Register, under Evaluation Criterion D.

5.2.3.7 Resource 41CA43

Resource 41CA43 was identified by Gray & Pape on April 12, 2019. The resource consists of a low-density lithic scatter of unknown prehistoric affiliation. The resource is located in Permit Area 58 approximately 1.24 kilometers (0.77 miles) east-southeast of CR 880, within the existing pipeline corridor on a dissected upland with a gentle slope to the north side of a small intermittent drainage extending from Battle Creek (Figure 5-69). The APE at the location measures 40 meters (131 feet) wide, with approximately 30 meters (100 feet) of that width located within an existing pipeline ROW. The resource boundary within the APE measures approximately 40 meters (131.23 feet) northwest-southeast by 10 meters (32.8 feet) northeast-southwest and occupies a small raised landform and adjacent slope.

Beyond the site boundary, the ground slopes down to the north, south, and west. The west edge of the APE drops off into a wooded area where some cuts caused by erosion have exposed the soil horizons along the edge of the APE. The southern portion of the site has a high degree of slope down to the waterway which has allowed a great deal of limestone to be exposed. The area is covered by short grass, scrub brush, and exposed limestone bedrock which allowed excellent surface visibility (Figure 5-70).

Investigation of the resource consisted of pedestrian walkover and shovel testing. Observed surface artifacts consist of 10 fine-grained chert flakes of local (likely Edwards) material of gray/white color (Figure 5-71, Table 5-23). Most were composed of early stage manufacture as evidenced by cortex. These were found within the existing pipeline ROW. No diagnostic artifacts or more developed tools were identified. A large cobble of what appeared to be quartz was located on the site but was not worked. Attempts at shovel testing the location were hindered by the preponderance of limestone bedrock on the surface. Further, the site scatter is entirely located within the existing pipeline ROW adjacent to previously installed pipelines. However, five shovel tests were excavated surrounding the site: four west of the site boundary along the APE at 30-meter (100-foot) intervals within the APE, and one east of the site at the edge of the APE (Figure 25). None of the tests were positive for cultural materials.

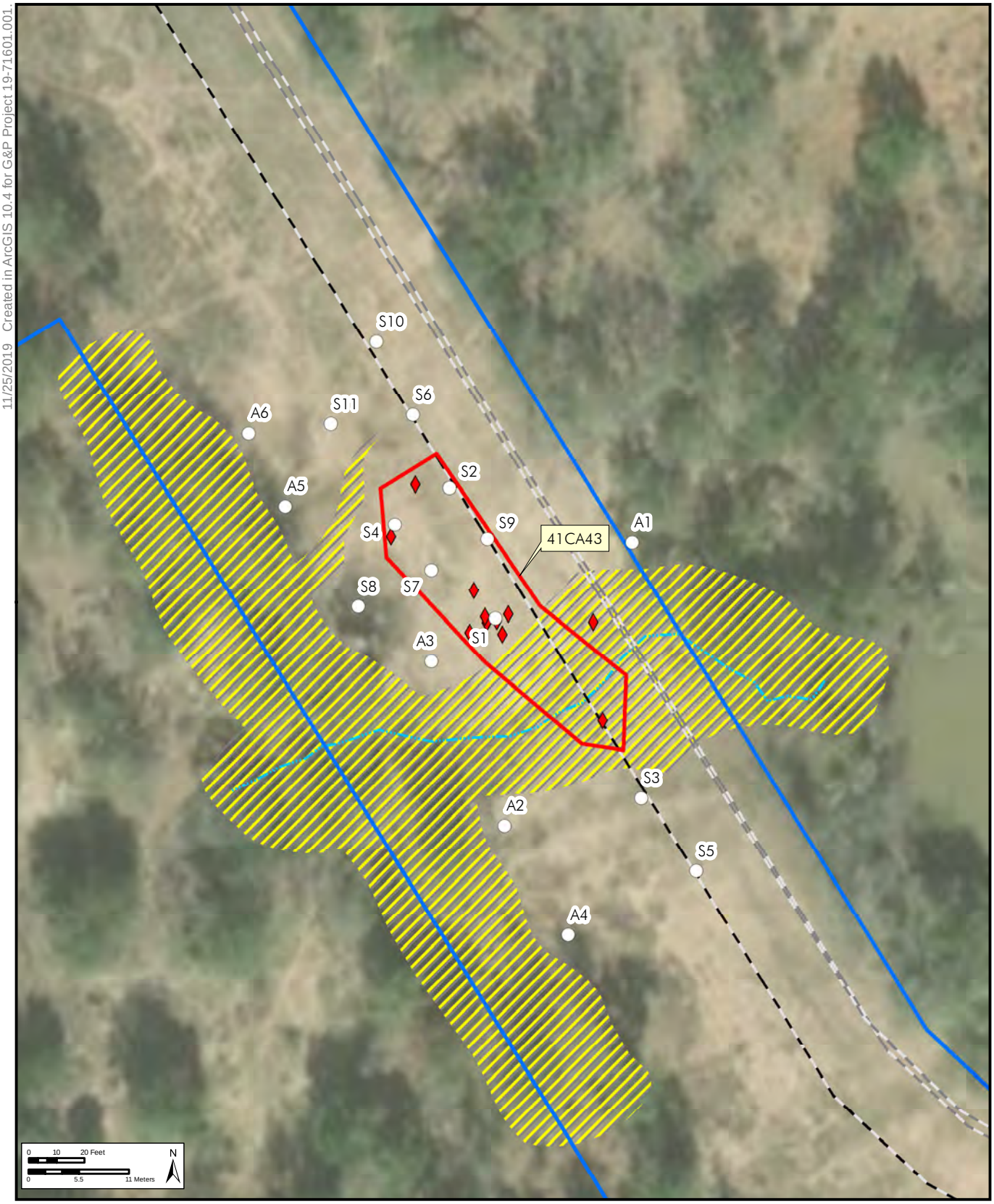

Figure 5-69
Plan view of Resource 41CA43.

GRAY & PAPE
HERITAGE MANAGEMENT

- Project Centerline
- Survey Corridor / APE
- New Site Area
- Existing Pipelines
- Field Delineated Waterway
- Surface Find
- Positive Shovel Test
- Negative Shovel Test
- Slope/Drop Off

Figure 5-70. Overview of site 41CA43 location. View is to the southeast.

Figure 5-71. Representative materials identified on the surface within Resource 41CA43.

Table 5-23. Artifact Assemblage Observed at 41CA43.

Depth	Flakes
Surface	10
0-10	-
10-20	-
20-30	-
30-40	-
40-50	-

Agency Revisit

The site was revisited by Gray & Pape and representatives of the USACE on October 29, 2019. During a walk over USACE observed approximately 12 flakes, all similar white chert, across the surface of 41CA43. Eight flakes of the same raw material were in a very small (less than 25-centimeter [10-inch]) concentration within the known boundary of 41CA43, and inside the maintained ROW of an existing pipeline. While this at first appeared to be a discreet lithic reduction feature, it was later determined to be the location where artifacts from the previous investigation in April 2019 had been gathered for photographs and discarded. This was confirmed through a comparison with the artifact photos (Figure 5-71) and discussion with crew personnel of the previous investigation. However, due to the limited size of the landform the artifacts were originally found close-by in the general vicinity, thus the location was shovel tested during supplemental investigation of the site as discussed further below.

USACE observed a sandy matrix across the entire surface of 41CA43 with no bedrock exposure accept inside small erosional/stream features where the stream bed contained sandstone bedrock (these features appear outside the 41CA43 boundary). It was the opinion of the USACE representative that inside the 41CA43 boundary the sandy matrix is supported to have a depth of at least 25 to 50 centimeters (10 to 20 inches) based on soil profiles USACE observed along the edge of the maintained pipeline ROW. A classic sandy matrix with soil horizons A-E-Bt in the soil profile was visible at various profile exposures just outside of the 41CA43 site boundary.

Supplemental Survey

Gray & Pape revisited the site location on November 5, 2019 to perform additional delineation of Site 41CA43. An additional 11 shovel tests were excavated across the location: five within the site boundary and six surrounding it. One shovel test (S1) was placed at the location of what appeared to be a small lithic reduction workspace as identified during the agency revisit in October.

Soils mapped for the location consist of Cisco-Hext-Pedernales association which typically contain a shallow (10-centimeter [4-inch]) surface layer of brown (7.5YR 5/4) loamy fine sand before successive layers of yellowish red (5YR 4/6) sandy clay loam subsoil (NRCS 2019). Overall, tests located within the site boundary and along the centerline typically contained a very shallow (10 to 15-centimeter [4 to 6-inch]) layer of pink (7.5YR 7/4) compact sandy loam before encountering multicolored compact clay subsoil / consolidated sandstone. This likely represents the BCk - Cr horizons of the Hext soil series, which is mapped for the location. This result and the presence of limestone at the surface suggests the location has been highly eroded. Pipeline personnel who accompanied the agency and supplemental site visit stated that the location had been previously graded and truncated, resulting in an artificially leveled landform (Patrick Hill personal communication October 29, 2019).

As observed by the USACE representative, shovel tests placed along the western edge of the APE above the drop-off into the wooded area contained a slightly thicker (25 centimeters [10 inches]), or more natural sandy upper stratum (Appendix C). This is likely the closest the location comes to what used to be the natural soil profile. However, shovel tests all along the western edge of the APE produced no cultural materials.

Site Summary

The resource is characterized by a sparsity of surface artifacts and lack of diagnostic artifacts. Shovel testing within the site boundary and along the centerline of the location produced a lack of soil deposition. This seems to confirm the statement made by pipeline personnel that the area had been truncated. Of a total of five shovel tests conducted within the site boundary, none were positive for cultural materials. This suggests that the resource within the ROW is not significant. No further work is recommended for the location. The site portion located within the APE does not retain the potential to provide significant research value and is thus recommended not eligible for the National Register, under Evaluation Criterion D.

5.2.4 Newly Identified Isolates within Jurisdictional Areas

5.2.4.1 Two new isolates were identified as a result of survey within jurisdictional permit areas in Loop 2. One isolate, CA-039-ISO-02 was discussed above (pg. 69) along with Resource 41CA42. The other is Isolate TA-50-ISO-01.

5.2.4.2 Isolate TA-50-ISO-01

Resource TA-50-ISO-01 was identified by Horizon on April 11, 2019. The resource consists of two flakes (one utilized) identified at the surface and within a shovel test at a depth between 0 and 10 centimeters (0 and 4 inches) (Figure 5-72). The resource is located 500 meters (0.31 miles) southeast of Resource 41TA398 within an area of mesquite brush that lines a small meander surrounded by agricultural fields. The APE at the location measures between 40 and 55 meters (131 and 180 feet) wide. Approximately 30 meters (100 feet) of that width is within an existing pipeline corridor (Figure 5-43). Investigation of the resource consisted of pedestrian walkover and three delineation shovel tests placed around the lone positive test at between 10 and 20-meter (33 and 66-foot) intervals within the APE (Figure 5-73).

Figure 5-72. Materials representative of Isolate TA-50-ISO-01.

Figure 5-73
Plan view of Isolate TA-50-ISO-01.

Project Centerline
Survey Corridor / APE
Existing Pipelines
Surface Find
Positive Shovel Test
Negative Shovel Test

GRAY & PAPE
HERITAGE MANAGEMENT

Soils mapped for the location consist of the Colorado series which typically contain an A horizon of light reddish brown (5YR 6/3) silt loam (NRCS 2019). The shovel test profile of the lone positive test consists of a surface layer of dark reddish brown (5YR 3/2) clay loam followed by yellowish red (5YR 4/6) silty clay loam subsoil with stream gravel inclusions. This suggests the soils at the surface are composed of the C horizon of the Colorado series. None of the excavated tests were positive for cultural materials. No additional cultural materials were identified on the surface near the find.

The shallow depth of the find is likely the result of previous pipeline or agricultural impacts or natural taphonomic processes such as cattle trampling. The isolate is not recommended for further work. The isolate does not retain the potential to provide significant research value and is thus recommended not eligible for the National Register, under Evaluation Criterion D.

5.2.5 Revisit Results of Identified Previously Recorded Non-Jurisdictional Resources

In addition to revisits of previously recorded resources located in permit areas, one previously recorded resource, Site 41TA371, is located within 91 meters (300 feet) of the APE along non-jurisdictional uplands.

5.2.5.1 Resource 41TA371

Resource 41TA371 was originally recorded by Burns and McDonnell Engineering in 2018. The resource was described as an 80- by 50-meter (262- by 164-foot) historic scatter located in a plowed agricultural field. Material noted at the time included brick, glass, miscellaneous metal, and a spark plug. Material was limited to the ground surface and no diagnostic material or cultural features were identified. The site was recommended as not eligible for listing on the NRHP (Darnell et al. 2018).

Resource 41TA371 was revisited by Horizon on April 12, 2019. The location is in a level agricultural field (Figure 5-74) approximately 20 meters (787 feet) west of Permit Area 18. The APE at the location measures 40 meters (131 feet) wide, of which nearly all is within the existing pipeline ROW (Figure 5-75). The area has been impacted by plowing and existing pipelines. Investigation of the resource consisted of pedestrian walkover and the excavation of three shovel tests within the APE south of the previously recorded site boundary. One piece of glass and one chert scraper were observed on the ground surface within the APE. All shovel tests were negative for cultural resources.

Figure 5-74. Overview of 41TA371. View is to the east.

Soils mapped for the location consist of Clairemont silty clay loam which generally contain a surface layer of reddish brown (5YR 5/4) silt loam (NRCS 2019). A typical shovel profile within the resource/APE consisted of a surface layer of yellowish red (5YR 5/8) silty sand to a depth of 10 centimeters (4 inches). This was underlain by yellowish red (5YR 4/6) dense sandy clay to 25 centimeters (10 inches), followed by a loose yellowish red (5YR 4/6) sandy clay to a depth of 70 centimeters (27 inches) below the surface. This soil profile suggests the soils at the location have been displaced or truncated.

As a result of the two surface finds, the boundaries of site 41TA371 were initially expanded extended south to include an area of 90 by 50 meters (295 by 164 feet) within the

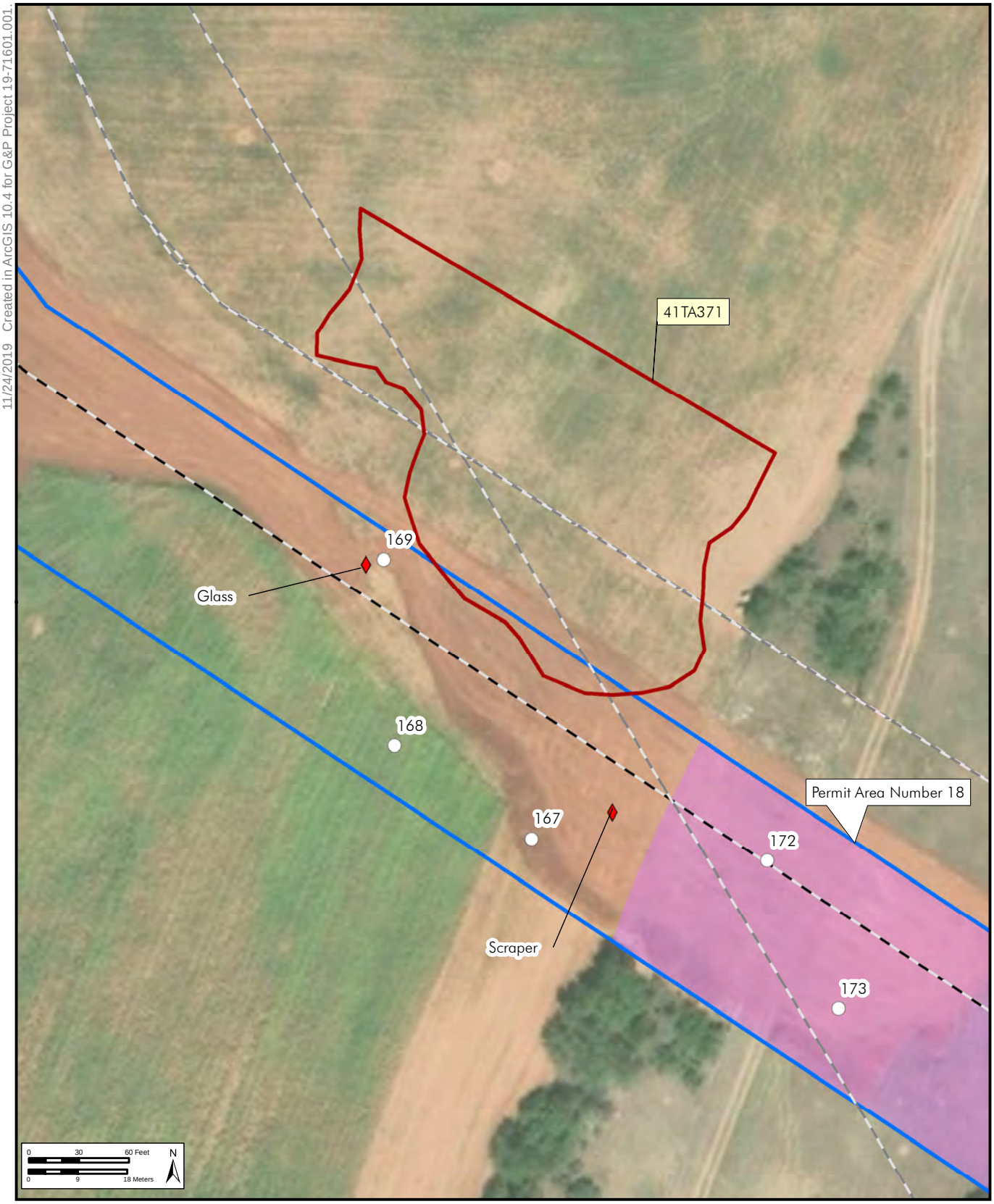

Figure 5-75
Plan view of Resource 41TA371.

GRAY & PAPE
HERITAGE MANAGEMENT

- Project Centerline
- Survey Corridor / APE
- Previously Recorded Site Area
- Existing Pipelines
- Permit Area
- Surface Find
- Positive Shovel Test
- Negative Shovel Test

current ROW. However, upon review of the data provided by Horizon, sparsity of material identified, and the redeposited context of the artifacts, Gray & Pape does not recommend the site boundary be expanded to include these artifacts. The lack of additional materials and the deflated/truncated soils of the location suggest the find is not significant. No further work is recommended for the location.

5.2.6 Deep Test Results

Fieldwork at Mulberry Creek was conducted on August 6, 2019. The permit area (Number 6) at Mulberry Creek is located approximately 4.27 kilometers (2.65 miles) south-southeast of Merkel, Texas, and subsumes approximately 18.47 acres (7.47 hectares) (Figure 5-50). Soils mapped in this area consist of Gageby clay loam (Ga), Colorado soils (Cr), Knoco-Badland complex (ObE), and Tillman clay loam (TmB) (NRCS 2019).

Gageby soils are very deep, well drained, moderately permeable mollisols that formed in calcareous, loamy alluvium. A typical soil profile consists of five strata (Ap-A-Bwl-Bw2-BCk) that extend to 203 centimeters (80 inches) below the surface. The profile includes a surface layer (A horizon) of brown (7.5YR 4/2) clay loam to a depth of 18 centimeters (7 inches). That is followed by a subsurface (A2 horizon) of brown (7.5YR 4/2) sandy clay loam to a depth of 61 centimeters (24 inches). Below that is successive B horizons of yellowish red (5YR 5/6) sandy clay loam to a depth of 203 centimeters (80 inches) (NRCS 2019).

The Colorado series is comprised of very deep, well drained, moderately permeable entisols that formed in calcareous loamy alluvium. These nearly level soils can be found on flood plains. A typical soil profile consists of three strata (A-C1-C2) to a depth of 152 centimeters (60 inches). A typical profile includes a surface layer (A horizon) of light reddish brown (5YR 6/3) silt loam to a depth of 13 centimeters (5 inches). That is followed by successive C horizon layers of light reddish brown (5YR 6/3) loam to a depth of 152 centimeters (60 inches) (NRCS 2019).

The Knoco series consists of very shallow to shallow, well drained, very slowly permeable entisols that formed in residuum weathered from claystone over Permian-aged noncemented claystone bedrock. These soils are located on interfluves, side slopes and erosional footslopes on dissected plains. A typical soil profile consists of five strata (A1-A2-C-Cd1-Cd2) to a depth of 152 centimeters (60 inches). The profile includes a surface layer (A horizon) of red (2.5YR 4/6) clay to a depth of 13 centimeters (5 inches). That is followed by a subsurface (A2 horizon) layer of reddish brown (2.5YR 5/4) clay to a depth of 23 centimeters (9 inches). Below that is successive subsoil (C horizon) layers of reddish brown (2.5YR 4/4 to 5/4) of dense clay and noncemented claystone to a depth of 152 centimeters (60 inches) (NRCS 2019).

The Tillman series consists of very deep, well drained, slowly permeable mollisols. These soils formed in loamy and clayey alluvium derived from redbed clays and claystone sediments of Permian age. Tillman soils can be found on nearly level to gently sloping alluvial plains and alluvial plain remnants of the Central Rolling Red Plains and Rolling Limestone Prairie. A typical soil profile consists of nine strata (A1-A2-Bt1-Bt2-Btk1-Btk2-Btk3-2BCk-2Cr) to a depth of 216 centimeters (85 inches). The profile includes a surface (A horizon) layer of brown (7.5YR 5/3) loam to a depth of 8 centimeters (3 inches). That is followed by a subsurface (A2 horizon) layer of brown (7.5YR 4/3) clay loam to a depth of 18 centimeters (7 inches). Below that are successive subsoil (B horizon) layers of reddish brown (5YR 4/3 to 4/4) clay to a depth of 203 centimeters (80 inches). The following layer consists of red (2.5YR 4/8) clay loam to a depth of 216 centimeters (85 inches) (NRCS 2019).

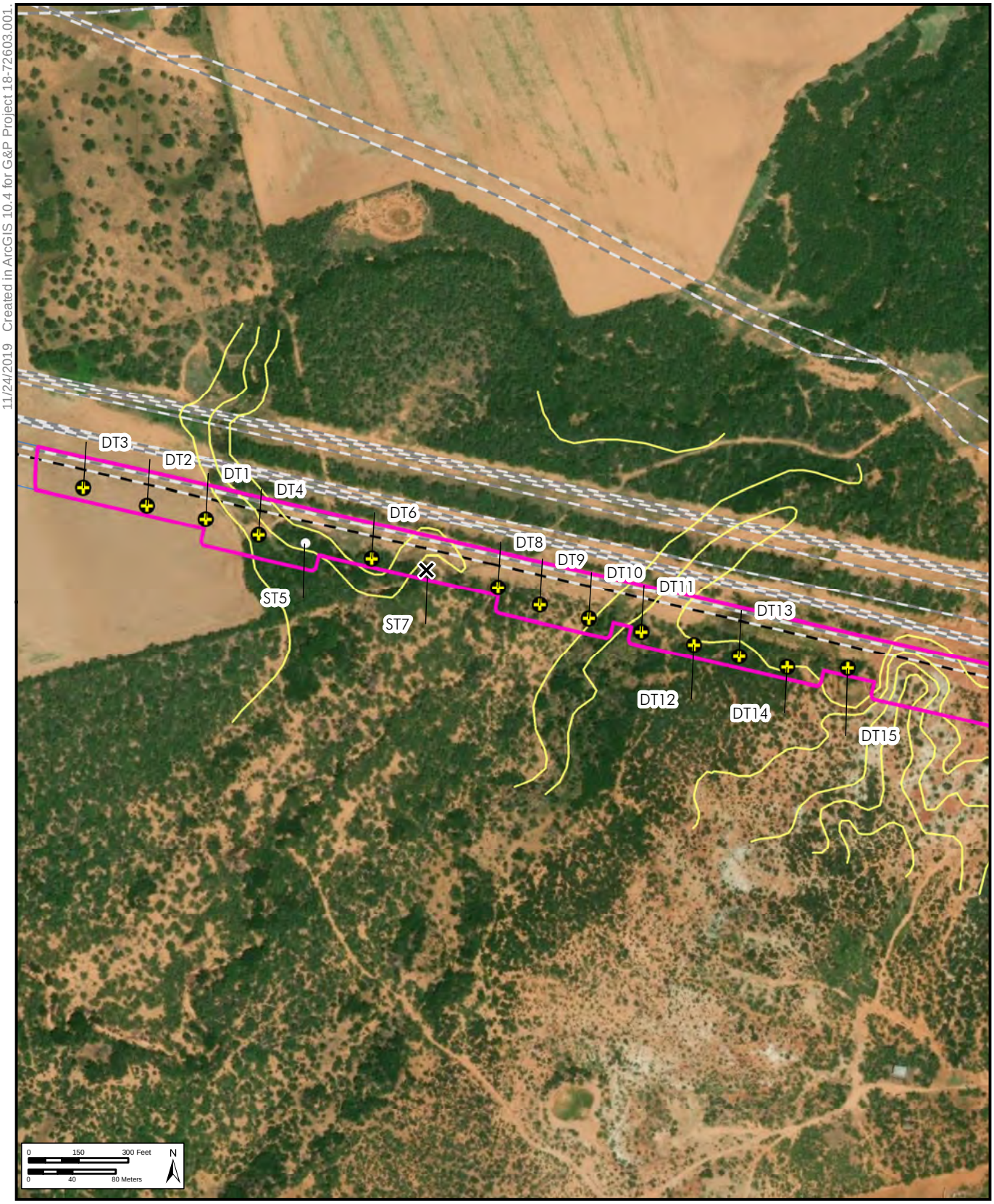

Figure 5-76
Deep test locations within Permit Area 6 at Mulberry Creek.

GRAY & PAPE
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- Project Centerline
- Survey Corridor / APE
- Existing Pipelines
- Field-Delineated Water Feature
- Topographic Contours
- Auger Test
- Negative Shovel Test
- Unexcavated - Could Not Be Accessed

At least three shovel tests at the location (B1, B3, and B4) contained soils that continued beyond the depth of the shovel tests (1 meter [39 inches]) and could represent A horizon material (Appendix C). The location was thus recommended for deep testing by the Field Archaeologist. This recommendation in tandem with the geomorphological data mapped for the location resulted in the area being deep tested. Field investigations consisted of deep testing by means of mechanical augur attached to a Bobcat (Figure 5-76). Each test measured 38.1 centimeters (15 inches) in diameter. A total of 15 auger tests were attempted (Figure 5-77). Two tests were not able to be conducted for reasons described below.

The proposed location of Deep Test (DT) 5 could not be entered due to the thickness of the mesquite. A shovel test was conducted at the location instead. The proposed location of DT7 was not able to be excavated due to the location being essentially cut off from the rest of the ROW by the winding of Mulberry Creek. There was no means to access the location without traveling outside of the APE, which was not permitted by the landowner.

Figure 5-77. Deep testing in progress within the Permit Area 6 at Mulberry Creek. View is to the northwest.

Although tests differed slightly while moving across the permit area, a typical deep test profile (Table 5-25) within the permit area consists of a surface layer of yellowish red (5YR 4/6 or 5/6) silty clay loam to an average depth of 50 centimeters (19.7 inches) followed by yellowish red (5YR 5/6) silty clay or silty clay loam extending to an average depth of 135 centimeters (53 inches) (Figure 5-52). In the nine tests where bedrock or the water table were not encountered, a third stratum was observed which consisted of red (2.5YR 5/6) silty clay to the base of excavation at 180 centimeters (71 inches) below surface.

Figure 5-78. Representative soil profile as observed in DT10 at Mulberry Creek.

The soils exhibited don't appear to overly represent any one soil series, but the presence of yellowish red silty clay likely represents subsoils of the Gageby soil series. This would indicate that an established A horizon is lacking at the location. None of the deep tests were positive for cultural materials, features, or paleosols.

While one planned deep test was substituted with a shovel test, the soils observed in the test appeared similar to those of nearby deep tests. This similarity suggests there was no potential for deeply buried cultural materials or paleosols to be missed by a shallower excavation. One planned test location was not accessible during the deep testing, however, based on adjacent tests DT6 and DT8, it is likely that the location would harbor the same yellowish red subsoils as encountered in those tests. Based on these results, there is no evidence for deeply buried resources within the anticipated impact depth at the Mulberry Creek permit location.

Table 5-24. Deep Test Profiles from the Mulberry Creek Project Area.

Number	Creek	Survey Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat II Depth	Strat II Munsell	Strat II Texture	Strat III Depth	Strat III Munsell	Strat III Texture	Strat IV Depth	Strat IV Munsell	Strat IV Texture	Comment
DT1	Mulberry	Negative	20	7.5YR 4/3	SiLo	180	7.5YR 4/6	SiClLo	-	-	-	-	-	-	-
DT2	Mulberry	Negative	20	7.5YR 4/3	SiLo	70	5YR 4/6	SiClLo	180	5YR 5/6	SiCl	-	-	-	-
DT3	Mulberry	Negative	80	5YR 4/6	SiClLo	180	5YR 5/6	SiCl	-	-	-	-	-	-	-
DT4	Mulberry	Negative	35	5YR 6/6	SiClLo	165	5YR 5/6	SiCl	180	2.5YR 5/6	SaCl	-	-	-	-
Shovel Test 5	Mulberry	Negative	40	5YR 5/6	SiClLo	65	2.5YR 4/6	SiClLo	-	-	-	-	-	-	*Mechanical auger could not reach location; shovel tested instead
DT6	Mulberry	Negative	60	5YR 5/6	SiClLo	180	5YR 5/6	SiCl	-	-	-	-	-	-	-
DT7	Mulberry	Unexcavated	-	-	-	-	-	-	-	-	-	-	-	-	Unable to access location
DT8	Mulberry	Negative	45	5YR 5/4	SiClLo	110	5YR 5/6	SiCl	180	5YR 4/6	SiCl	-	-	-	-
DT9	Mulberry	Negative	50	5YR 5/6	SiClLo	110	5YR 5/6	SiCl	180	2.5YR 5/6	SiCl	-	-	-	-
DT10	Mulberry	Negative	35	5YR 5/4	SiClLo	120	5YR 5/6	SiCl	180	2.5YR 5/6	SiCl	-	-	-	-
DT11	Mulberry	Negative	45	2.5YR 4/6	SiClLo	115	5YR 5/6	SiClLo	180	2.5YR 4/6	SiCl	-	-	-	Chert gravels in Strat III
DT12	Mulberry	Negative	140	2.5YR 4/6	SiClLo	160	2.5YR 4/6	SaClLo	-	-	-	-	-	-	Water table at 140 cmbs
DT13	Mulberry	Negative	45	5YR 4/6	SiClLo	140	2.5YR 4/6	SiCl	160	2.5YR 5/6	SaClLo	-	-	-	Terminated at 160 due to water saturation
DT14	Mulberry	Negative	45	5YR 4/6	SiClLo	100	2.5YR 4/6	SiCl	120	2.5YR 4/6	Sa	180	5YR 4/6	SaCl	Slate gravels and cobbles
DT15	Mulberry	Negative	60	5YR 5/6	SiClLo	140	5YR 4/6	SiCl	180	5YR 4/6	Sa	-	-	-	Moderately saturated with water in Strat III

6.0 CONCLUSIONS AND RECOMMENDATION

This report details the results of pedestrian cultural resource survey of permit areas within 117.85 kilometers (73.23 miles) of the Lone Star Express II Pipeline Project - Loop 2 in Nolan, Taylor, Callahan, and Eastland Counties, Texas. The lead agency for the project is the USACE, Fort Worth District. Nearly all of the Project will be installed by open trench.

A records and literature review initiated prior to survey identified four previously recorded archaeological sites potentially intersecting USACE permit areas within Loop 2. Fieldwork on Loop 2 was conducted in the Spring of 2019 and required approximately 2,320-person hours to complete. Survey involved archaeological reconnaissance and shovel testing throughout anticipated permit areas within the Project corridor.

Fieldwork was conducted by crews affiliated with both Gray & Pape and Horizon. Fieldwork began in April and continued to May 2019. Supplemental field efforts took place in August, October, and November 2019. Intensive pedestrian survey was undertaken within 65 permit areas encapsulating a total of 29 kilometers (18 miles) of centerline and 125.9 hectares (311 acres) of APE. A total of approximately 677 shovel tests were excavated, of which six were positive for cultural material within the APE. An additional 22 shovel tests were conducted as part of resource delineation efforts. Five previously recorded resources: 41NL318, 41TA353, 41TA354, 41TA314, and 41CA27 were re-identified as a result of survey. In addition, six new previously unrecorded resources: 41TA396, 41TA397, 41TA398, 41TA399, 41CA42, 41CA43, and two isolate finds were also identified. Materials were identified adjacent to one additional previously identified resource, 41TA371, which is located outside of Permit Areas. However, these consisted of only two artifacts found on the surface in a disturbed context. Thus, the site was not expanded into current APE.

None of the identified resources are recommended as eligible for listing on the NRHP or as a SAL (Table 6-1). Four resources are of a historic age or contain a historic component: 41NL318, 41TA396, 41TA397, and 41TA399. Sites 41TA396, 41TA397, and 41TA399 consist of 1910s to 1950s historic scatters representative of trash dumps. Site 41NL318 contains the remnants of a private road/drive consisting of a raised berm and wooden bridge likely dating to the 1930s to 1950s based on available maps. The remainder of the resources are prehistoric.

Prehistoric site contents consist nearly entirely of surface scatters of artifacts, with artifact classes largely the same across each site, consisting mainly of debitage, with varying numbers of cores and bifaces. On very few occasions, a preform or more refined tool were observed. In general, the resources appear to represent raw material procurement areas due the abundant chert deposits available in the rocky soil or eroding out of nearby waterways. Activities are believed to have been largely limited to the procurement and testing of cobbles and the expedient manufacture of bifaces. While secondary and tertiary flakes were noted at a few locations, it appears that for the most part more refined tool manufacture was taking place elsewhere.

The prehistoric scatters contained few temporally diagnostic artifacts. Resources 41NL318, 41TA353/354, 41TA396, and 41TA314 contained the only diagnostic prehistoric artifacts identified during survey. Site 41TA353/354 contained Elam and Carrollton type projectile points and Site 41NL318 contained a Clear Fork Uniface, all of which can date to the middle to transitional Archaic. Sites 41TA396 and 41TA314 each contained a likely Marshall dart point which dates to the Late Middle Archaic.

Table 6-1. Summary of Resources Identified within Permit Areas of the APE.

Trinomial	Site Type	Temporal Affiliation	Research Value	NRHP Recommendation
41NL318	Prehistoric Lithic Scatter / Quarry / Historic Drive or Road	Unspecified Prehistoric	Low	Not eligible
41TA353/41TA354	Prehistoric Open Camp	Unspecified Prehistoric	Low	Not eligible
41TA314	Prehistoric Open Camp	Late to Transitional Archaic	Low	Not eligible
41TA396	Prehistoric Lithic Scatter / Historic Scatter	Late Middle Archaic / Mid-20th Century	Low	Not eligible
41TA397	Historic Scatter	Mid-20th Century	Low	Not eligible
41TA398	Prehistoric Lithic Scatter	Unspecified Prehistoric	Low	Not eligible
41TA399	Historic Trash Dump	1930s-1950s	Low	Not eligible
41CA27	Prehistoric Open Camp	Unspecified Prehistoric	Low	Not eligible
41CA42	Prehistoric Lithic Scatter	Unspecified Prehistoric	Low	Not eligible
41CA43	Prehistoric Lithic Scatter	Unspecified Prehistoric	Low	Not eligible

Table 6-2. Summary of resources Identified Outside of Permit Areas of the APE.

Trinomial	Site Type	Cultural Affiliation	Current Recommendations
41TA371	Historic scatter and prehistoric isolate	Early to Mid-20th century, Unknown Prehistoric	Ineligible

No artifacts were collected. No cultural features or historic-age standing resources were encountered within the APE. The resource areas within the pipeline corridor showed clear signs of disturbance from the adjacent pipeline ROW or past agricultural practices. Indications of soil deflation, erosion, and land modifications such as terracing, agriculture, and pond manufacture were also observed. Together, these characteristics illustrate the fact that the observed materials are displaced and thereby limit the information that could be gained from any further formal study of these resources.

One location, Mulberry Creek in Permit Area 6, was investigated by mechanical auguring to determine if the location contained soils with A horizons deeper than can be reached by shovel. However, deep testing within the APE at the location displayed a surface and subsurface that likely represent the B and C horizons of the Gageby series and produced no evidence for the potential of deeply buried resources or buried paleosols within the anticipated depth of impact at the location.

Based on the overall lack of soil deposition, few diagnostics, and lack of integrity, it is the opinion of Gray & Pape that no portion of any of the recorded resources within the proposed Loop 2 ROW retain the potential to provide significant research value and are thus recommended not eligible for the National Register, under Evaluation Criterion D or for State Antiquities Landmark status. Gray & Pape recommends no additional archaeological work for these resources or surveyed permit areas of the Loop 2 project.

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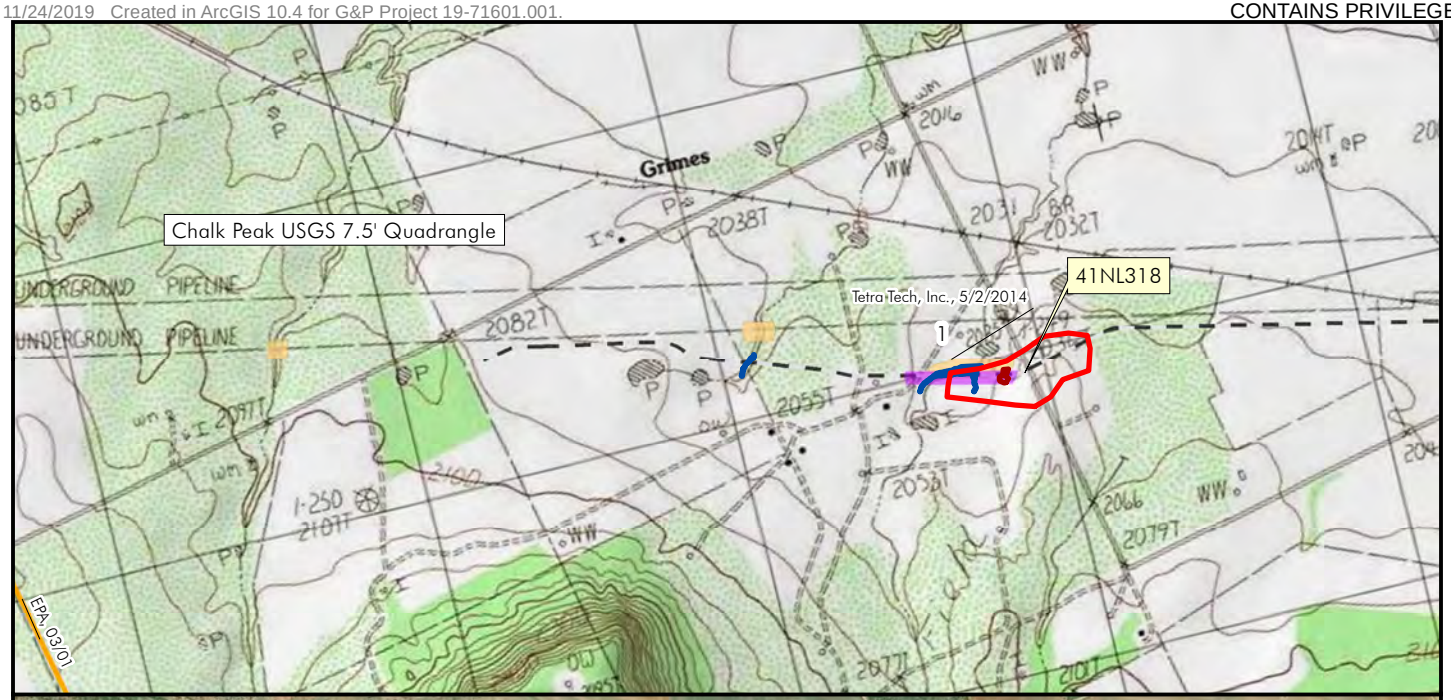
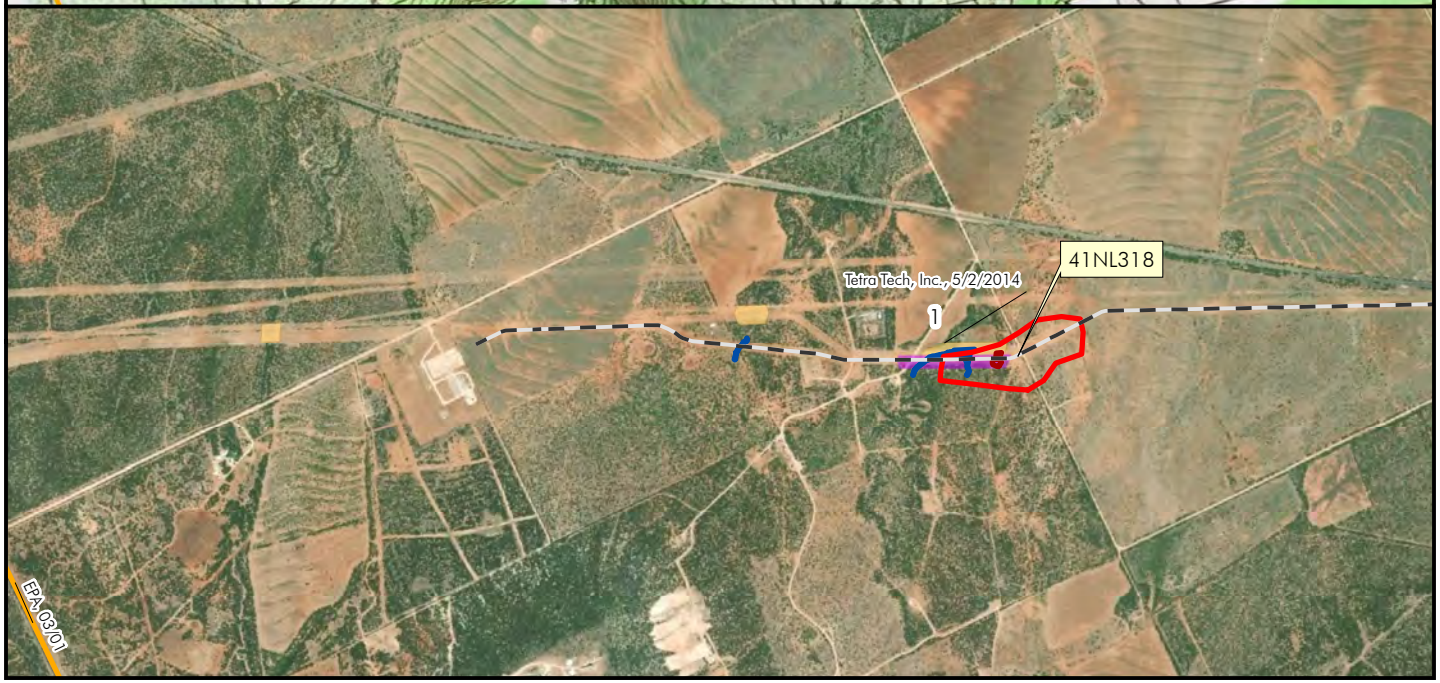
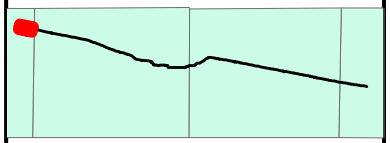
APPENDIX A: PERMIT AREAS WITHIN THE LOOP 2 PROJECT ALIGNMENT







Legend

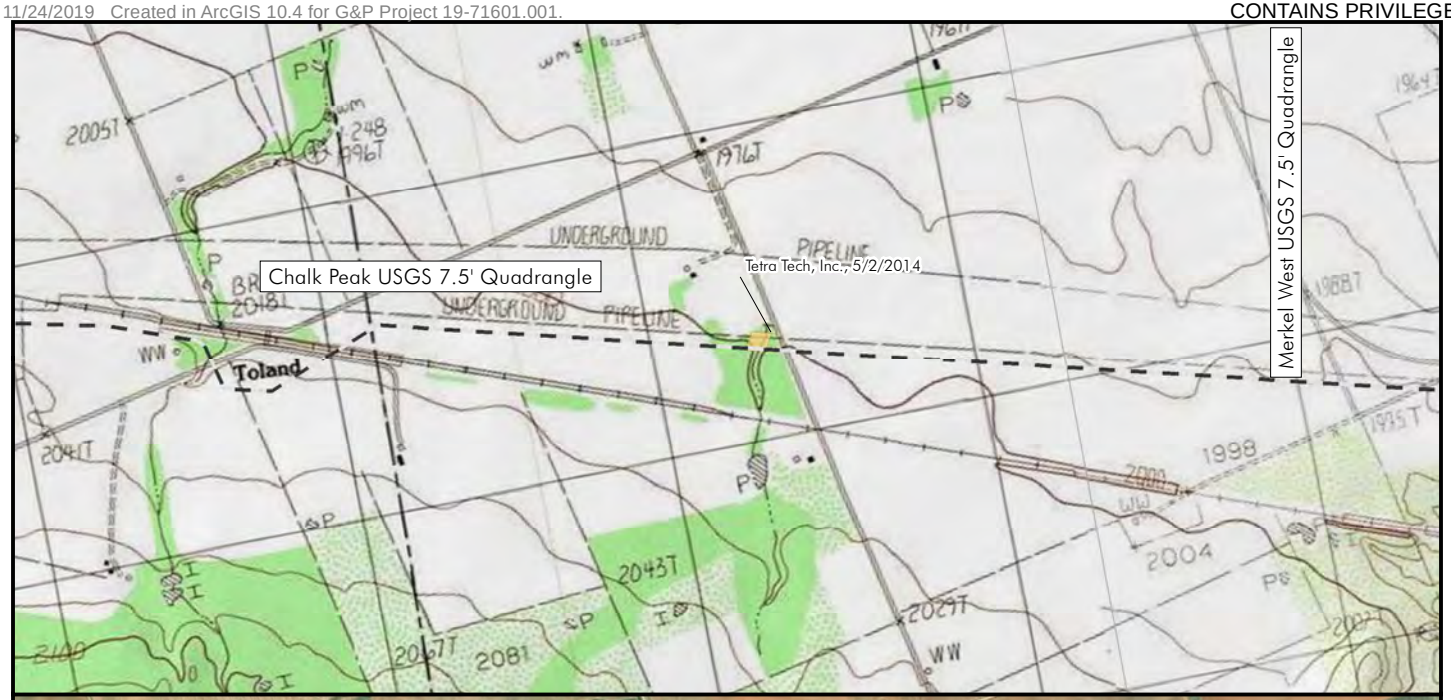
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

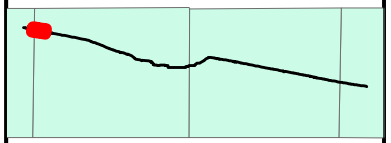
0 725 1,450 Feet
0 225 450 Meters
N

Permit areas within the Loop 2 project alignment.

Figure A1

GRAY & PAPE HERITAGE MANAGEMENT





Legend

- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
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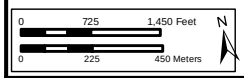
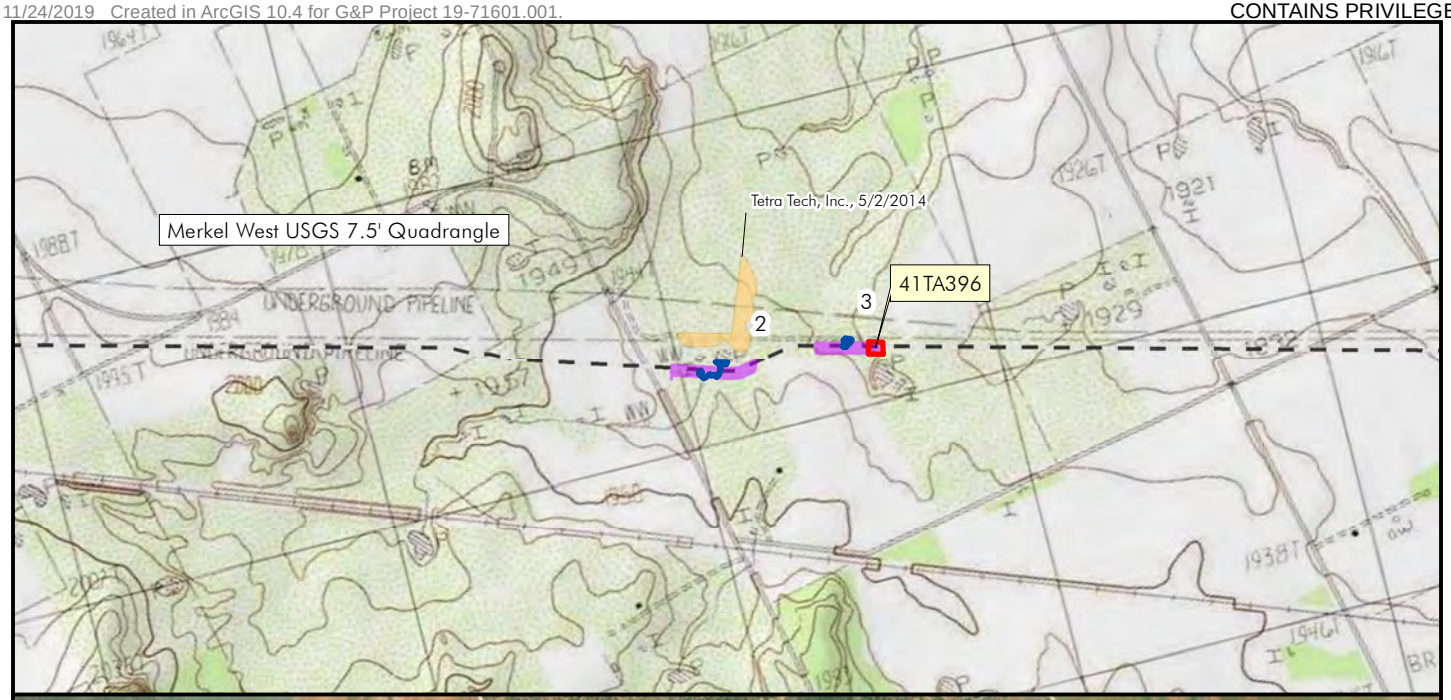
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

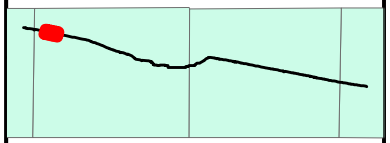


Permit areas within the Loop 2 project alignment.

Figure A2

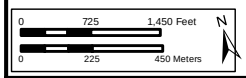
GRAY & PAPE HERITAGE MANAGEMENT





Legend

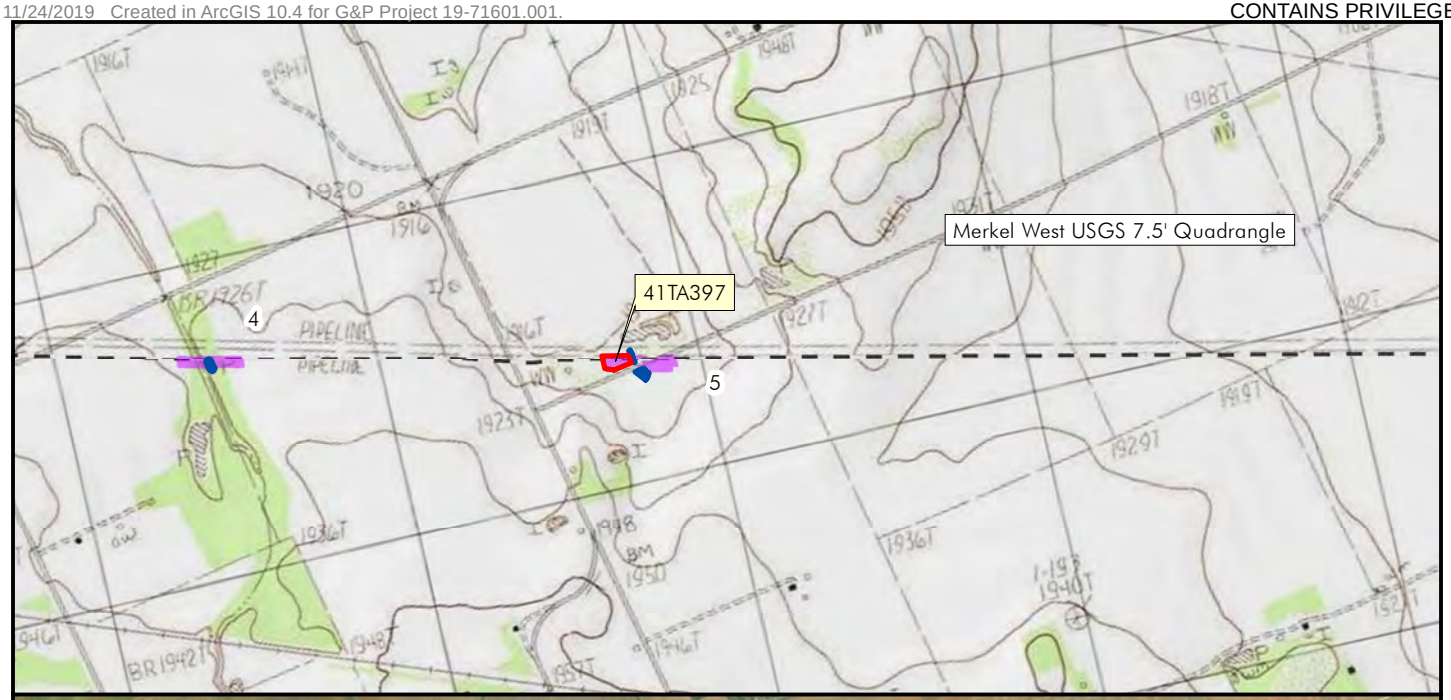
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

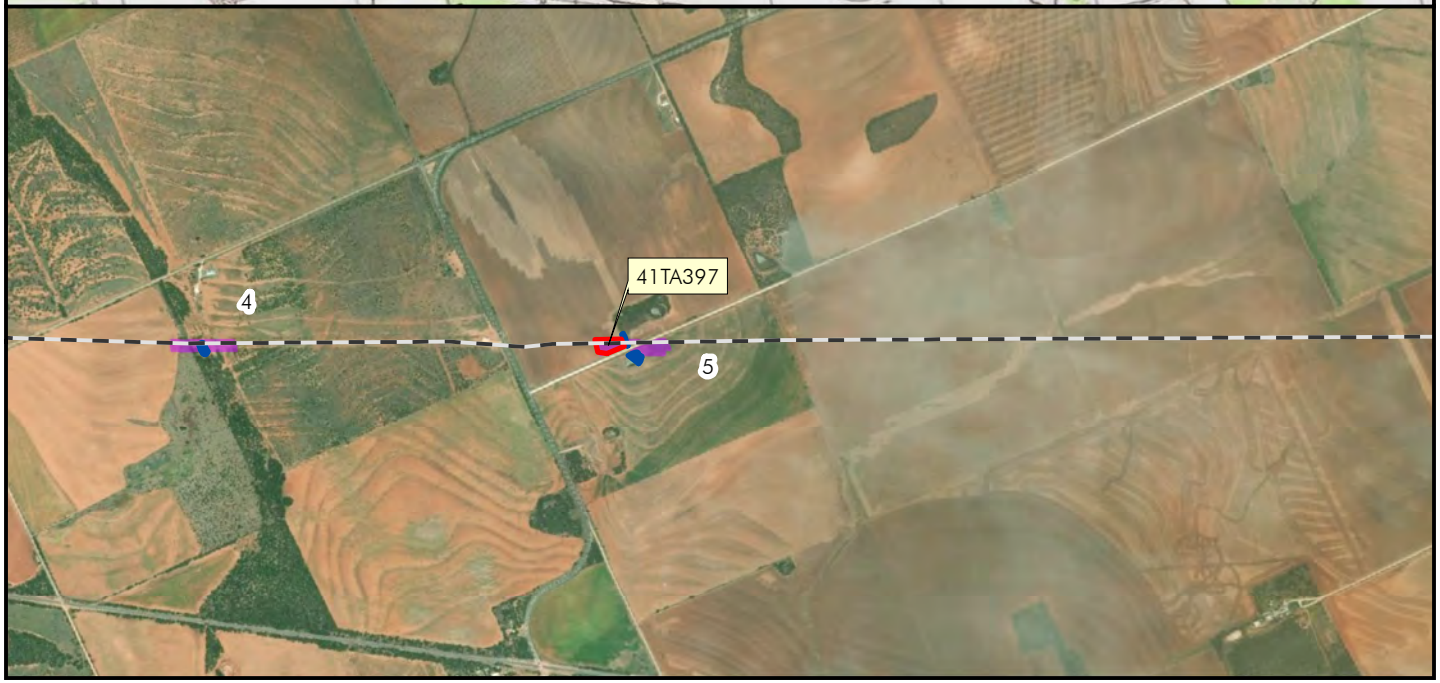


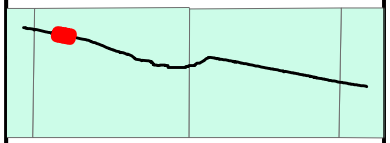
Permit areas within the Loop 2 project alignment.

Figure A3

GRAY & PAPE HERITAGE MANAGEMENT







Legend

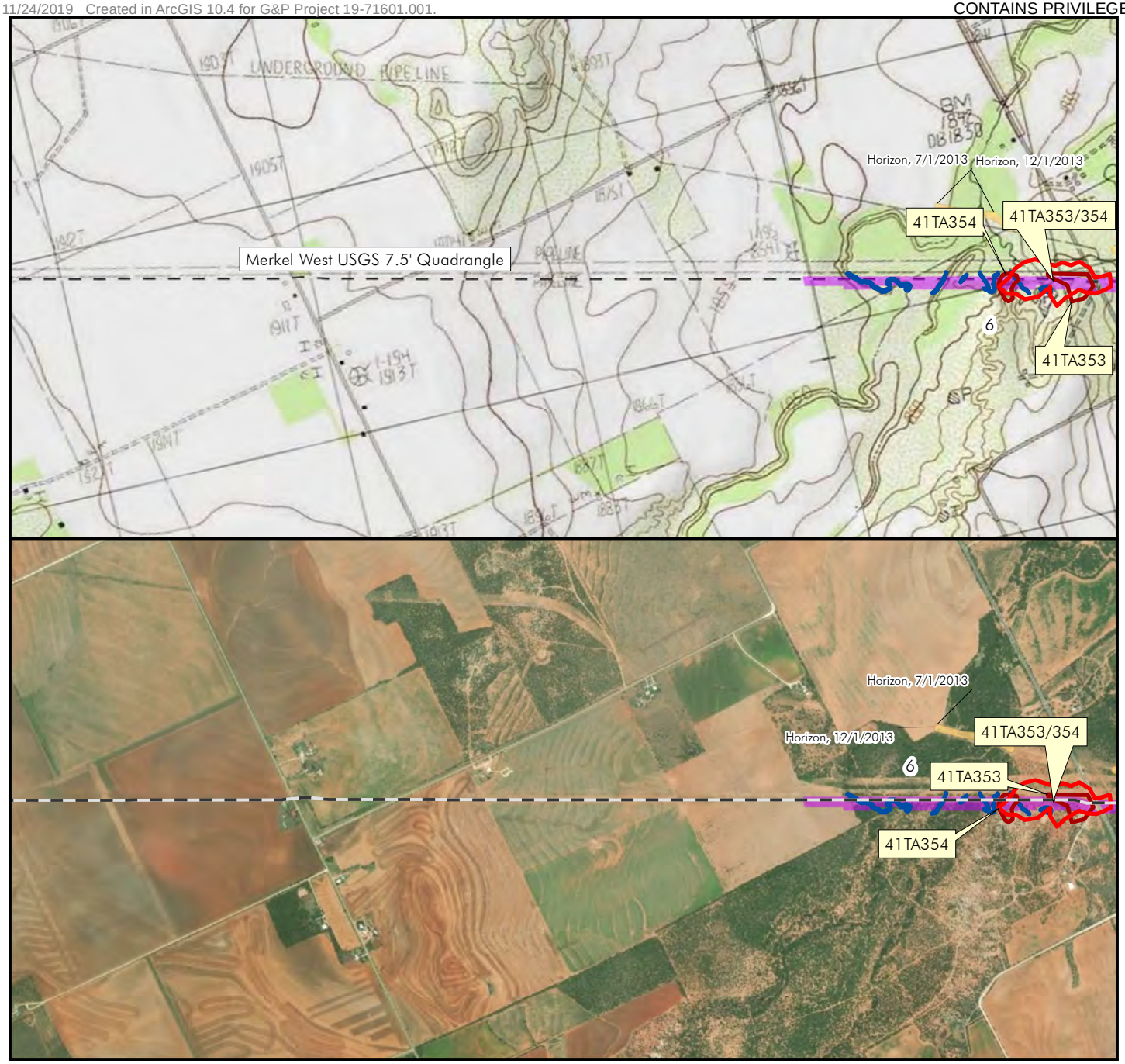
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

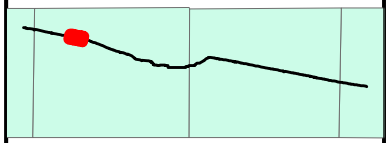
0 725 1,450 Feet
0 225 450 Meters
N

Permit areas within the Loop 2 project alignment.

Figure A4

GRAY & PAPE HERITAGE MANAGEMENT





Legend

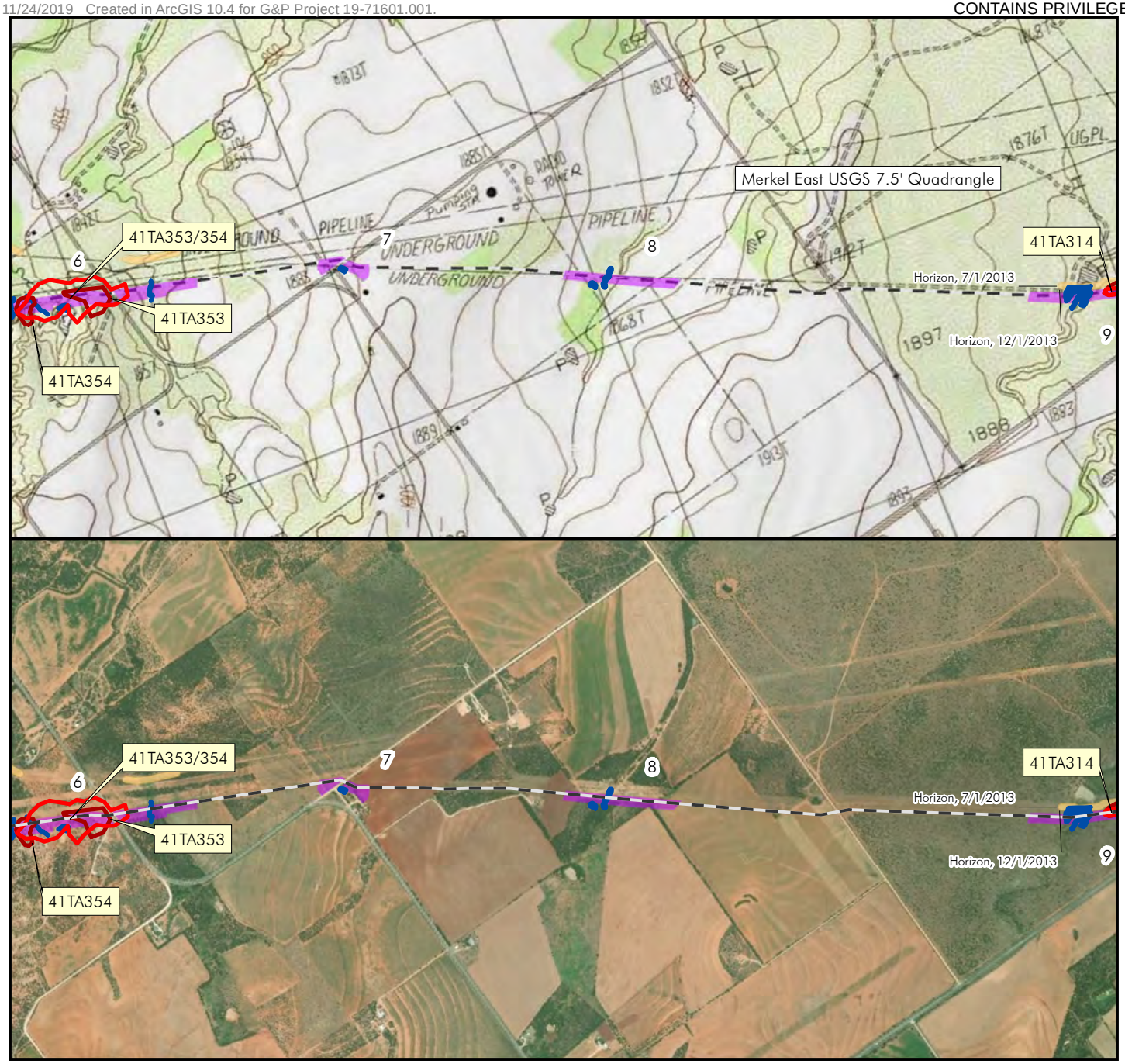
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

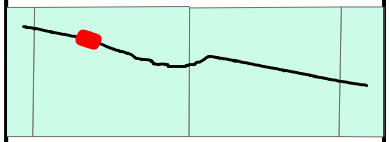
0 725 1,450 Feet
0 225 450 Meters
N

Permit areas within the Loop 2 project alignment.

Figure A5

GRAY & PAPE HERITAGE MANAGEMENT





Legend

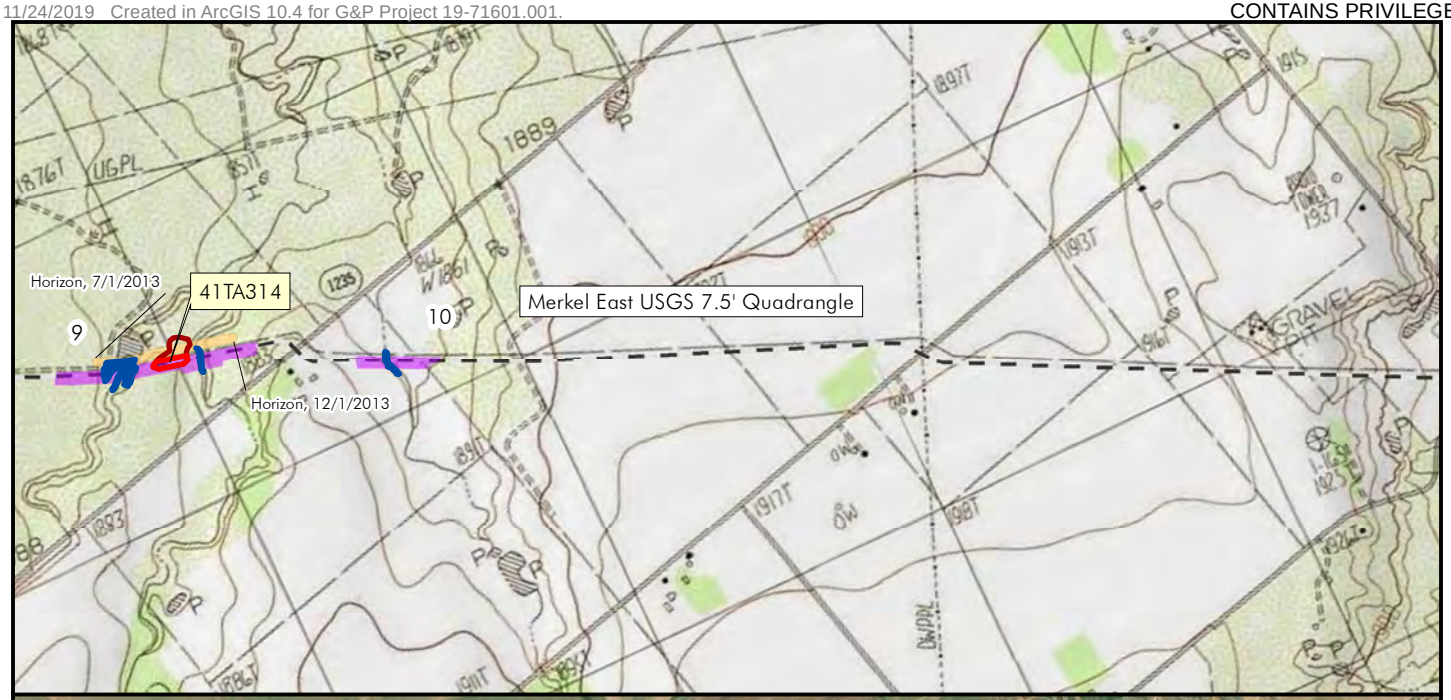
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

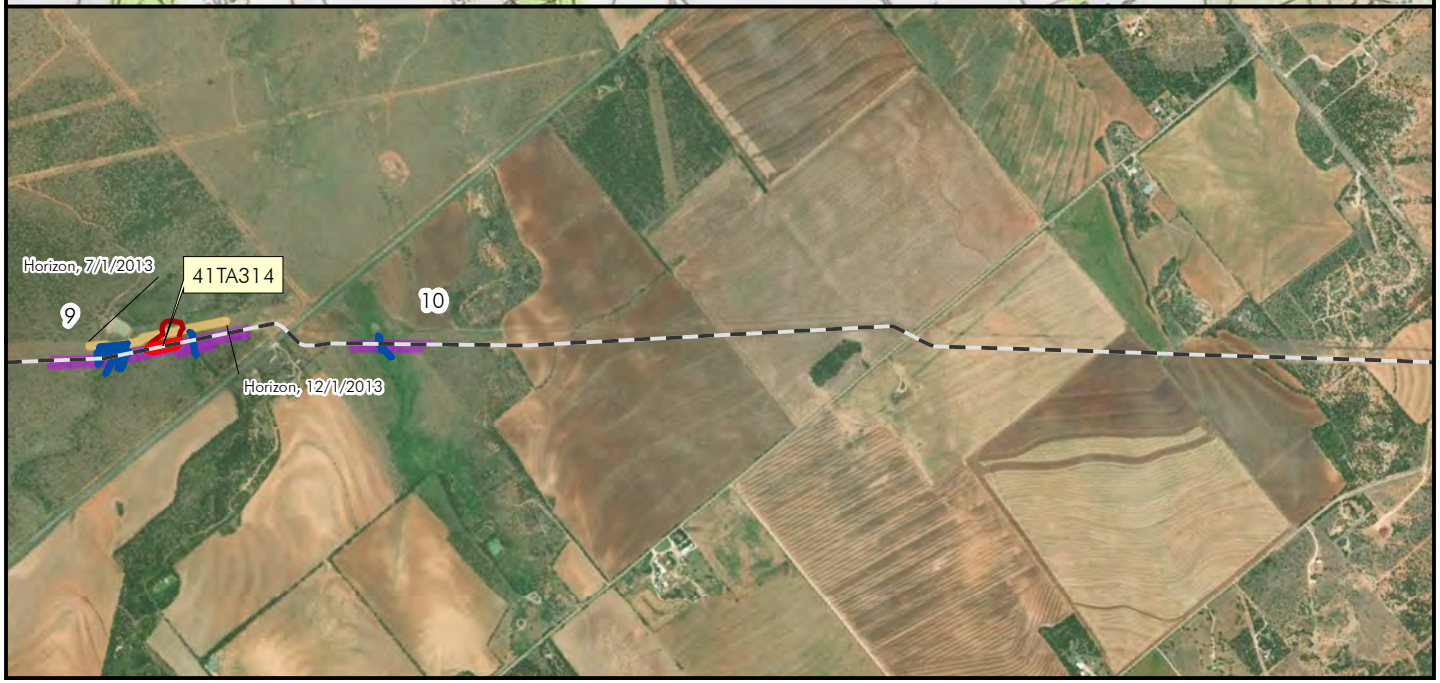
0 725 1,450 Feet
0 225 450 Meters

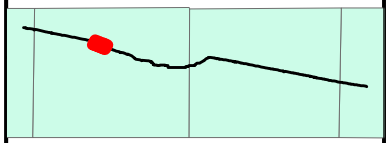
Permit areas within the Loop 2 project alignment.

Figure A6

GRAY & PAPE HERITAGE MANAGEMENT

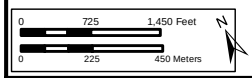






Legend

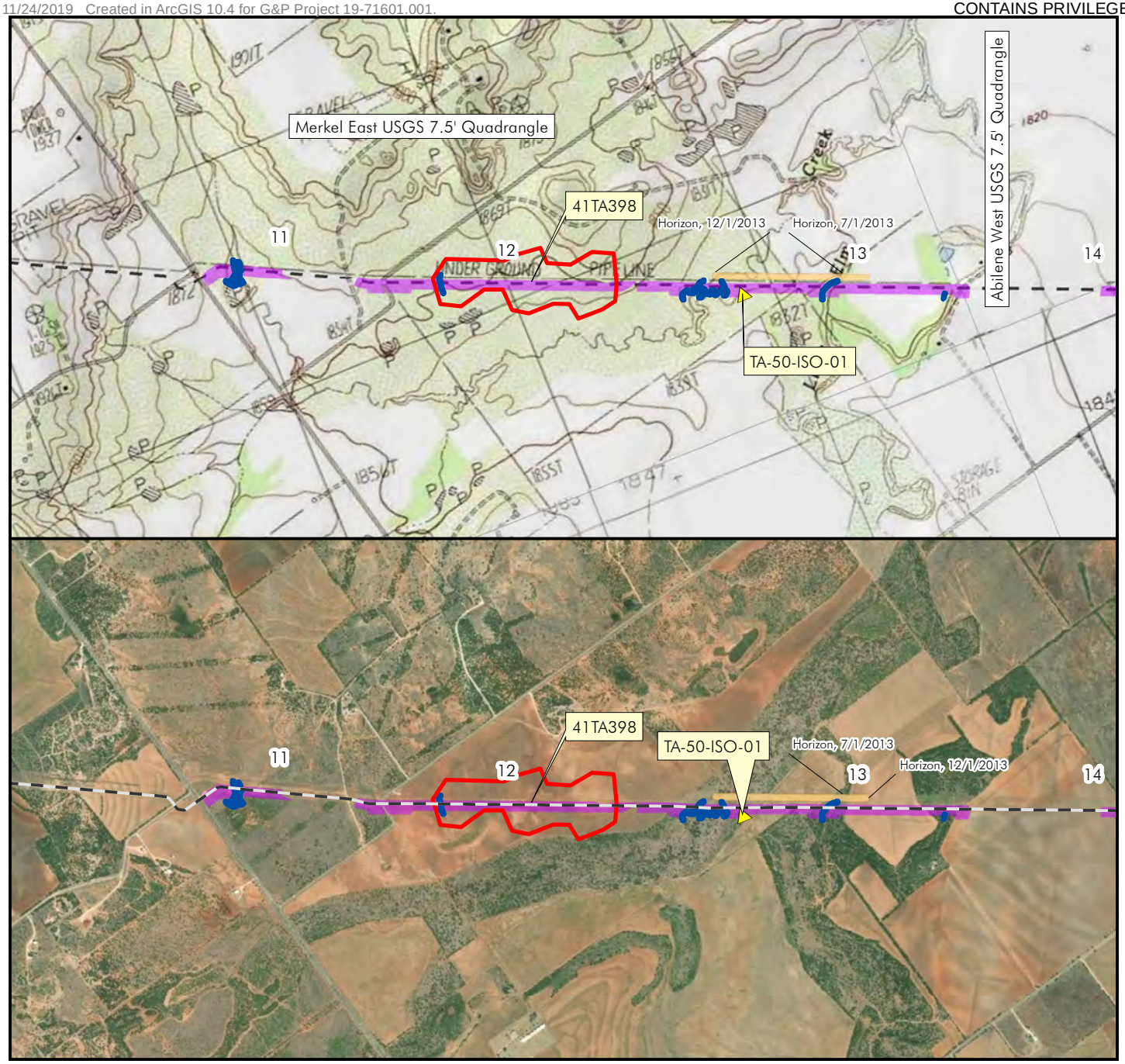
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

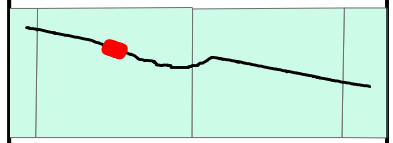


Permit areas within the Loop 2 project alignment.

Figure A7

GRAY & PAPE HERITAGE MANAGEMENT





Legend

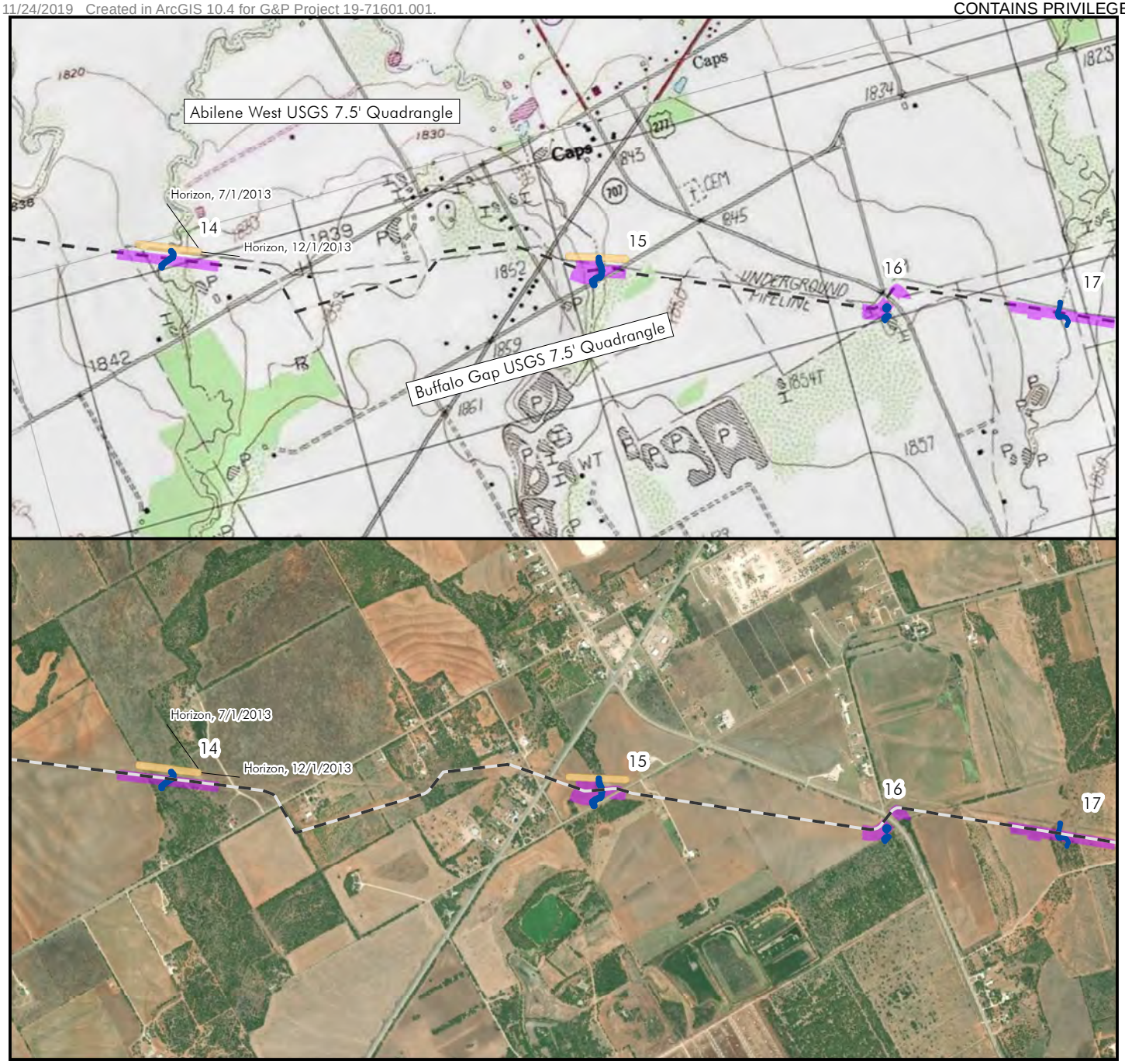
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

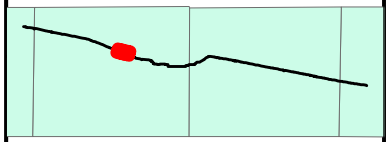
0 725 1,450 Feet
0 225 450 Meters

Permit areas within the Loop 2 project alignment.

Figure A8

GRAY & PAPE HERITAGE MANAGEMENT





Legend

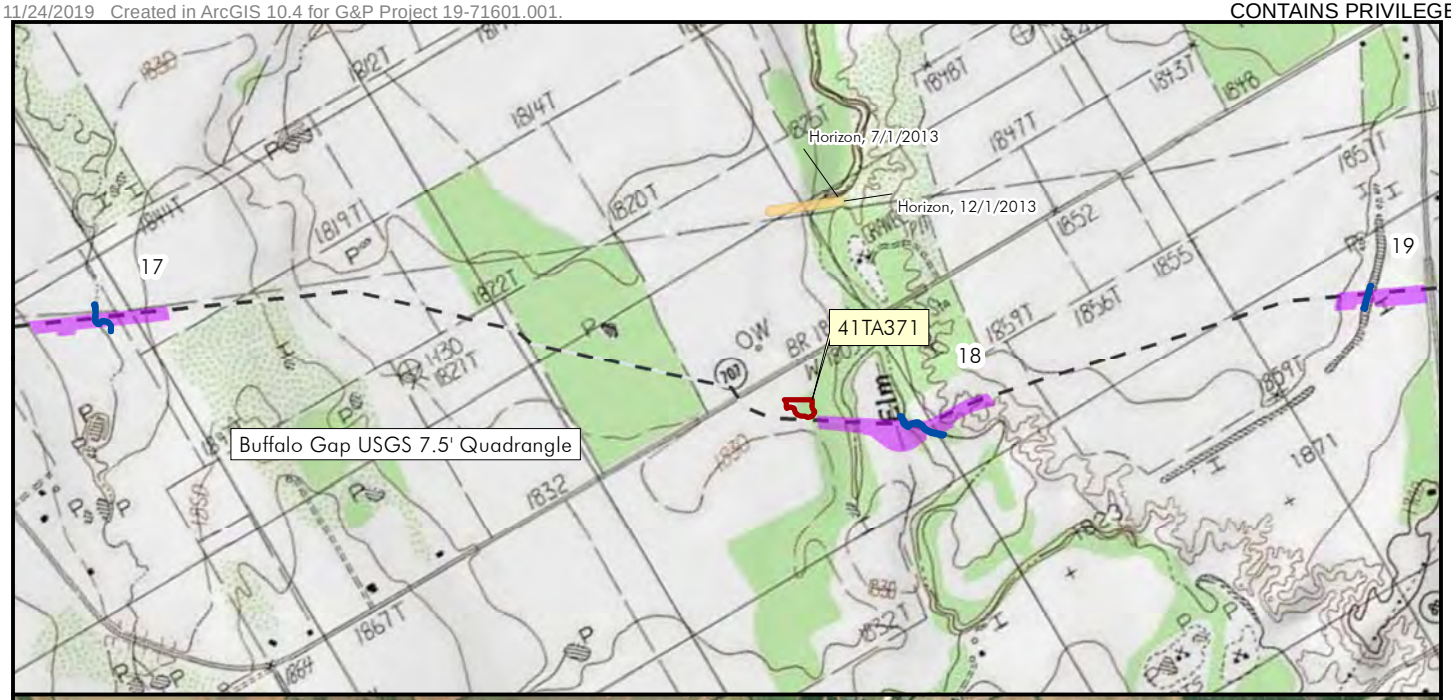
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

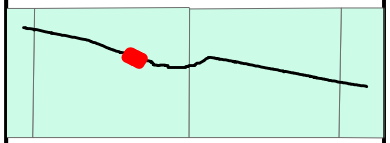
0 725 1,450 Feet
0 225 450 Meters
N

Permit areas within the Loop 2 project alignment.

Figure A9

GRAY & PAPE HERITAGE MANAGEMENT





Legend

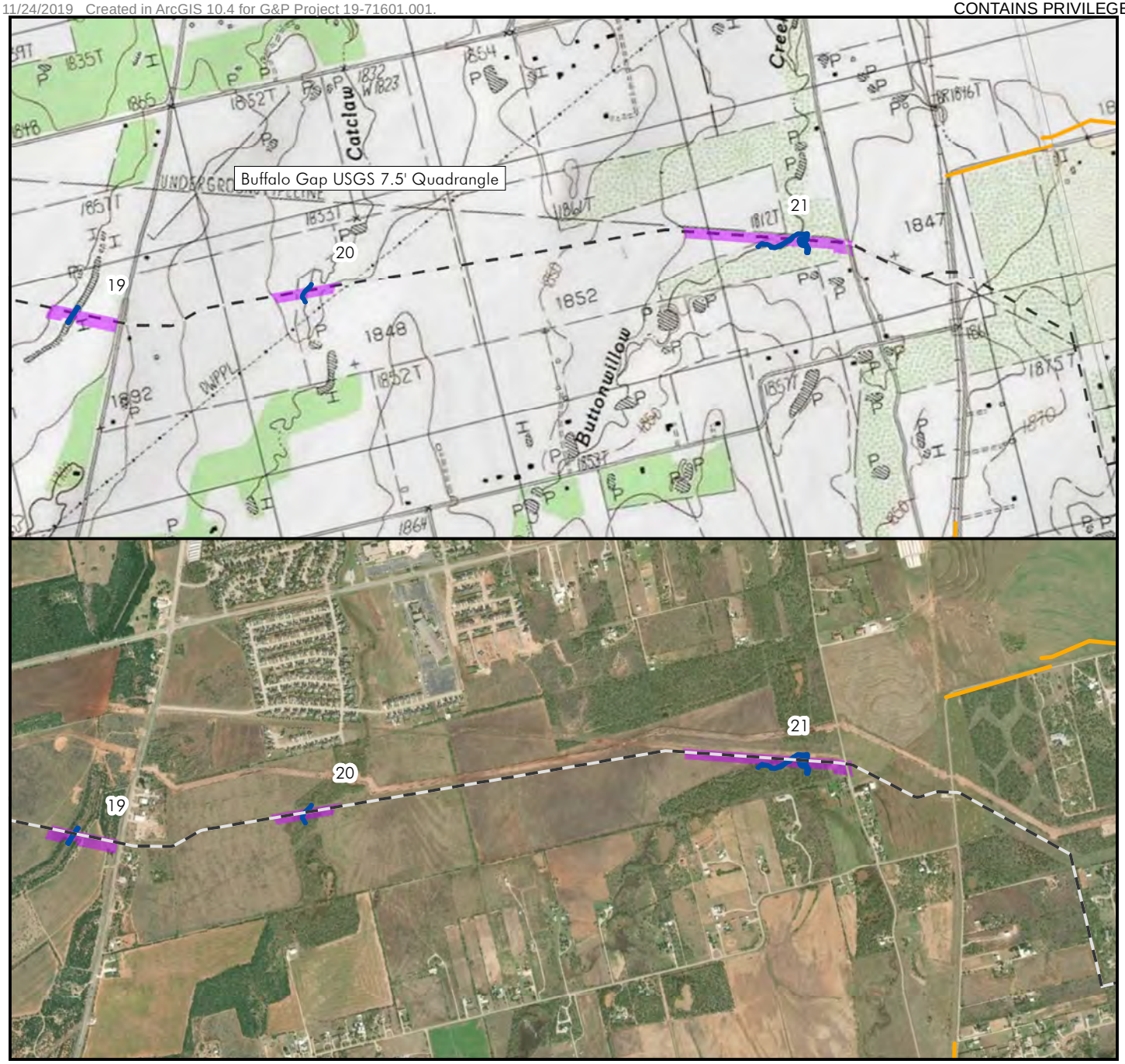
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

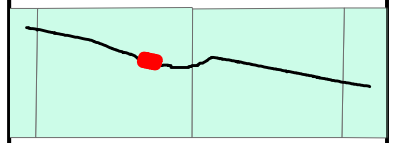
0 725 1,450 Feet
0 225 450 Meters

Permit areas within the Loop 2 project alignment.

Figure A10

GRAY & PAPE HERITAGE MANAGEMENT





Legend

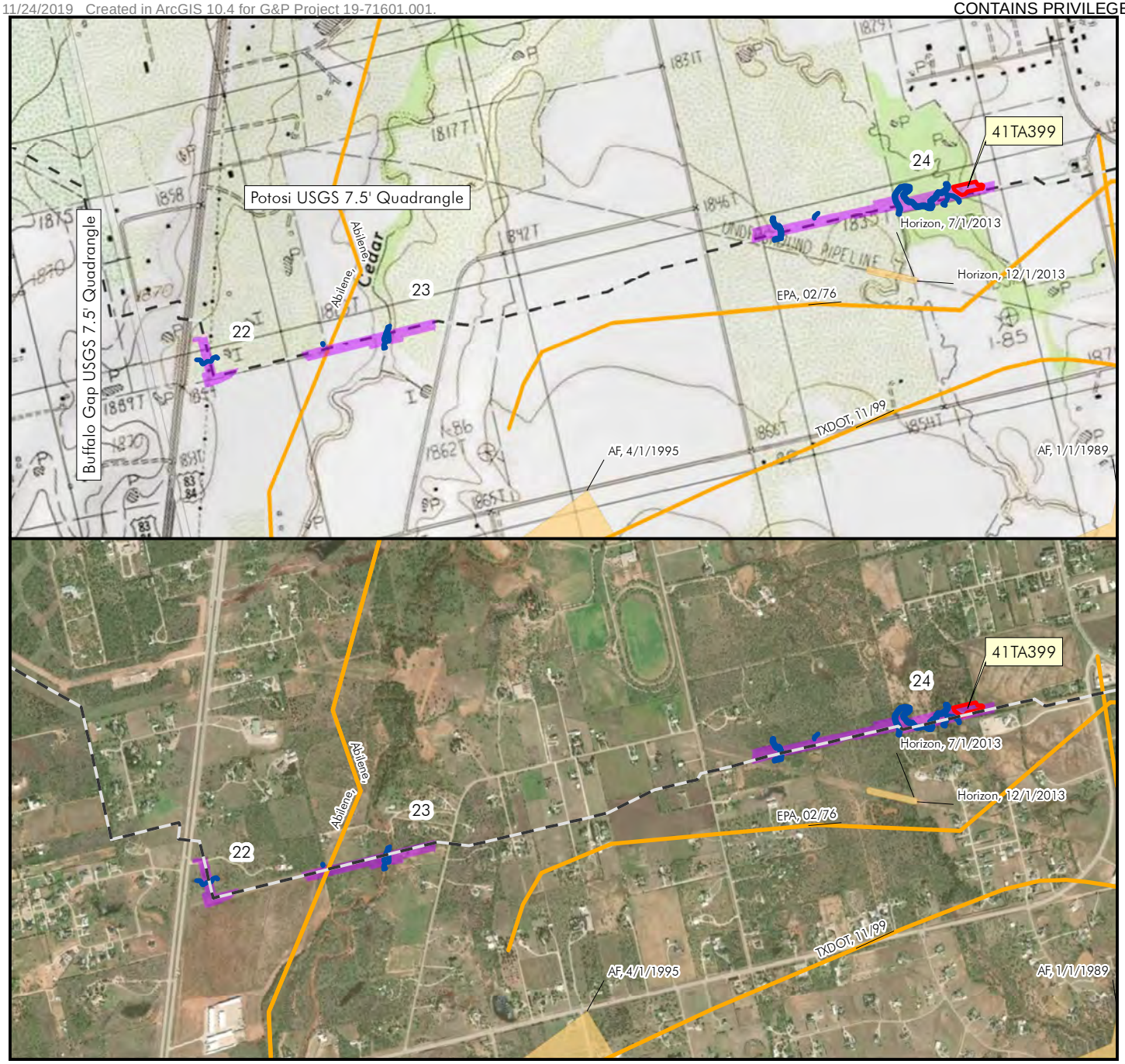
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

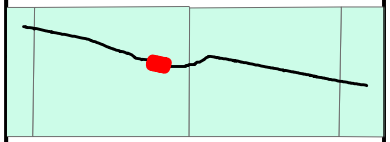
0 725 1,450 Feet
0 225 450 Meters
N

Permit areas within the Loop 2 project alignment.

Figure A11

GRAY & PAPE HERITAGE MANAGEMENT





Legend

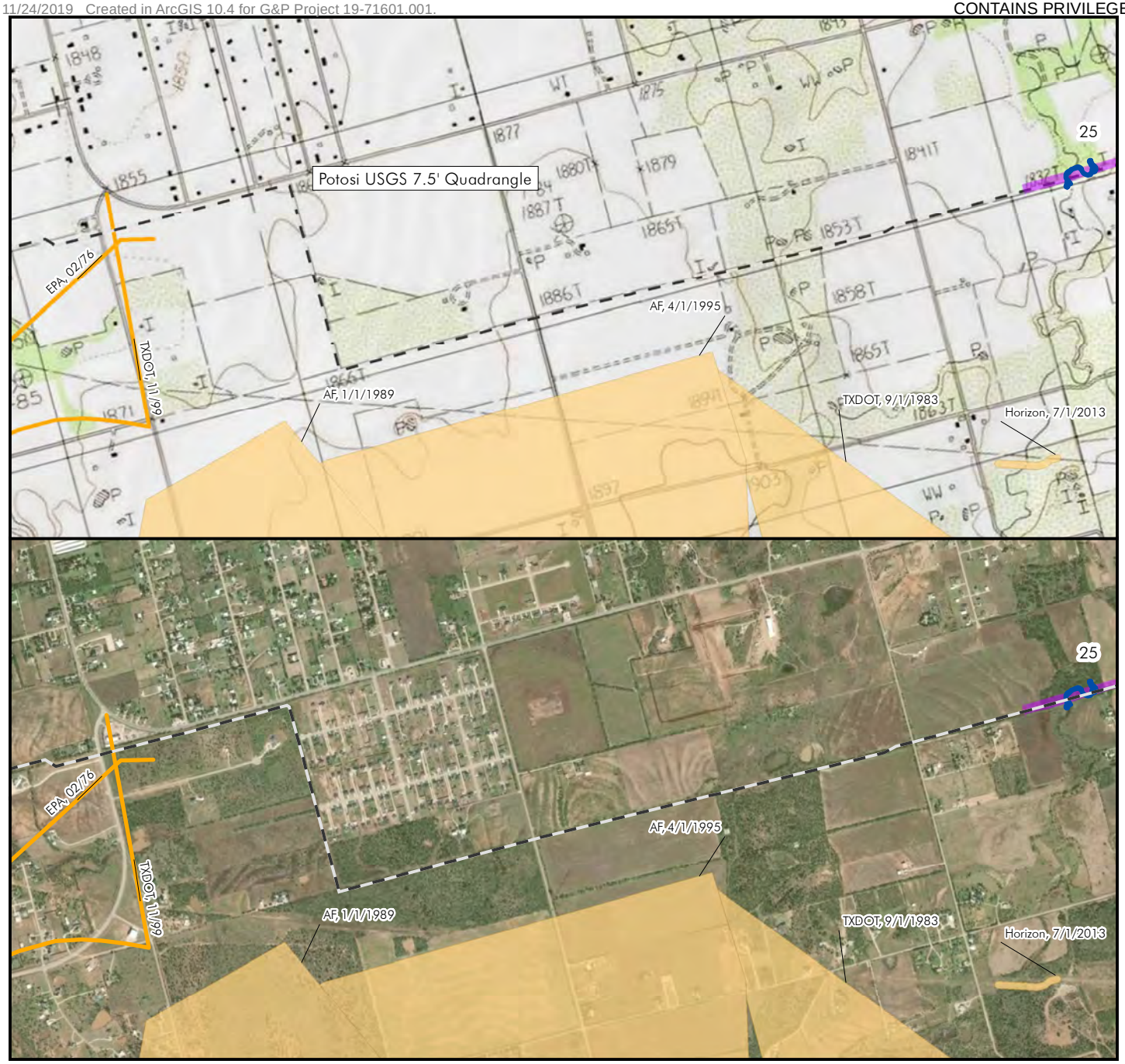
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

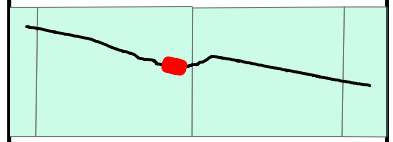
0 725 1,450 Feet
0 225 450 Meters
N

Permit areas within the Loop 2 project alignment.

Figure A12

GRAY & PAPE HERITAGE MANAGEMENT





Legend

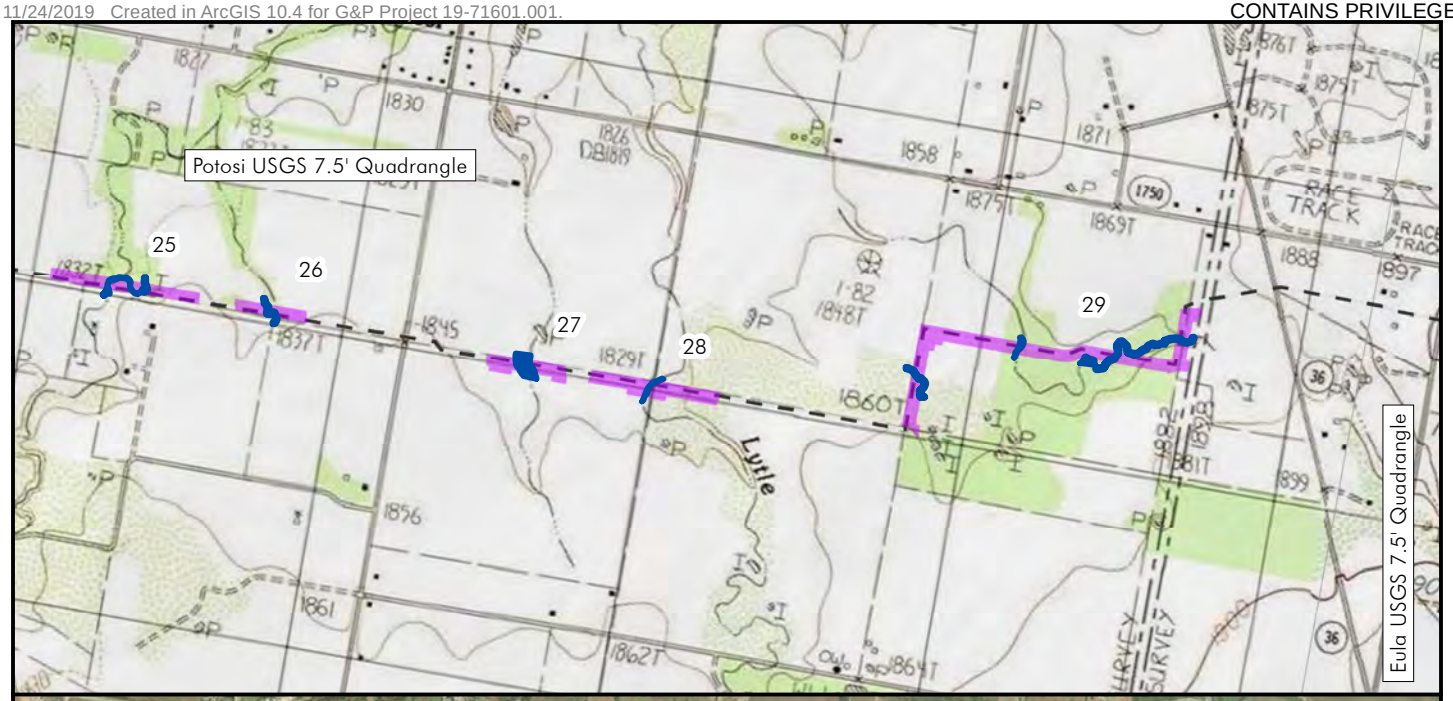
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

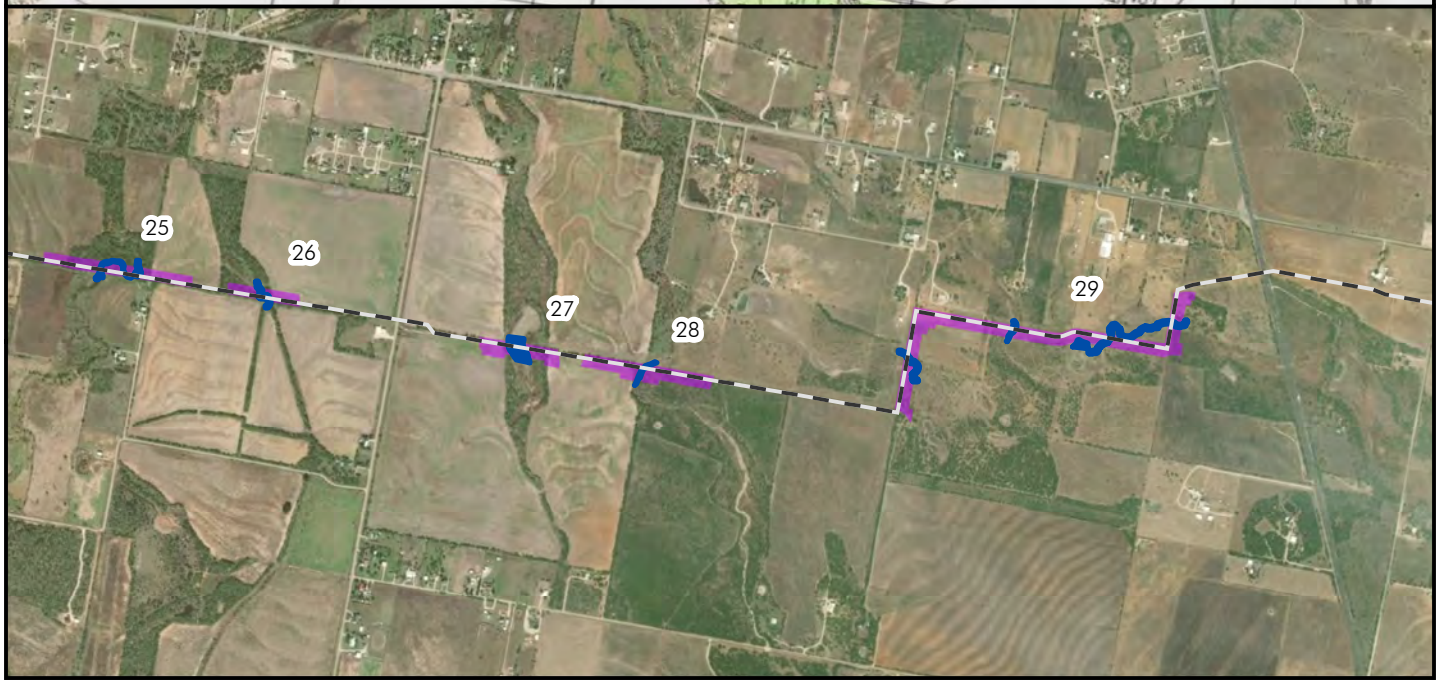
0 725 1,450 Feet
0 225 450 Meters
N

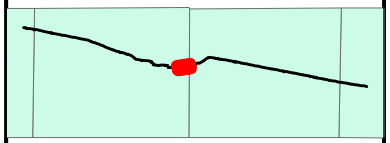
Permit areas within the Loop 2 project alignment.

Figure A13

GRAY & PAPE HERITAGE MANAGEMENT







Legend

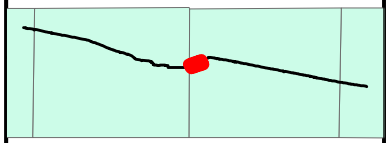
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

0 725 1,450 Feet
0 225 450 Meters
N

Permit areas within the Loop 2 project alignment.

Figure A14

GRAY & PAPE HERITAGE MANAGEMENT



Legend

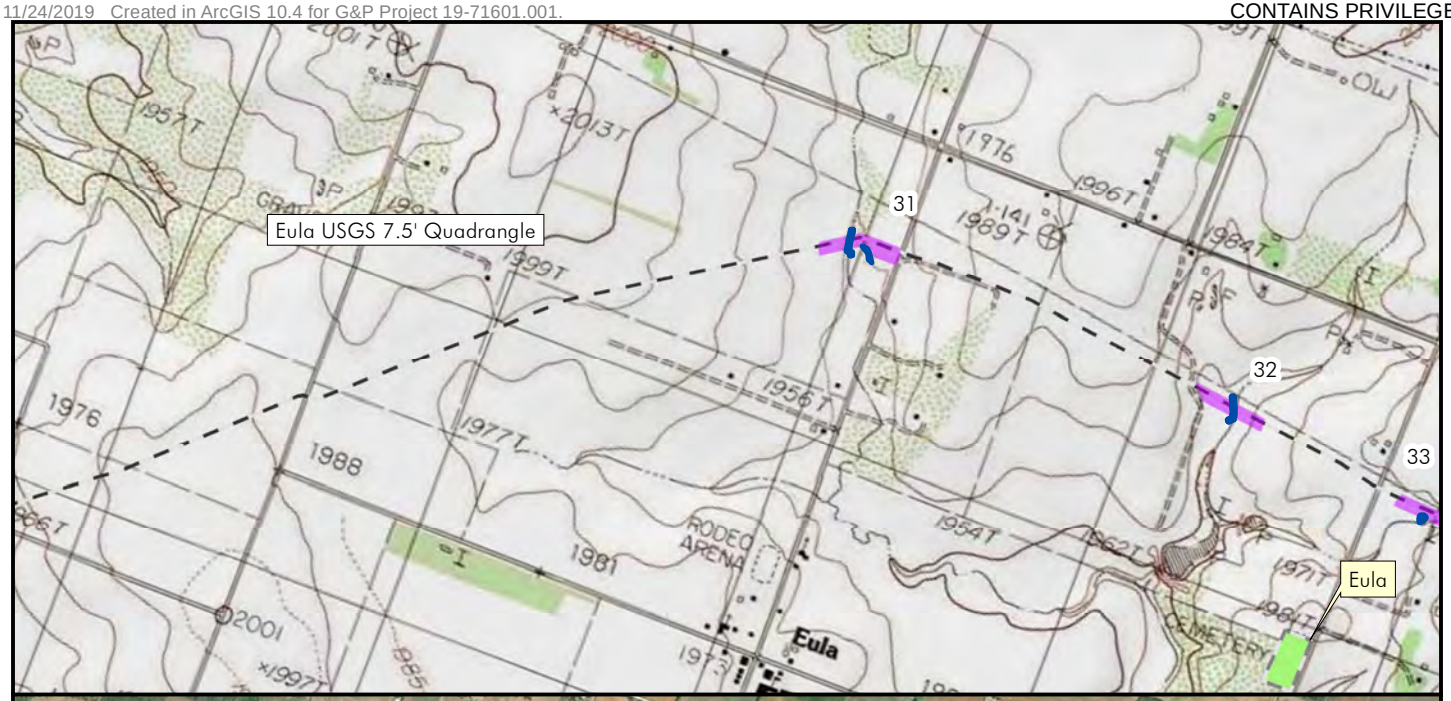
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

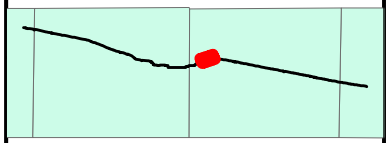
0 725 1,450 Feet
0 225 450 Meters

Permit areas within the Loop 2 project alignment.

Figure A15

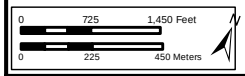
GRAY & PAPE HERITAGE MANAGEMENT





Legend

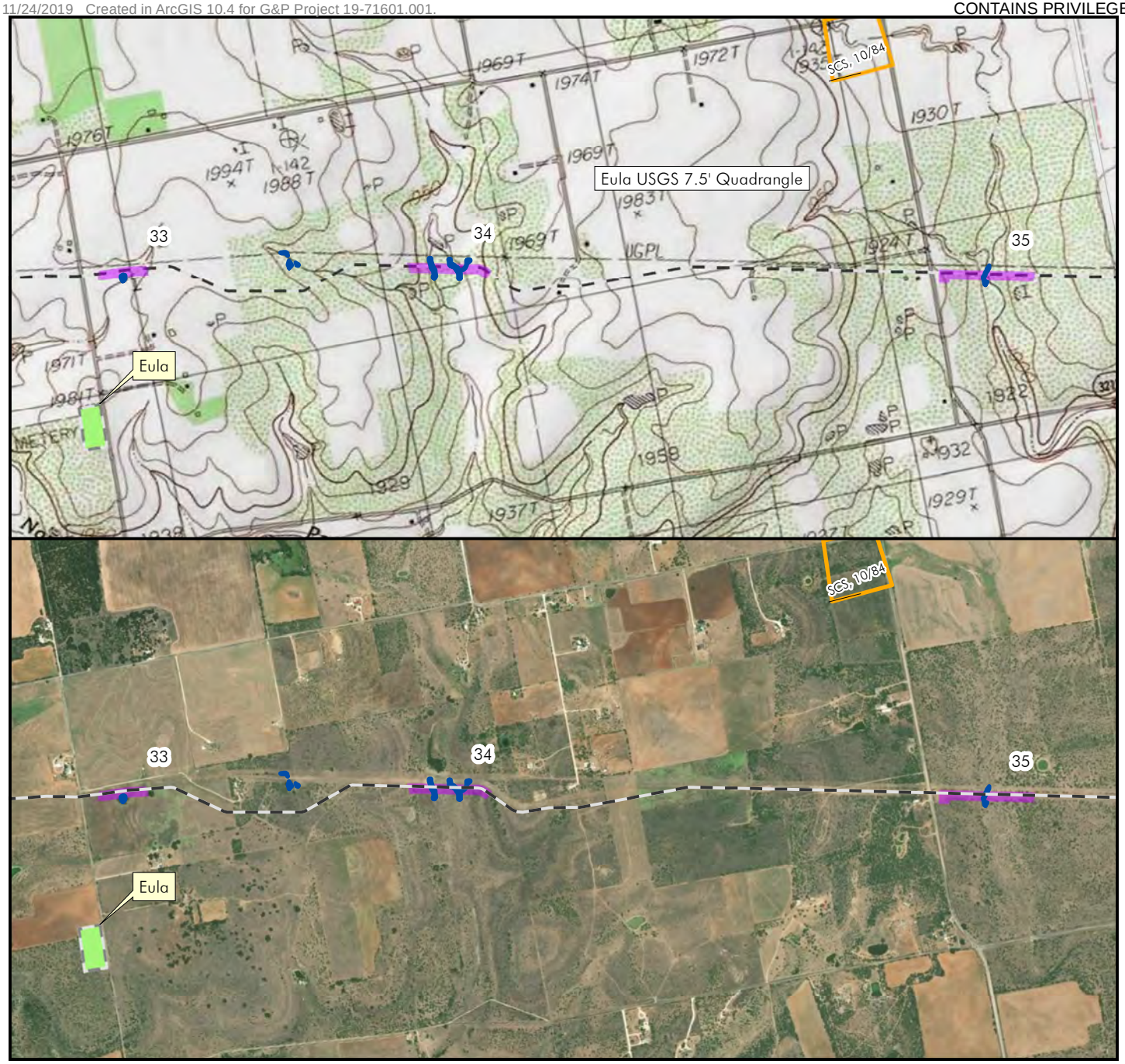
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

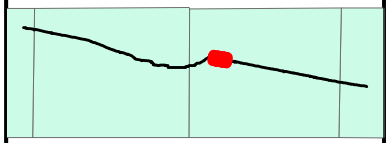


Permit areas within the Loop 2 project alignment.

Figure A16

GRAY & PAPE HERITAGE MANAGEMENT





Legend

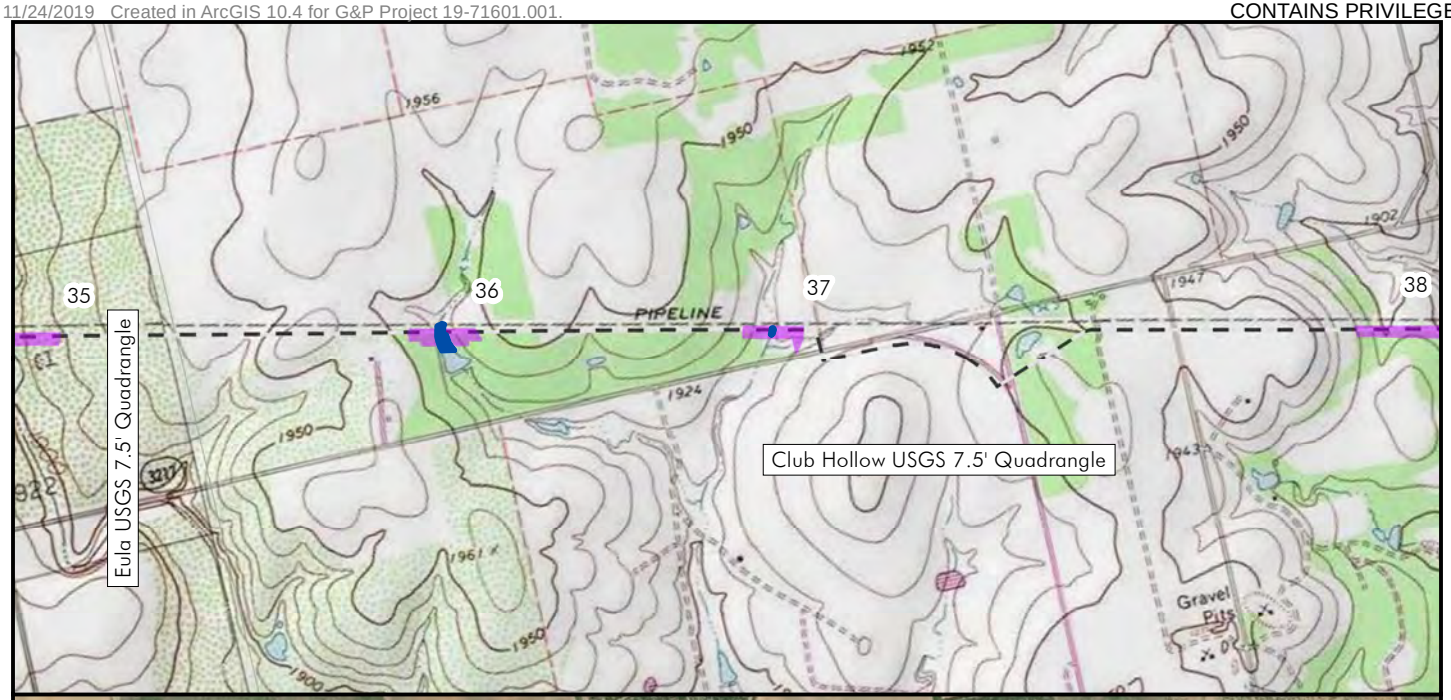
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

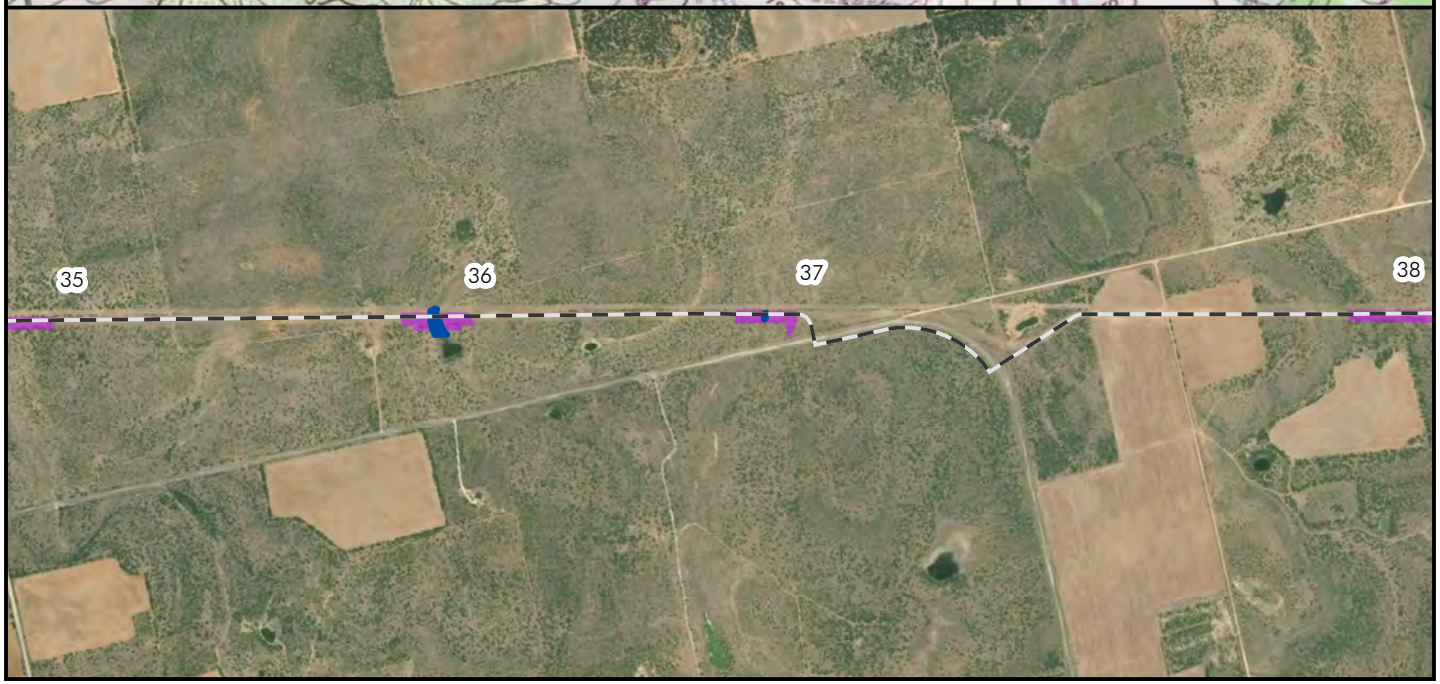
0 725 1,450 Feet
0 225 450 Meters
N

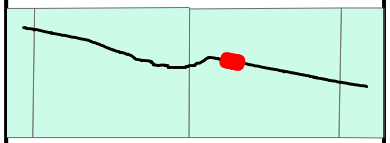
Permit areas within the Loop 2 project alignment.

Figure A17

GRAY & PAPE HERITAGE MANAGEMENT







Legend

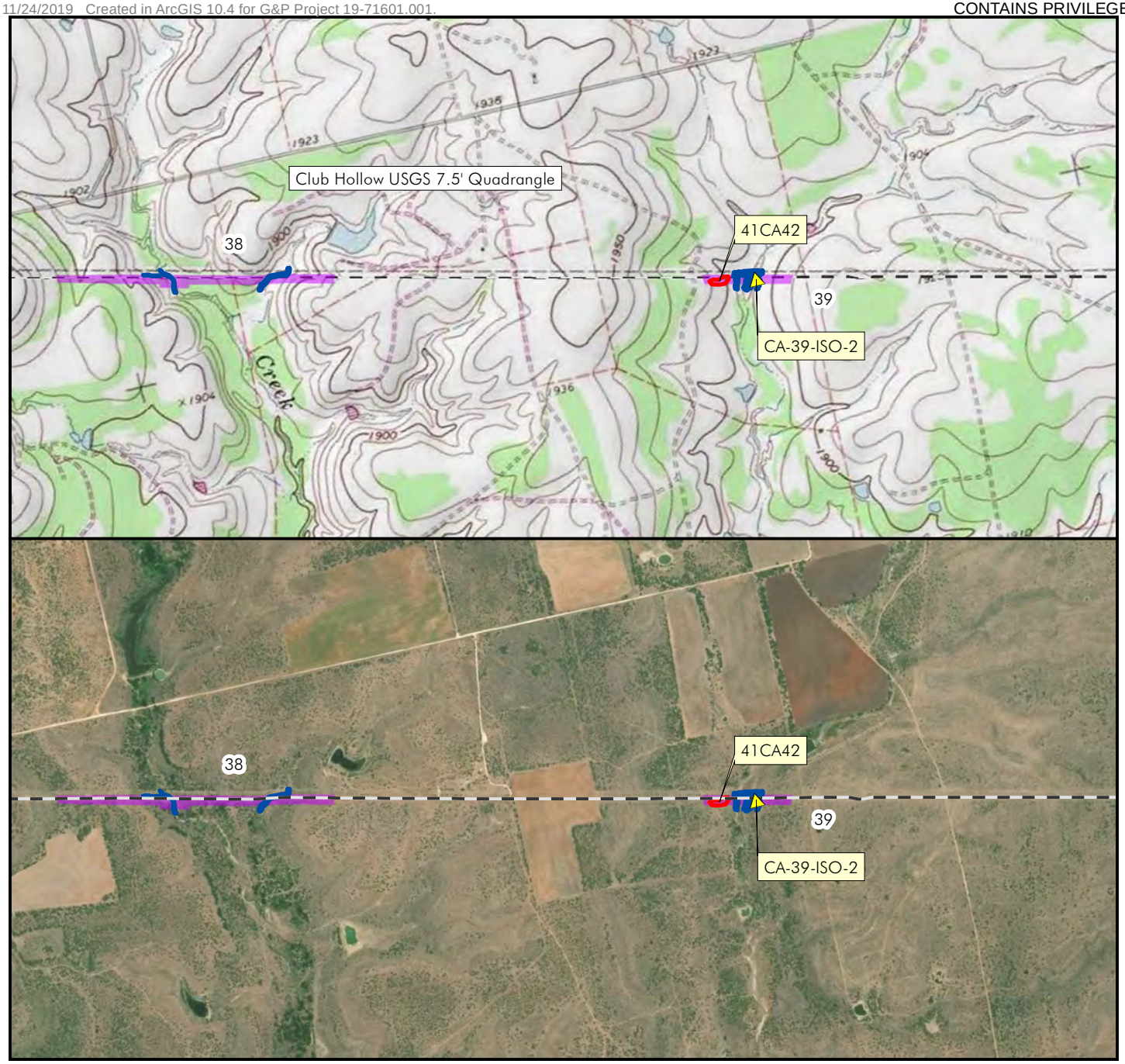
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

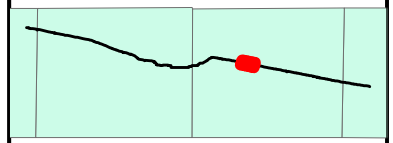
0 725 1,450 Feet
0 225 450 Meters
N

Permit areas within the Loop 2 project alignment.

Figure A18

GRAY & PAPE HERITAGE MANAGEMENT





Legend

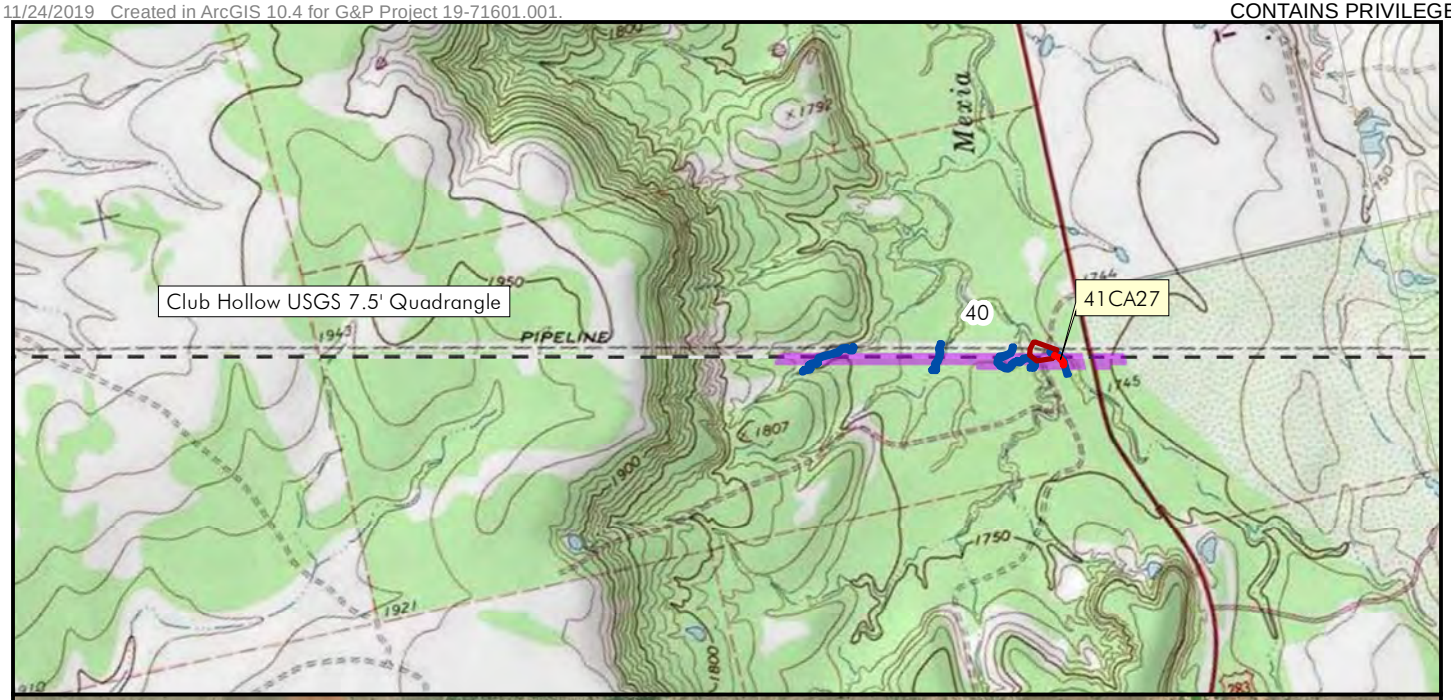
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

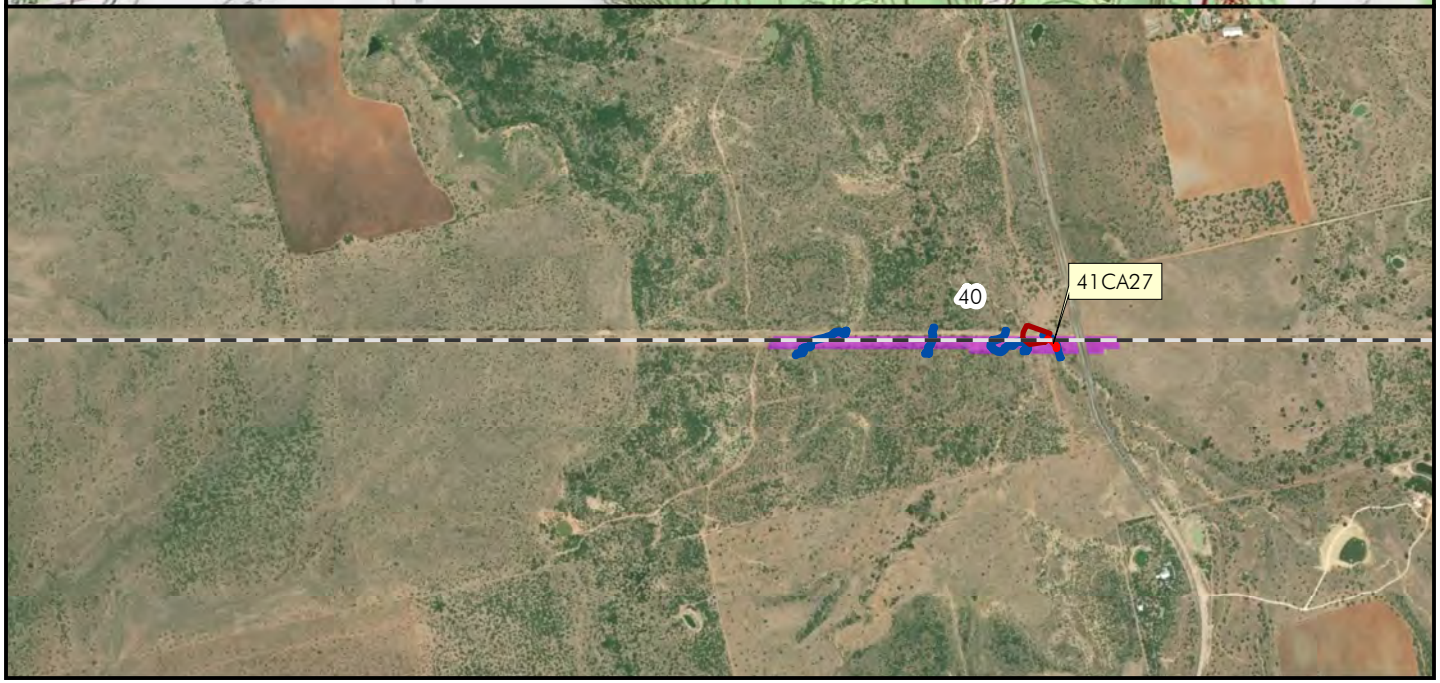
0 725 1,450 Feet
0 225 450 Meters
N

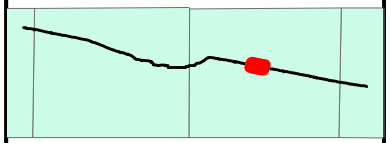
Permit areas within the Loop 2 project alignment.

Figure A19

GRAY & PAPE HERITAGE MANAGEMENT







Legend

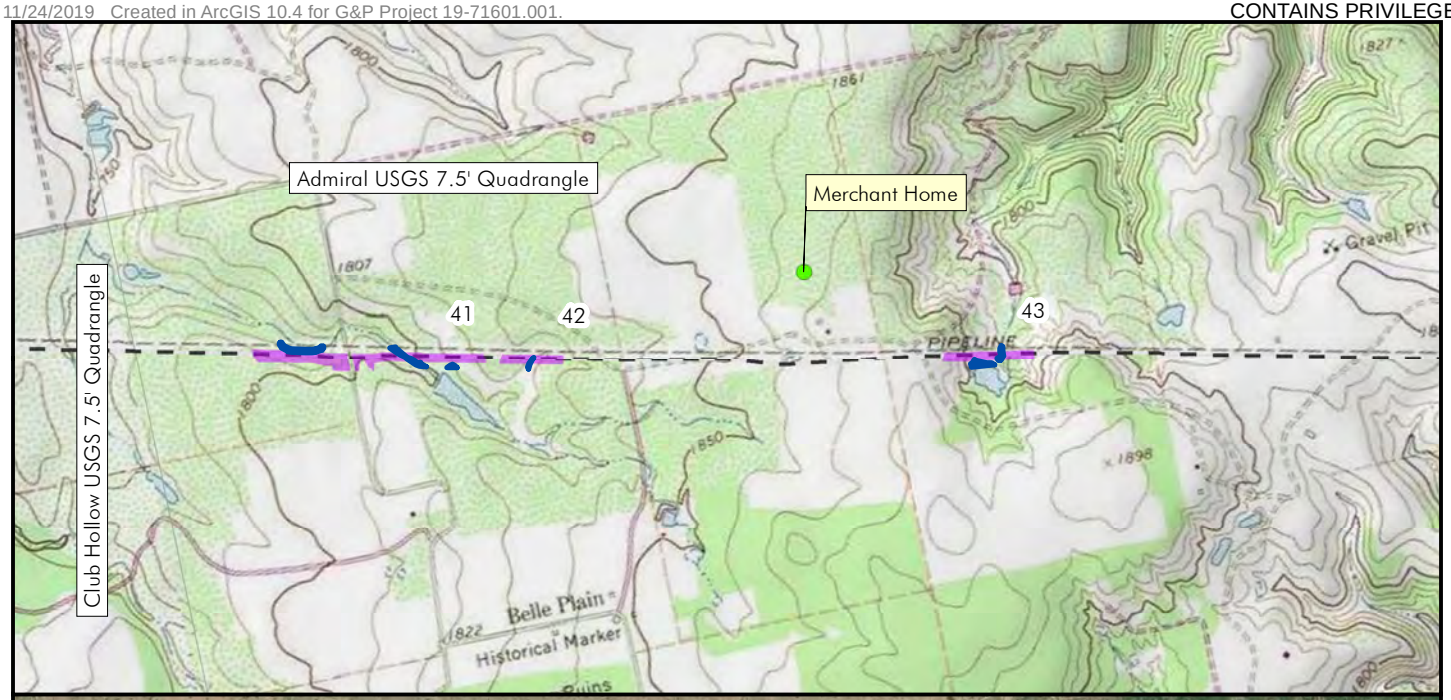
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

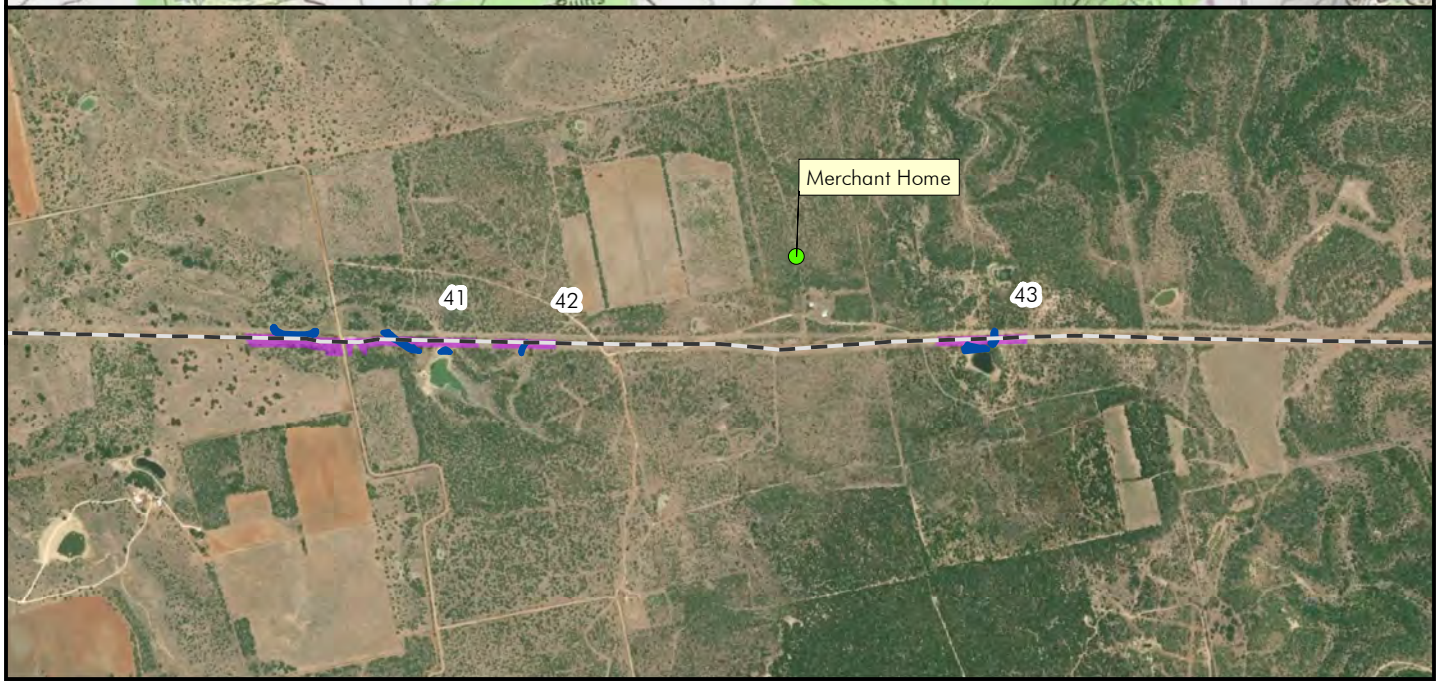
0 725 1,450 Feet
0 225 450 Meters
N

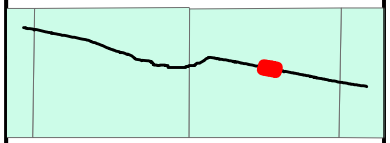
Permit areas within the Loop 2 project alignment.

Figure A20

GRAY & PAPE HERITAGE MANAGEMENT







Legend

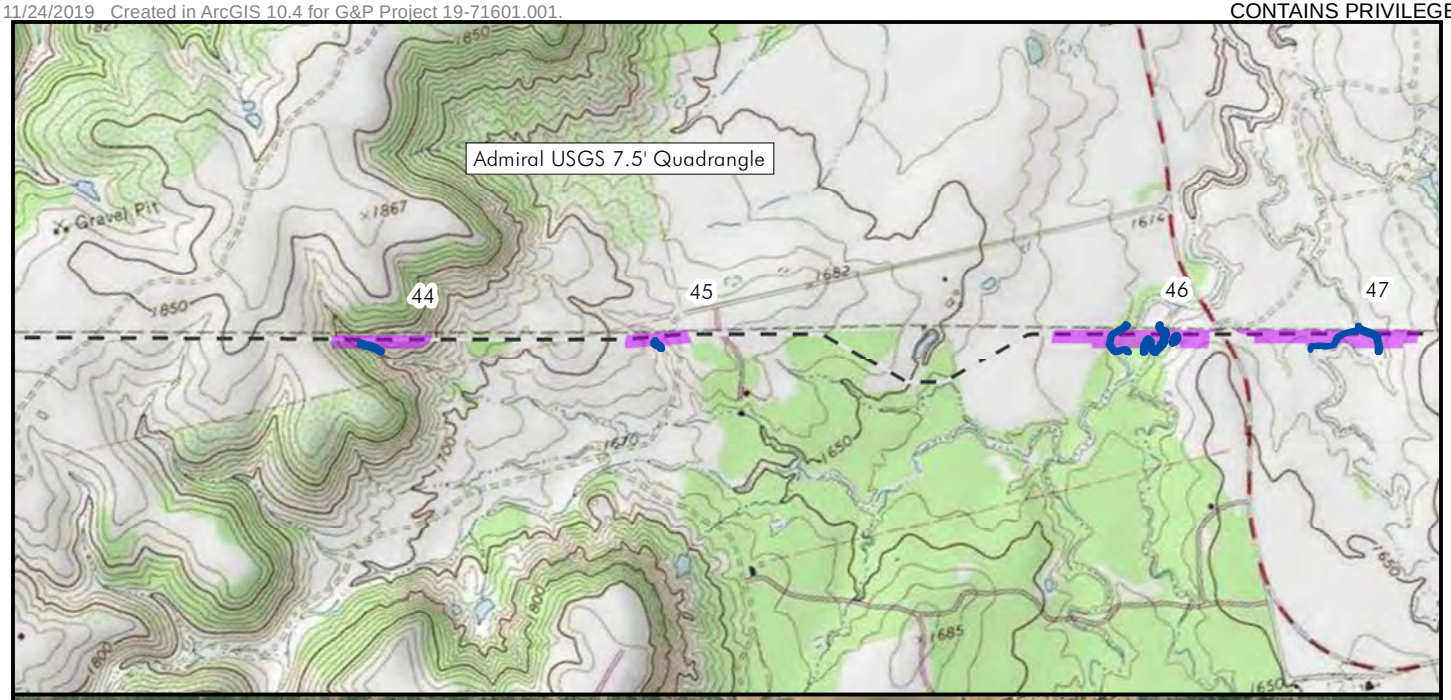
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

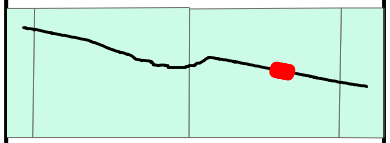
0 725 1,450 Feet
0 225 450 Meters
N

Permit areas within the Loop 2 project alignment.

Figure A21

GRAY & PAPE HERITAGE MANAGEMENT





Legend

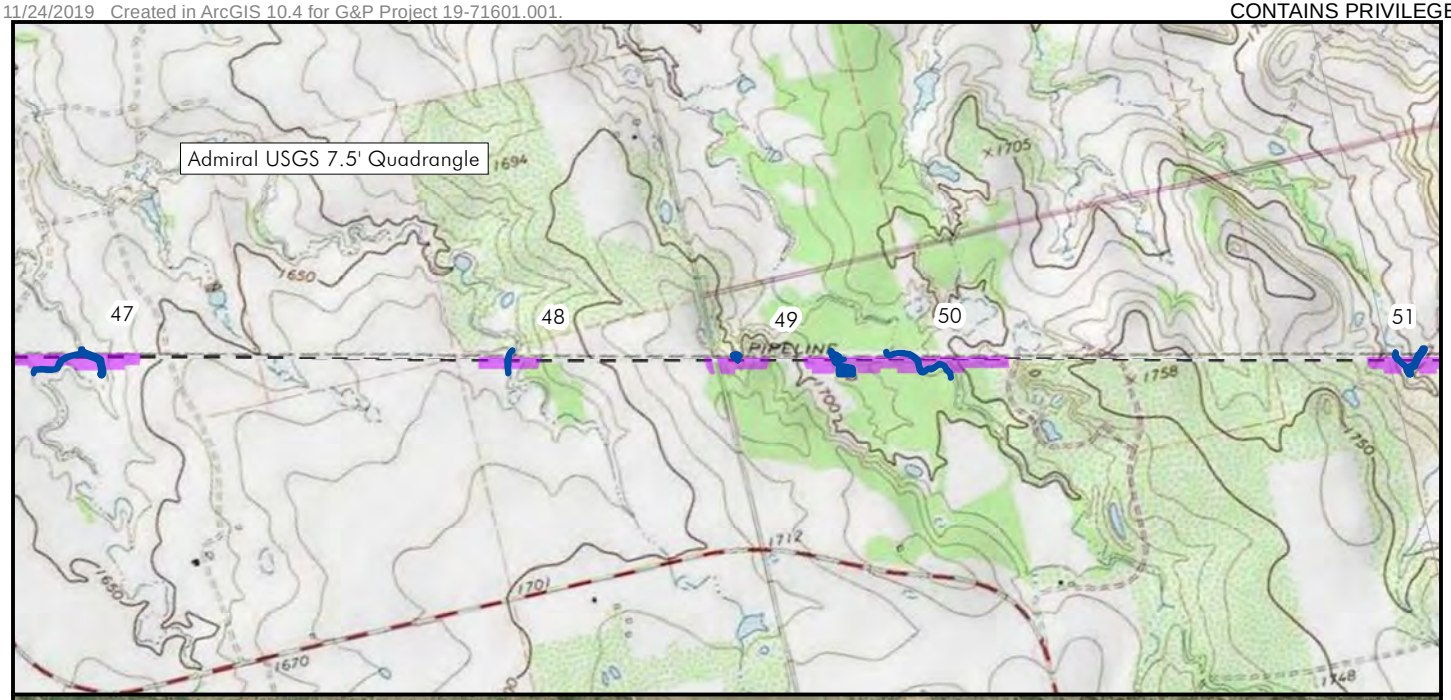
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

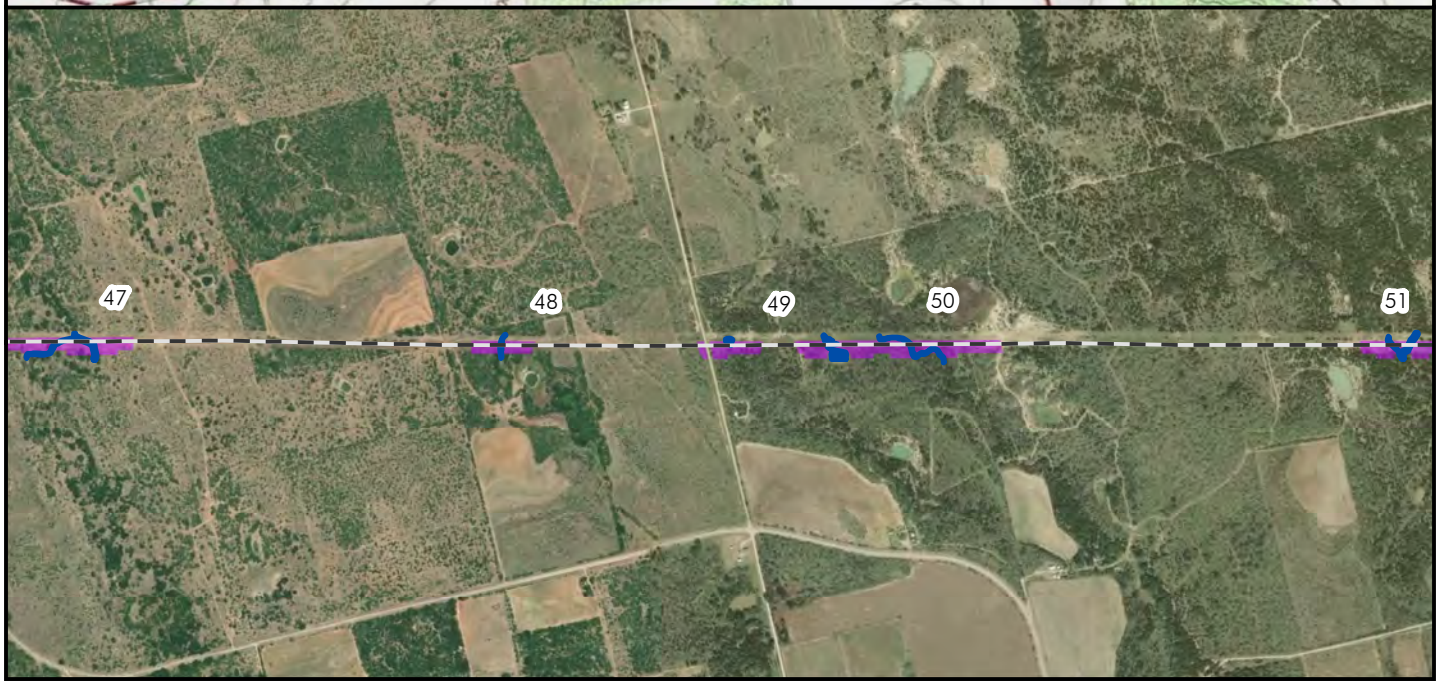
0 725 1,450 Feet
0 225 450 Meters
N

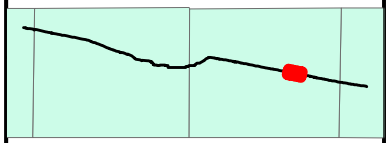
Permit areas within the Loop 2 project alignment.

Figure A22

GRAY & PAPE HERITAGE MANAGEMENT







Legend

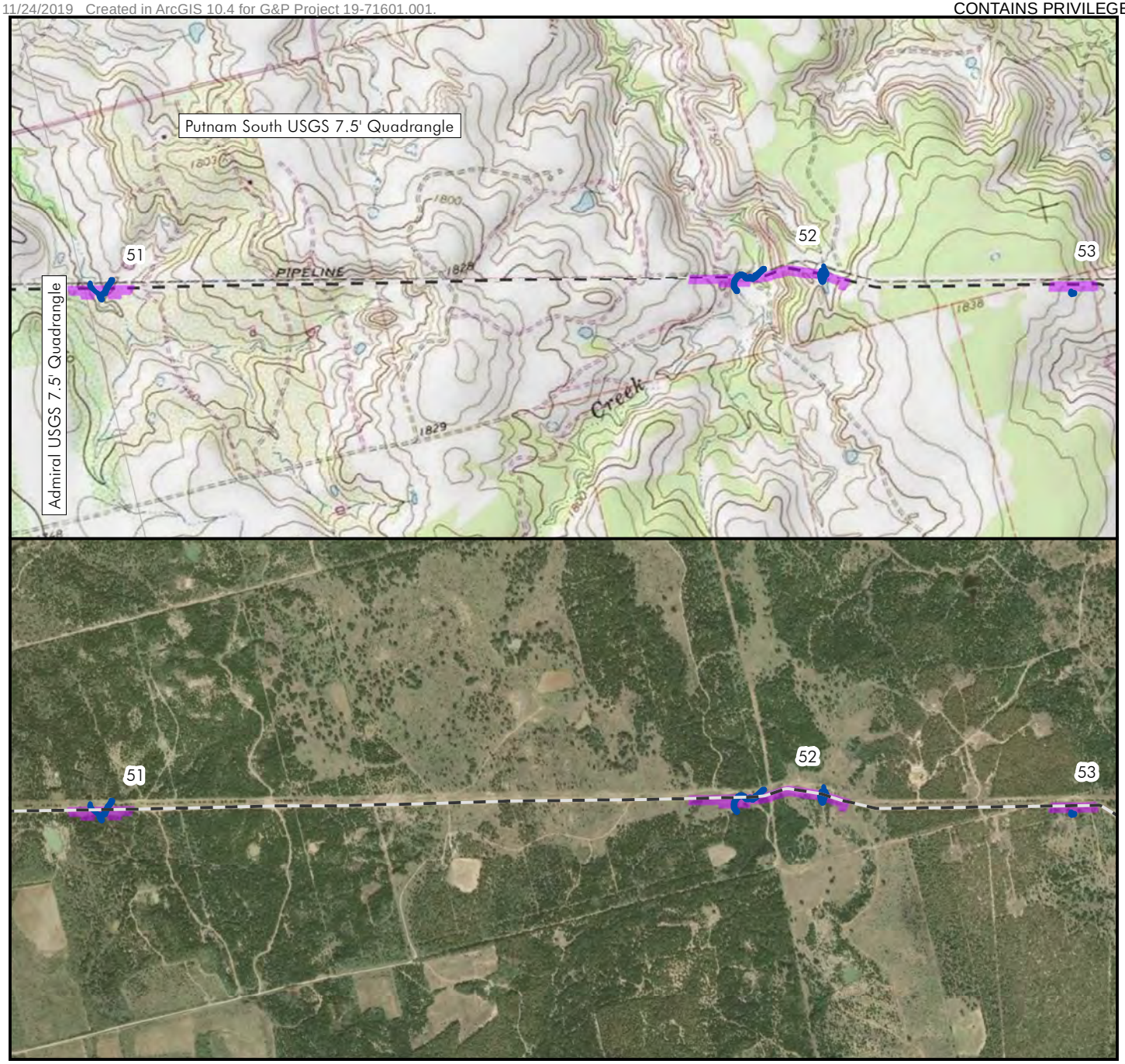
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

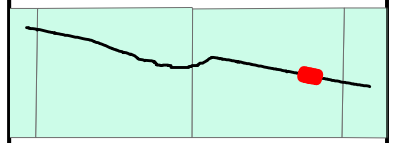
0 725 1,450 Feet
0 225 450 Meters
N

Permit areas within the Loop 2 project alignment.

Figure A23

GRAY & PAPE HERITAGE MANAGEMENT





Legend

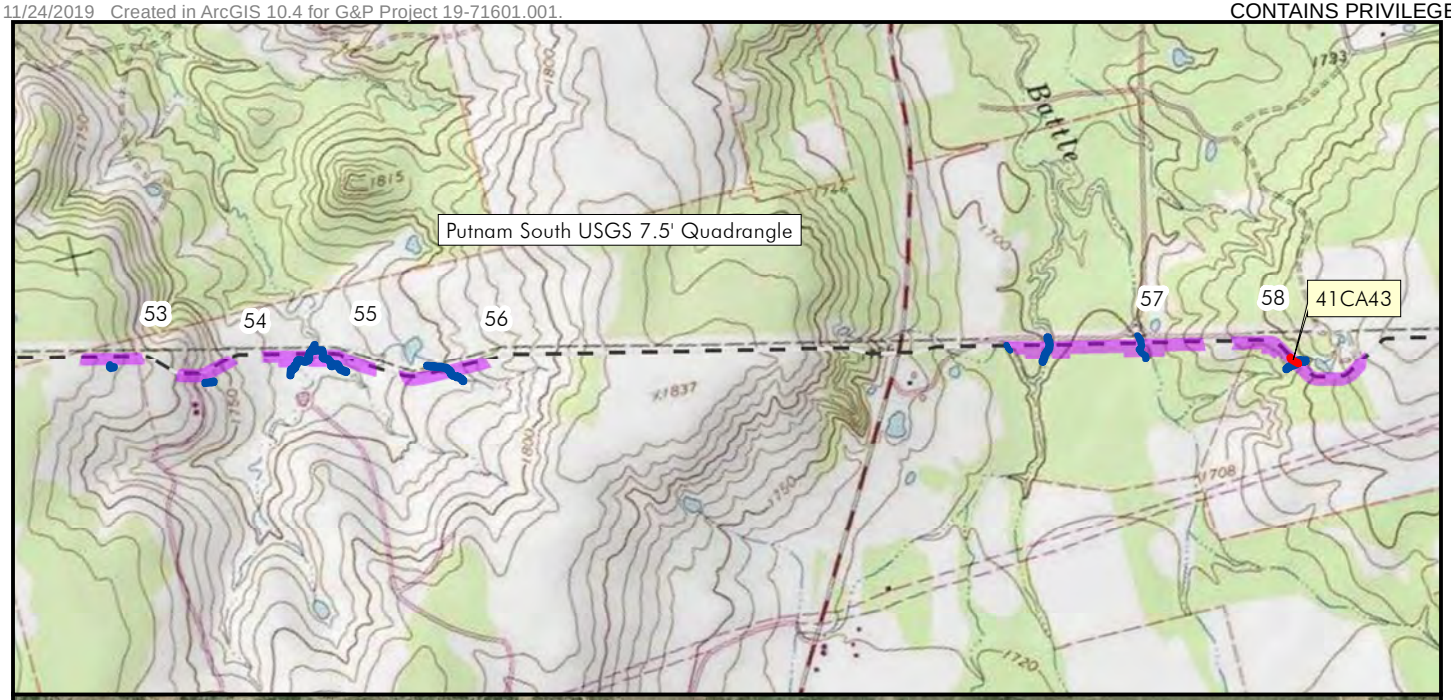
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

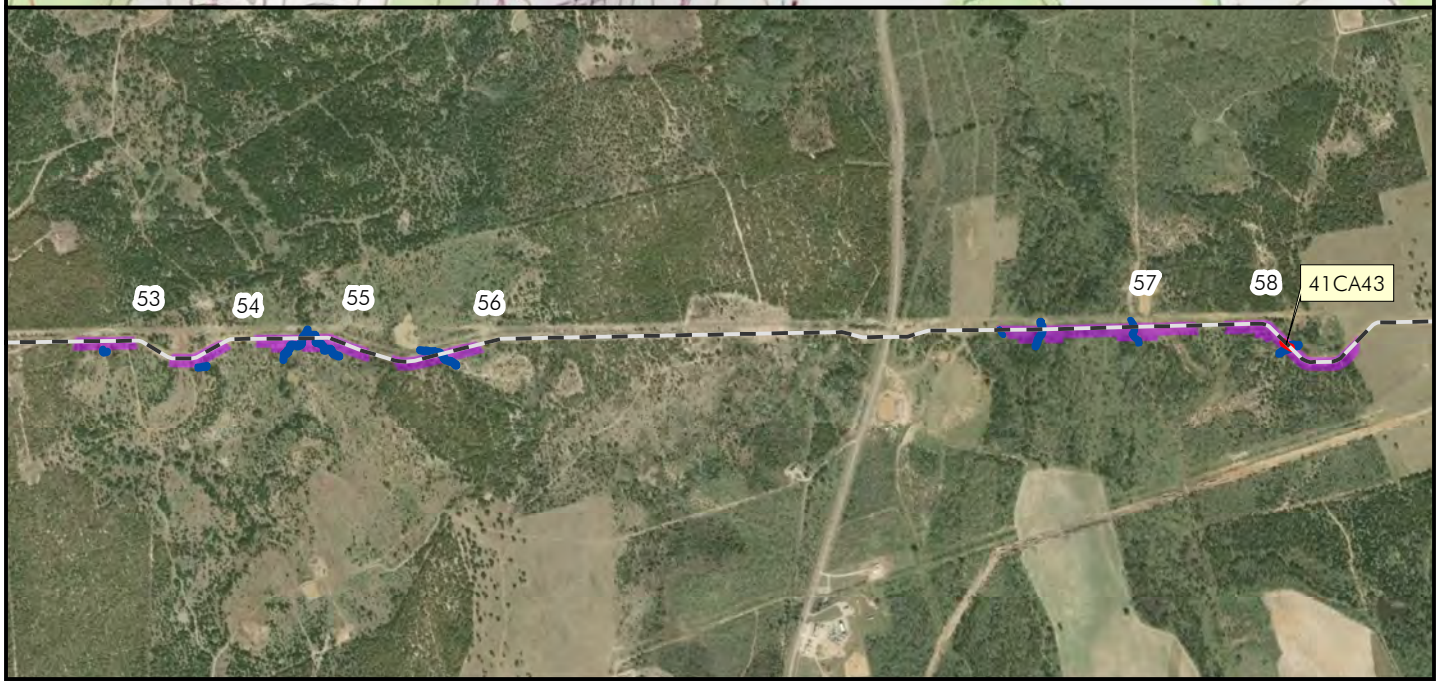
0 725 1,450 Feet
0 225 450 Meters
N

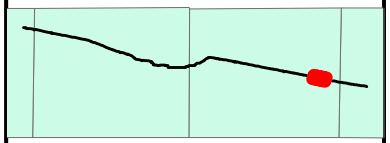
Permit areas within the Loop 2 project alignment.

Figure A24

GRAY & PAPE HERITAGE MANAGEMENT







Legend

- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

0 725 1,450 Feet

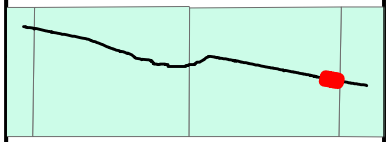
0 225 450 Meters

N

Permit areas within the Loop 2 project alignment.

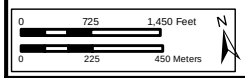
Figure A25

GRAY & PAPE HERITAGE MANAGEMENT



Legend

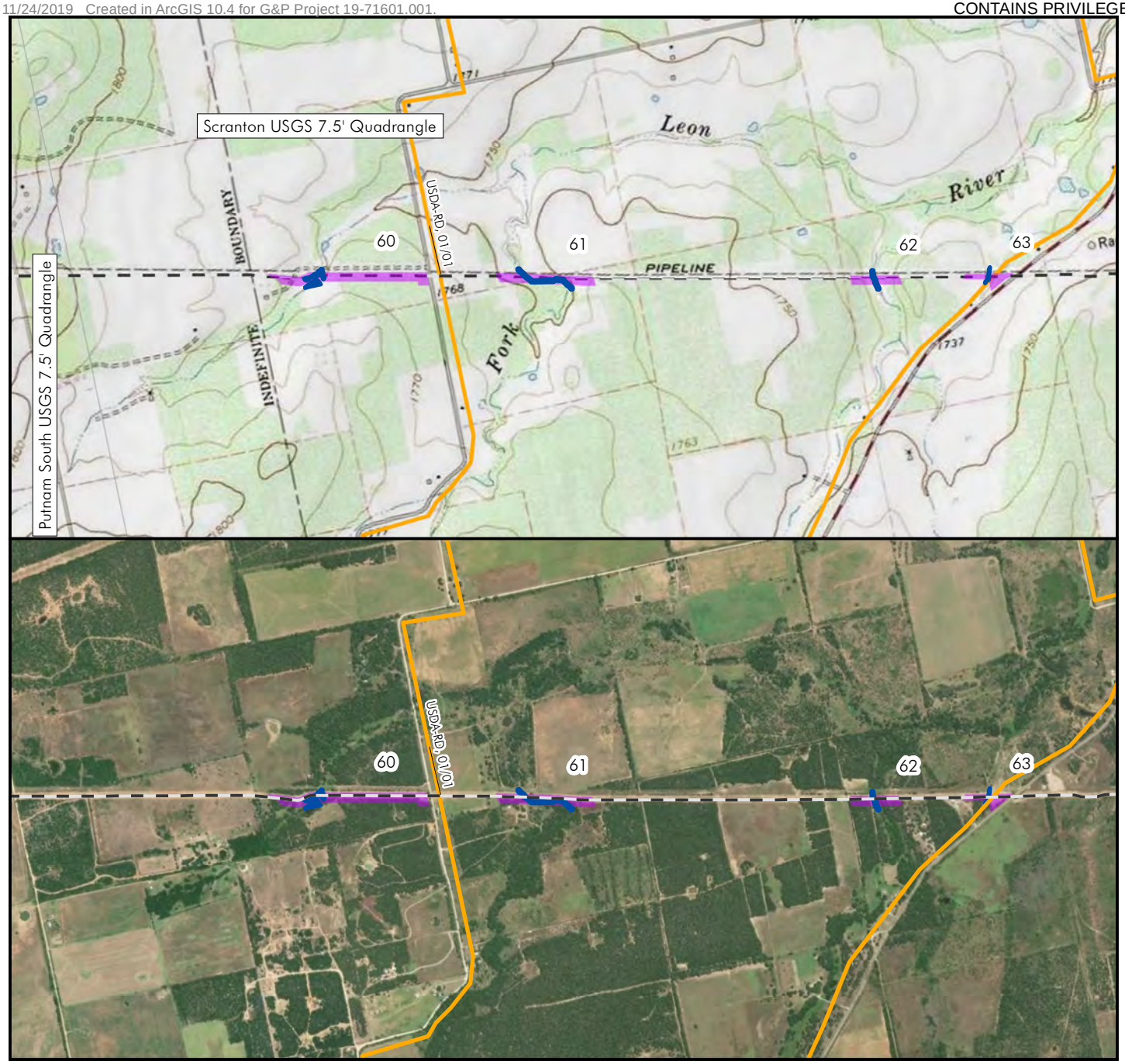
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

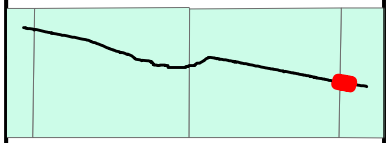


Permit areas within the Loop 2 project alignment.

Figure A26

GRAY & PAPE HERITAGE MANAGEMENT





Legend

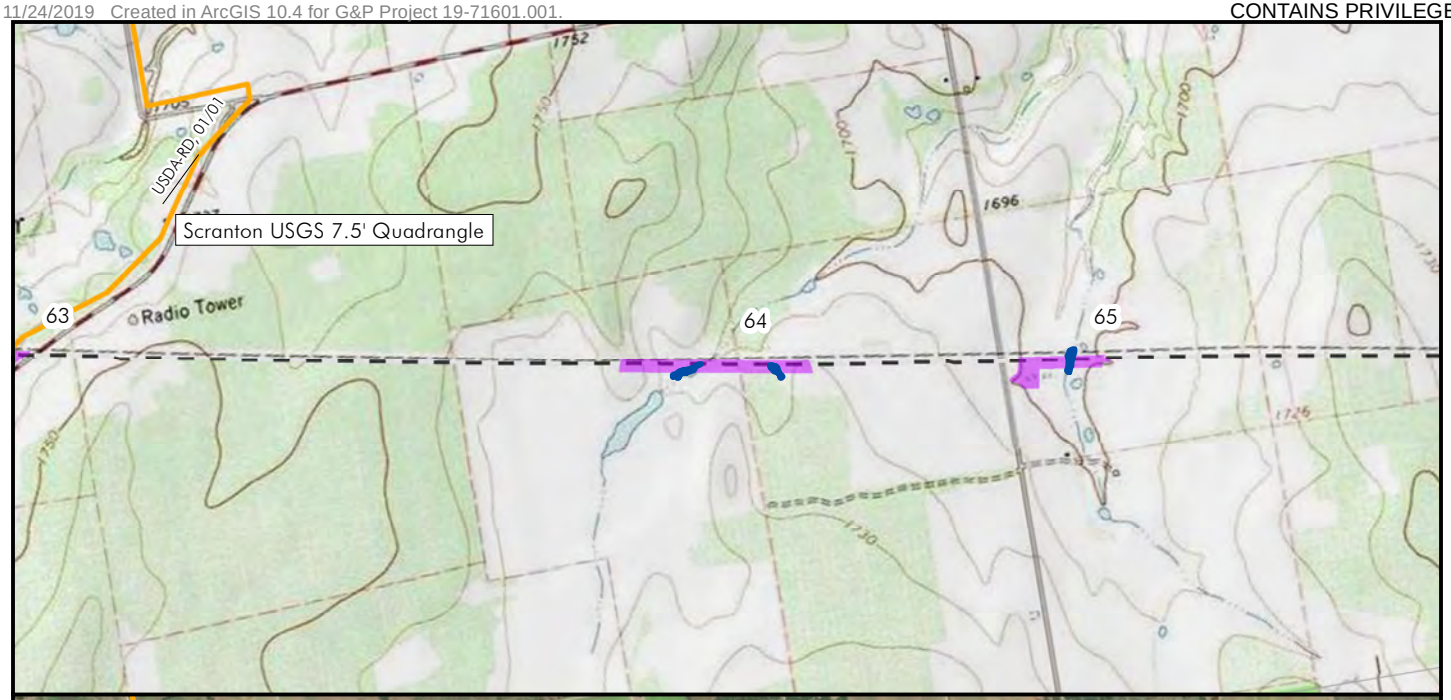
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

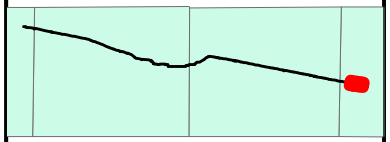
0 725 1,450 Feet
0 225 450 Meters
N

Permit areas within the Loop 2 project alignment.

Figure A27

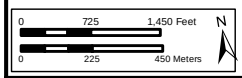
GRAY & PAPE HERITAGE MANAGEMENT





Legend

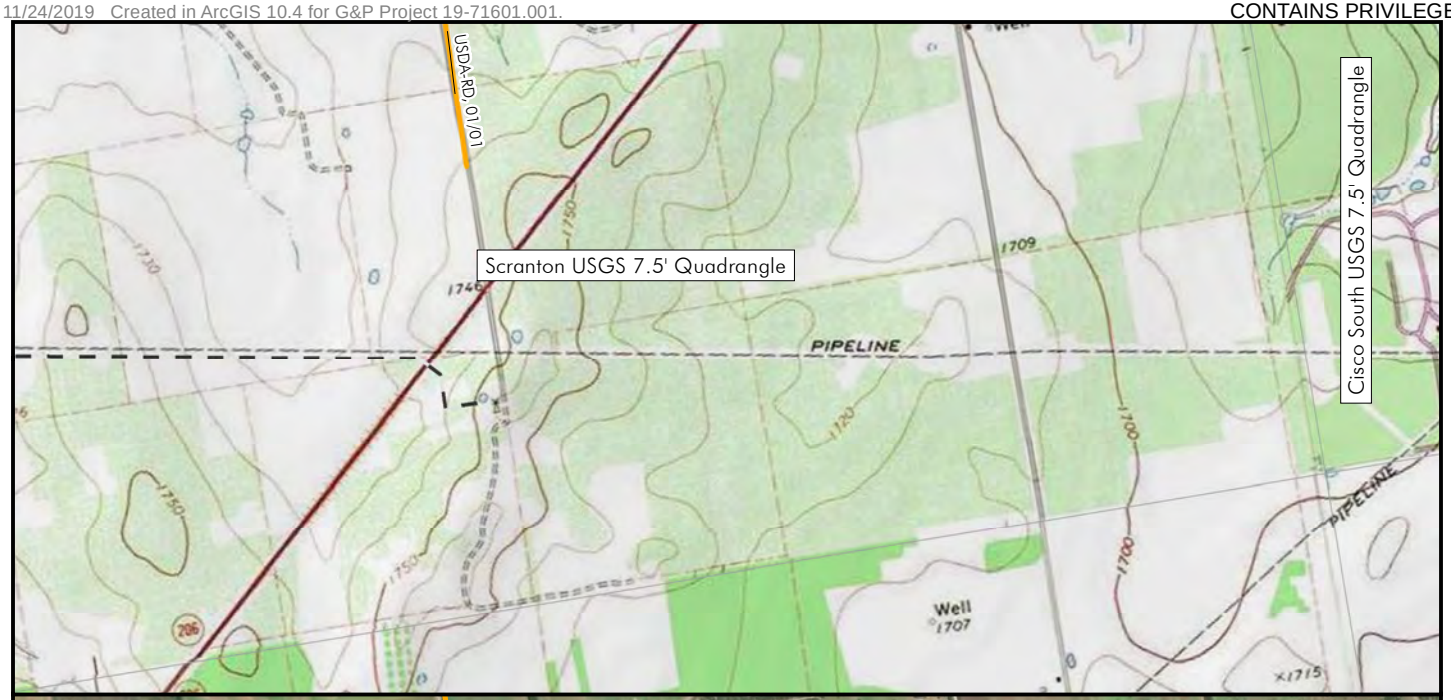
- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

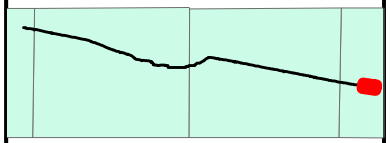


Permit areas within the Loop 2 project alignment.

Figure A28

GRAY & PAPE HERITAGE MANAGEMENT





Legend

- Isolate Find
- New / Expanded Sites
- Previously Recorded Sites
- Field Delineated Water Features
- Permit Area Location and Number
- Project Centerline
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

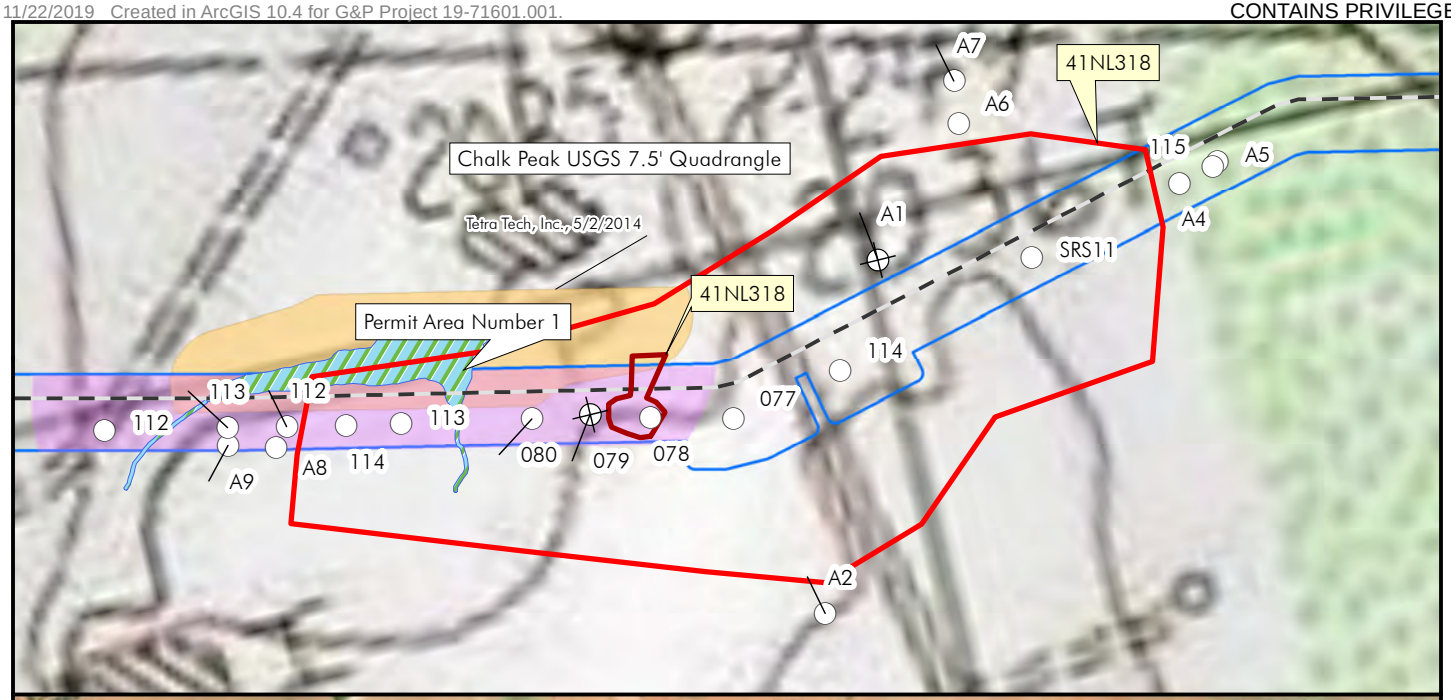
0 725 1,450 Feet
0 225 450 Meters
N

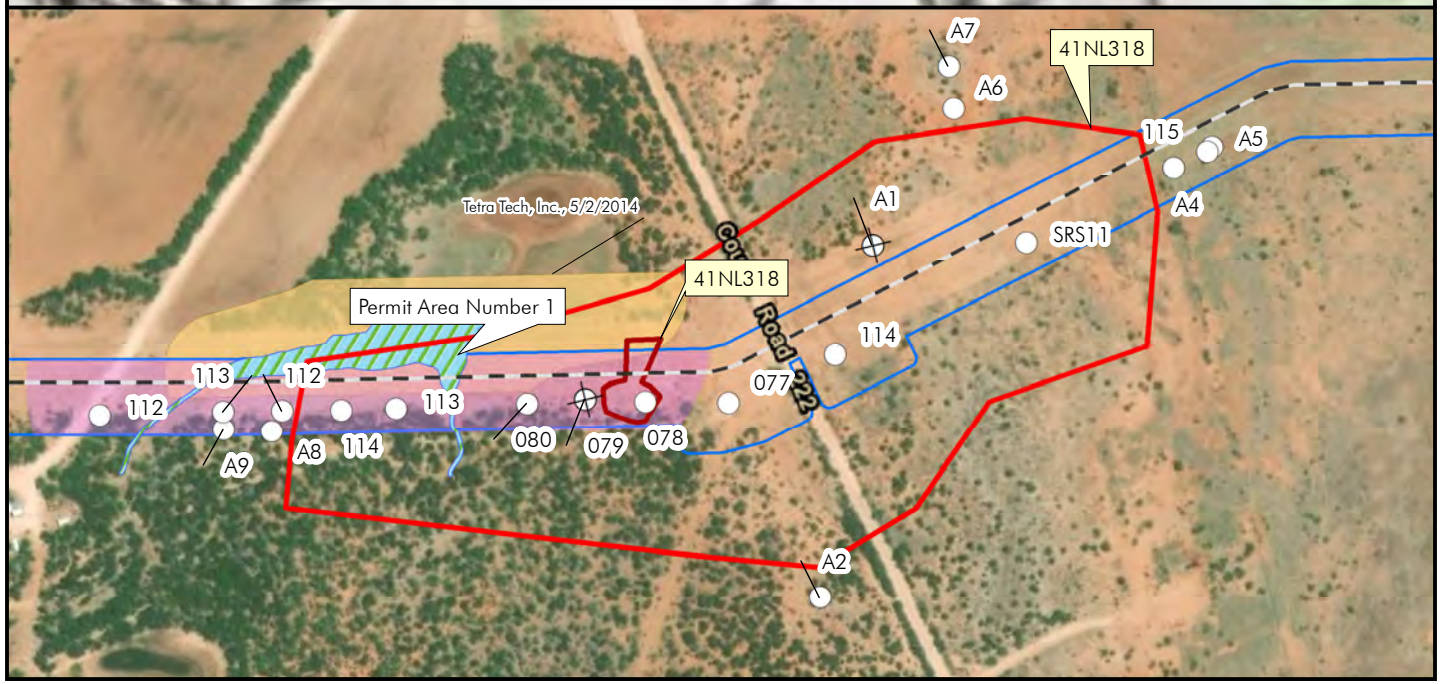
Permit areas within the Loop 2 project alignment.

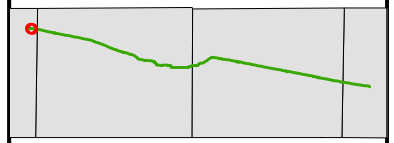
Figure A29

GRAY & PAPE HERITAGE MANAGEMENT

APPENDIX B: FIELD RESULTS WITHIN PERMIT AREAS ALONG THE LOOP 2 PROJECT ALIGNMENT.

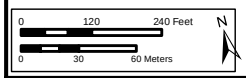






Legend

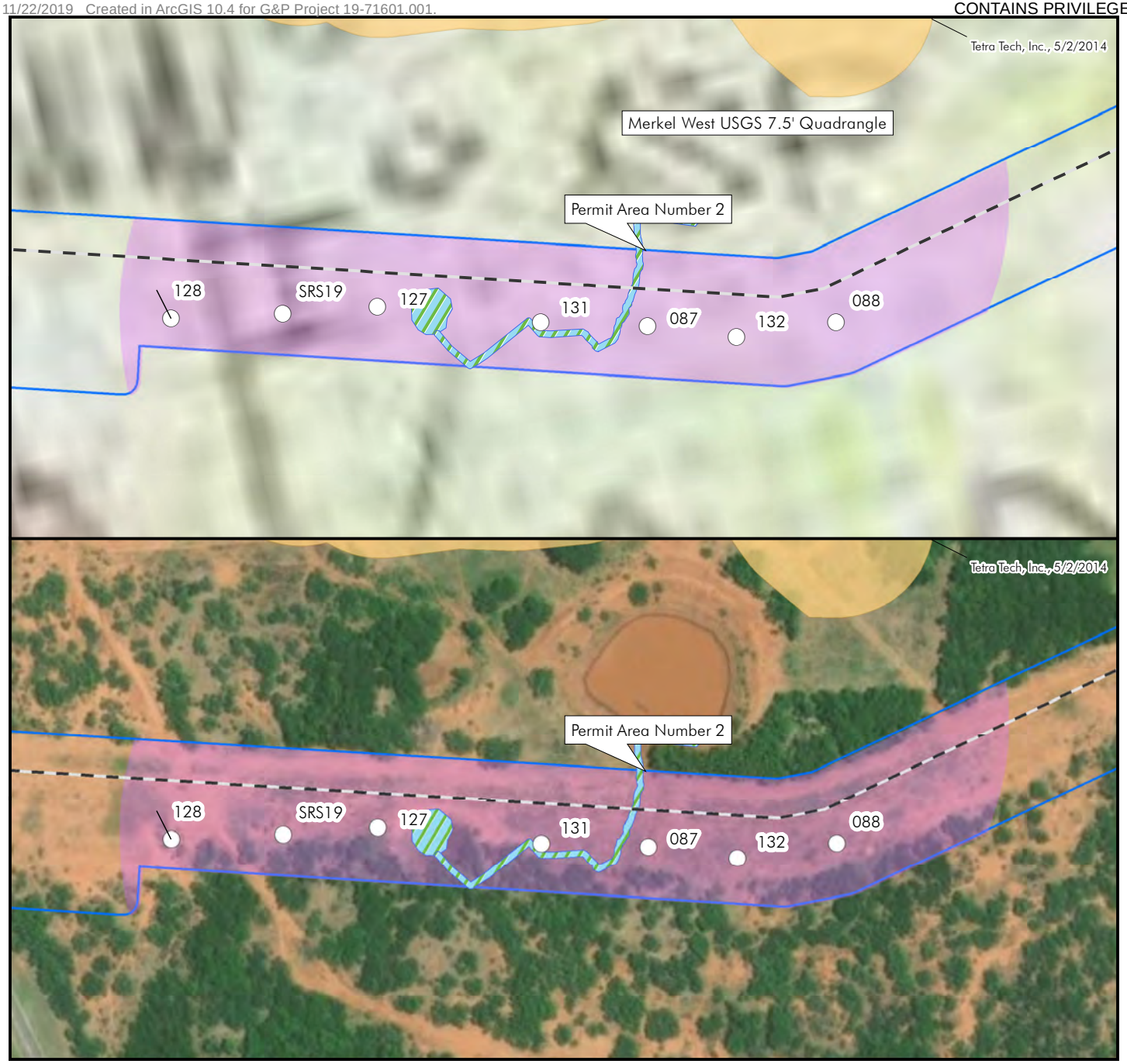
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

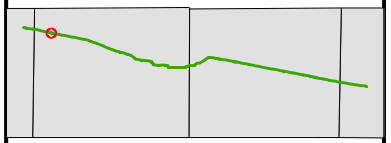


Field results within permit areas along the Loop 2 project alignment.

Figure B1

GRAY & PAPE HERITAGE MANAGEMENT





Legend

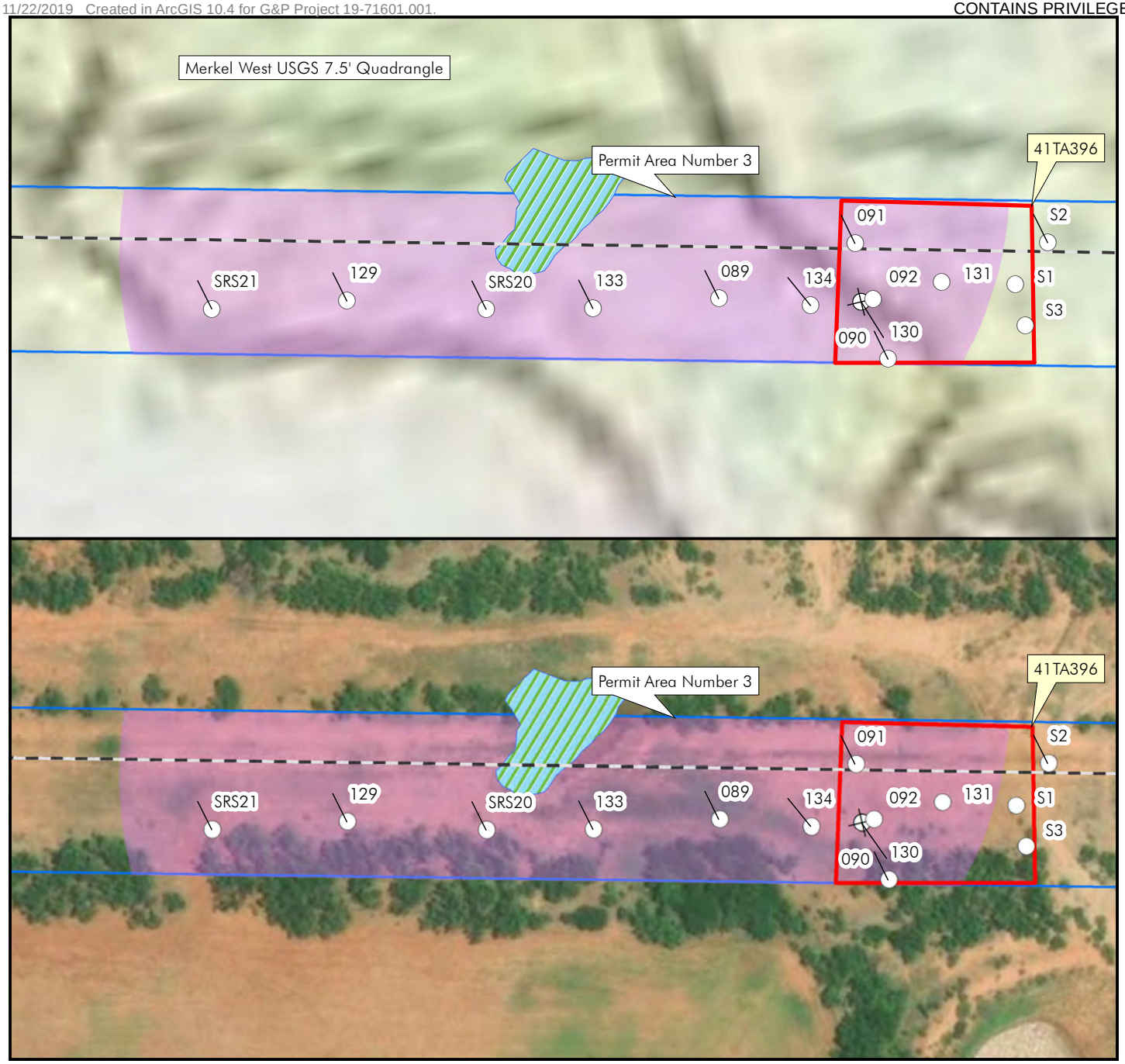
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

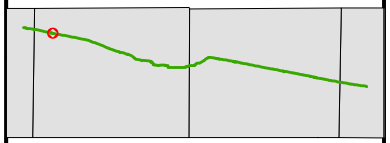
0 50 100 Feet
0 10 20 Meters
N

Field results within permit areas along the Loop 2 project alignment.

Figure B2

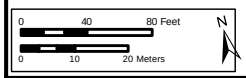
GRAY & PAPE HERITAGE MANAGEMENT





Legend

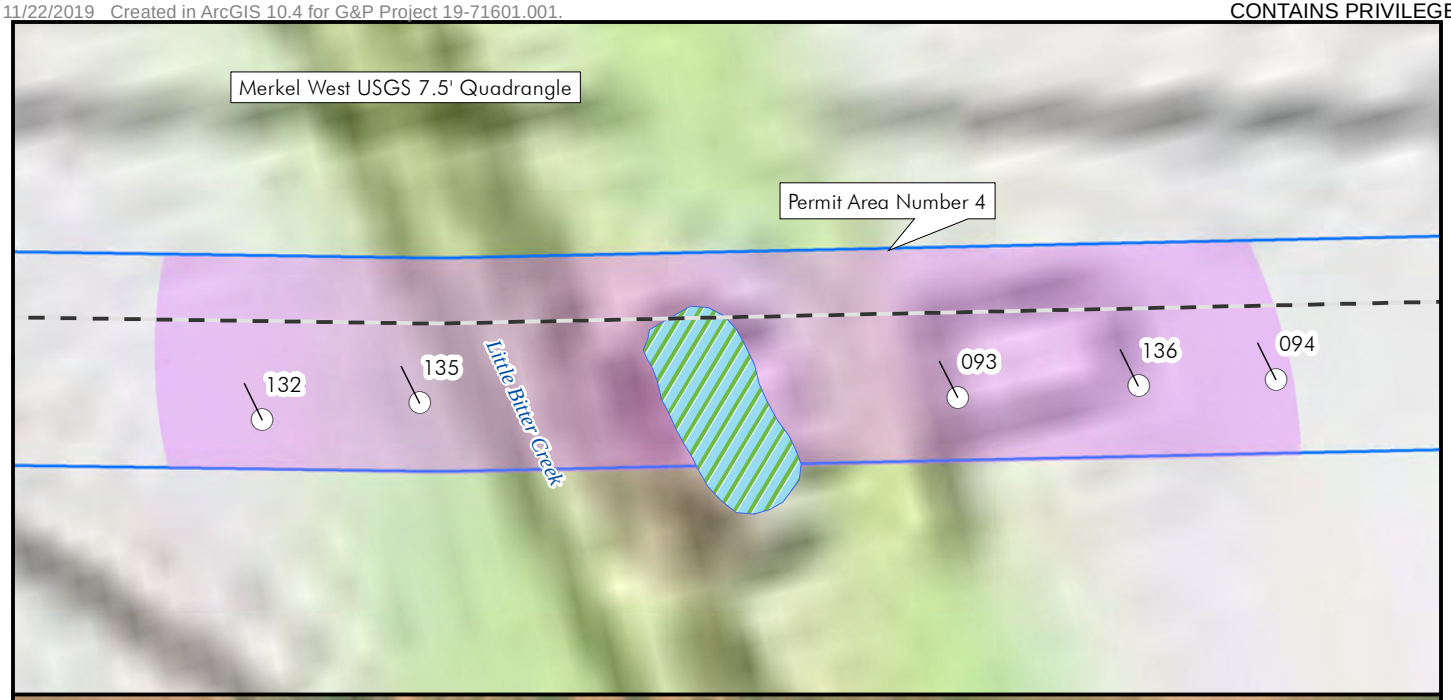
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

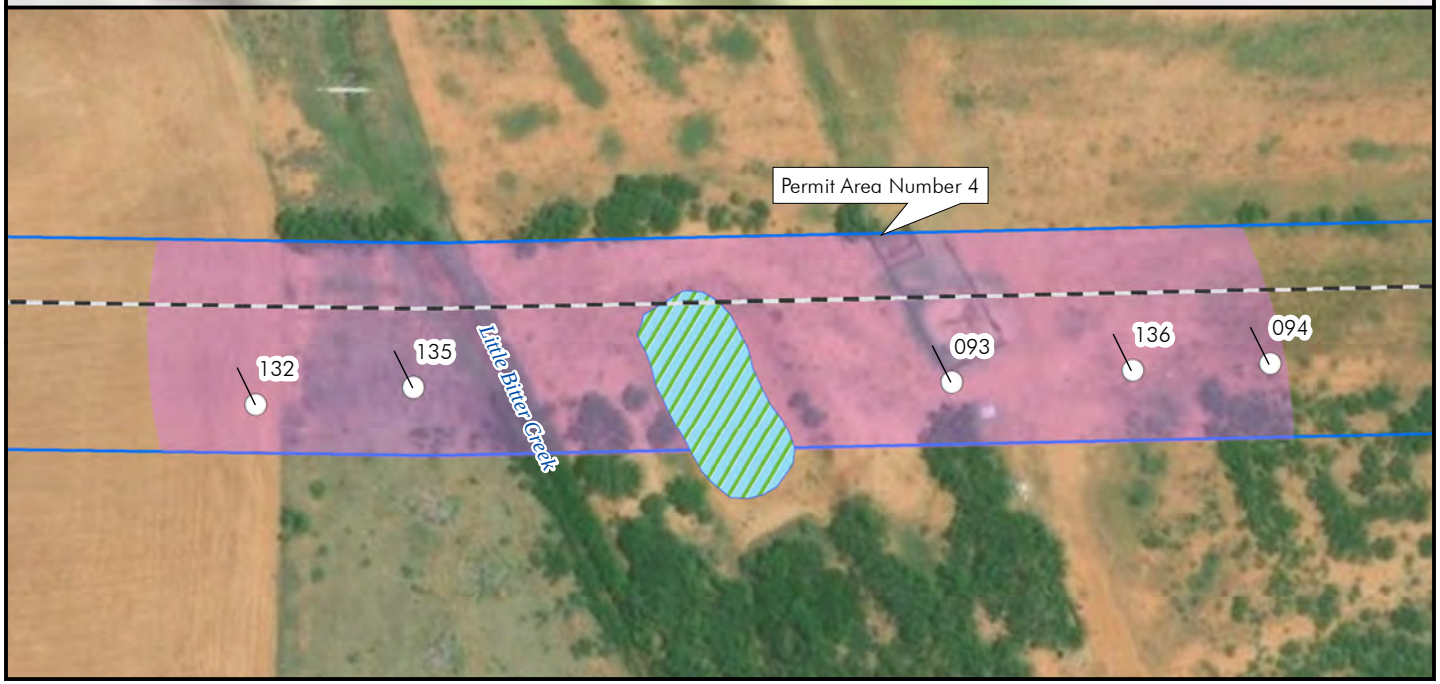


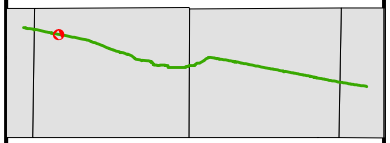
Field results within permit areas along the Loop 2 project alignment.

Figure B3

GRAY & PAPE HERITAGE MANAGEMENT

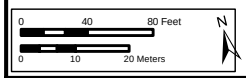






Legend

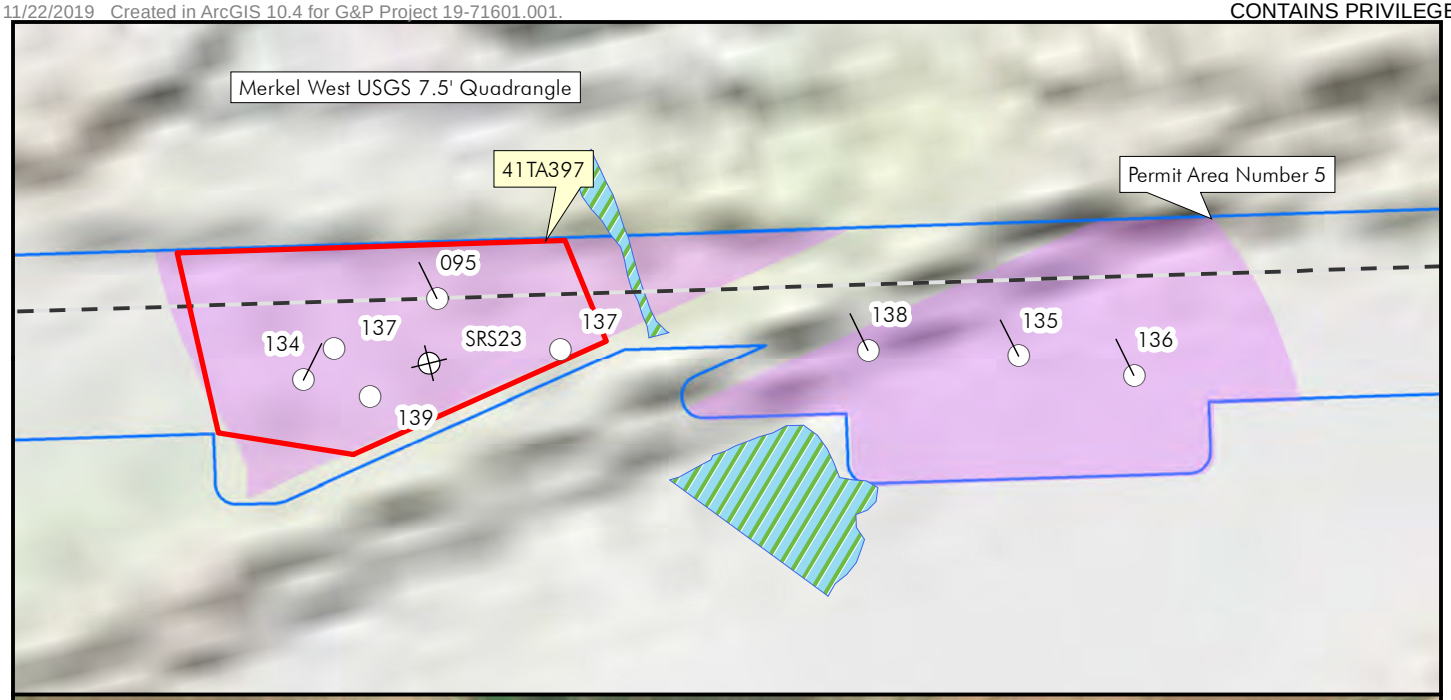
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

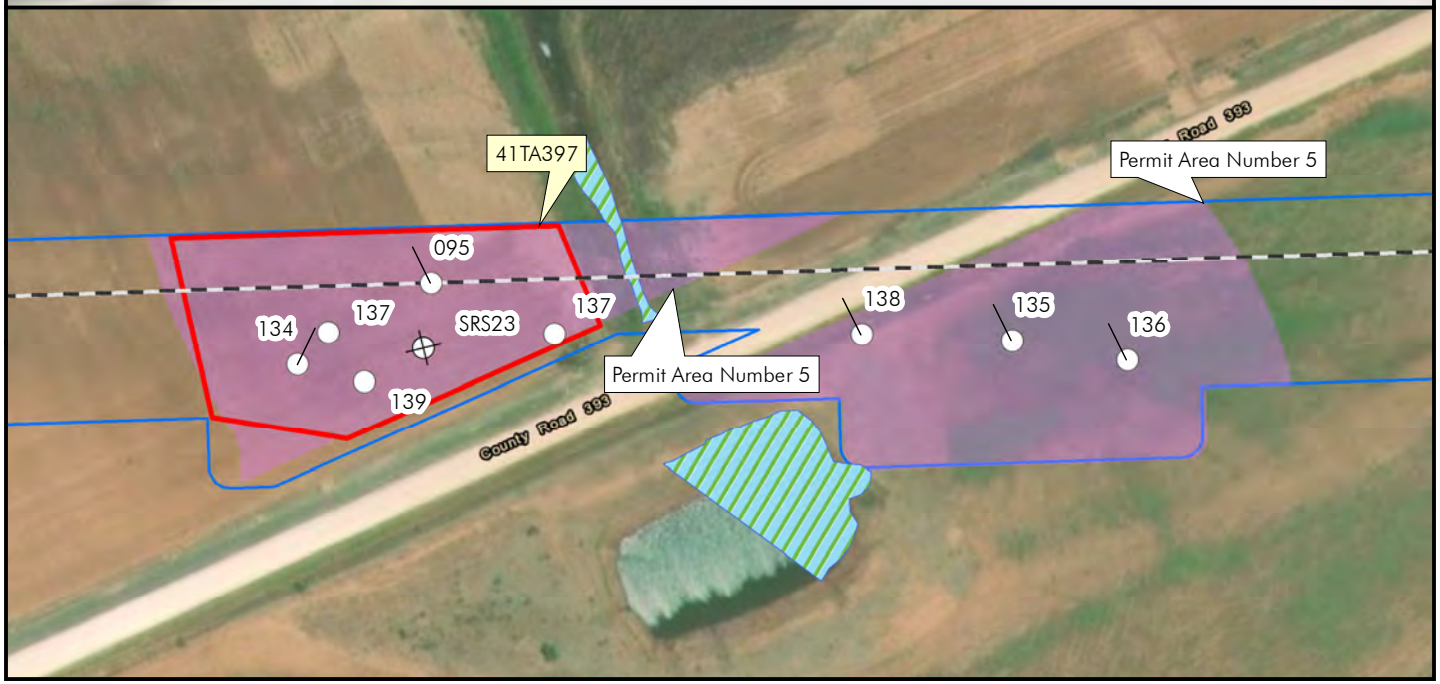


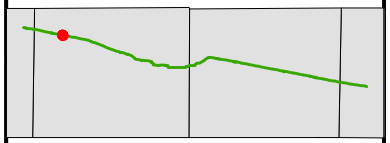
Field results within permit areas along the Loop 2 project alignment.

Figure B4

GRAY & PAPE
HERITAGE MANAGEMENT

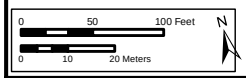






Legend

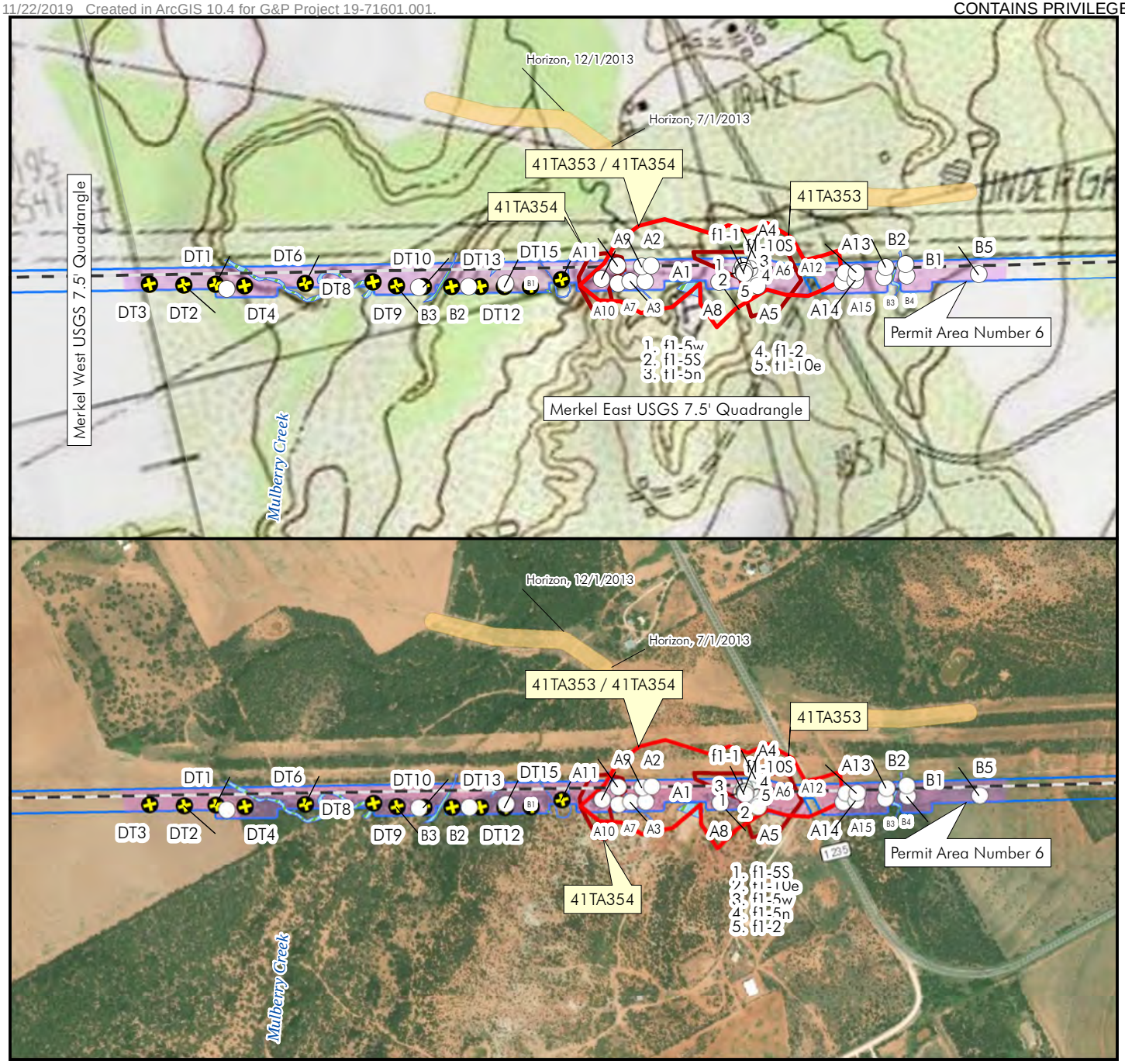
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

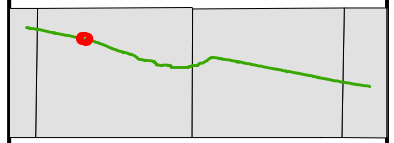


Field results within permit areas along the Loop 2 project alignment.

Figure B5

GRAY & PAPE HERITAGE MANAGEMENT





Legend

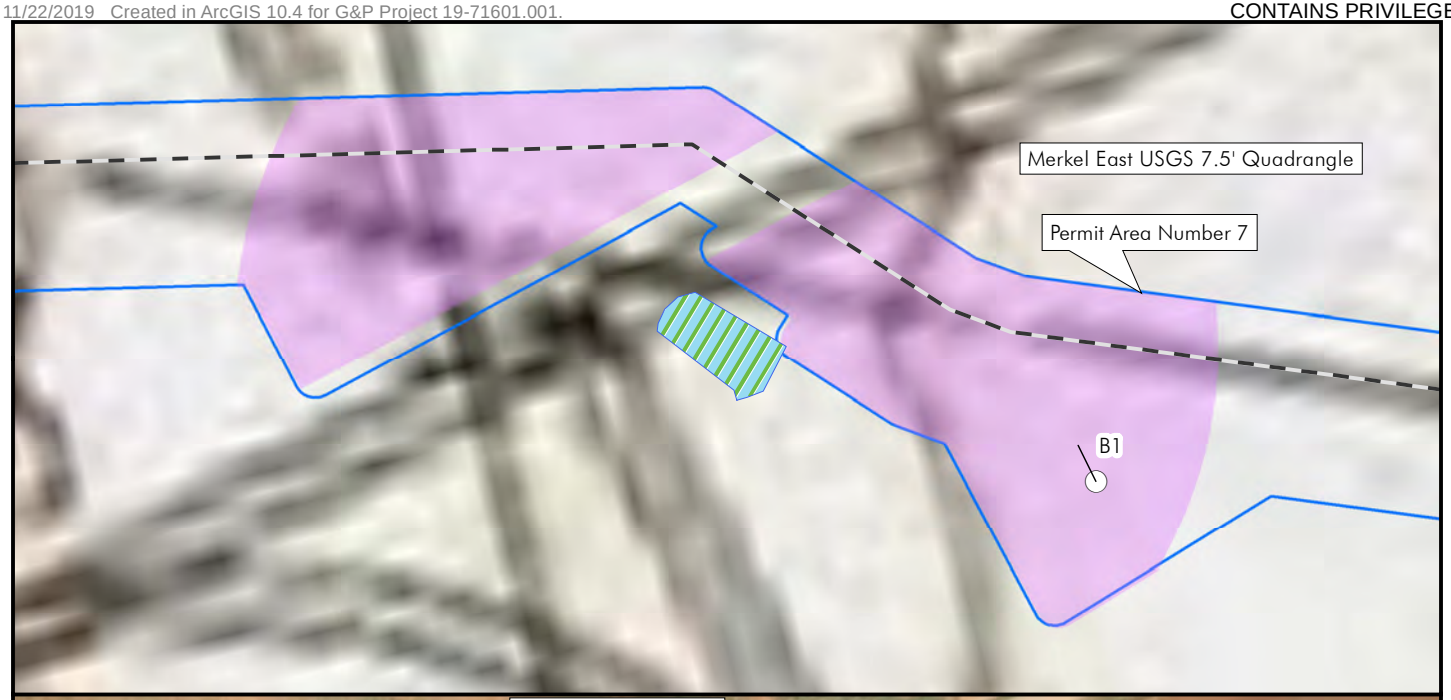
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

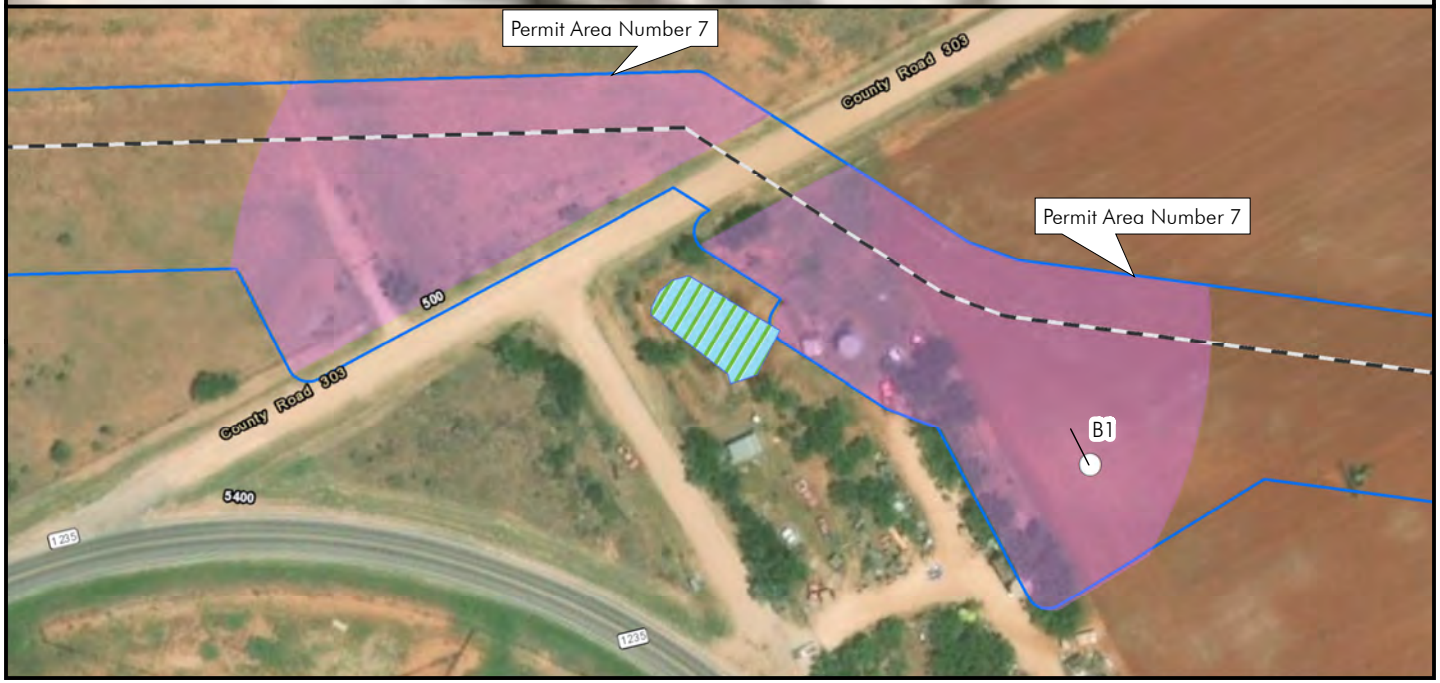
0 320 640 Feet
0 90 180 Meters
N

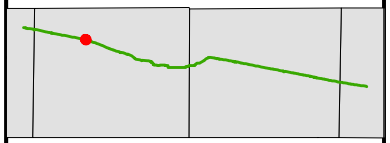
Field results within permit areas along the Loop 2 project alignment.

Figure B6

GRAY & PAPE HERITAGE MANAGEMENT

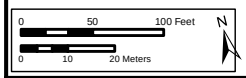






Legend

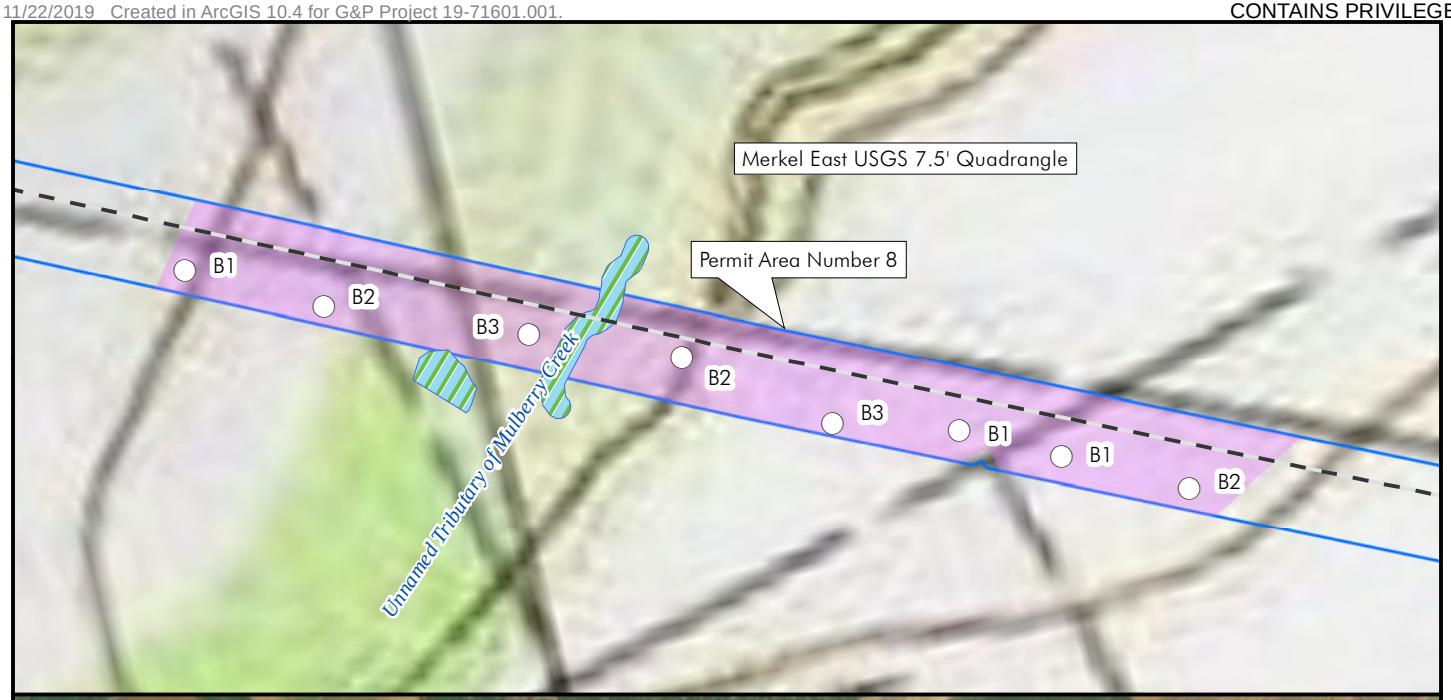
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

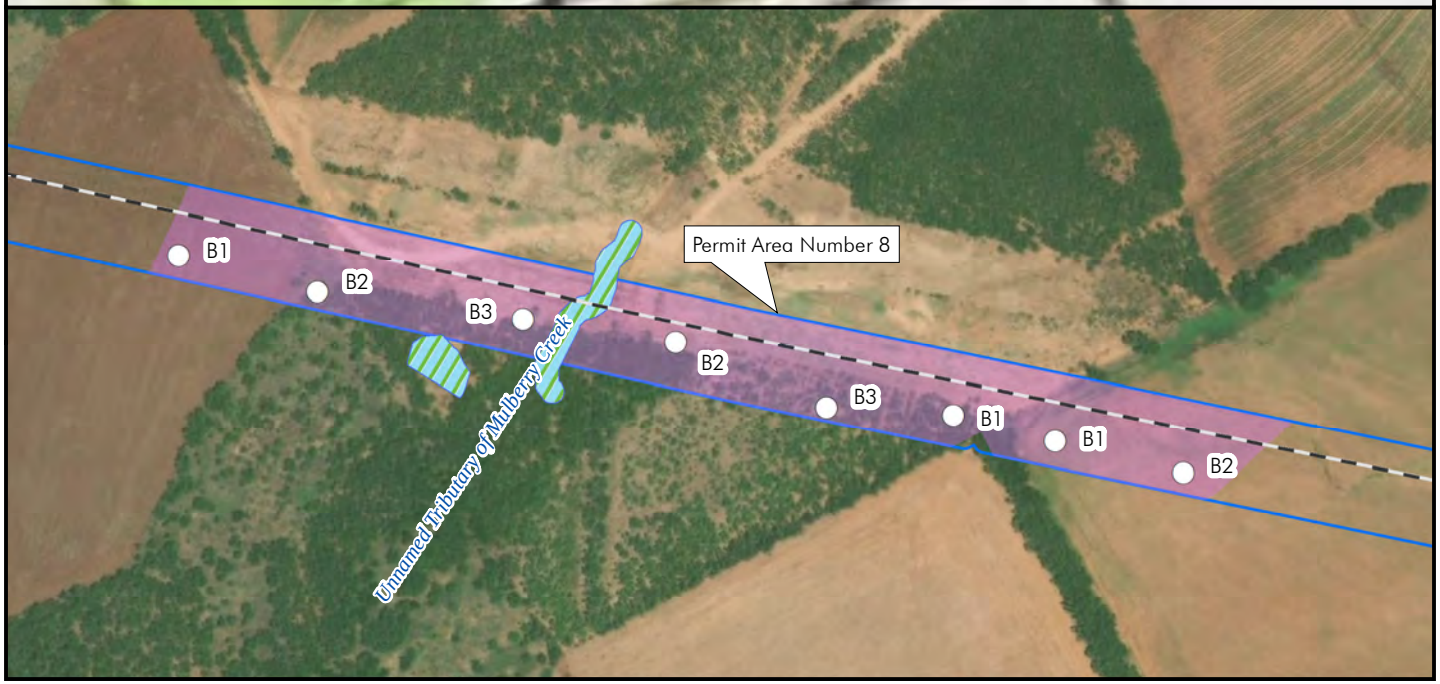


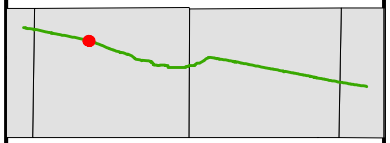
Field results within permit areas along the Loop 2 project alignment.

Figure B7

GRAY & PAPE HERITAGE MANAGEMENT

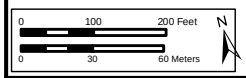






Legend

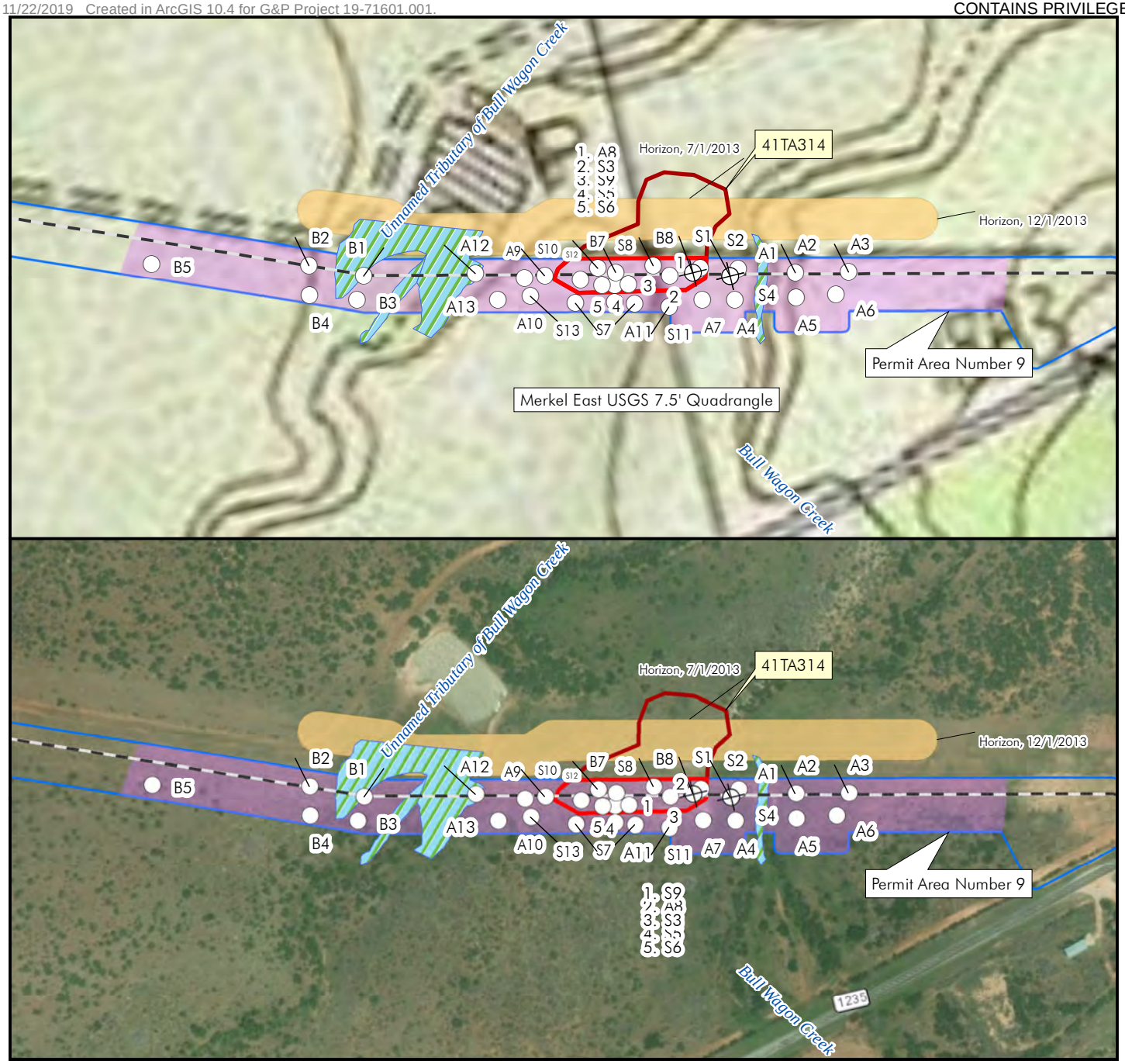
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

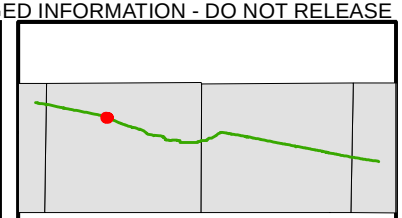


Field results within permit areas along the Loop 2 project alignment.

Figure B8

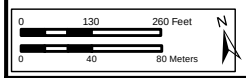
GRAY & PAPE HERITAGE MANAGEMENT





Legend

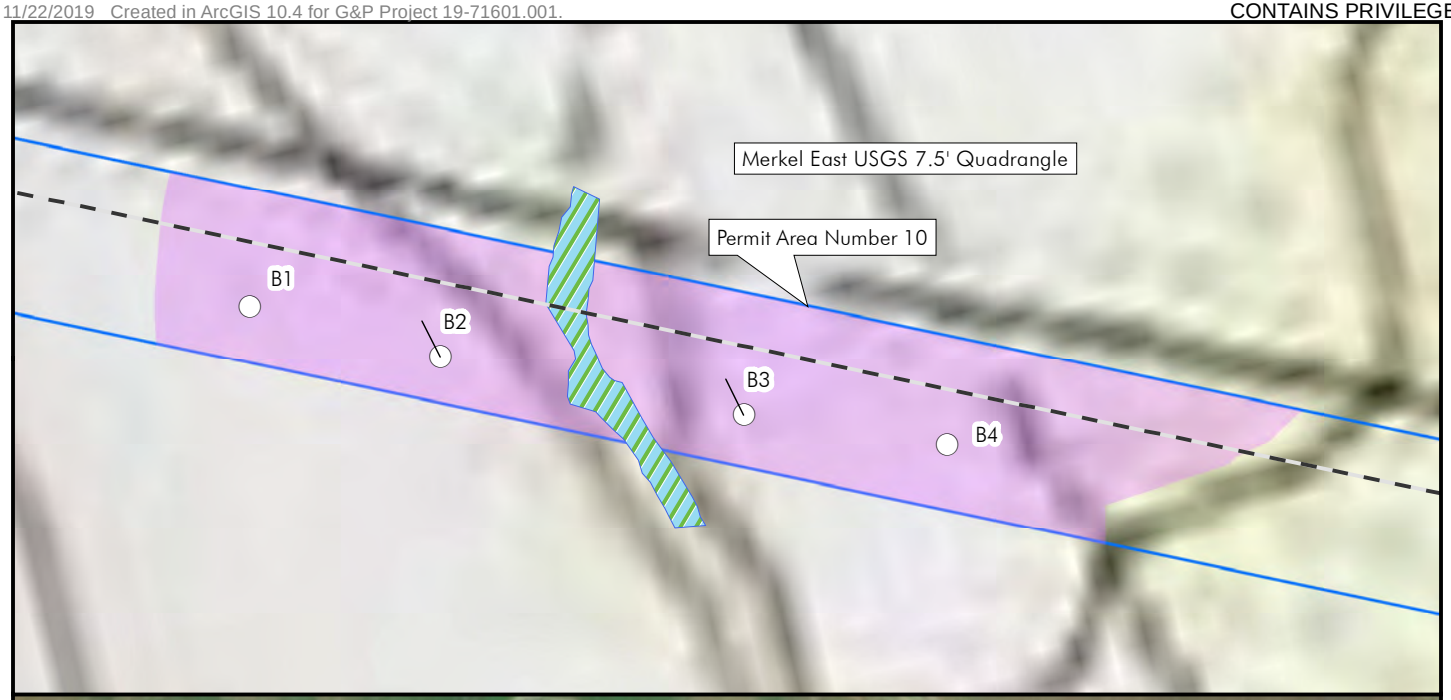
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

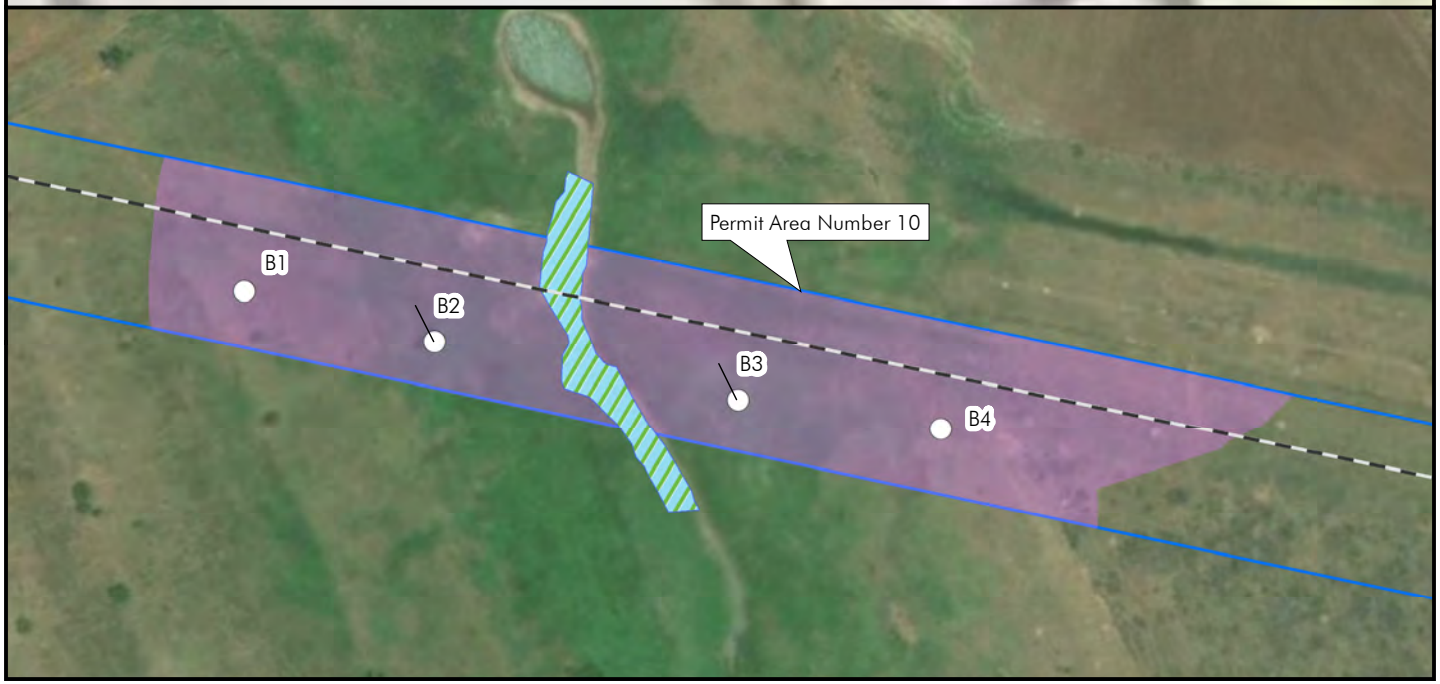


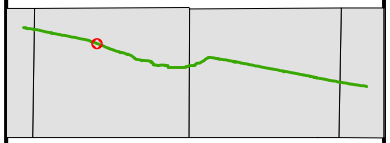
Field results within permit areas along the Loop 2 project alignment.

Figure B9

GRAY & PAPE HERITAGE MANAGEMENT

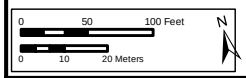






Legend

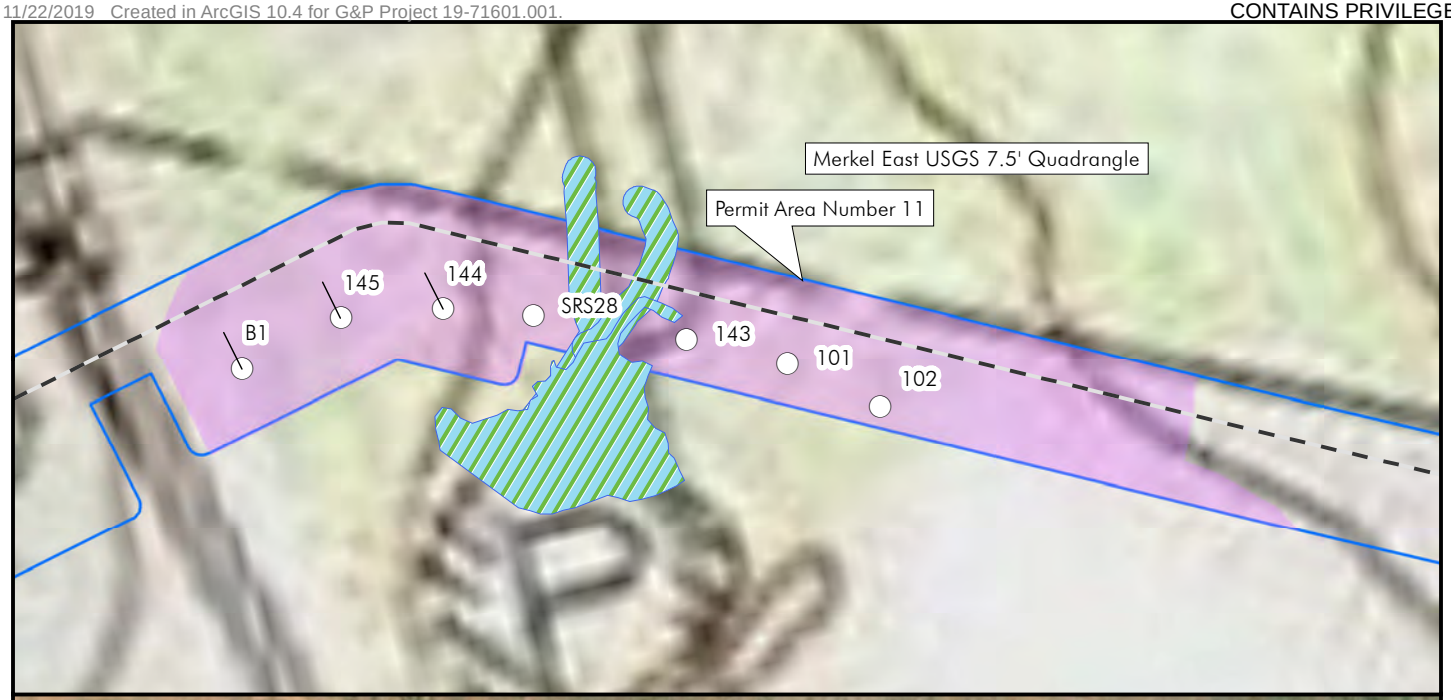
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

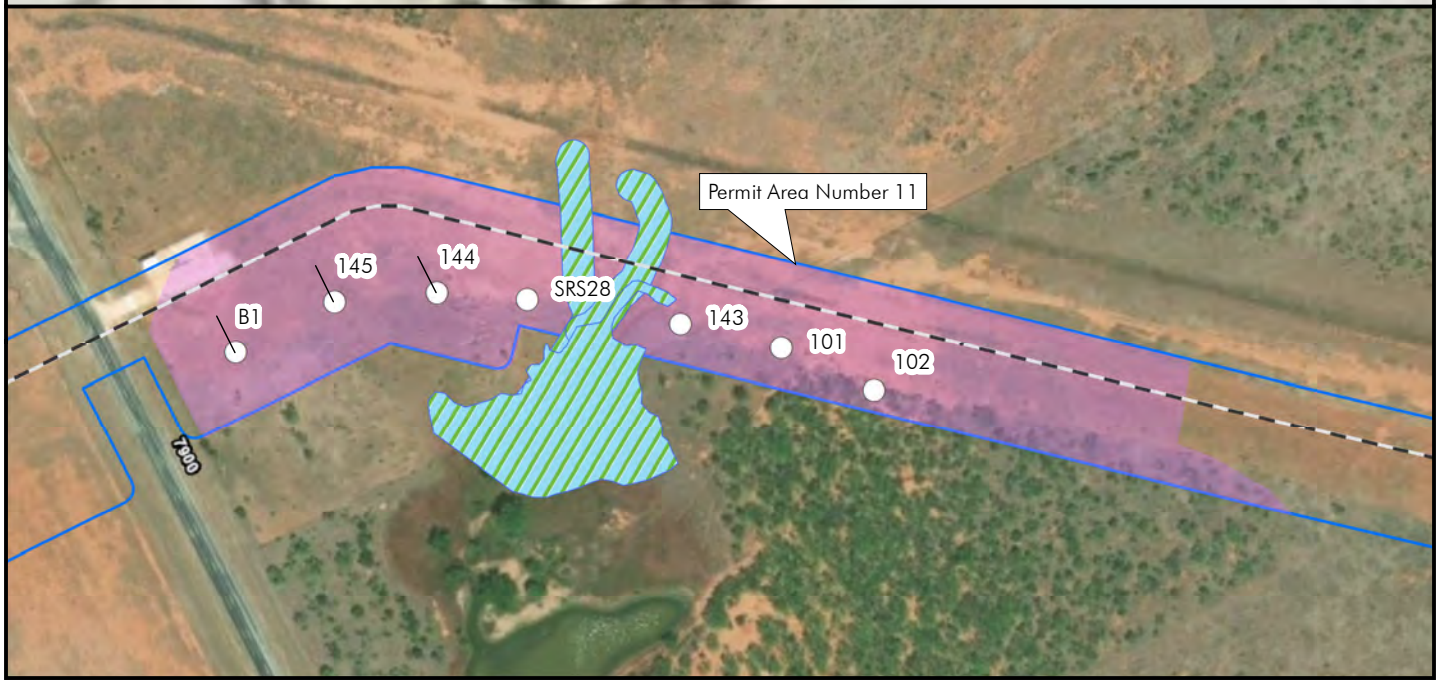


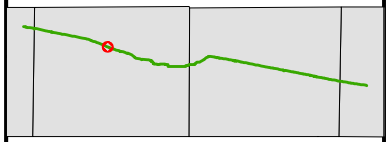
Field results within permit areas along the Loop 2 project alignment.

Figure B10

GRAY & PAPE HERITAGE MANAGEMENT

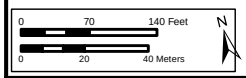






Legend

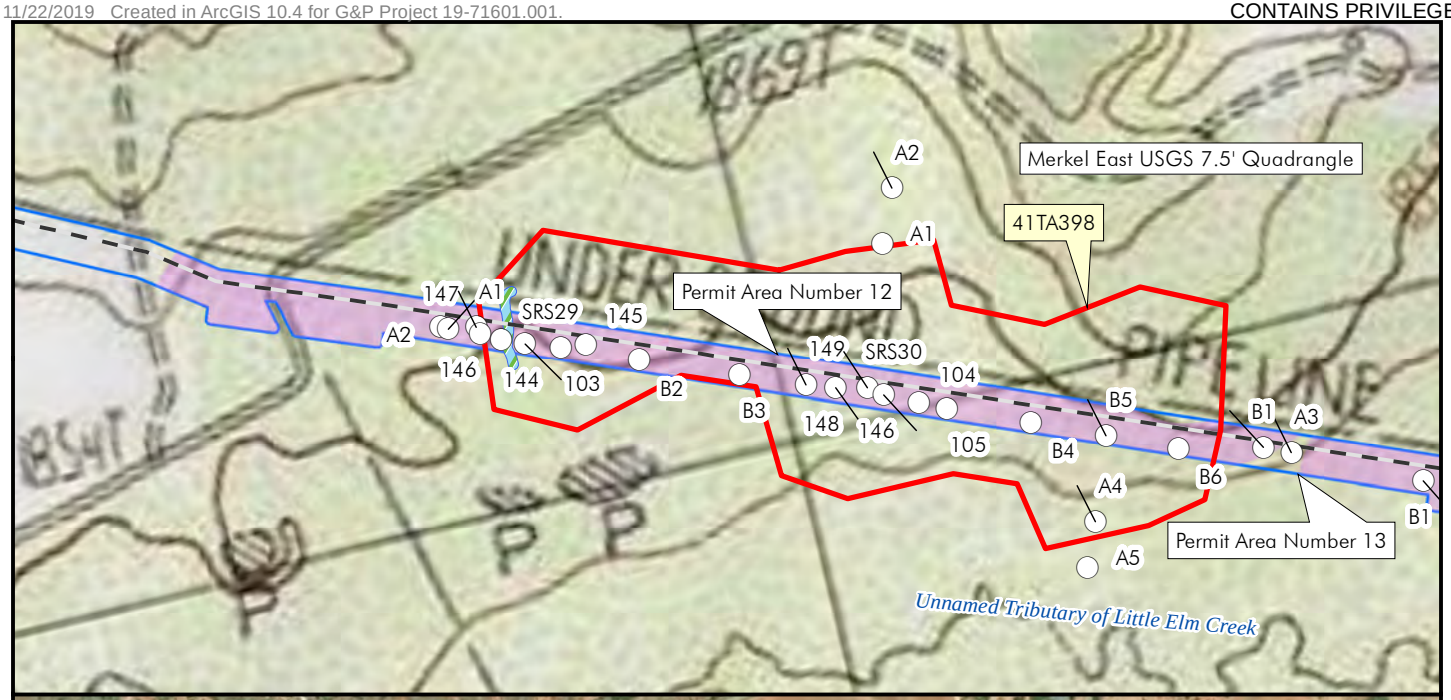
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

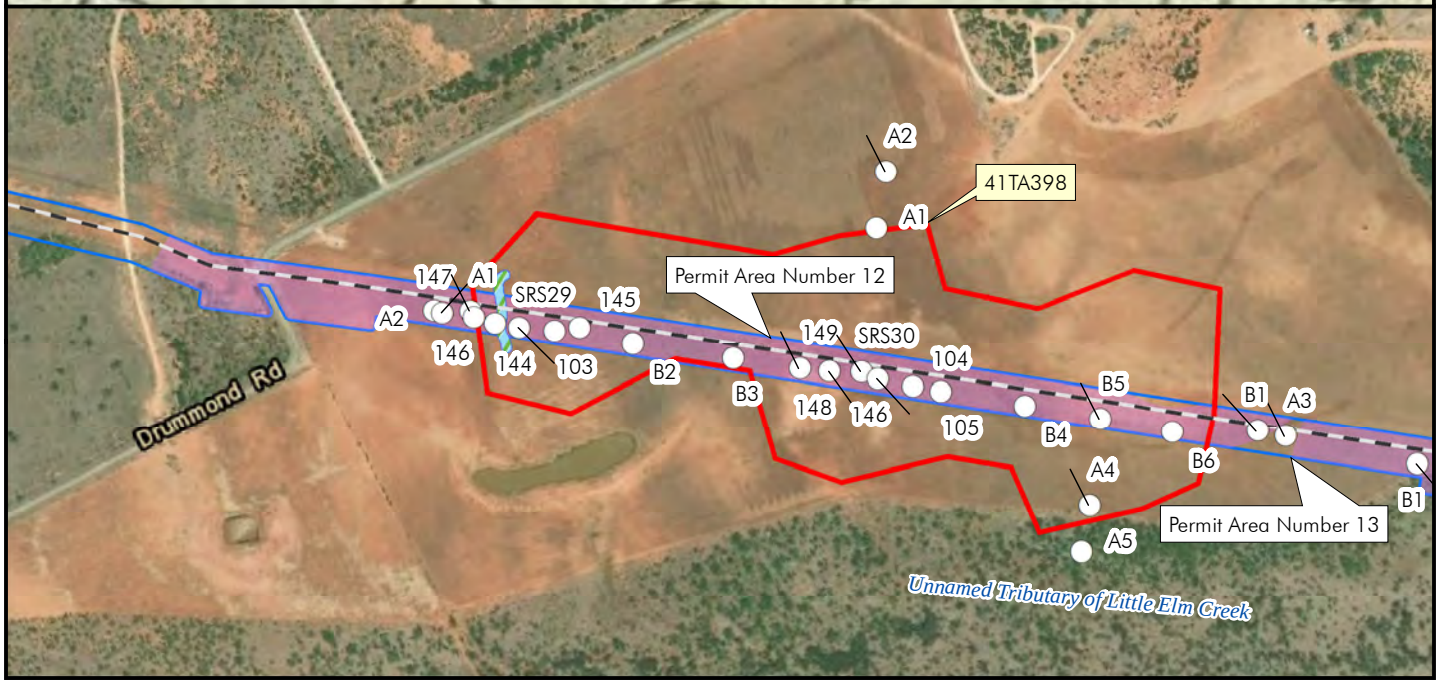


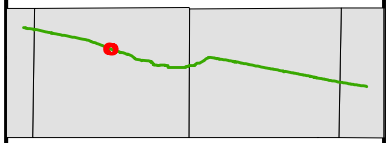
Field results within permit areas along the Loop 2 project alignment.

Figure B11

GRAY & PAPE HERITAGE MANAGEMENT







Legend

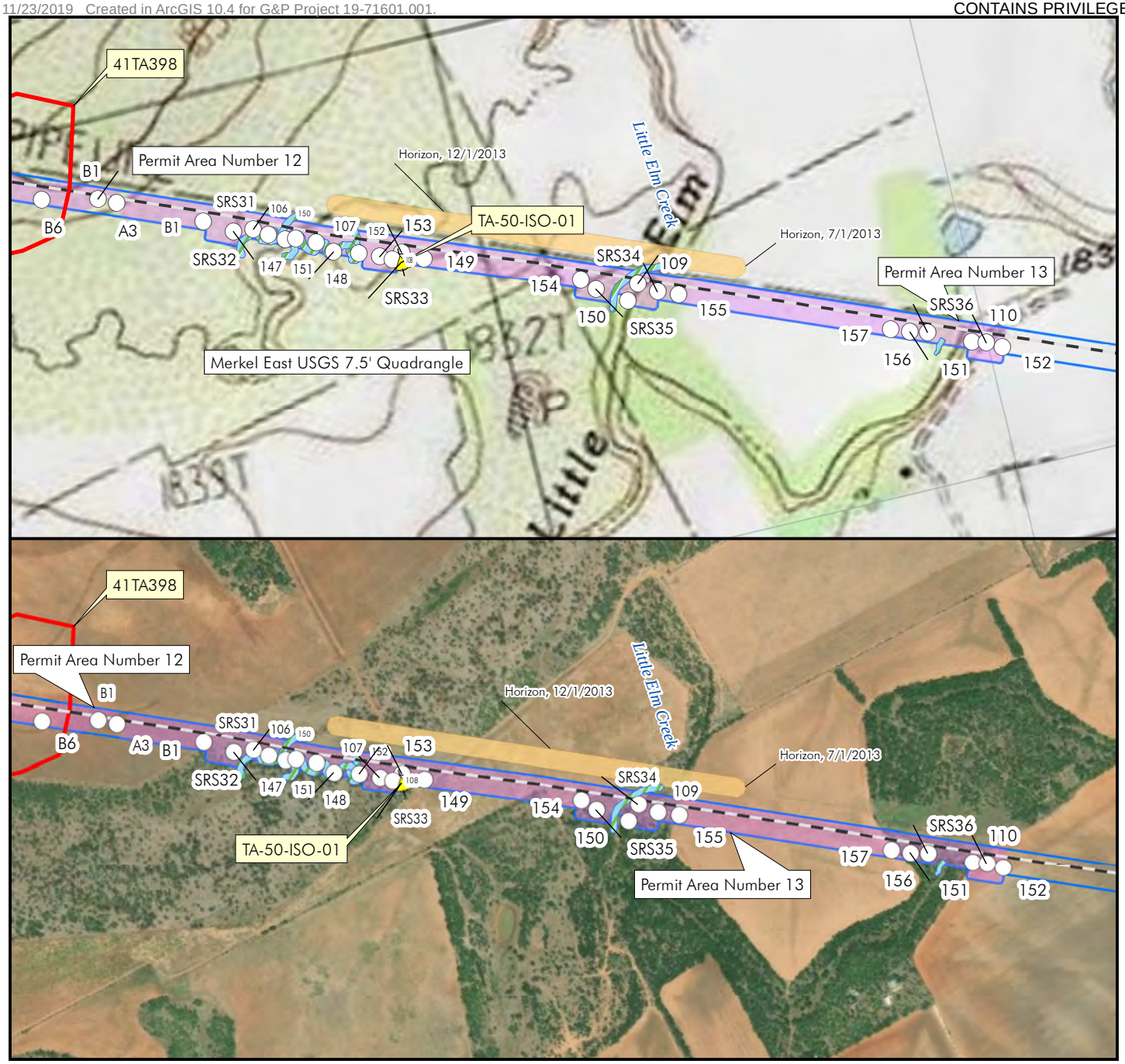
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

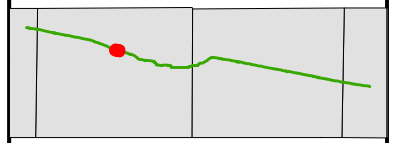
0 230 460 Feet
0 70 140 Meters
N

Field results within permit areas along the Loop 2 project alignment.

Figure B12

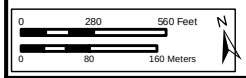
GRAY & PAPE HERITAGE MANAGEMENT





Legend

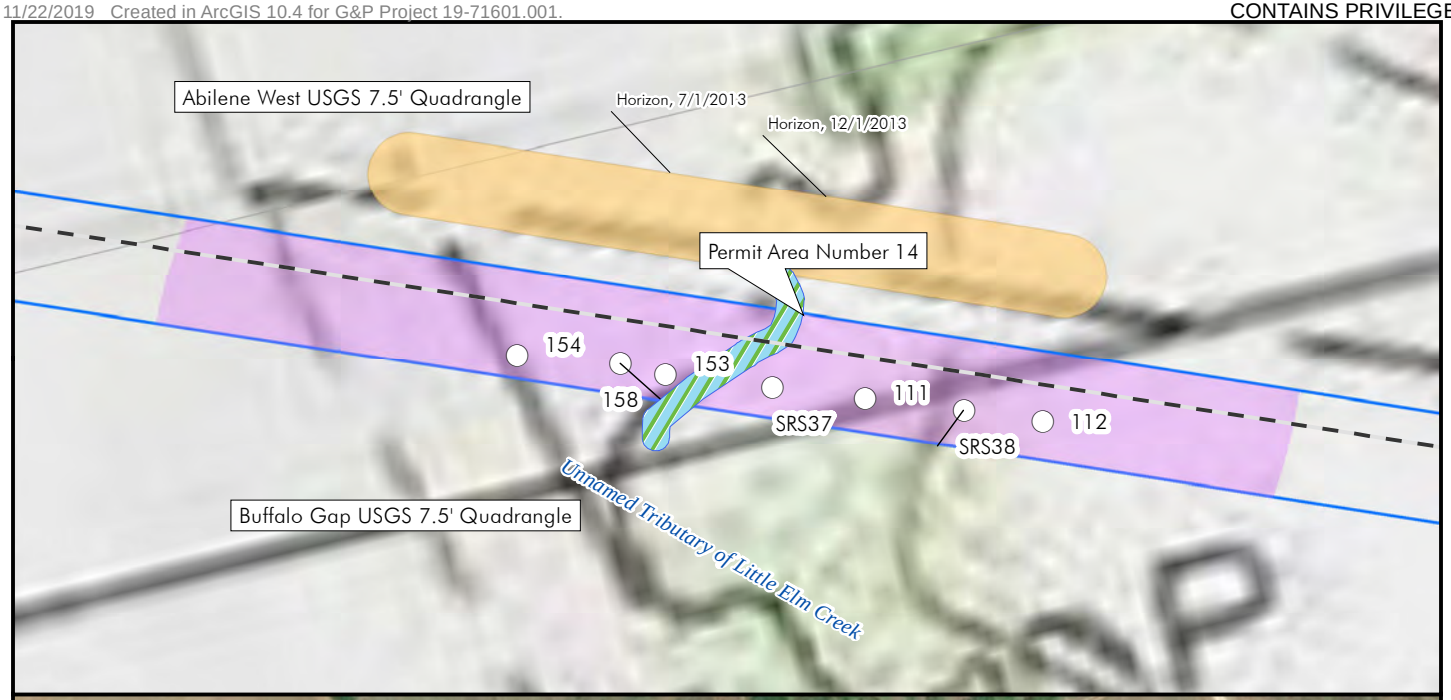
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

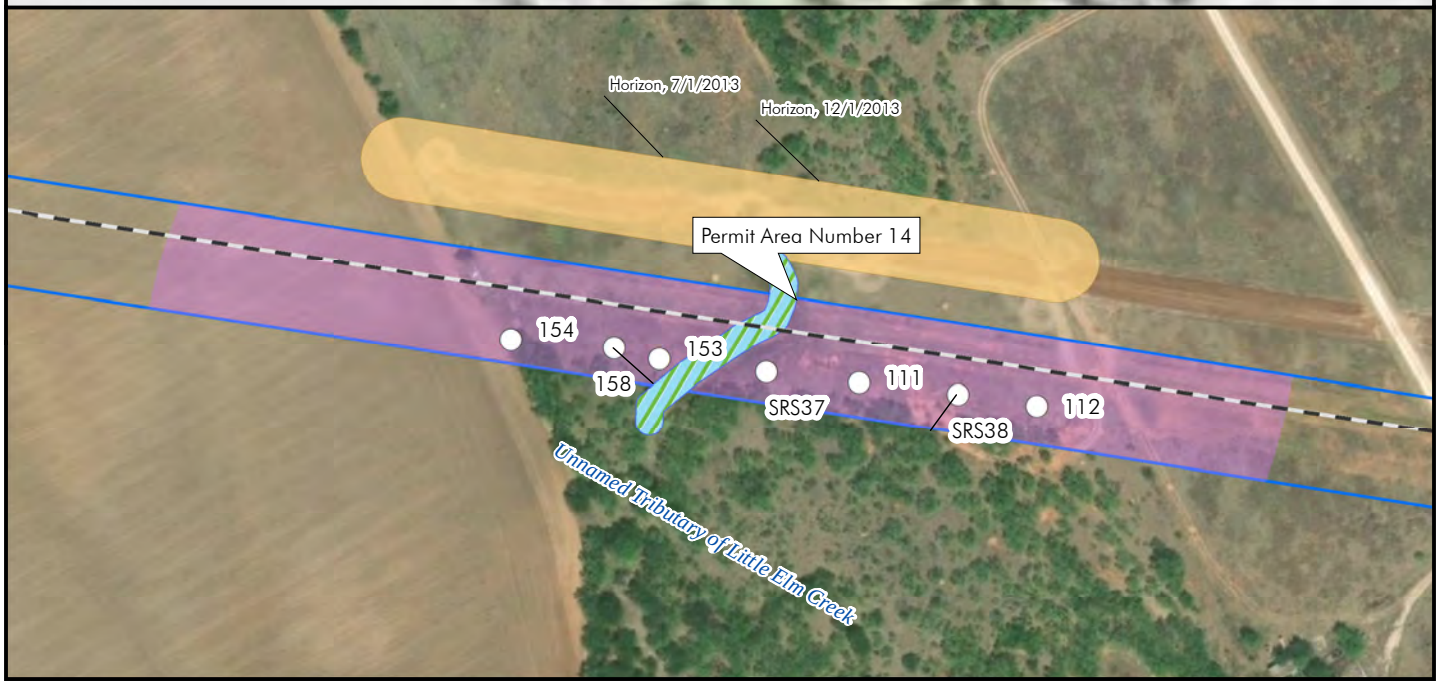


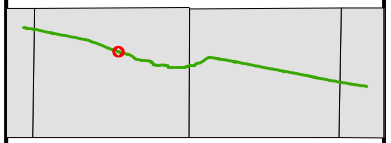
Field results within permit areas along the Loop 2 project alignment.

Figure B13

GRAY & PAPE HERITAGE MANAGEMENT

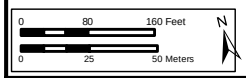






Legend

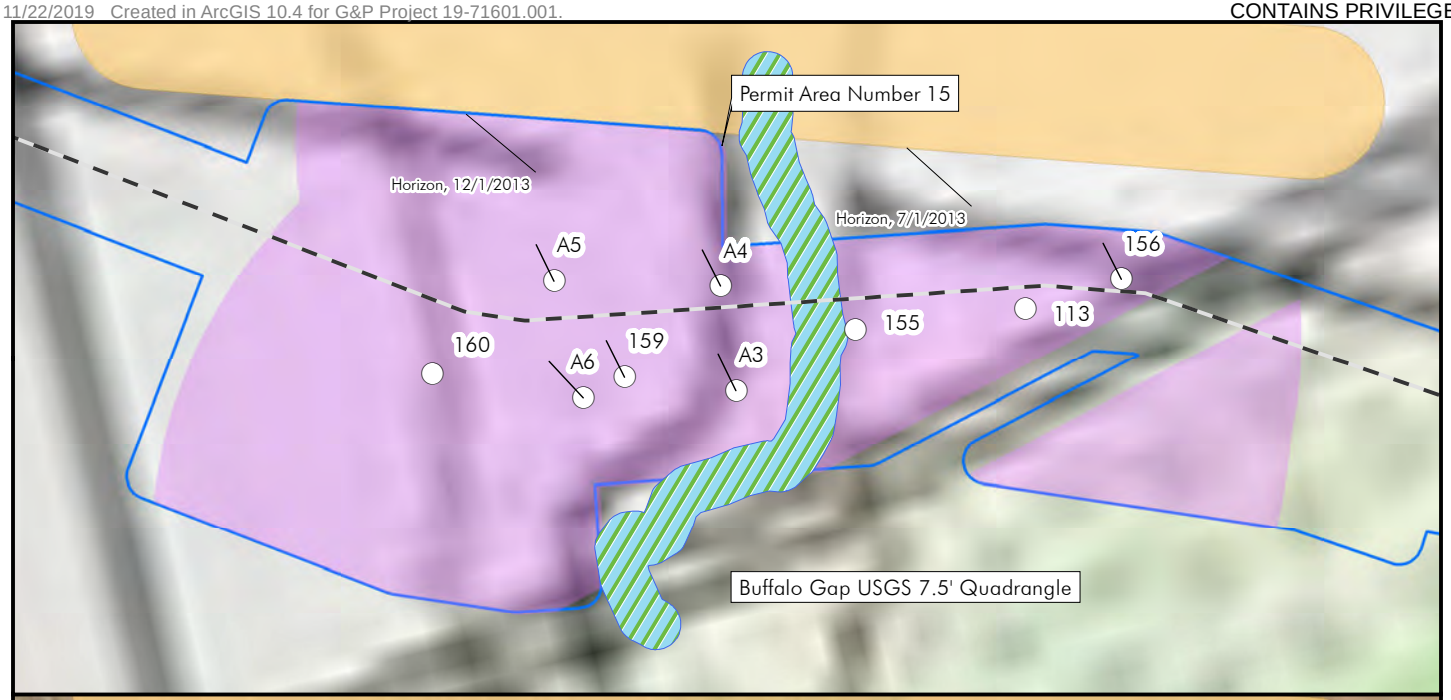
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

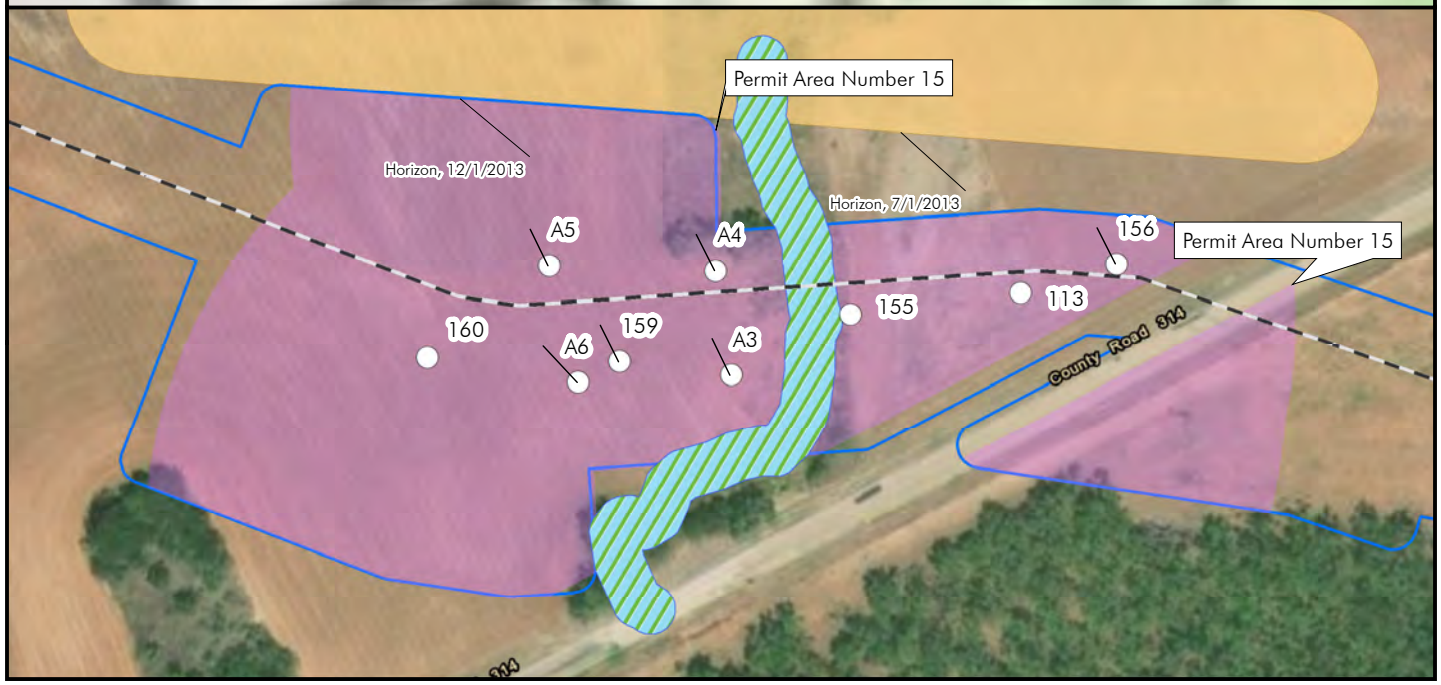


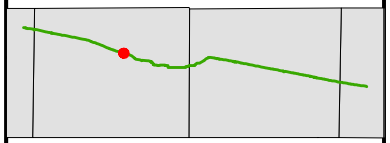
Field results within permit areas along the Loop 2 project alignment.

Figure B14

GRAY & PAPE HERITAGE MANAGEMENT

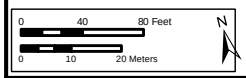






Legend

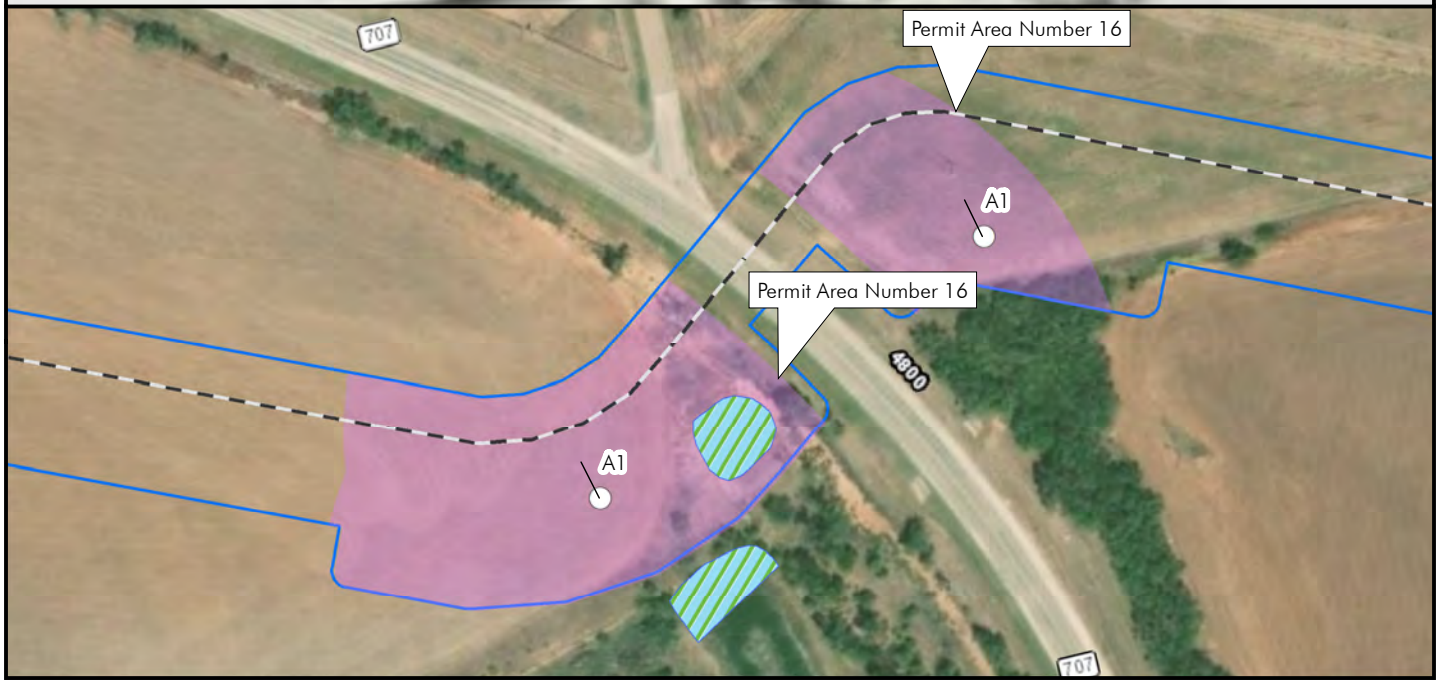
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

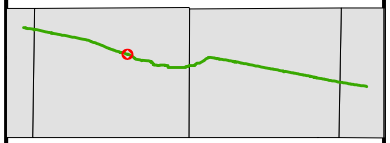


Field results within permit areas along the Loop 2 project alignment.

Figure B15

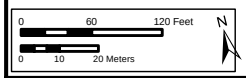
GRAY & PAPE HERITAGE MANAGEMENT





Legend

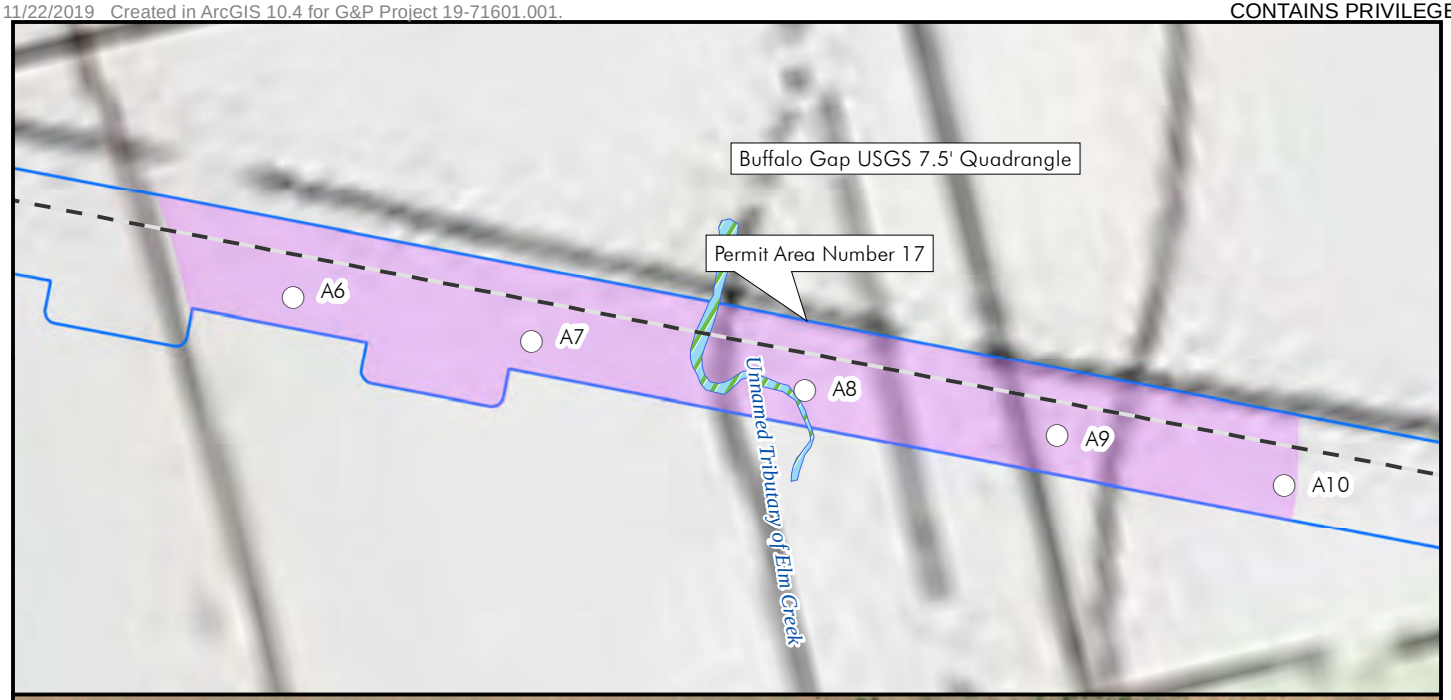
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

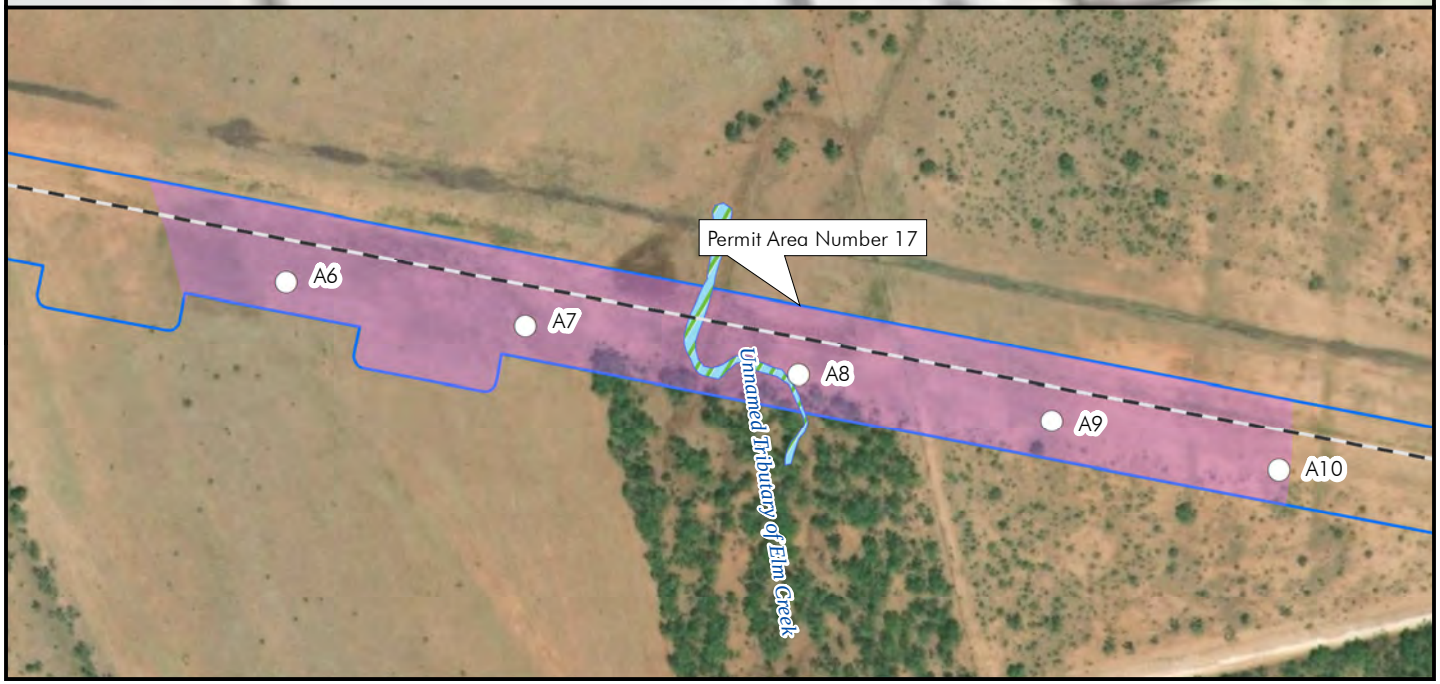


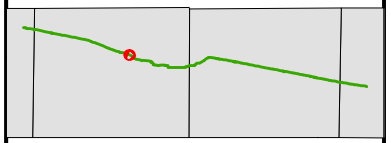
Field results within permit areas along the Loop 2 project alignment.

Figure B16

GRAY & PAPE HERITAGE MANAGEMENT

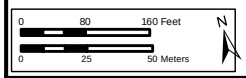






Legend

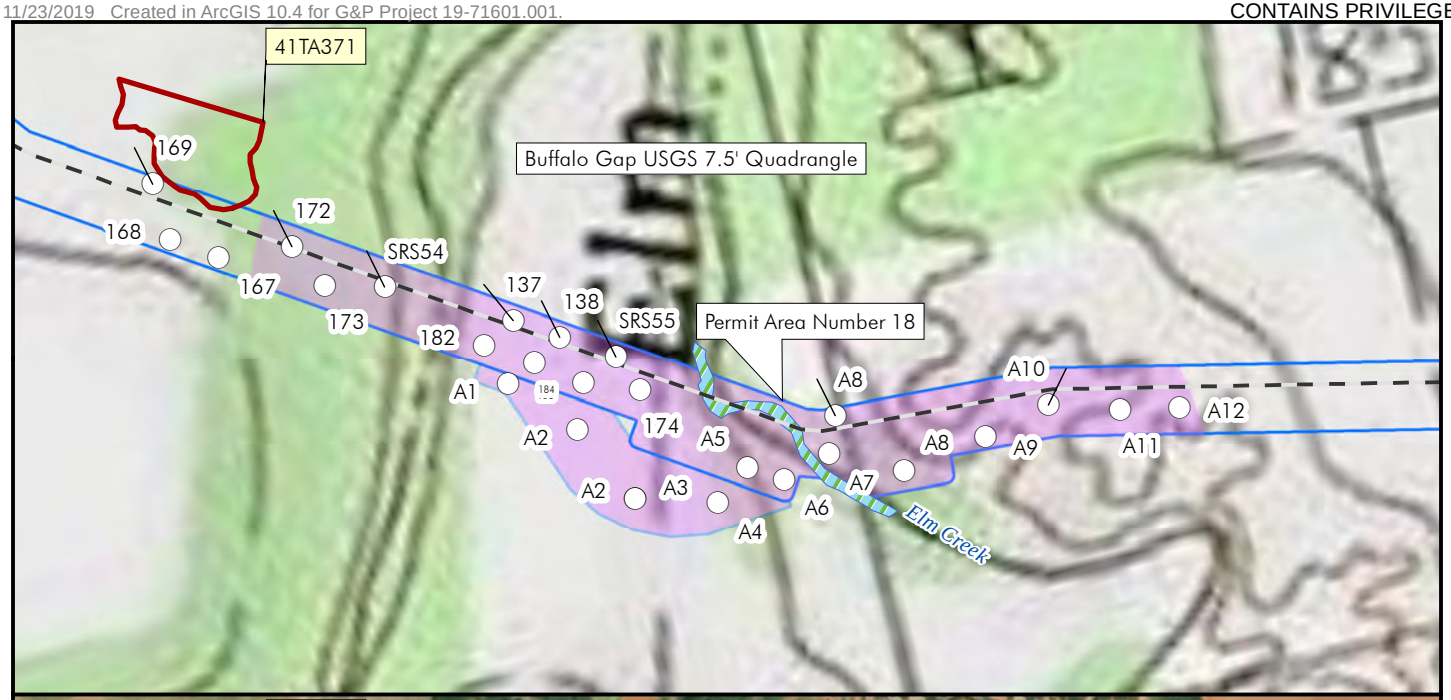
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

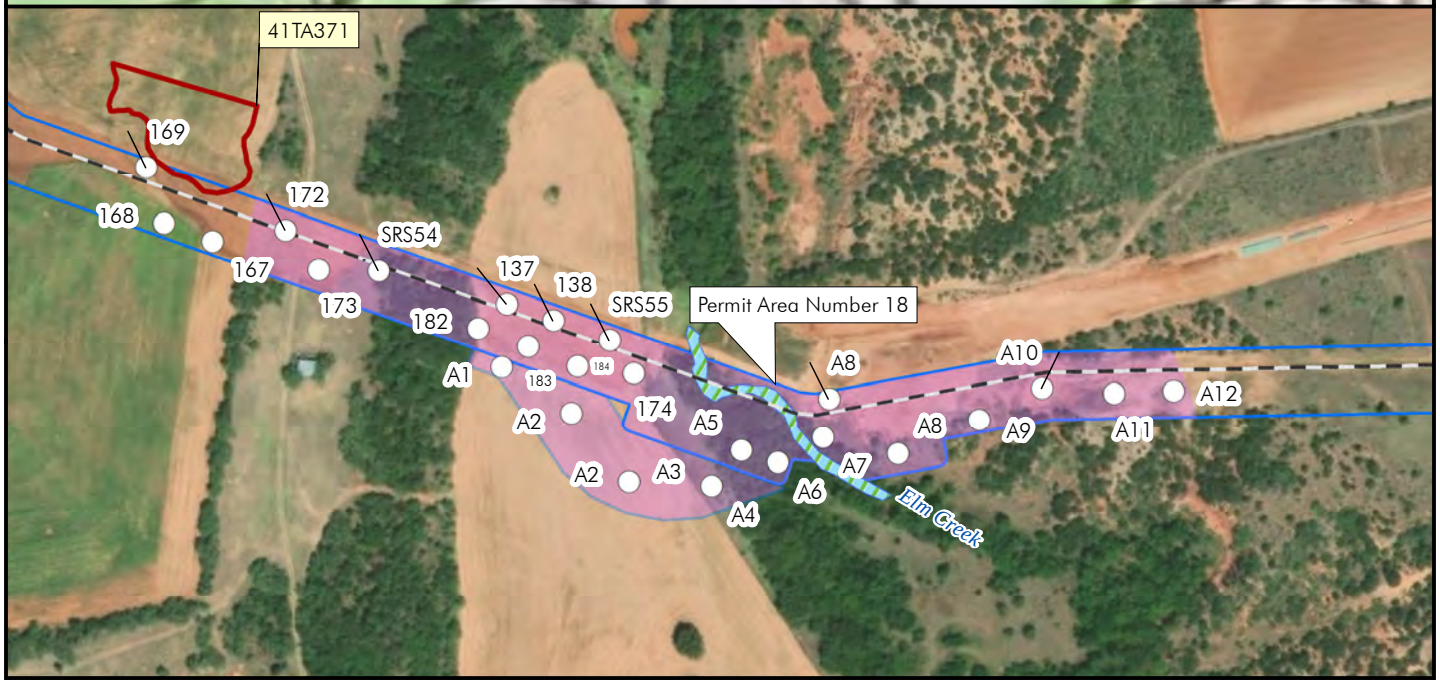


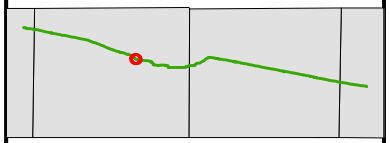
Field results within permit areas along the Loop 2 project alignment.

Figure B17

GRAY & PAPE HERITAGE MANAGEMENT

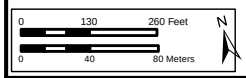






Legend

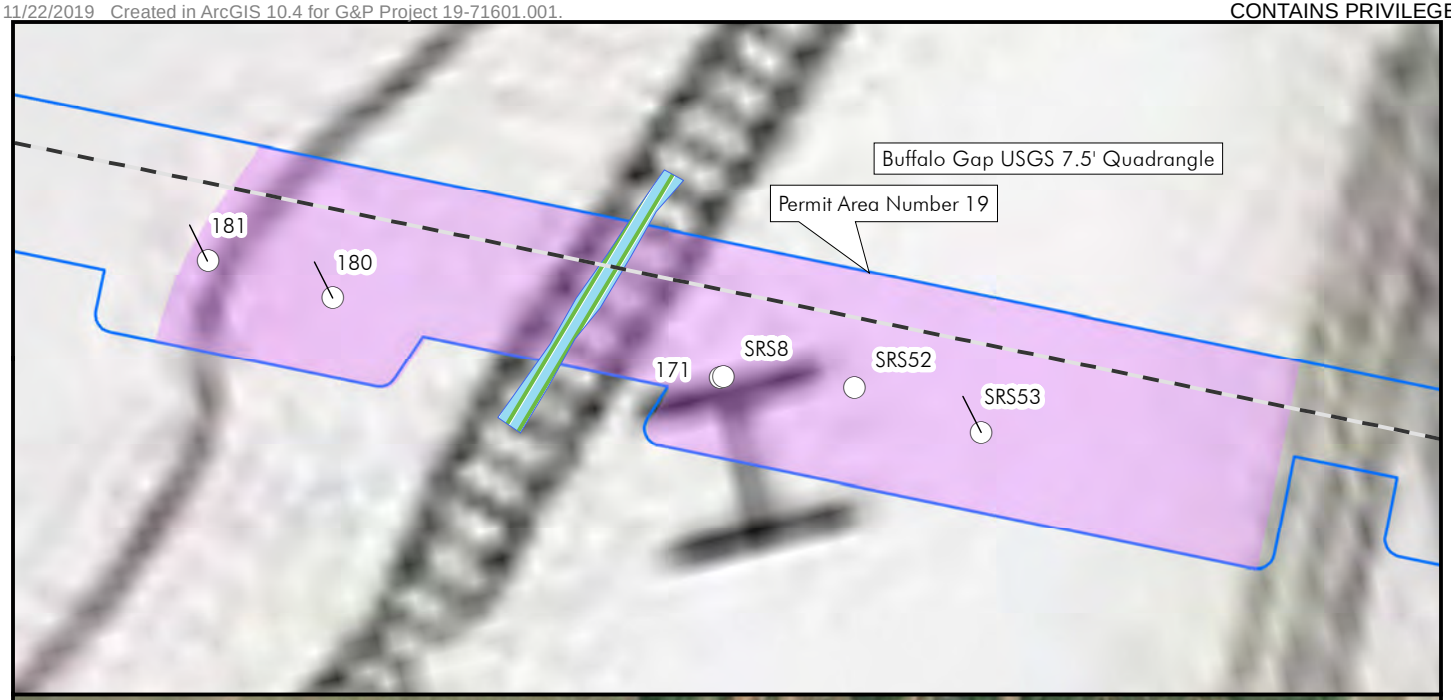
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

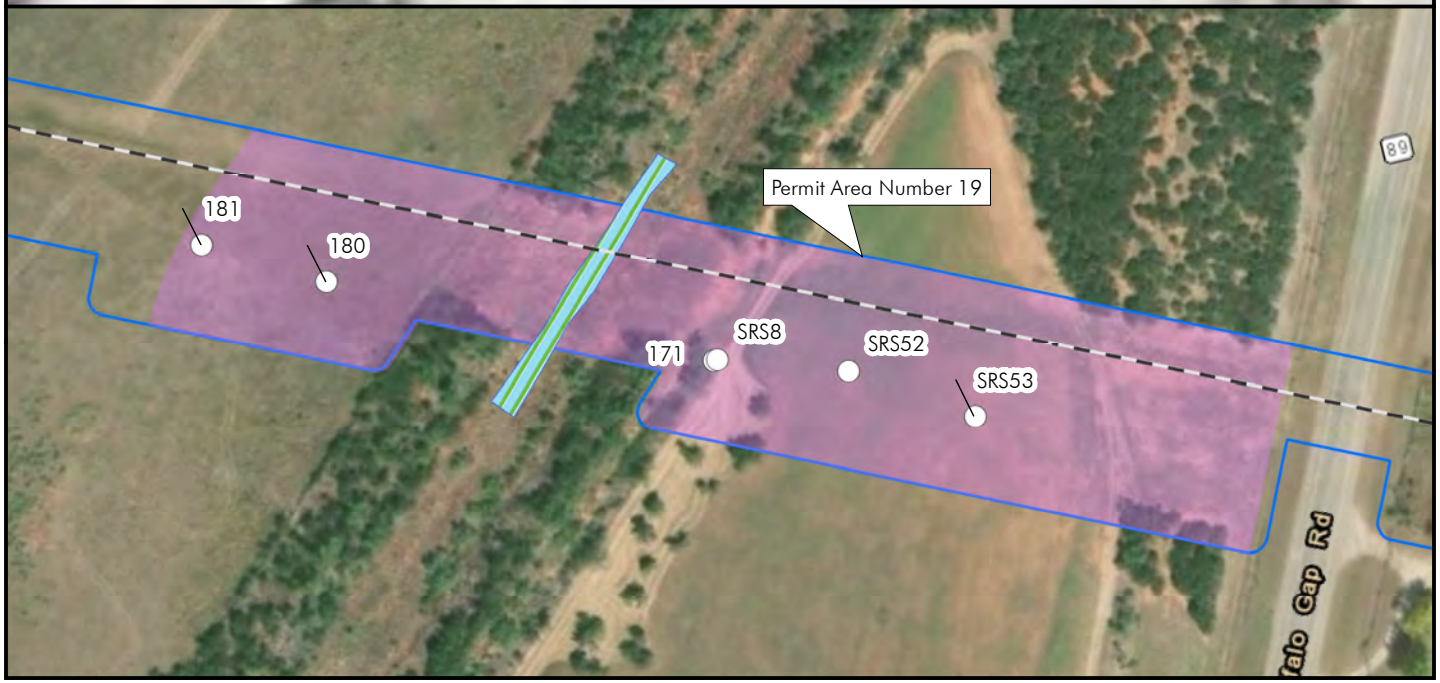


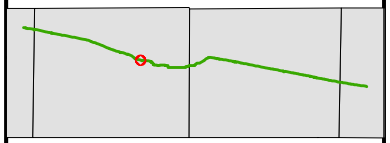
Field results within permit areas along the Loop 2 project alignment.

Figure B18

GRAY & PAPE HERITAGE MANAGEMENT







Legend

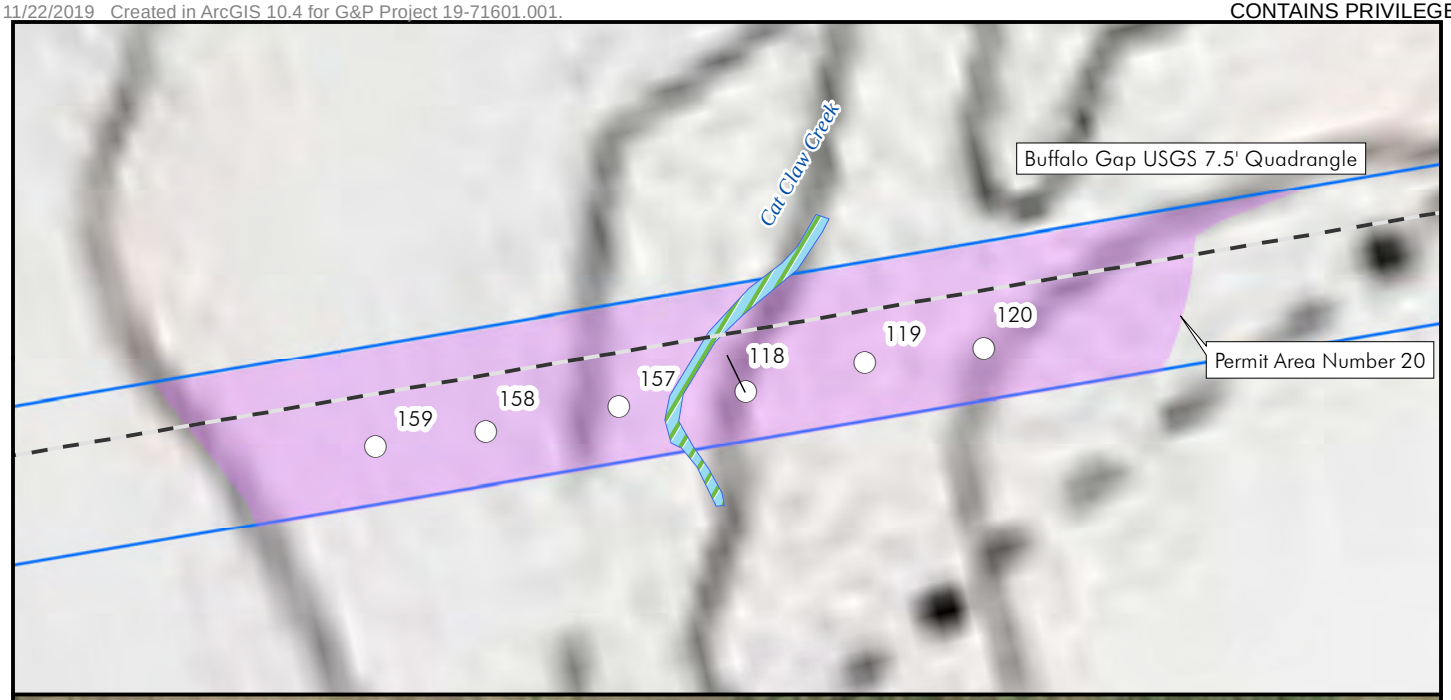
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

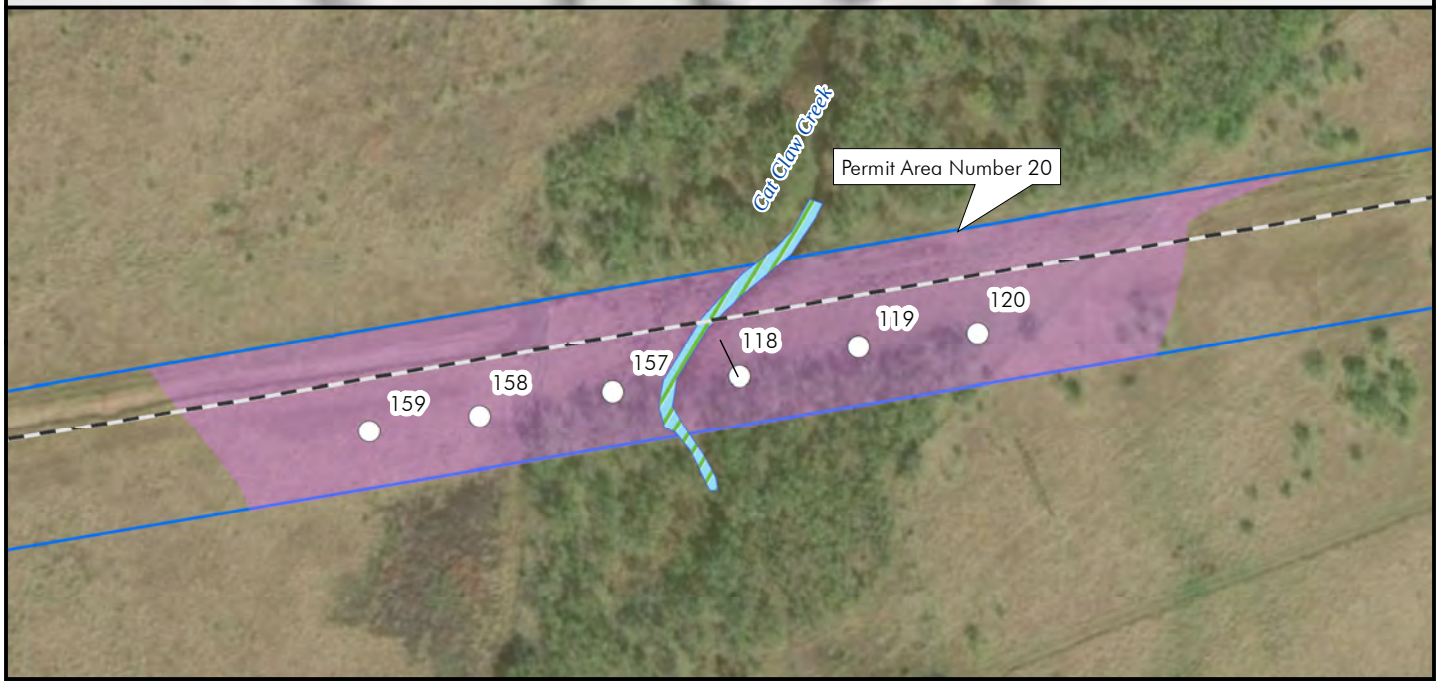
0 60 120 Feet
0 10 20 Meters
N

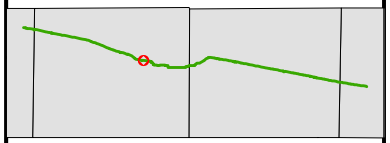
Field results within permit areas along the Loop 2 project alignment.

Figure B19

GRAY & PAPE HERITAGE MANAGEMENT

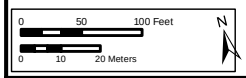






Legend

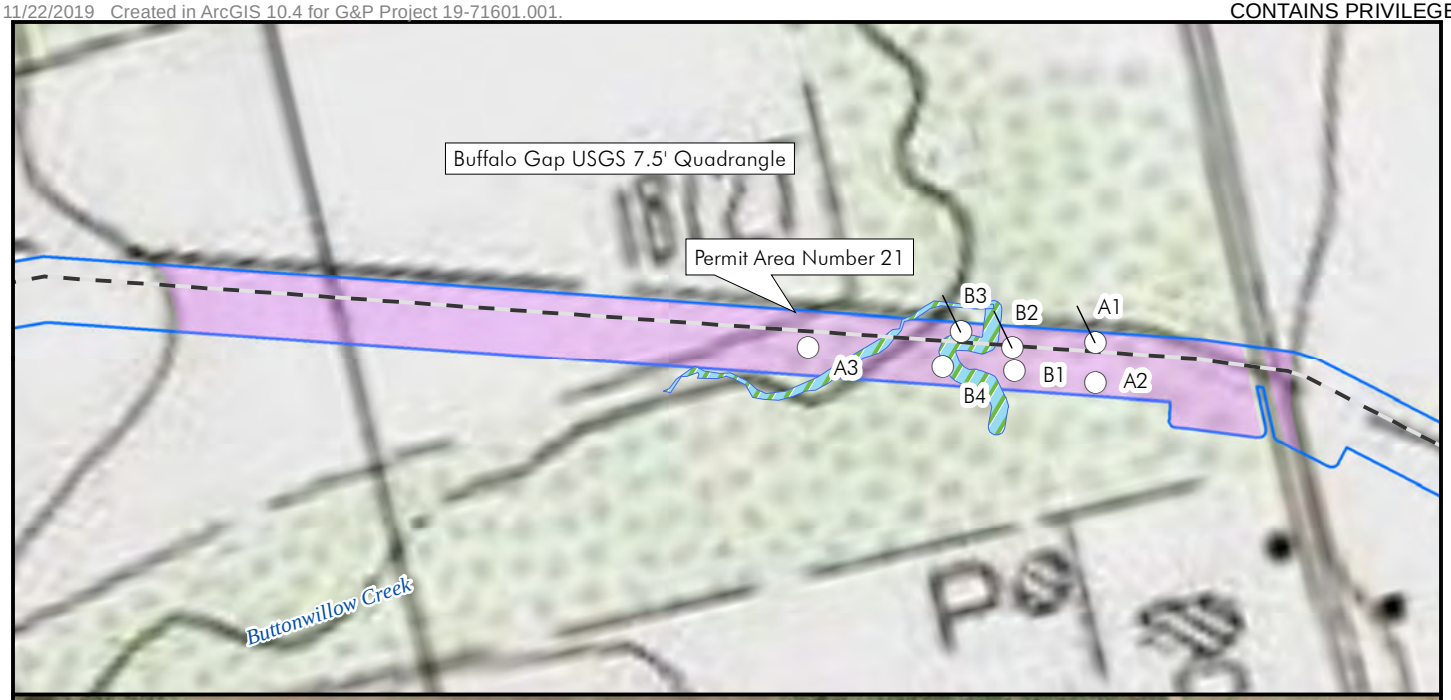
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

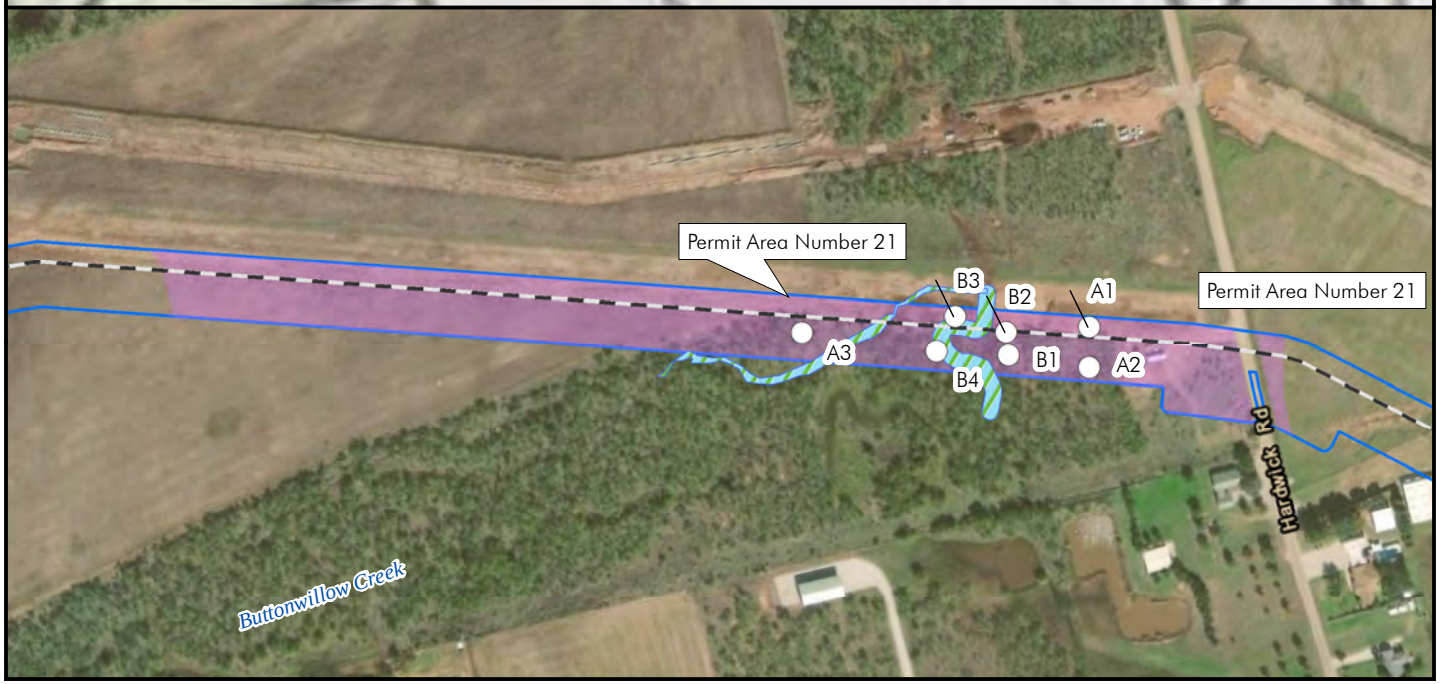


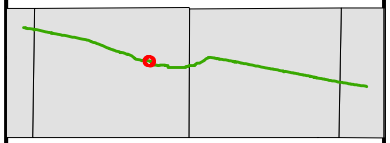
Field results within permit areas along the Loop 2 project alignment.

Figure B20

GRAY & PAPE HERITAGE MANAGEMENT

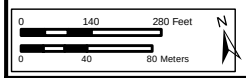






Legend

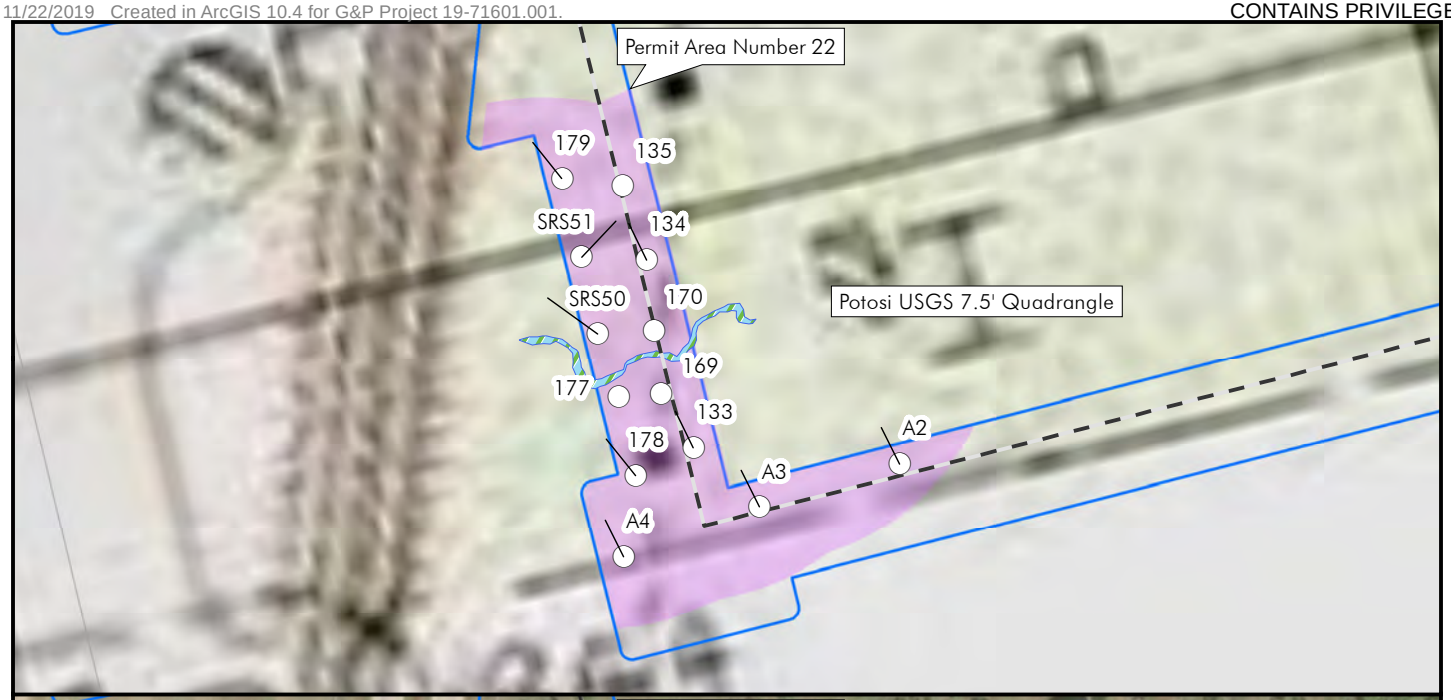
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

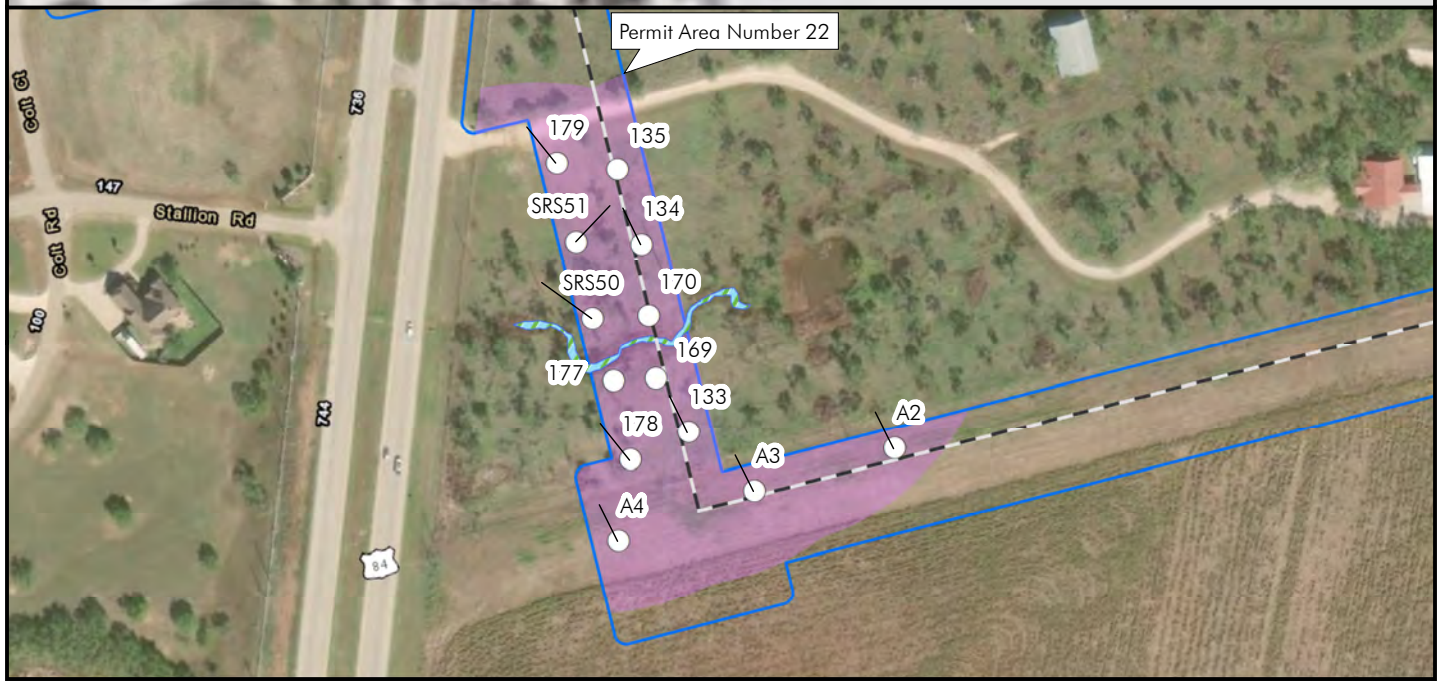


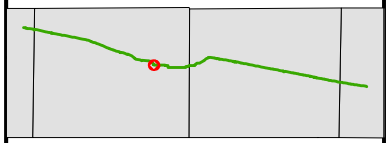
Field results within permit areas along the Loop 2 project alignment.

Figure B21

GRAY & PAPE HERITAGE MANAGEMENT







Legend

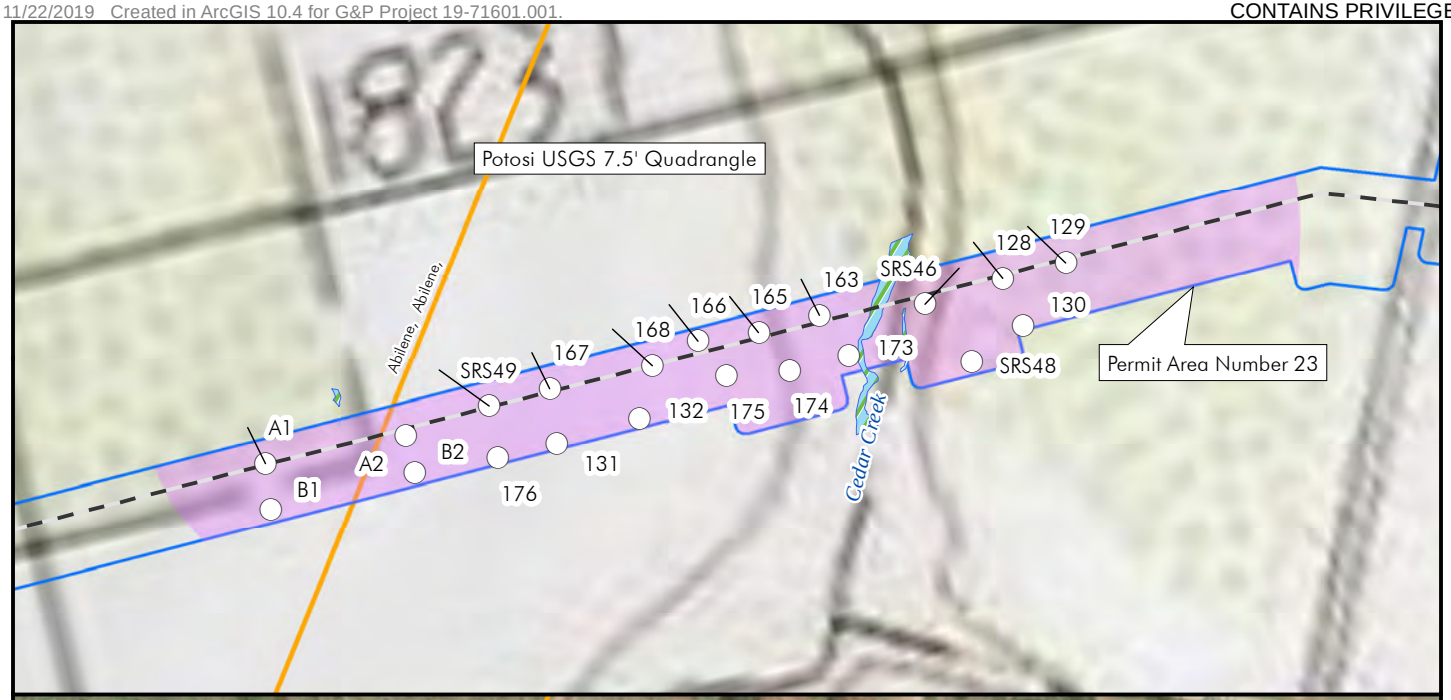
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

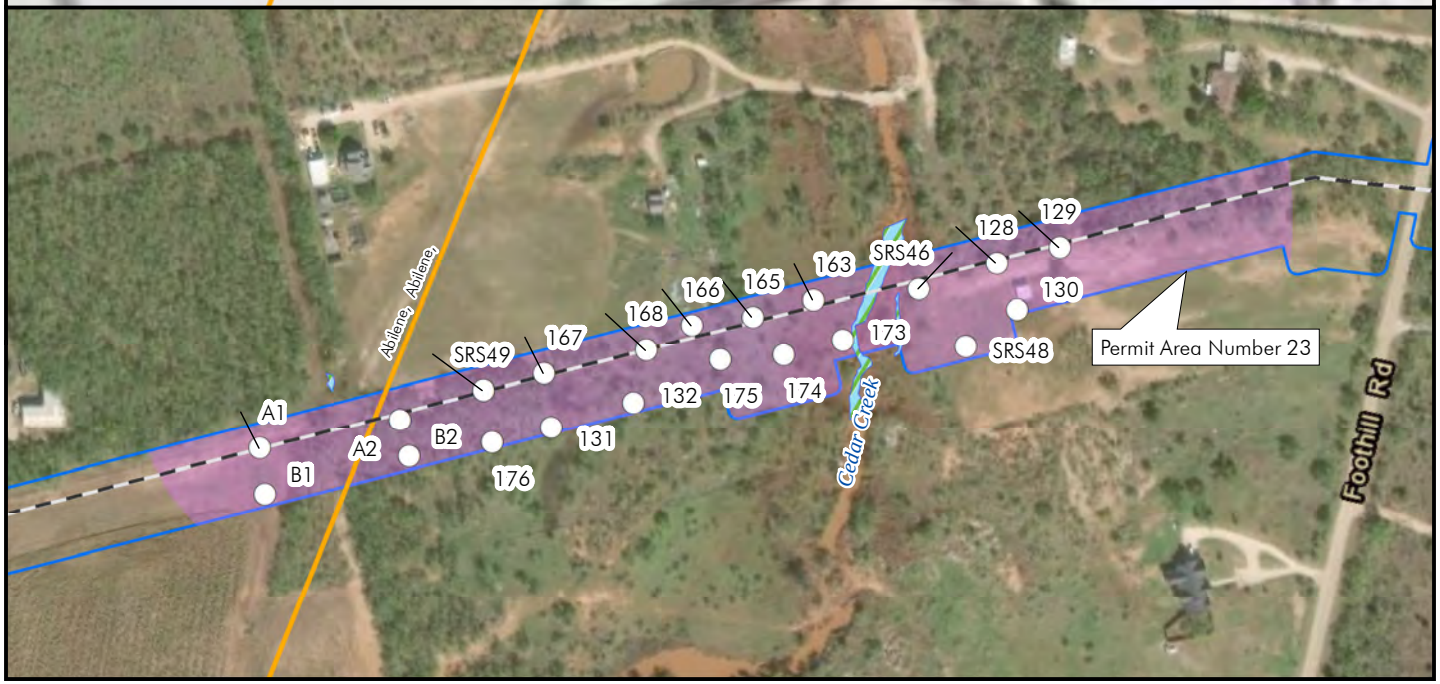
0 90 180 Feet
0 25 50 Meters
N

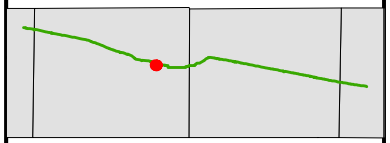
Field results within permit areas along the Loop 2 project alignment.

Figure B22

GRAY & PAPE HERITAGE MANAGEMENT

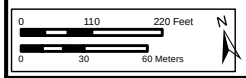






Legend

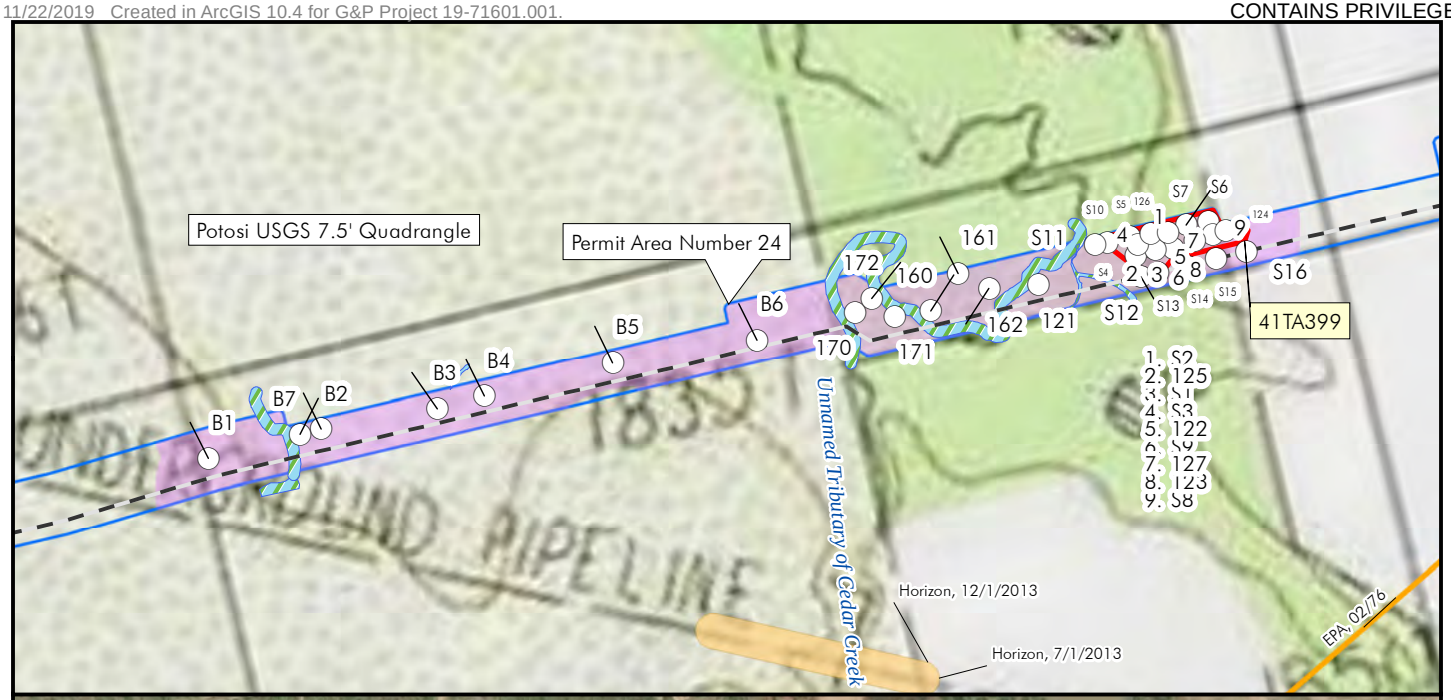
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

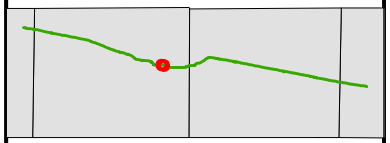


Field results within permit areas along the Loop 2 project alignment.

Figure B23

GRAY & PAPE HERITAGE MANAGEMENT





Legend

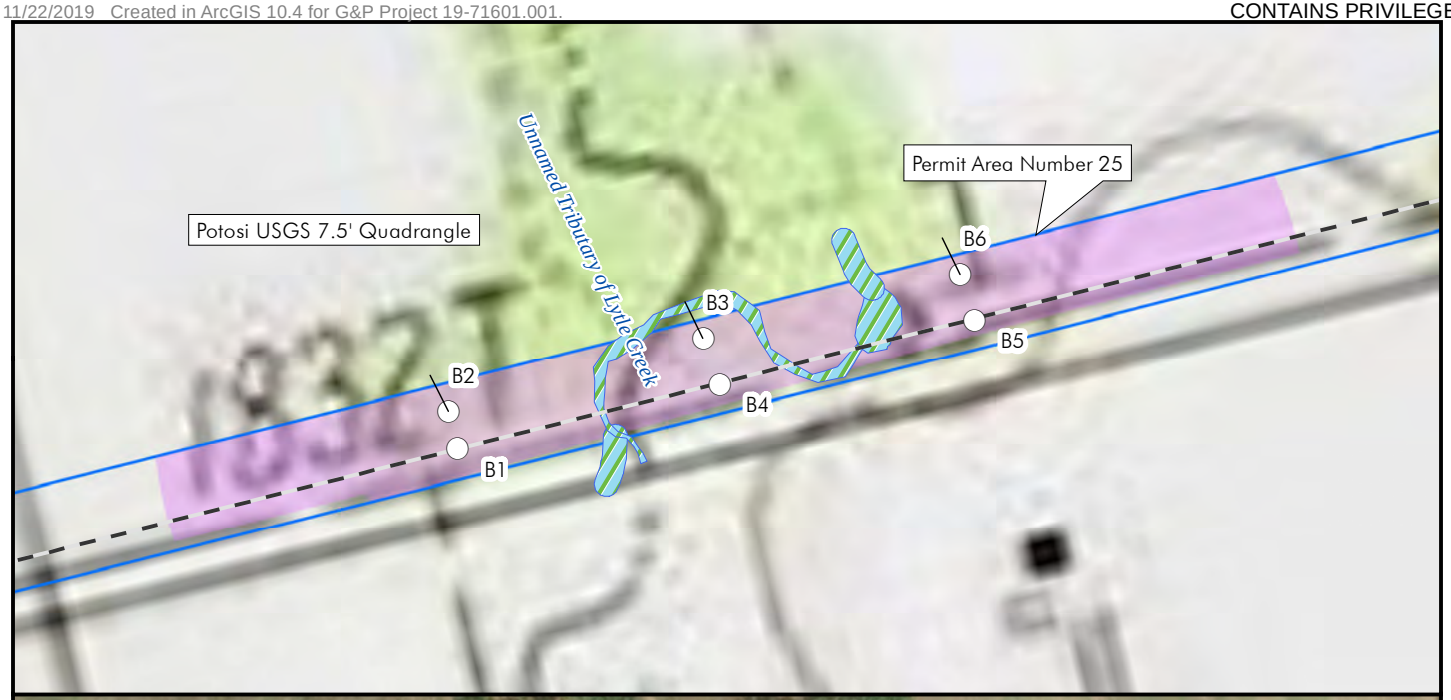
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

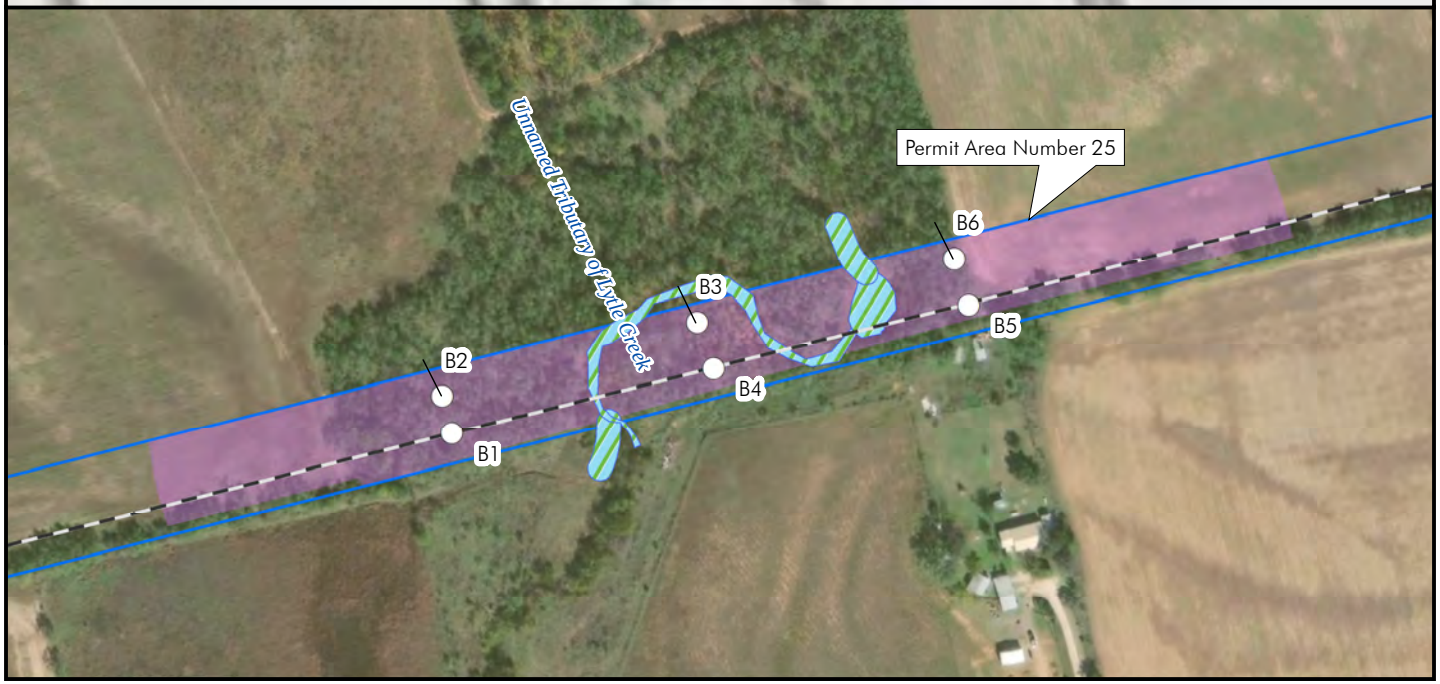
0 200 400 Feet
0 60 120 Meters
N

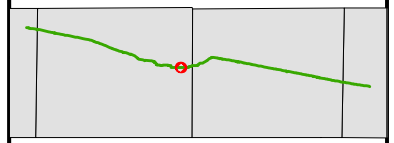
Field results within permit areas along the Loop 2 project alignment.

Figure B24

GRAY & PAPE HERITAGE MANAGEMENT

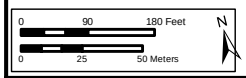






Legend

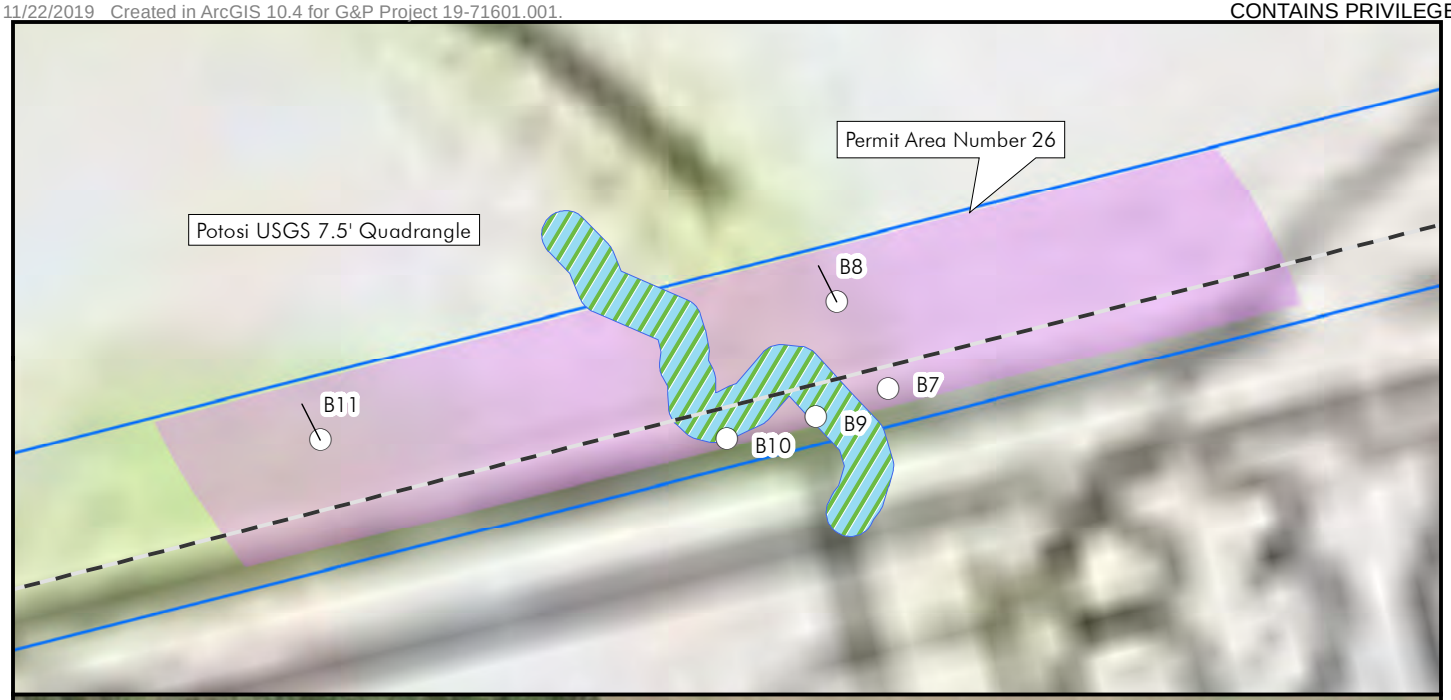
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

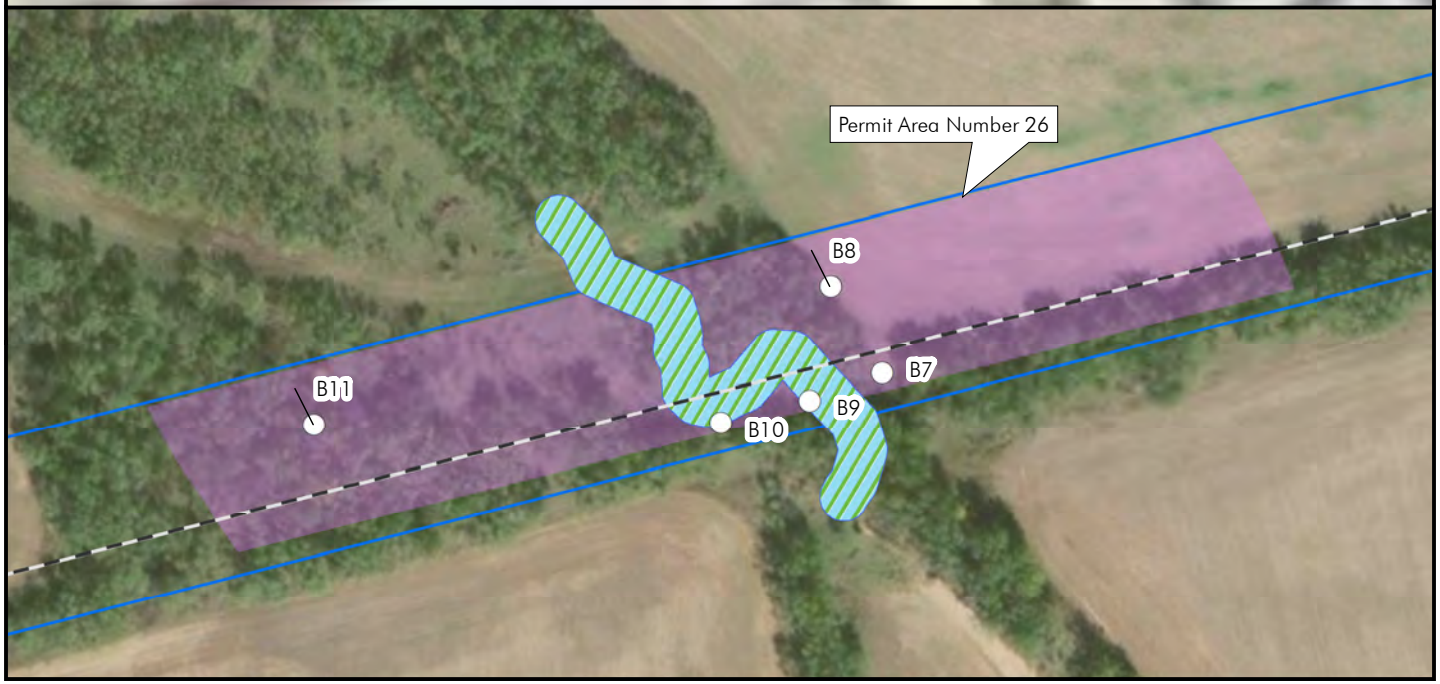


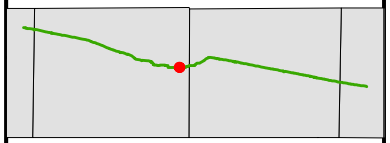
Field results within permit areas along the Loop 2 project alignment.

Figure B25

GRAY & PAPE HERITAGE MANAGEMENT

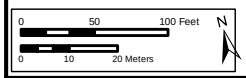






Legend

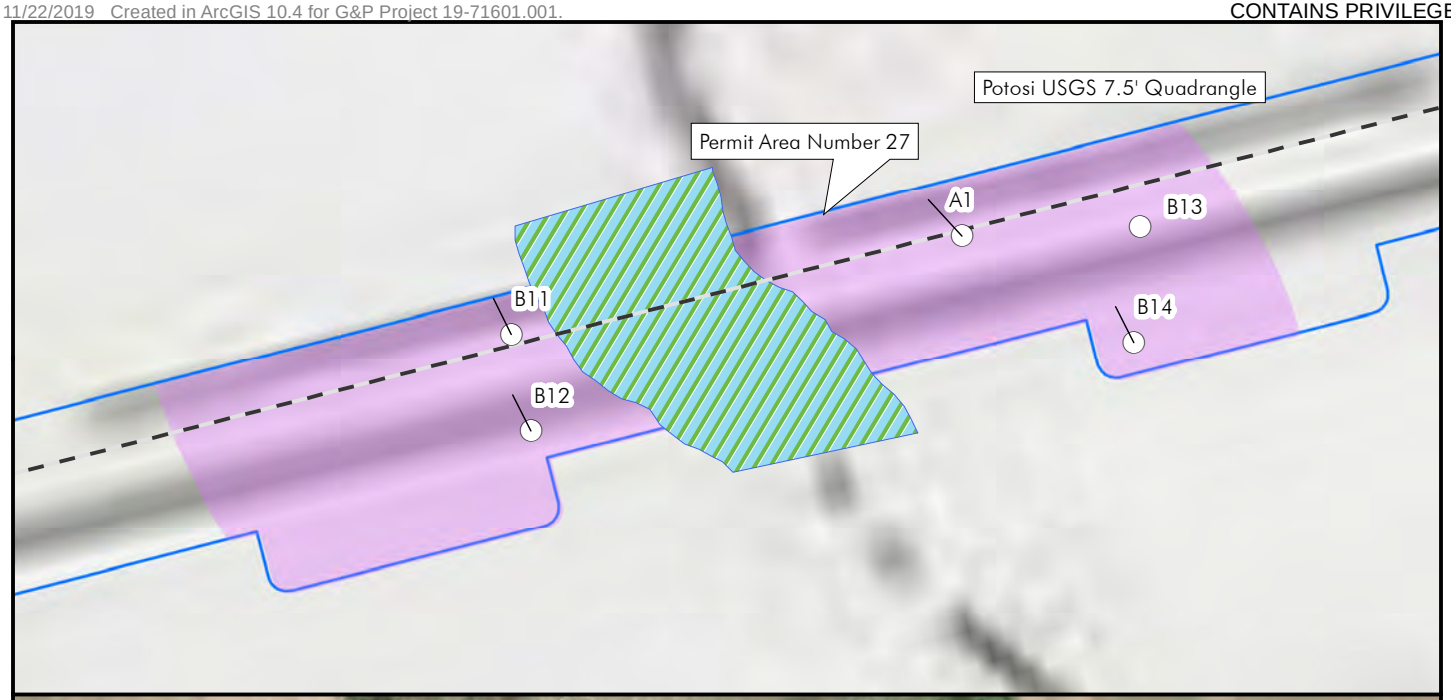
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

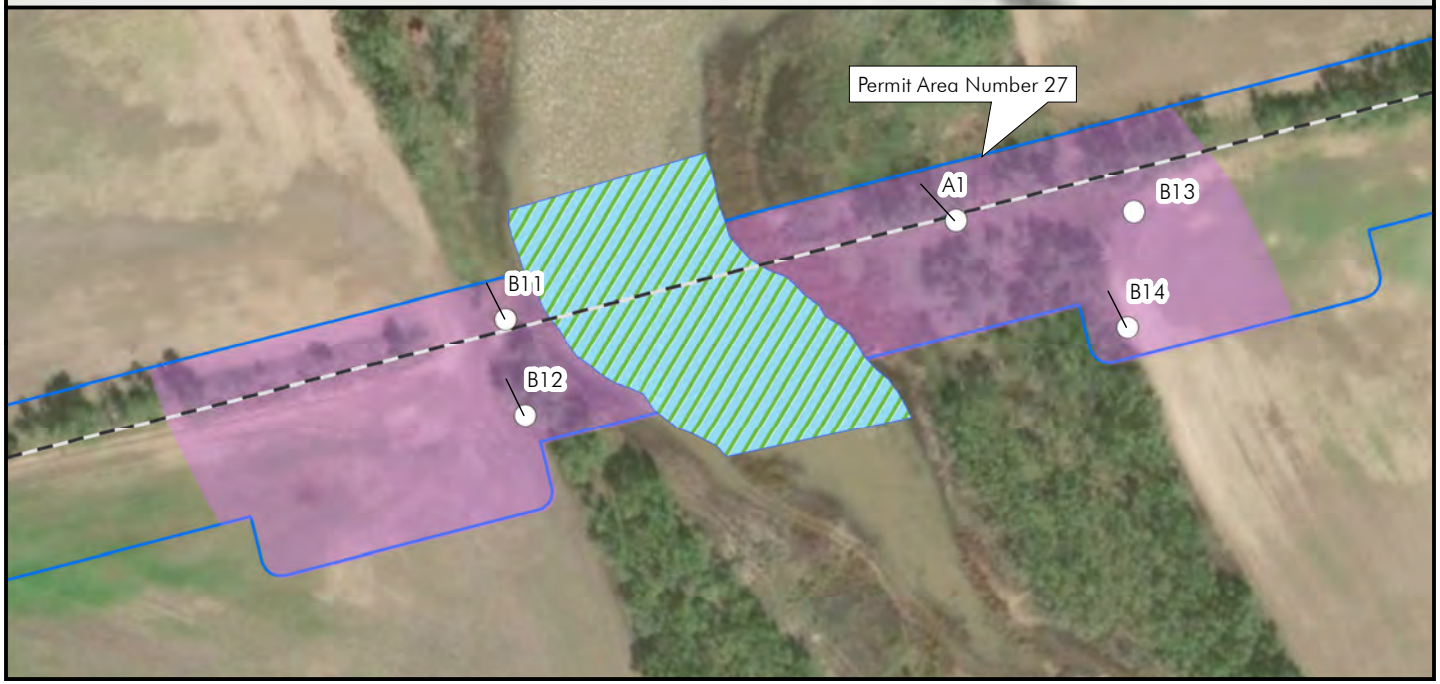


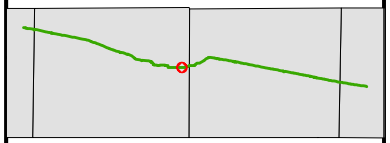
Field results within permit areas along the Loop 2 project alignment.

Figure B26

GRAY & PAPE HERITAGE MANAGEMENT

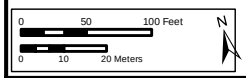






Legend

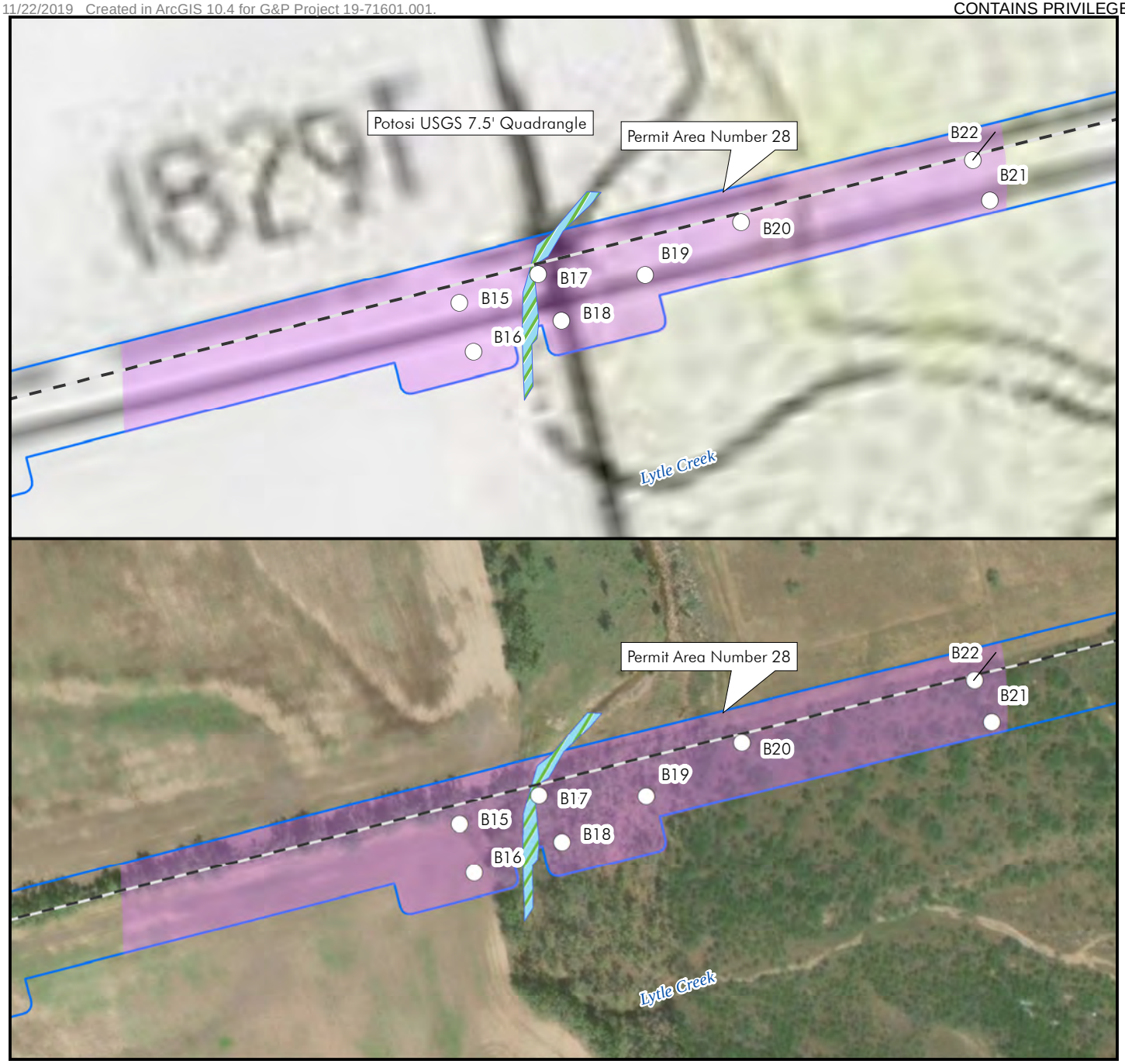
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

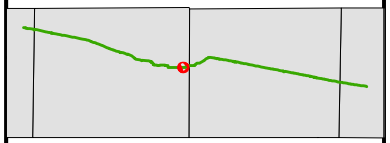


Field results within permit areas along the Loop 2 project alignment.

Figure B27

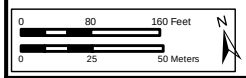
GRAY & PAPE HERITAGE MANAGEMENT





Legend

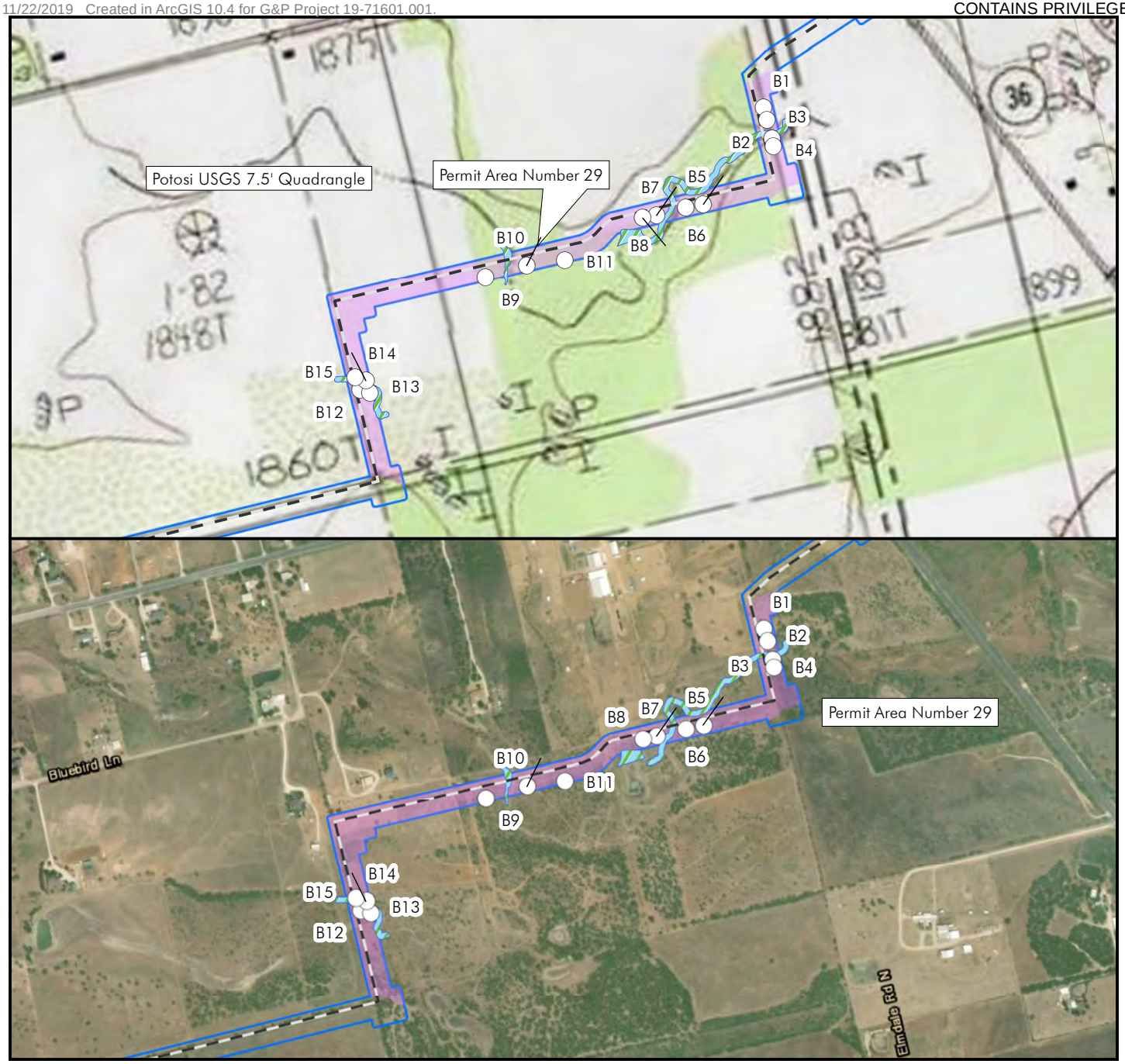
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

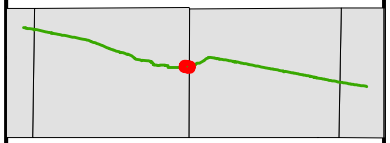


Field results within permit areas along the Loop 2 project alignment.

Figure B28

GRAY & PAPE HERITAGE MANAGEMENT





Legend

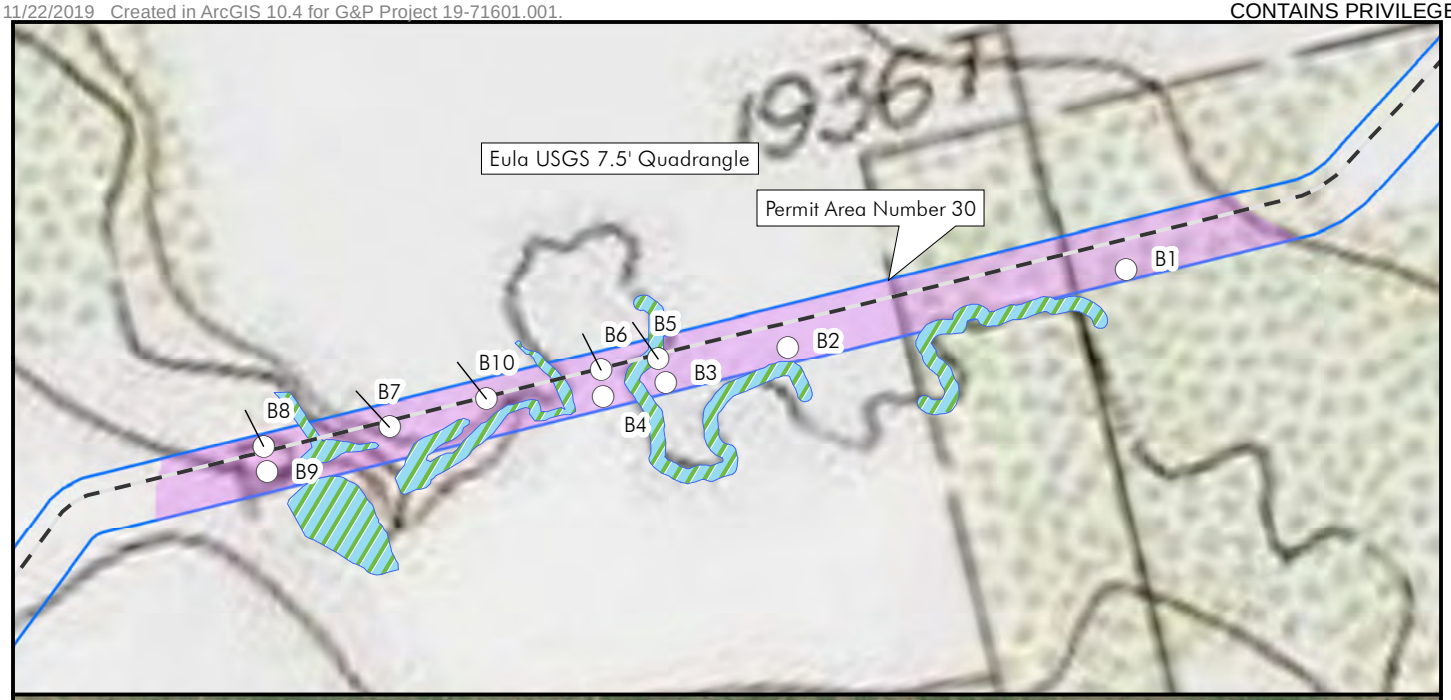
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

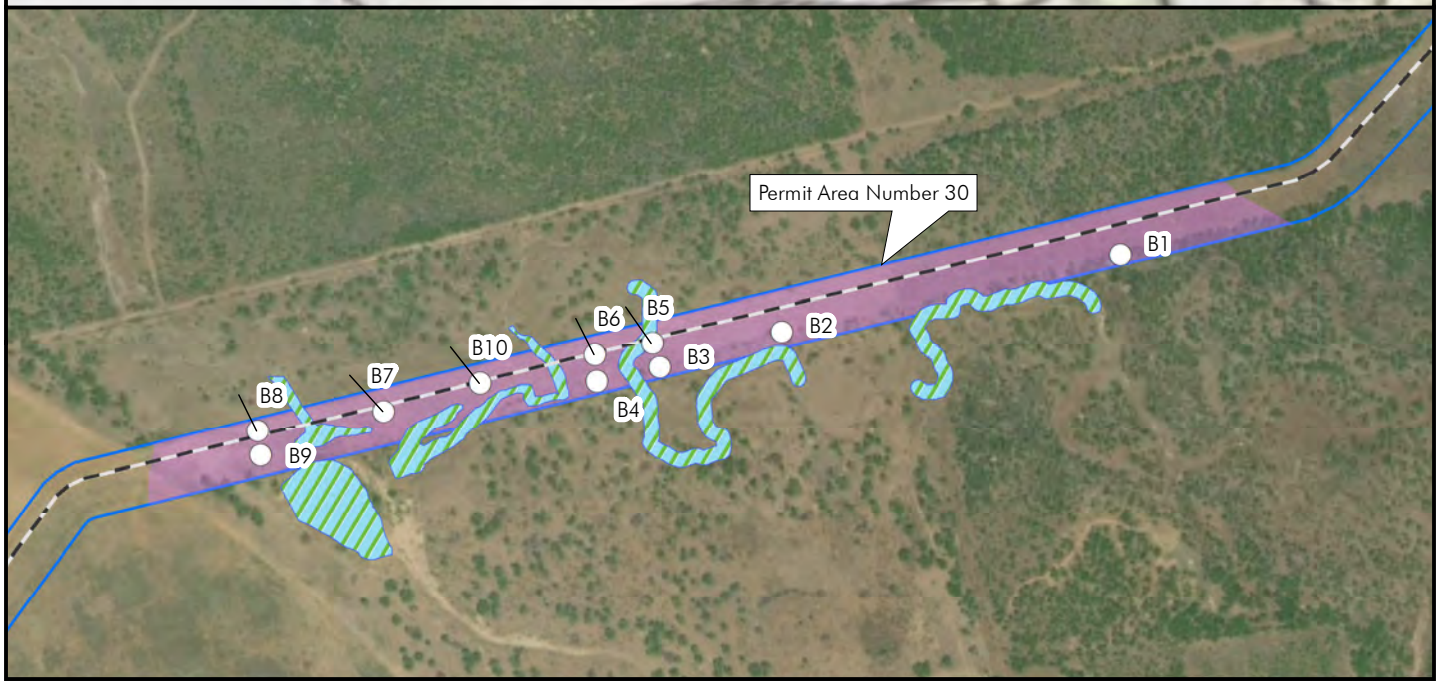
0 325 650 Feet
0 90 180 Meters
N

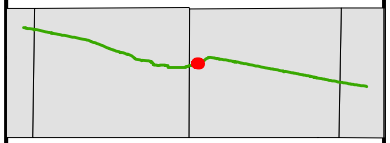
Field results within permit areas along the Loop 2 project alignment.

Figure B29

GRAY & PAPE HERITAGE MANAGEMENT

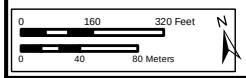






Legend

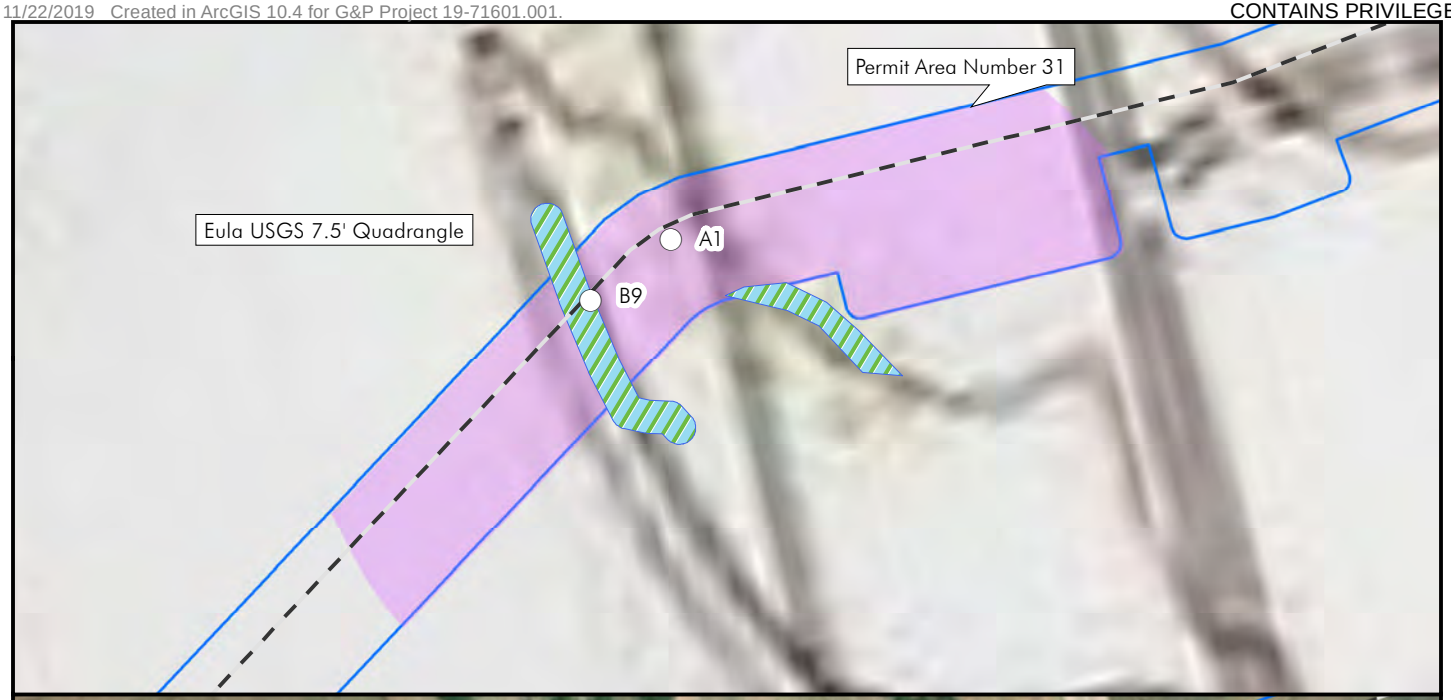
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

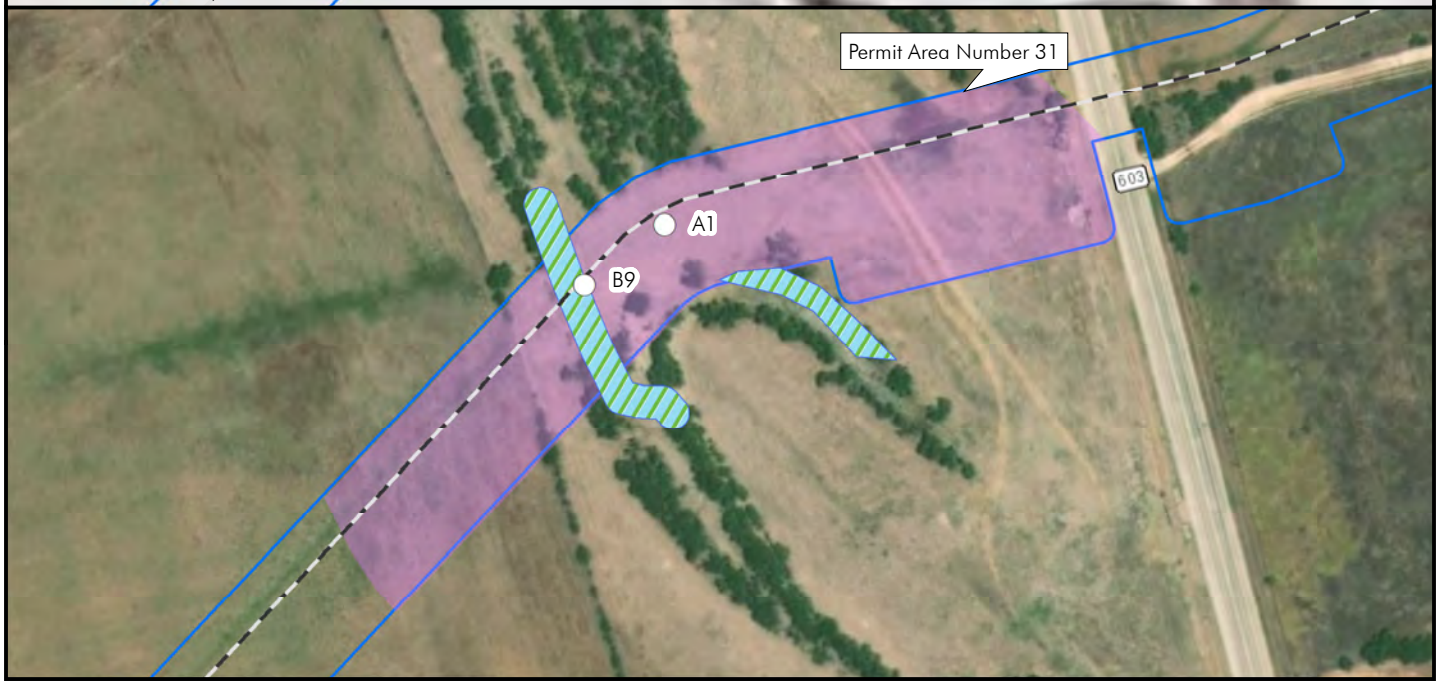


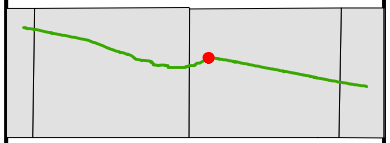
Field results within permit areas along the Loop 2 project alignment.

Figure B30

GRAY & PAPE HERITAGE MANAGEMENT

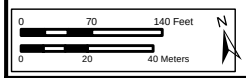






Legend

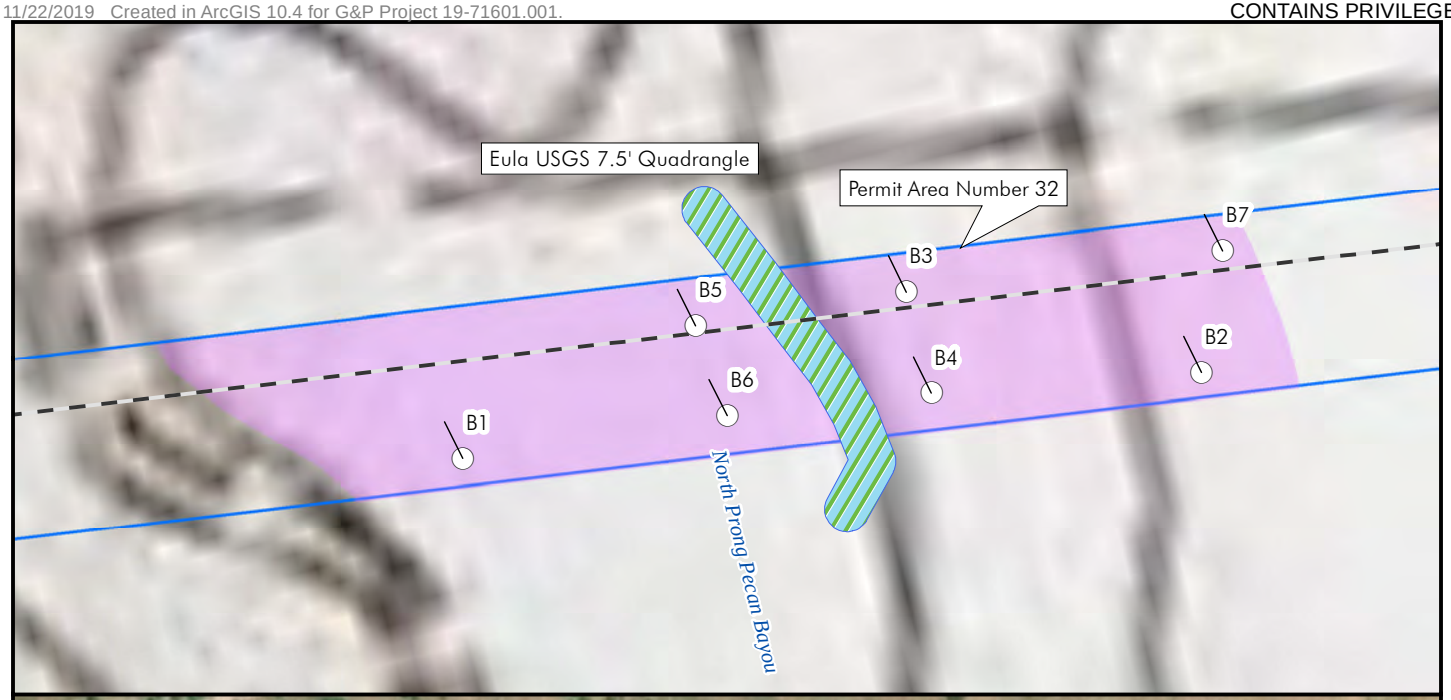
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

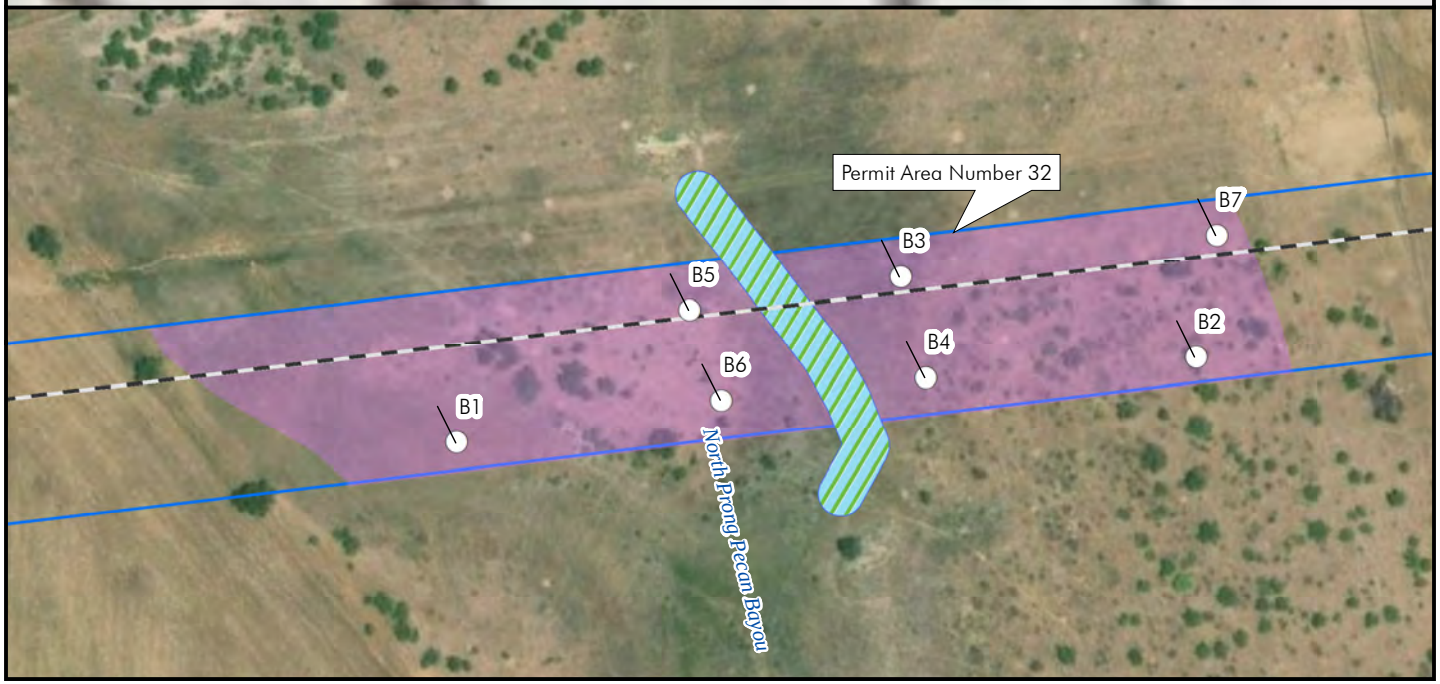


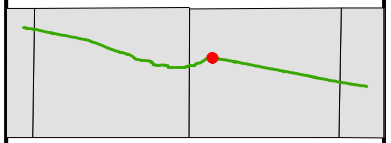
Field results within permit areas along the Loop 2 project alignment.

Figure B31

GRAY & PAPE HERITAGE MANAGEMENT

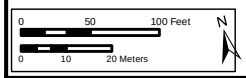






Legend

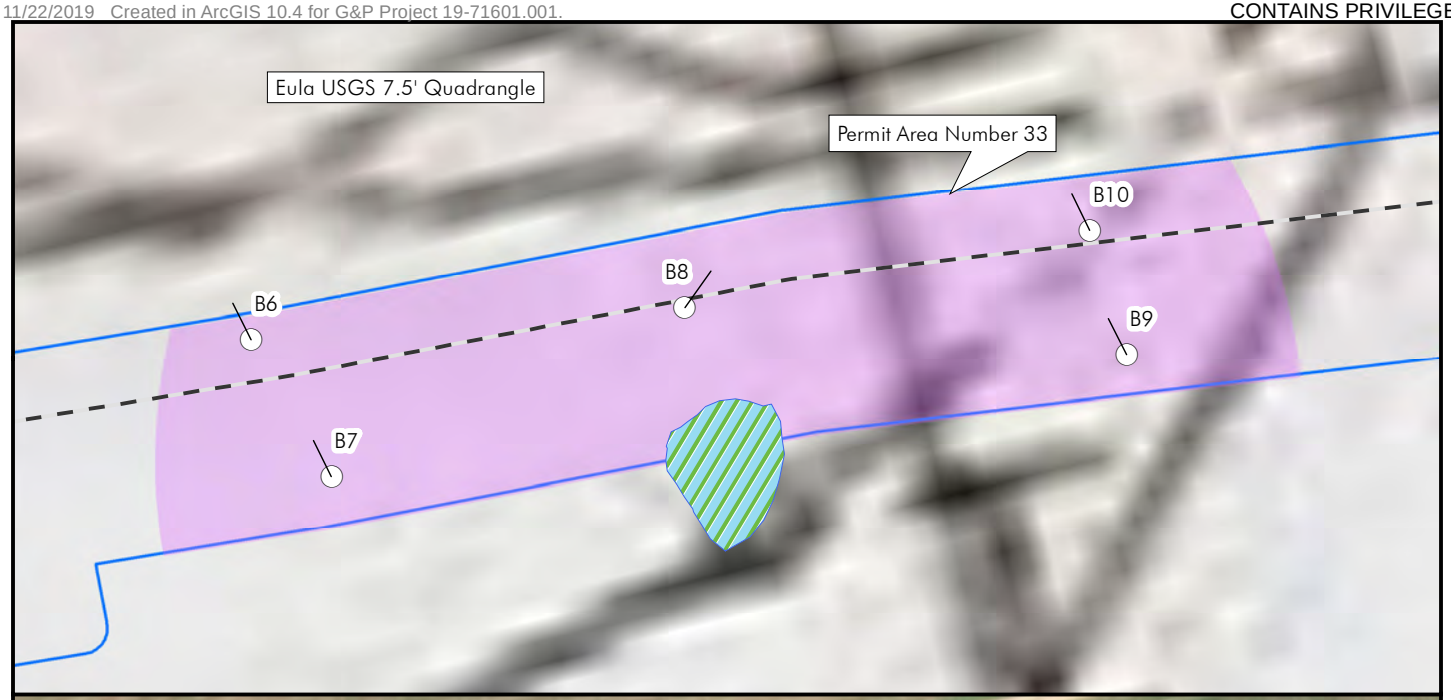
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

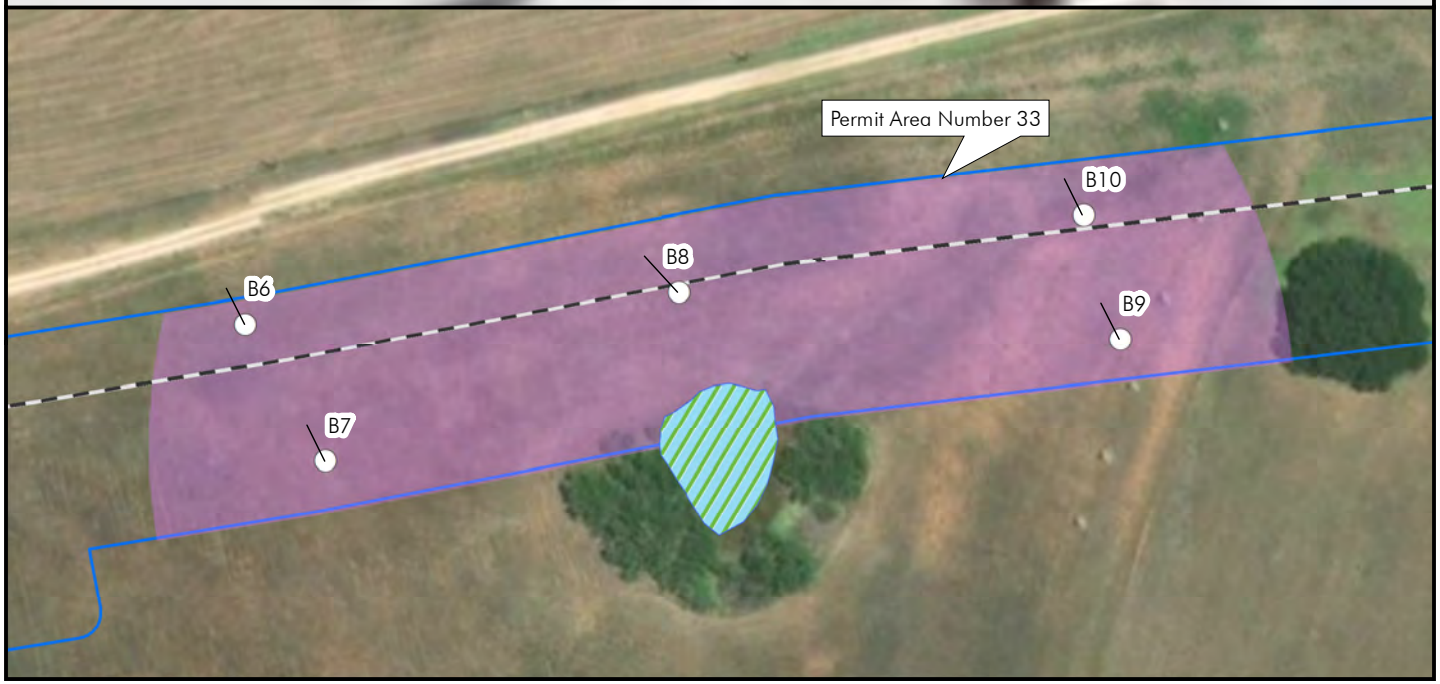


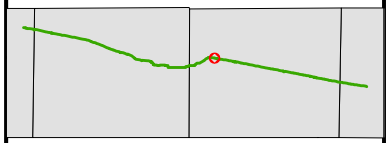
Field results within permit areas along the Loop 2 project alignment.

Figure B32

GRAY & PAPE HERITAGE MANAGEMENT

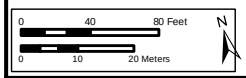






Legend

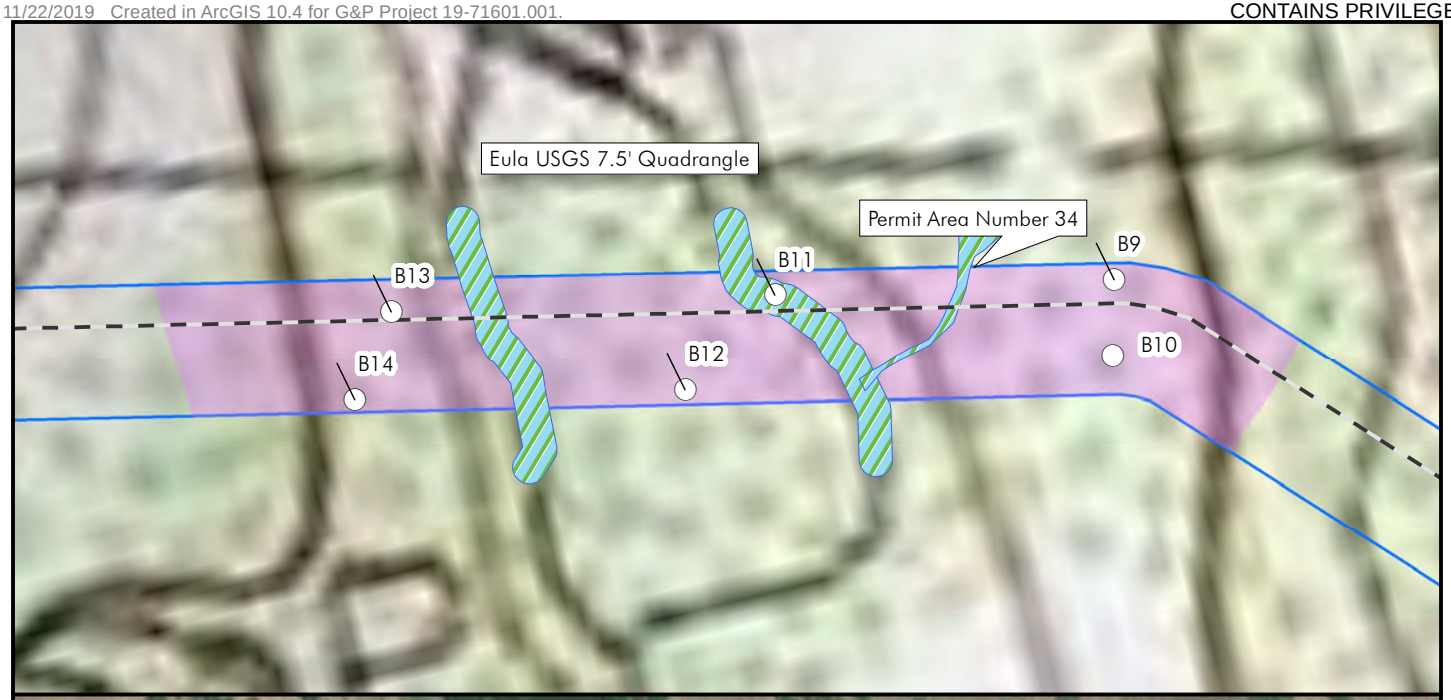
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

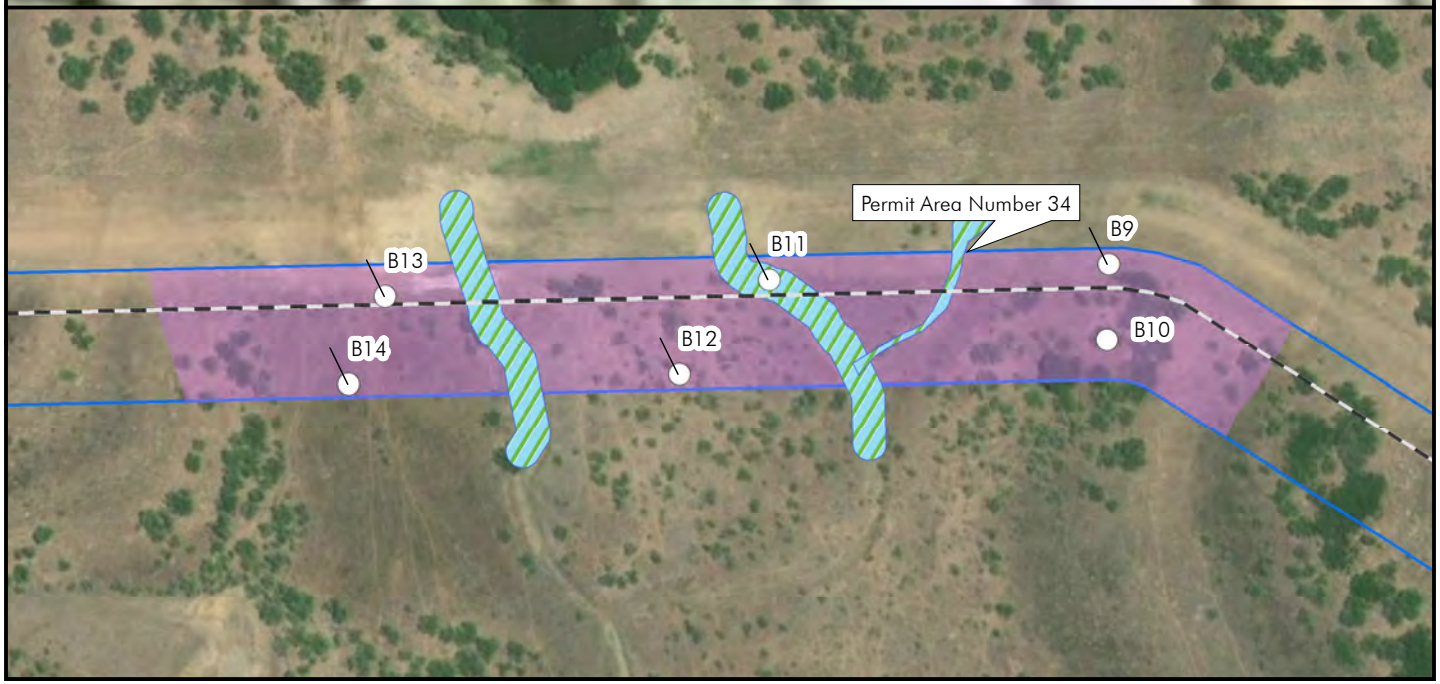


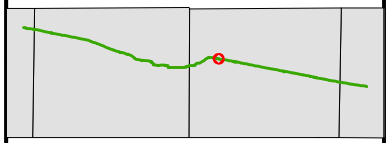
Field results within permit areas along the Loop 2 project alignment.

Figure B33

GRAY & PAPE HERITAGE MANAGEMENT

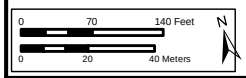






Legend

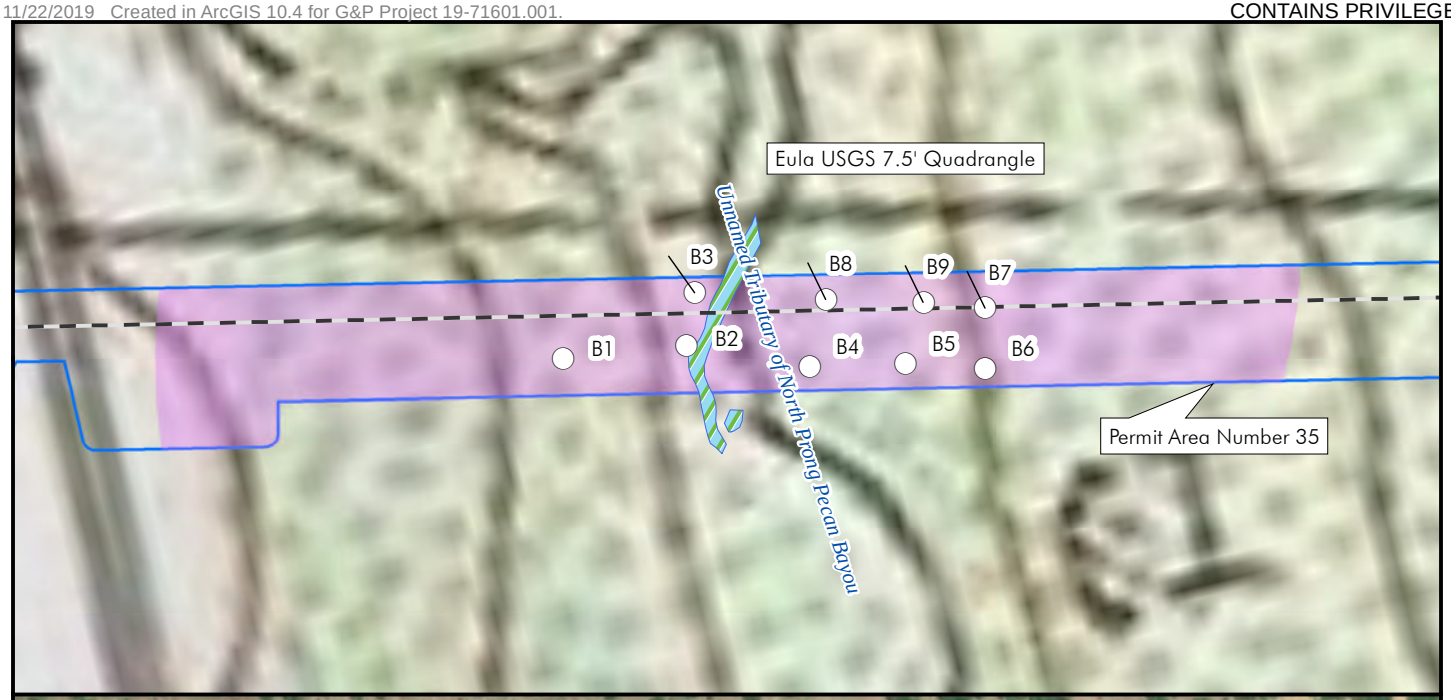
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

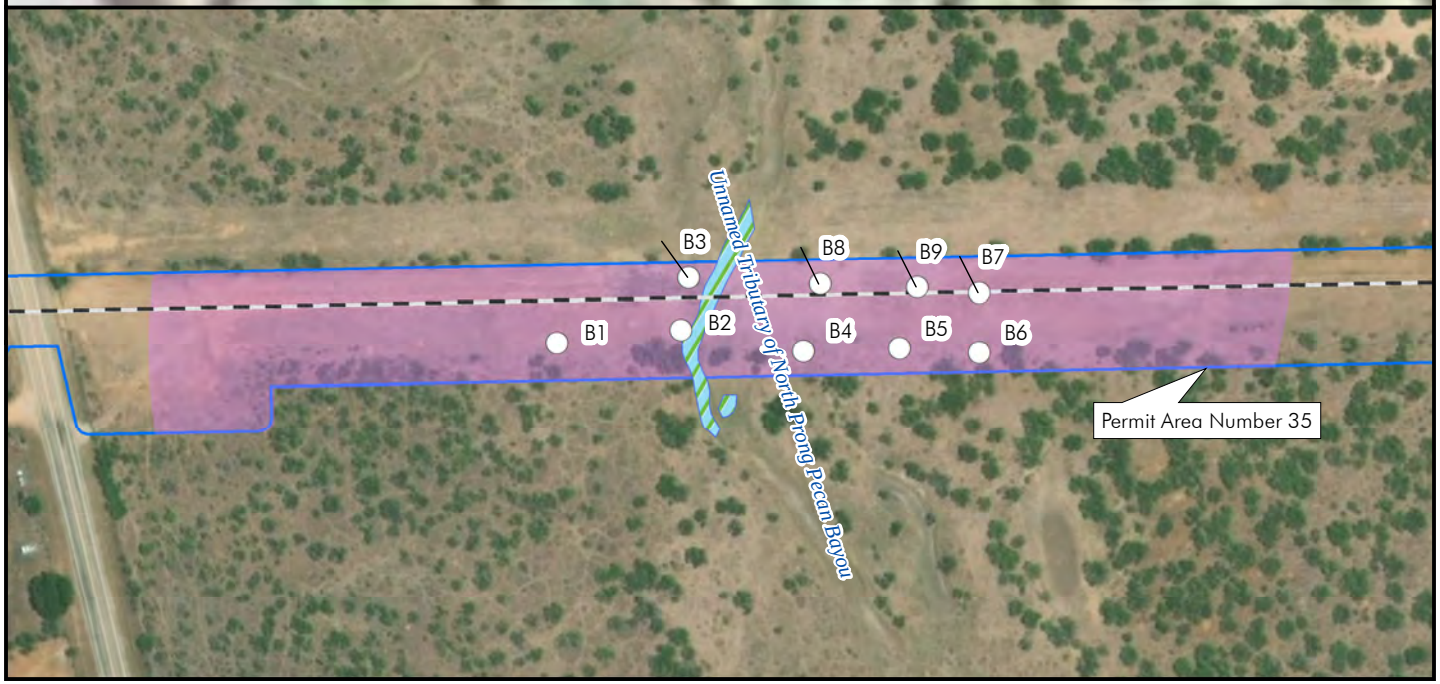


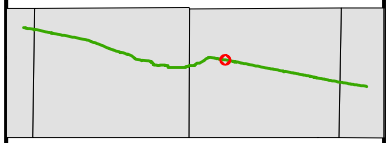
Field results within permit areas along the Loop 2 project alignment.

Figure B34

GRAY & PAPE HERITAGE MANAGEMENT

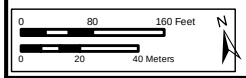






Legend

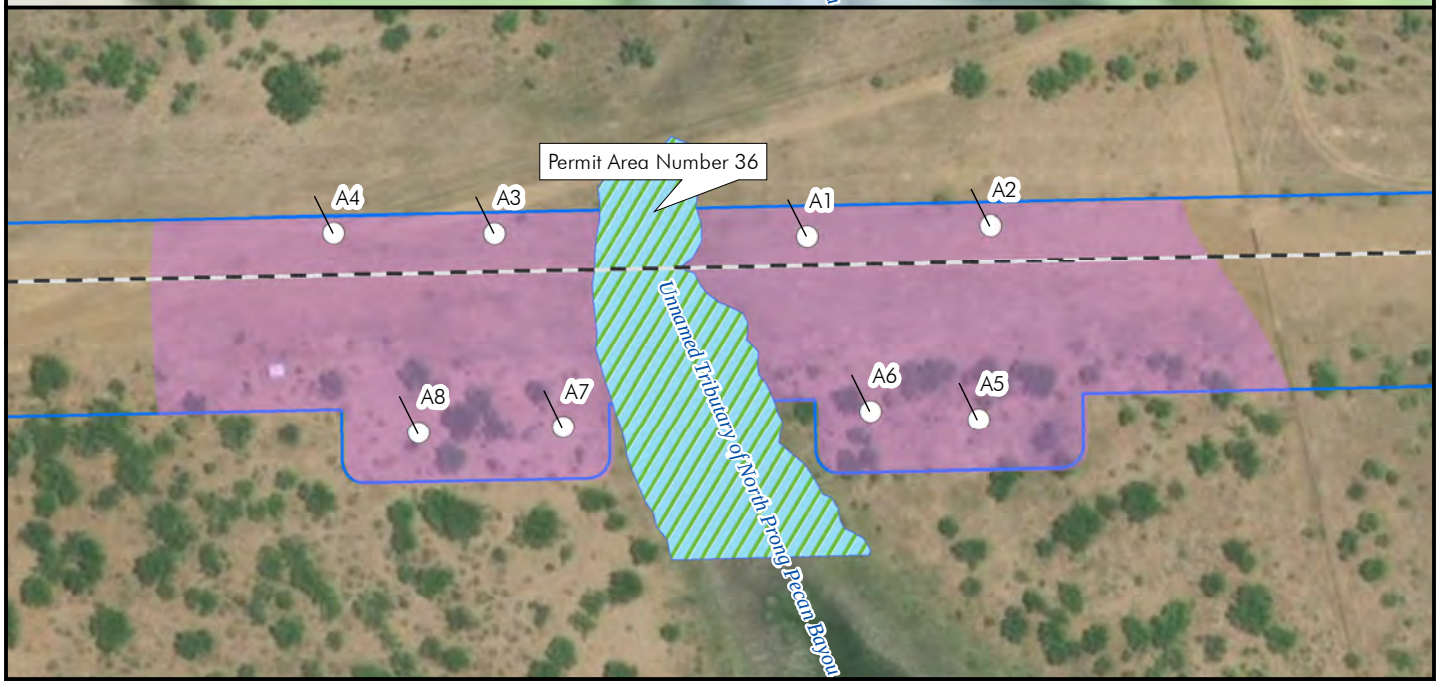
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

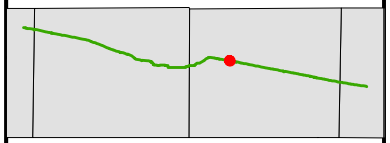


Field results within permit areas along the Loop 2 project alignment.

Figure B35

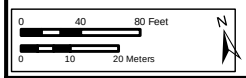
GRAY & PAPE HERITAGE MANAGEMENT





Legend

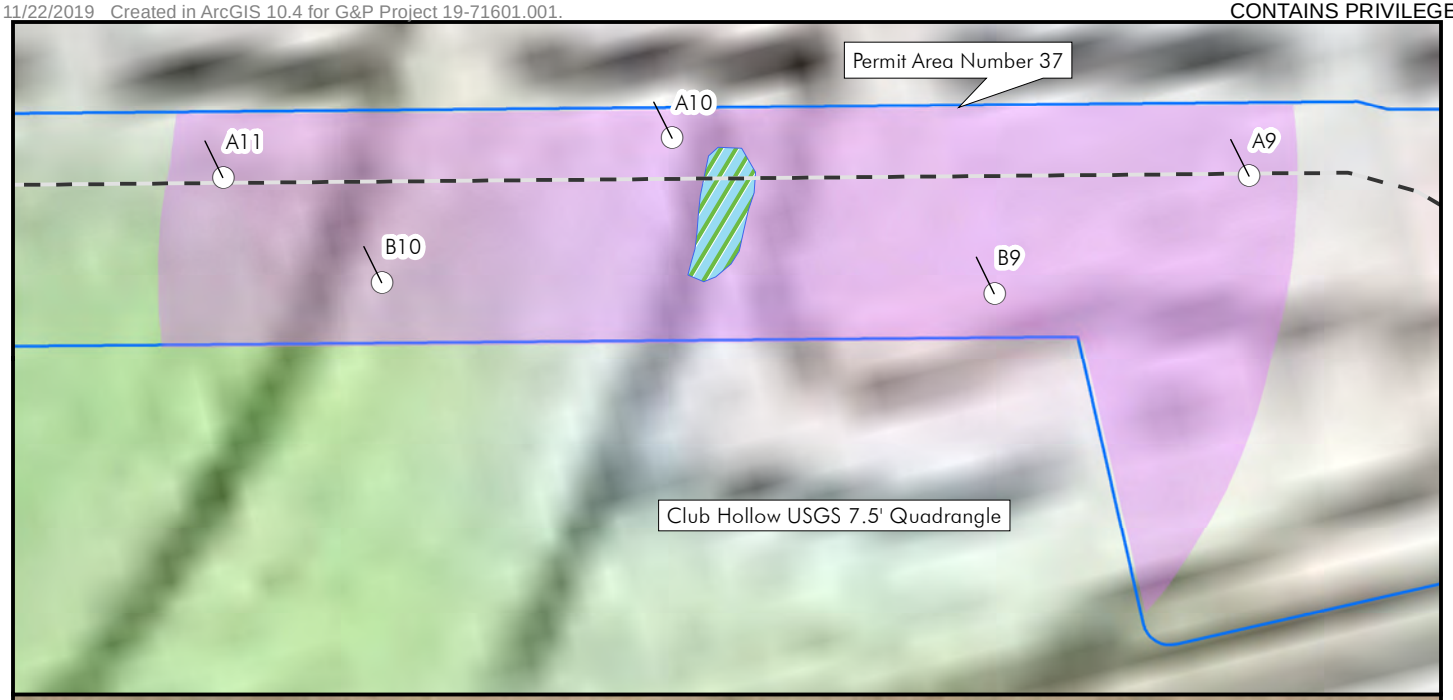
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

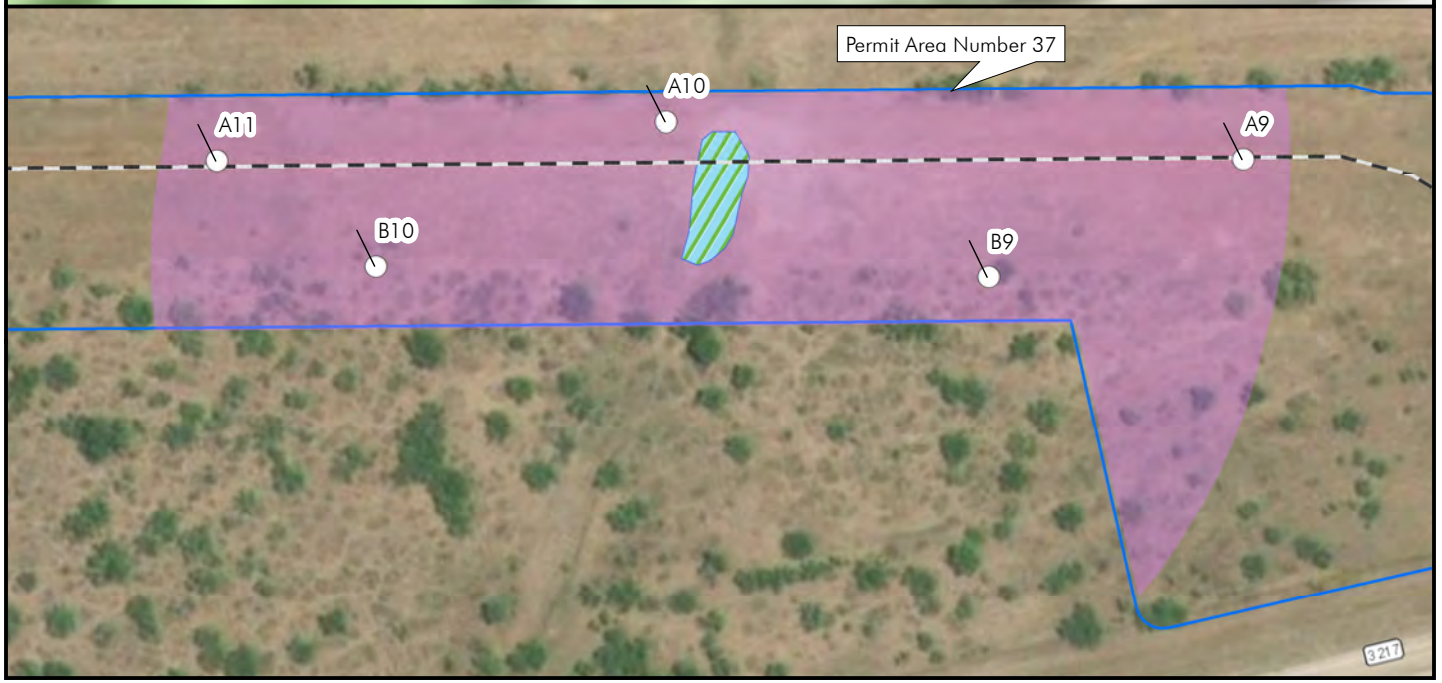


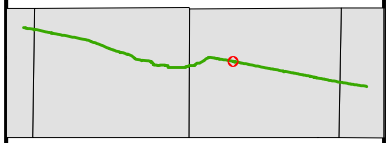
Field results within permit areas along the Loop 2 project alignment.

Figure B36

GRAY & PAPE HERITAGE MANAGEMENT

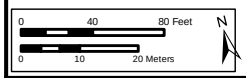






Legend

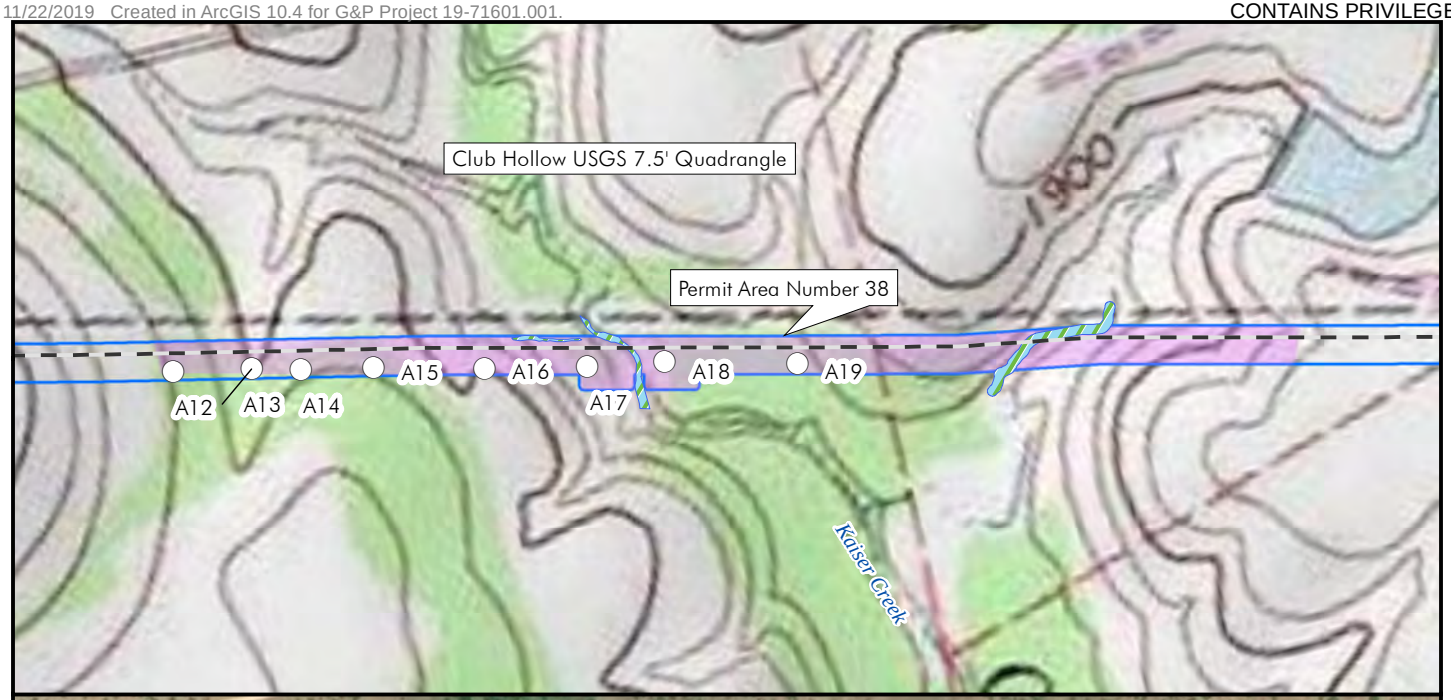
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

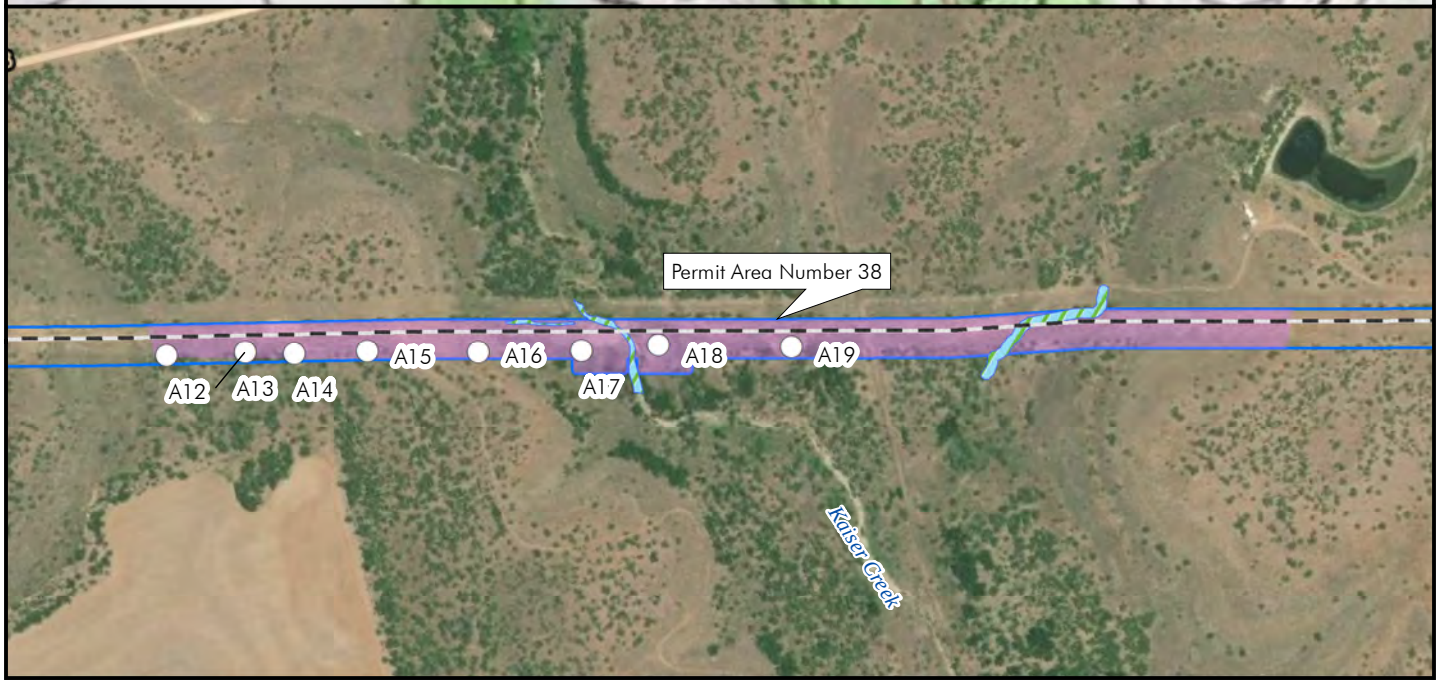


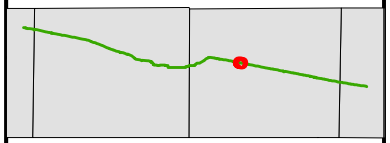
Field results within permit areas along the Loop 2 project alignment.

Figure B37

GRAY & PAPE HERITAGE MANAGEMENT

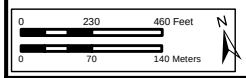






Legend

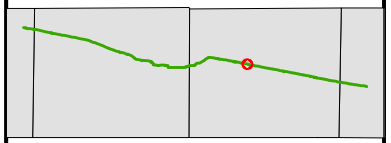
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary



Field results within permit areas along the Loop 2 project alignment.

Figure B38

GRAY & PAPE HERITAGE MANAGEMENT



Legend

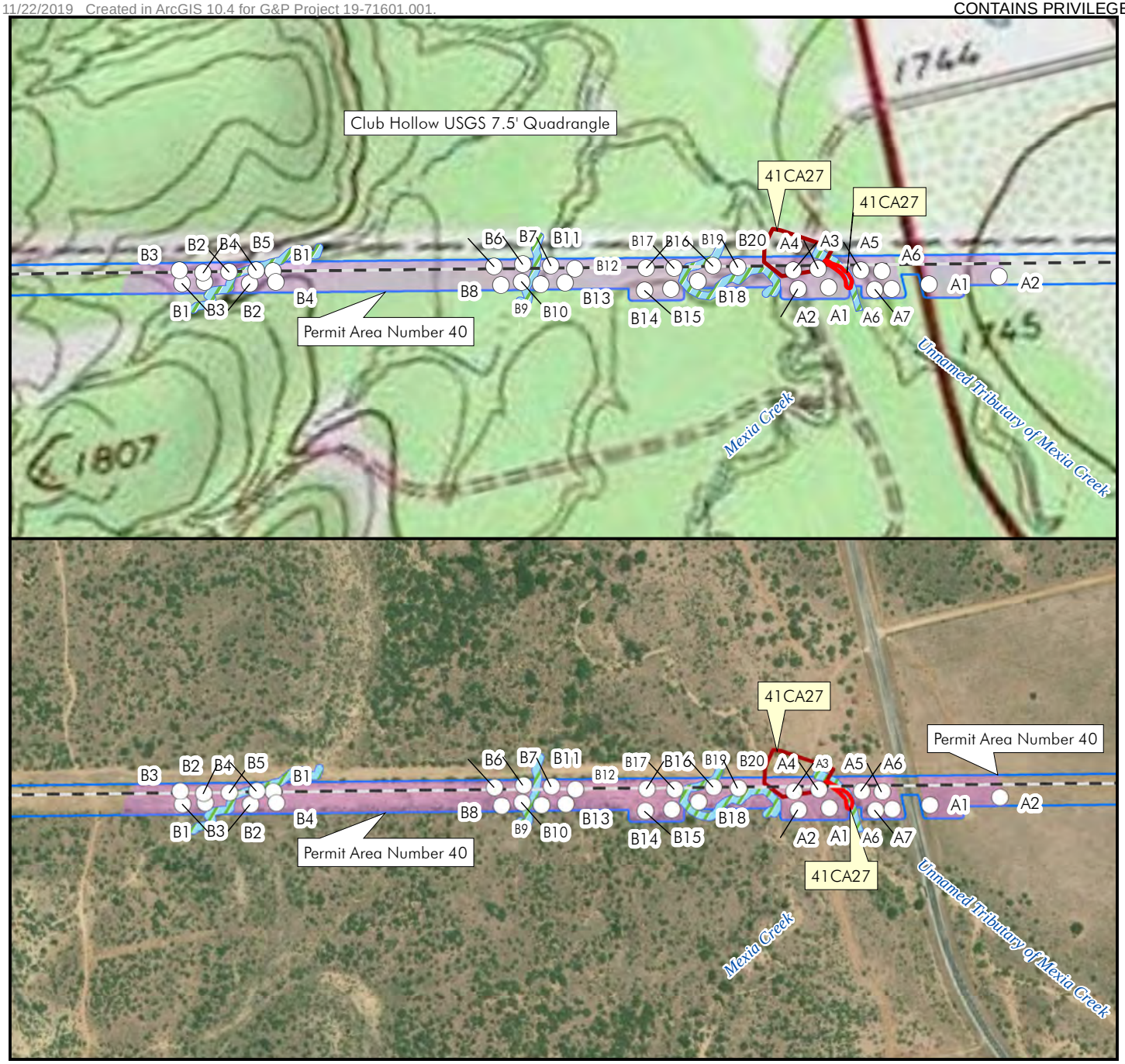
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

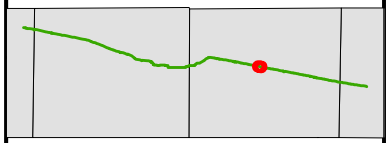
0 75 150 Feet
0 20 40 Meters
N

Field results within permit areas along the Loop 2 project alignment.

Figure B39

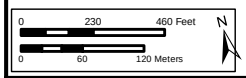
GRAY & PAPE
HERITAGE MANAGEMENT





Legend

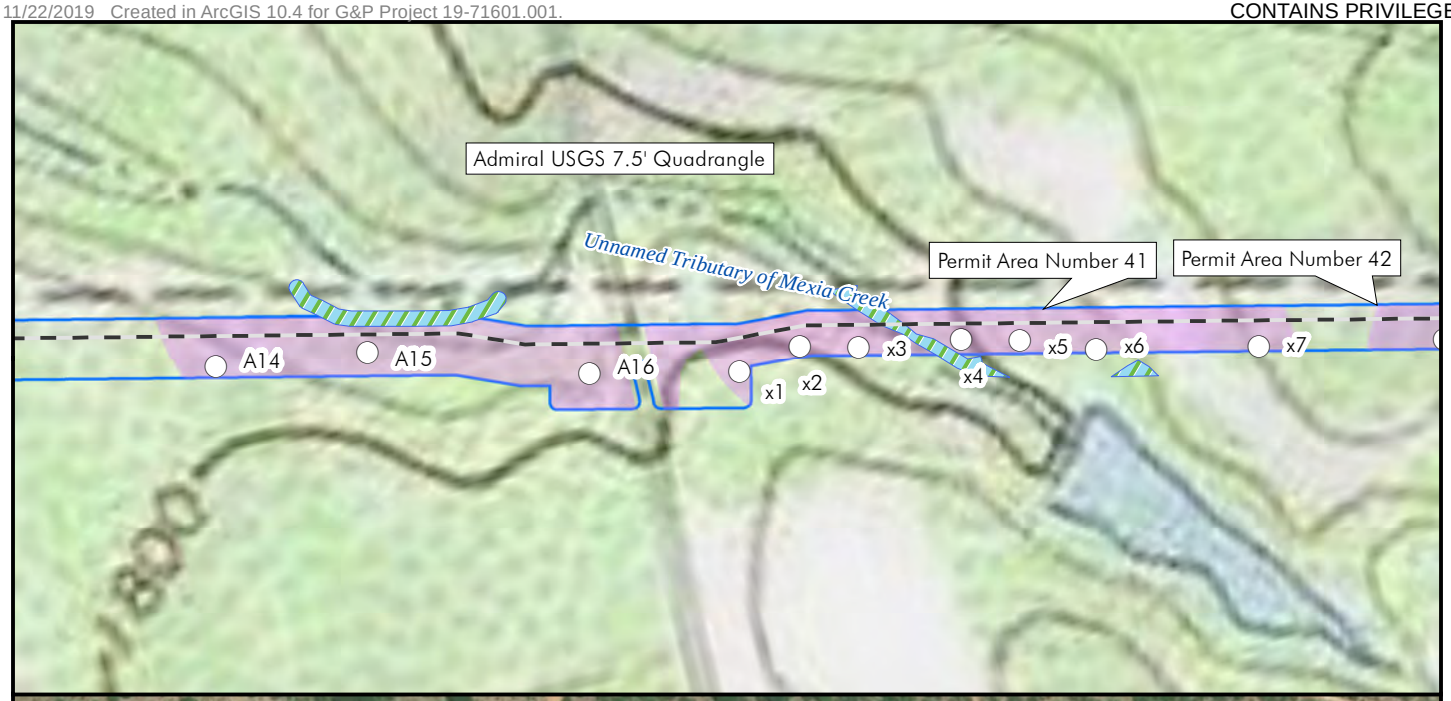
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

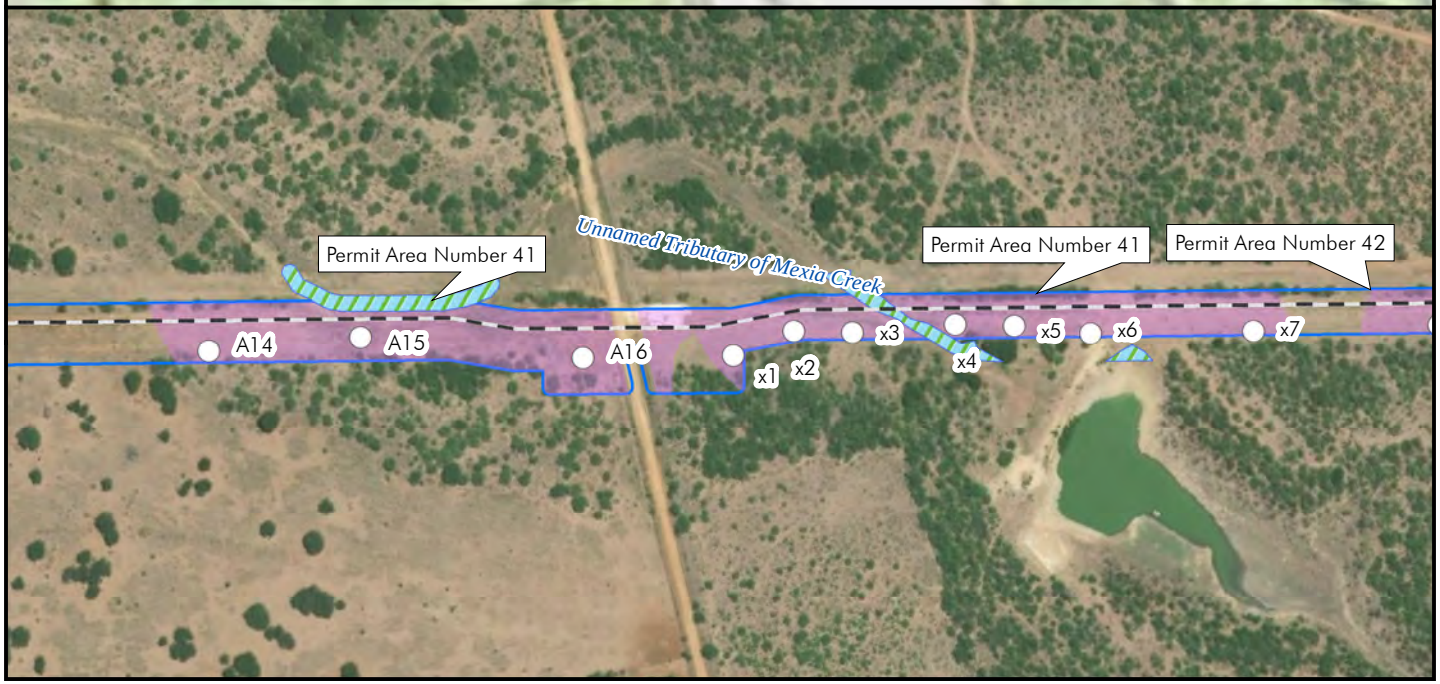


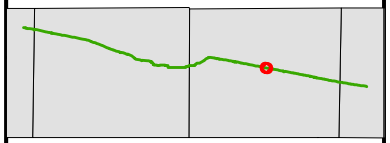
Field results within permit areas along the Loop 2 project alignment.

Figure B40

GRAY & PAPE HERITAGE MANAGEMENT

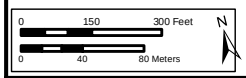






Legend

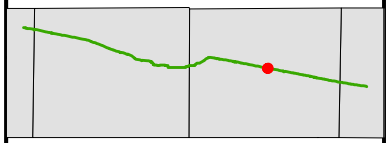
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary



Field results within permit areas along the Loop 2 project alignment.

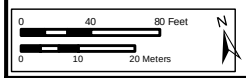
Figure B41

GRAY & PAPE HERITAGE MANAGEMENT



Legend

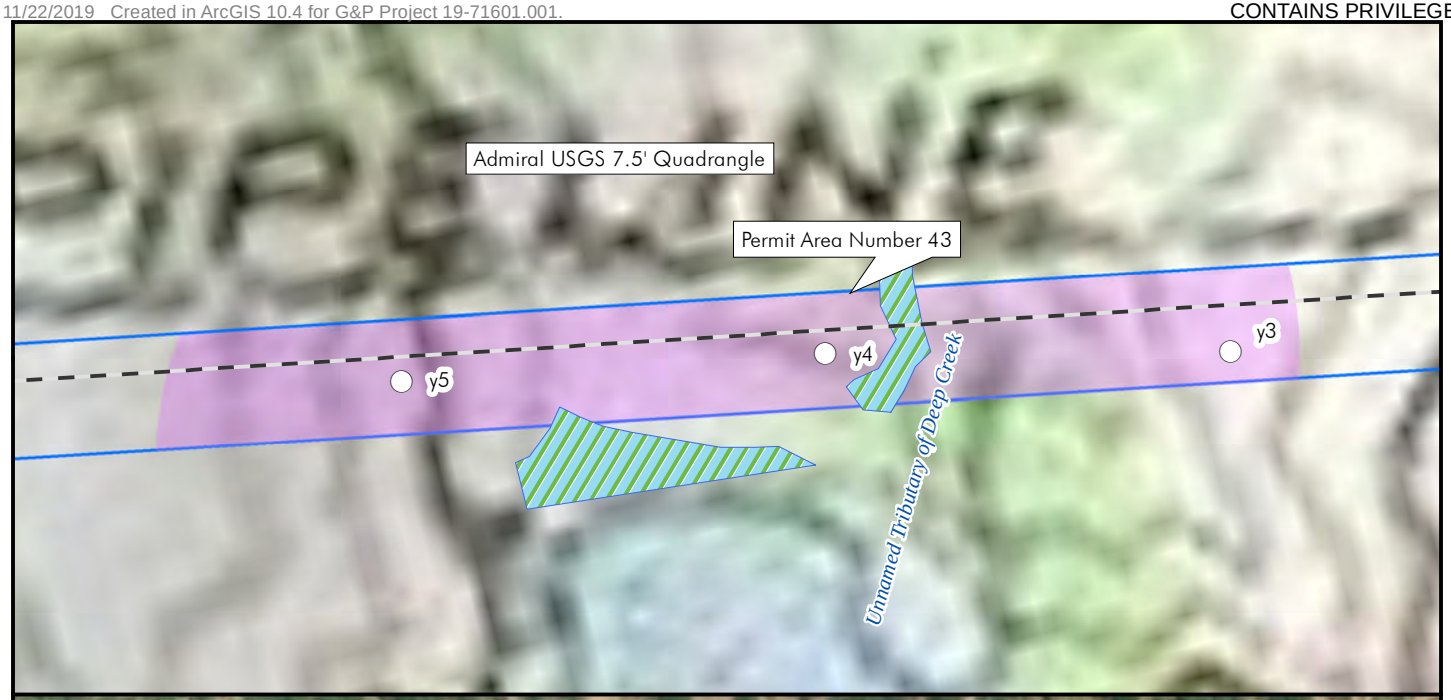
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

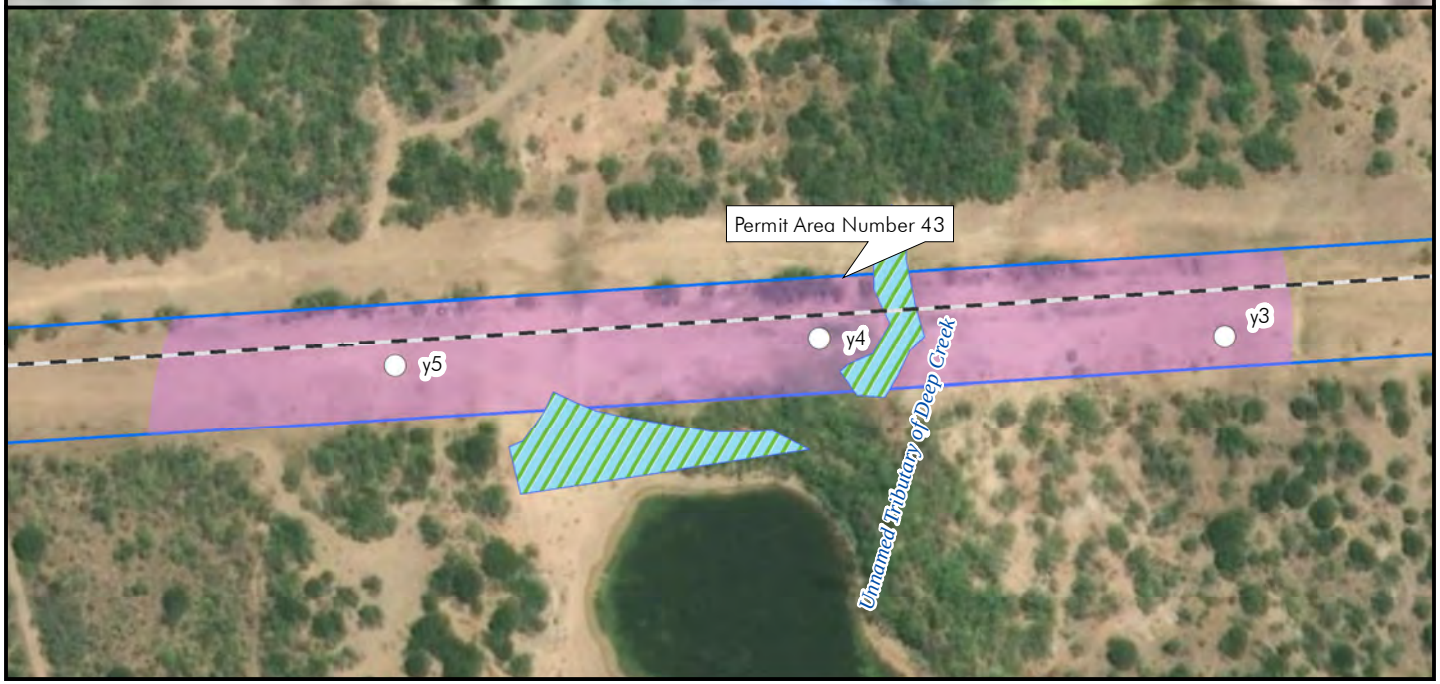


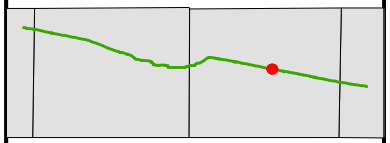
Field results within permit areas along the Loop 2 project alignment.

Figure B42

GRAY & PAPE HERITAGE MANAGEMENT

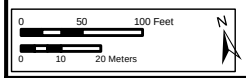






Legend

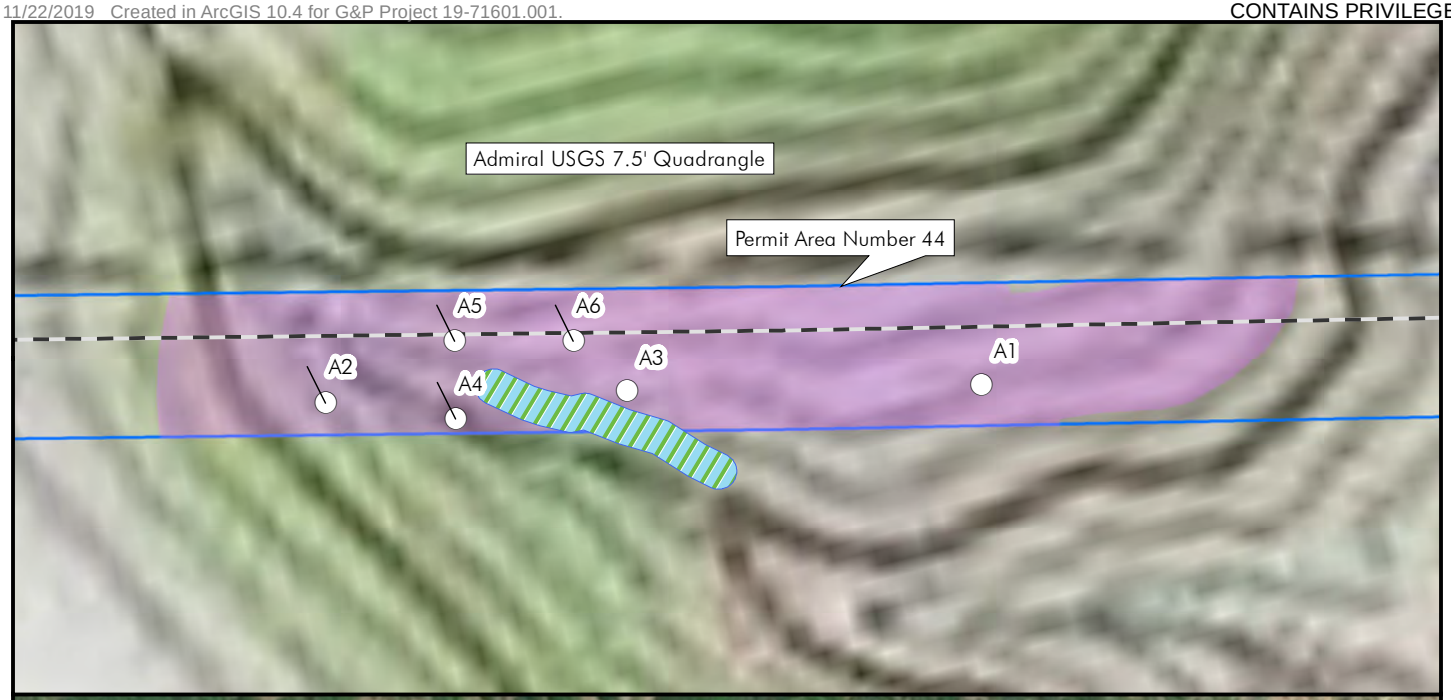
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

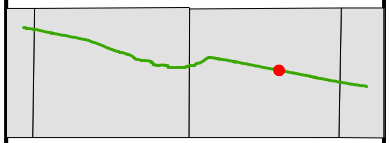


Field results within permit areas along the Loop 2 project alignment.

Figure B43

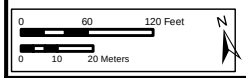
GRAY & PAPE HERITAGE MANAGEMENT





Legend

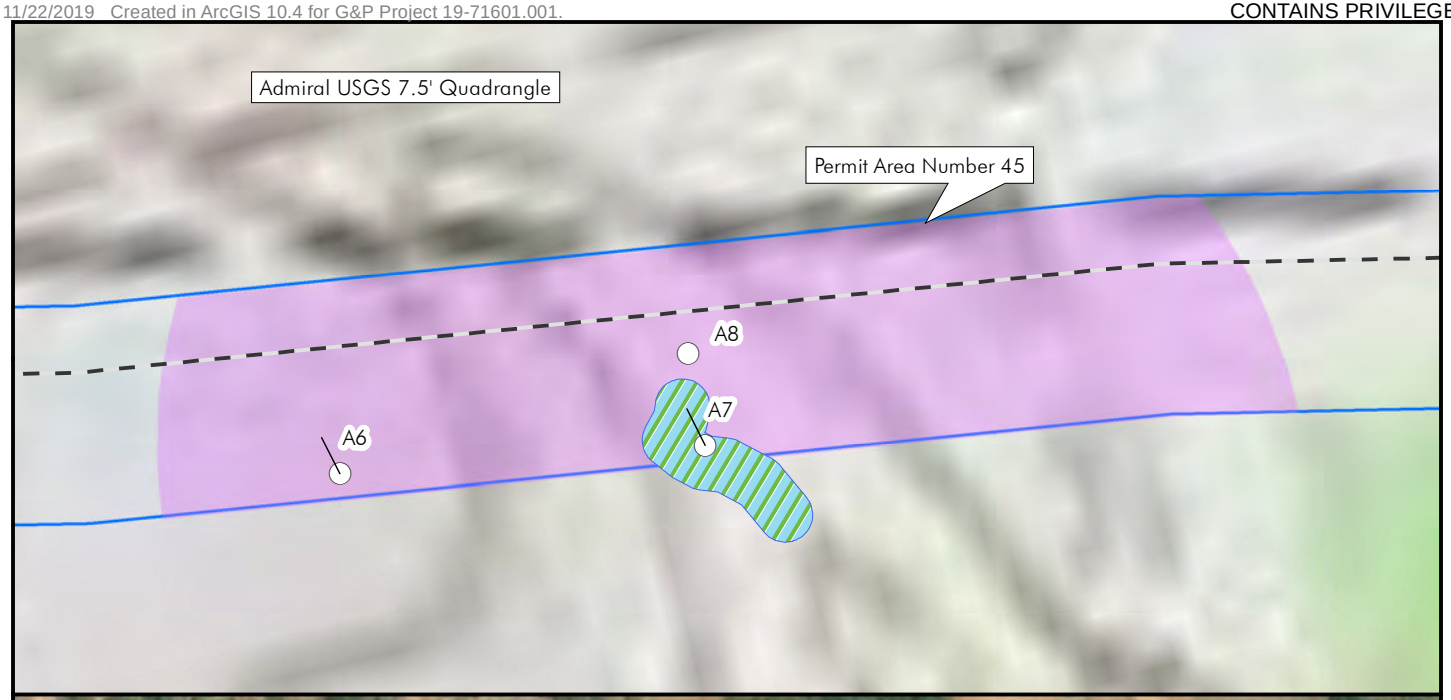
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

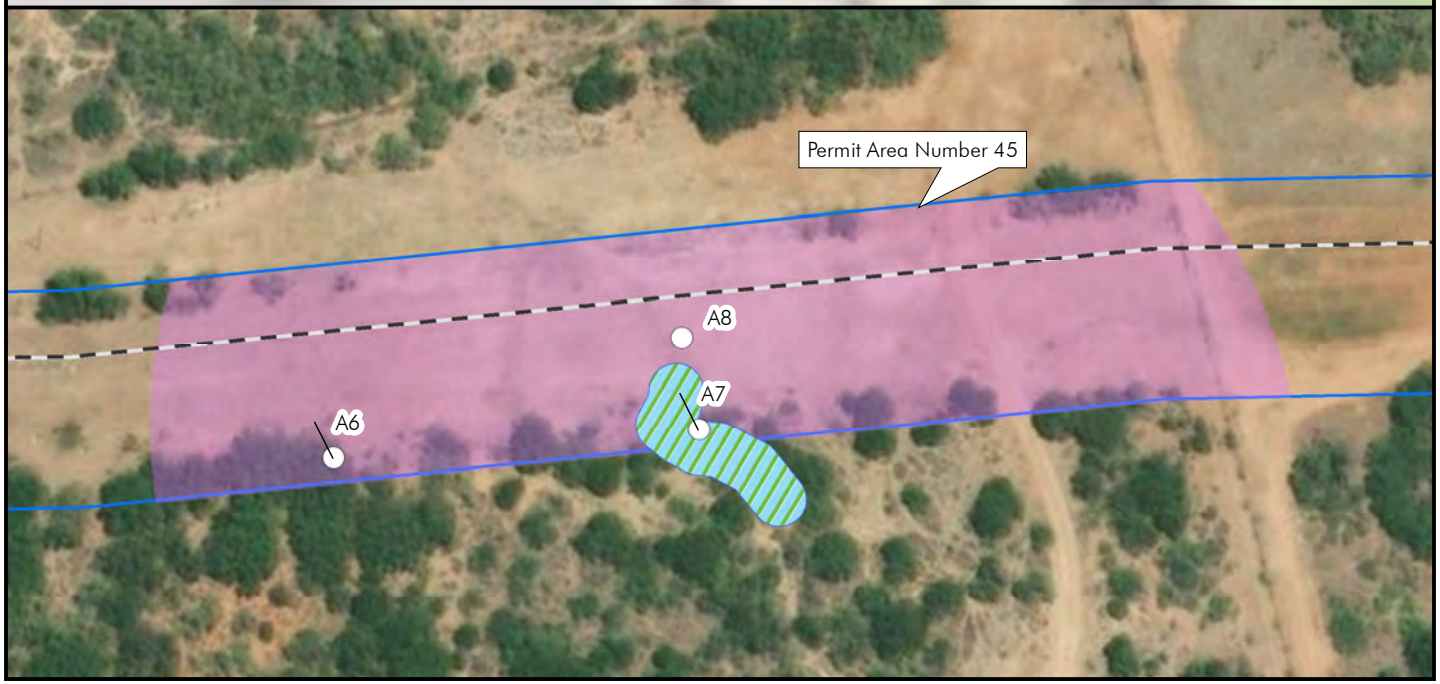


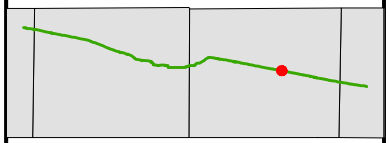
Field results within permit areas along the Loop 2 project alignment.

Figure B44

GRAY & PAPE HERITAGE MANAGEMENT

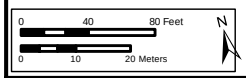






Legend

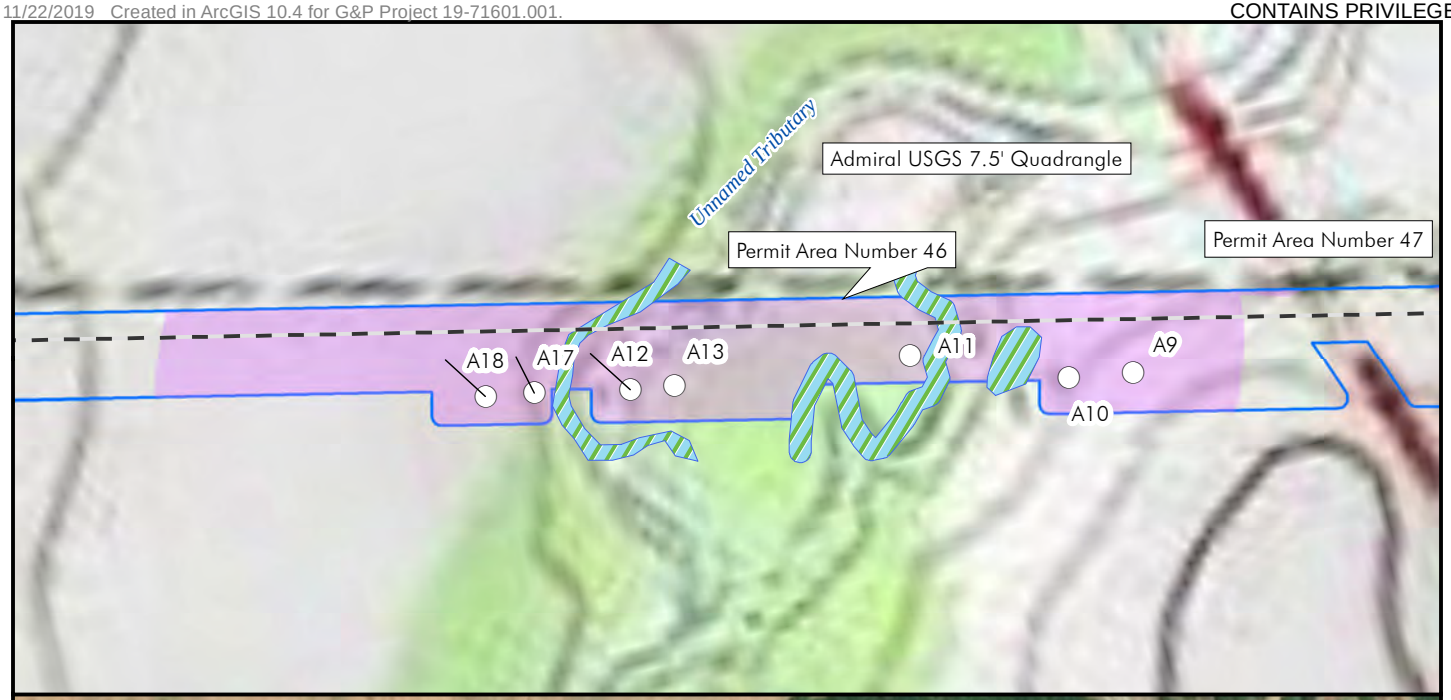
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

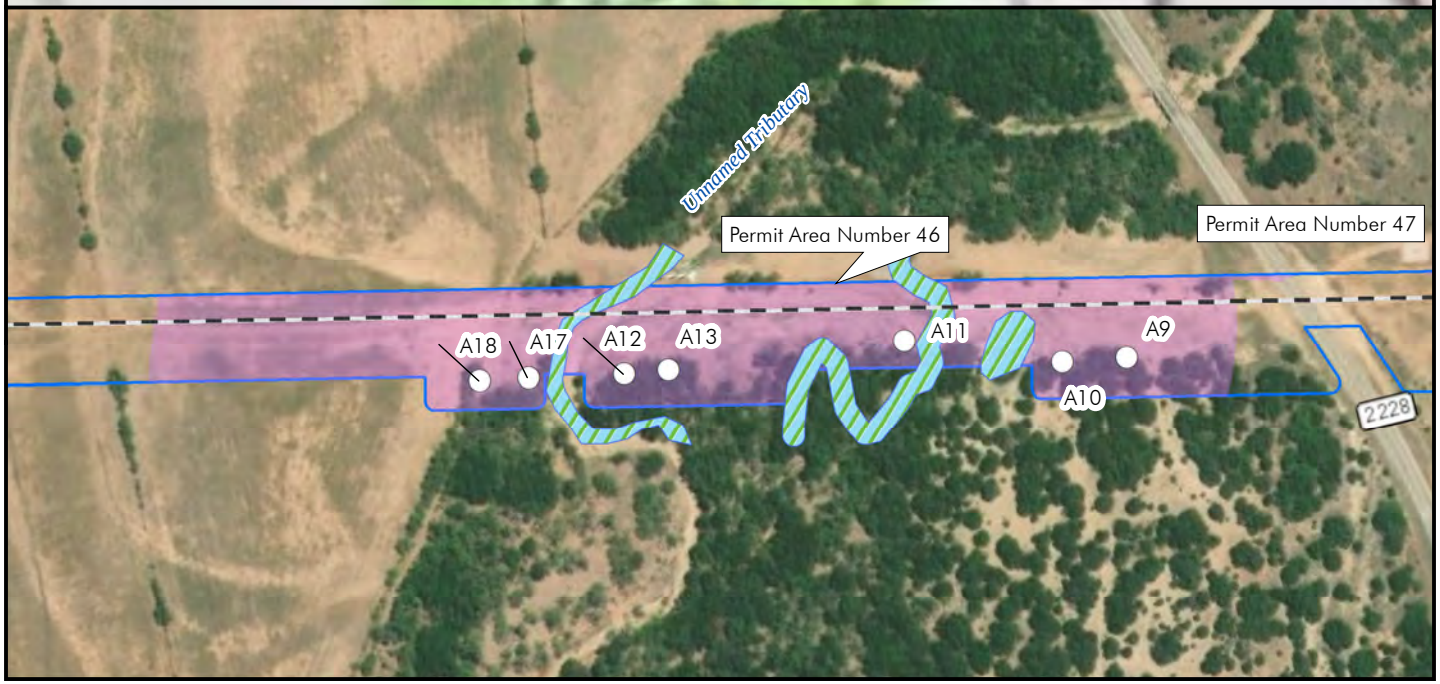


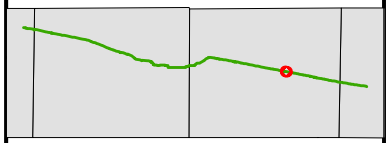
Field results within permit areas along the Loop 2 project alignment.

Figure B45

GRAY & PAPE HERITAGE MANAGEMENT







Legend

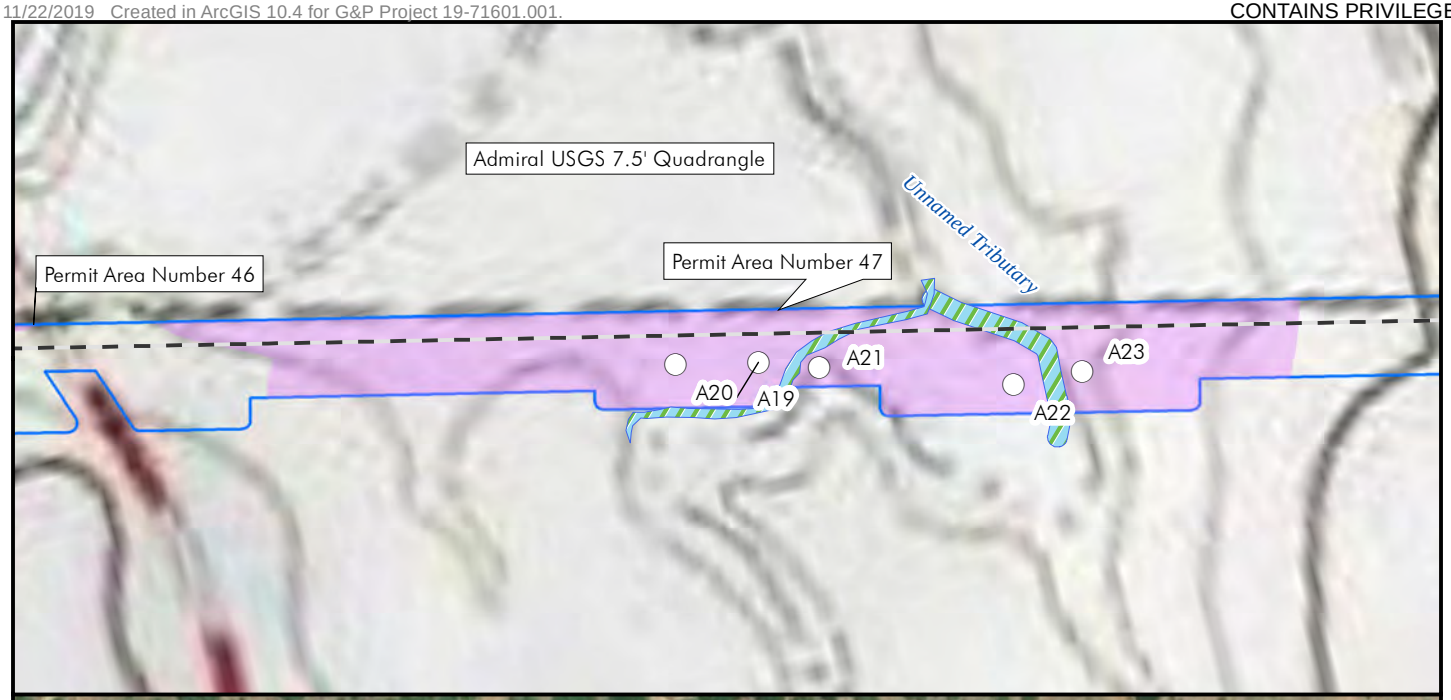
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

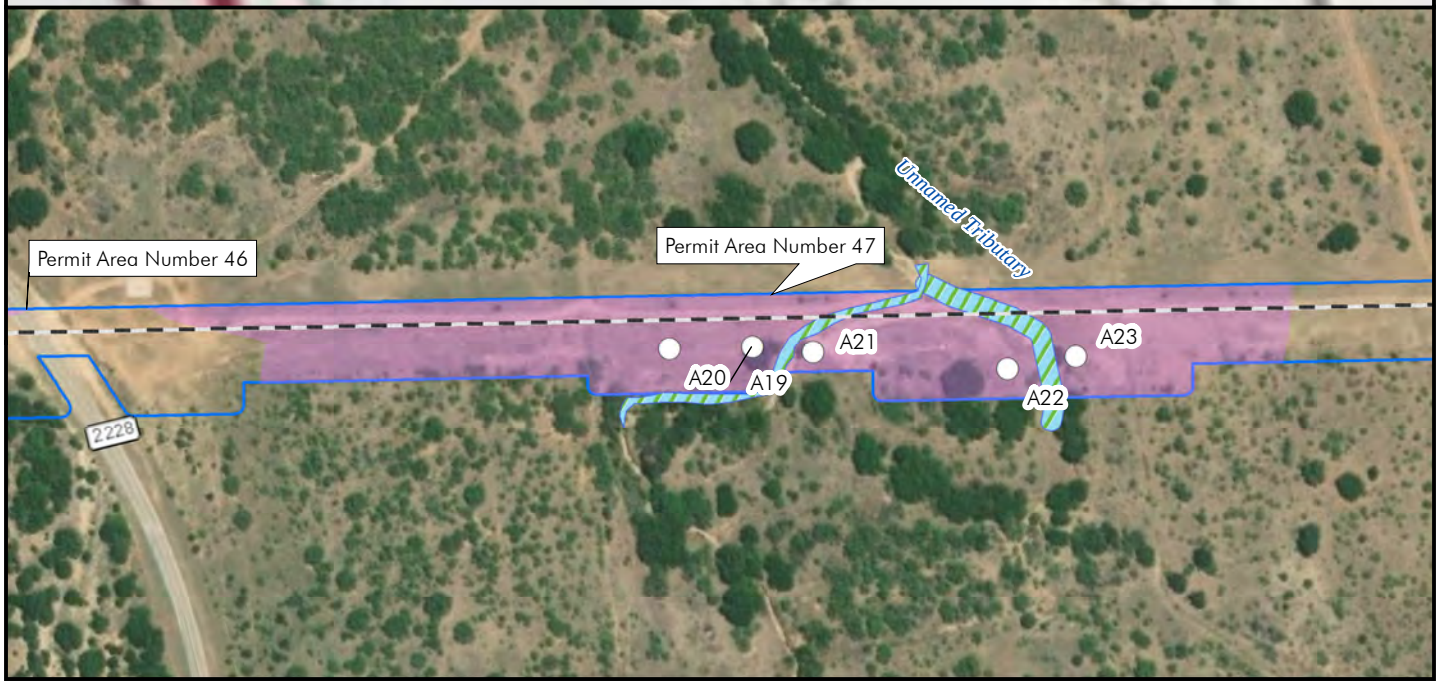
0 100 200 Feet
0 30 60 Meters
N

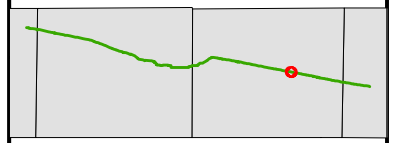
Field results within permit areas along the Loop 2 project alignment.

Figure B46

GRAY & PAPE HERITAGE MANAGEMENT

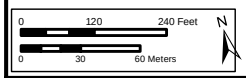






Legend

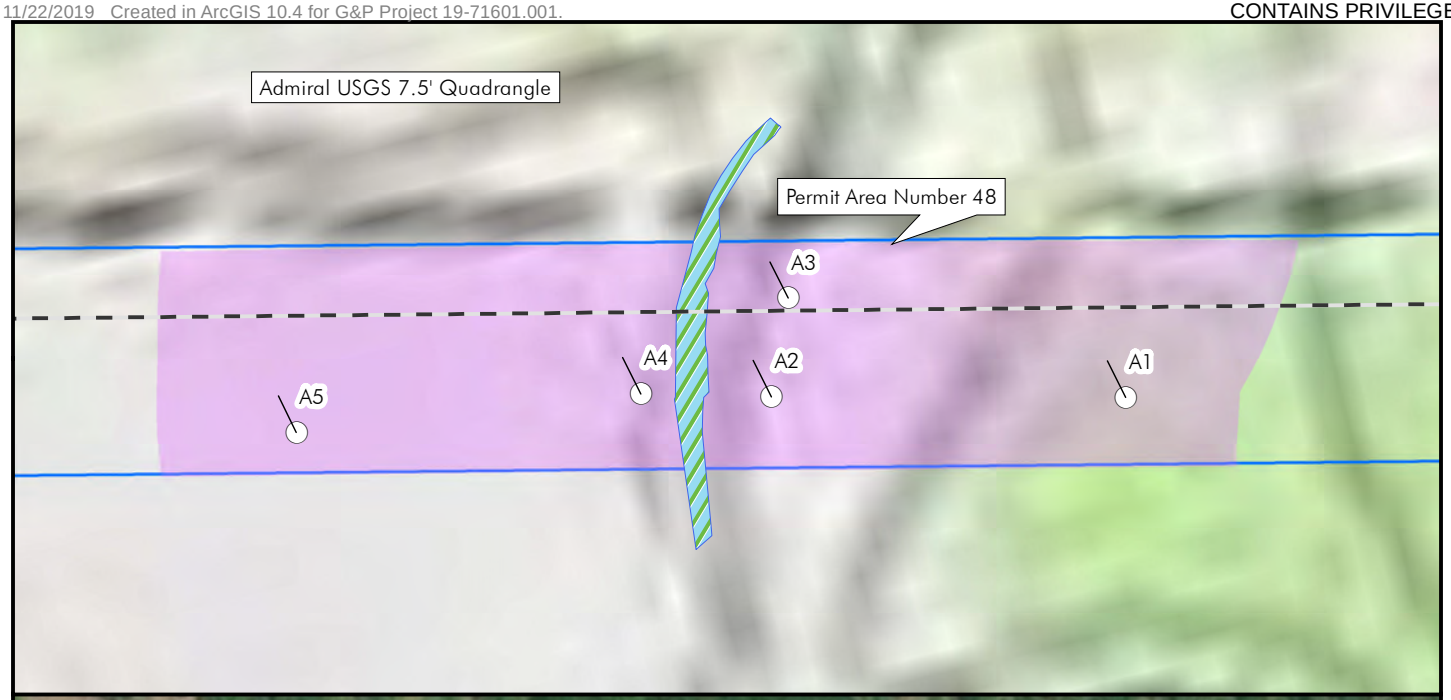
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

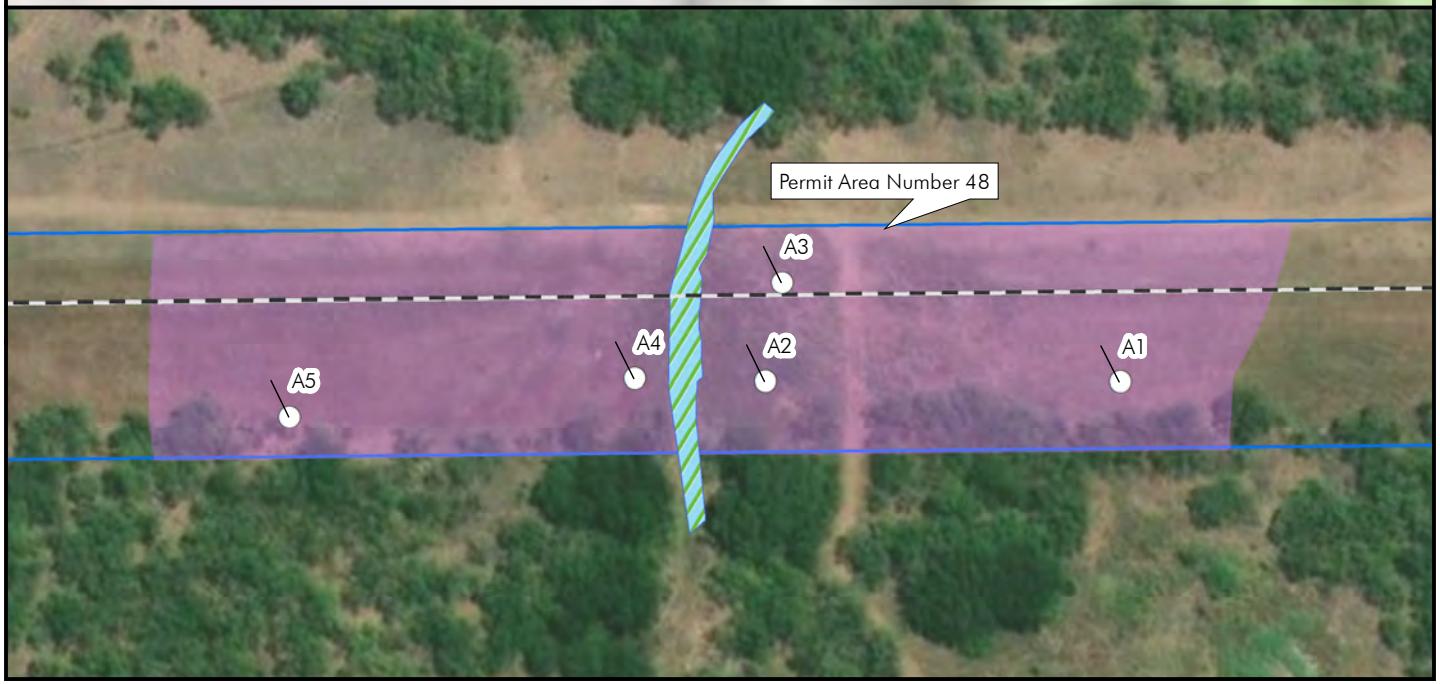


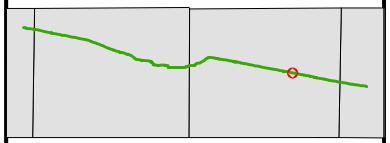
Field results within permit areas along the Loop 2 project alignment.

Figure B47

GRAY & PAPE HERITAGE MANAGEMENT

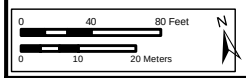






Legend

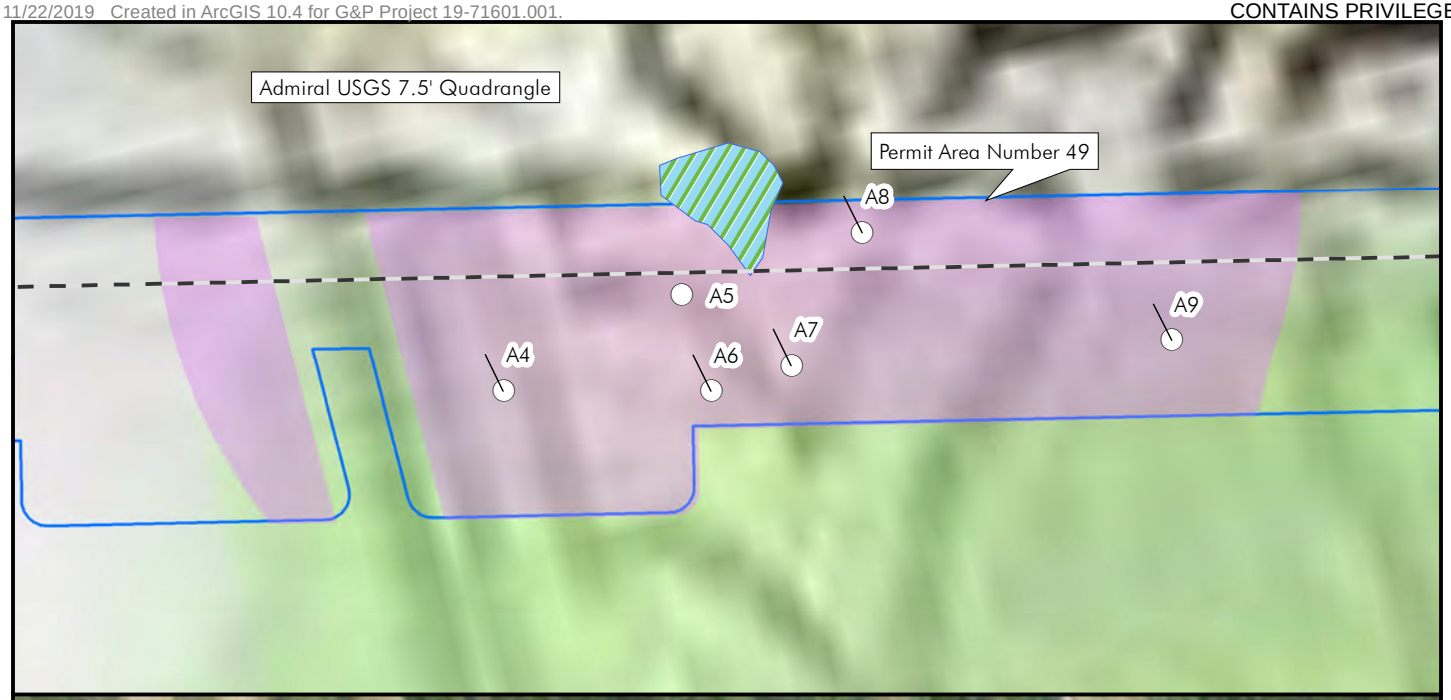
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

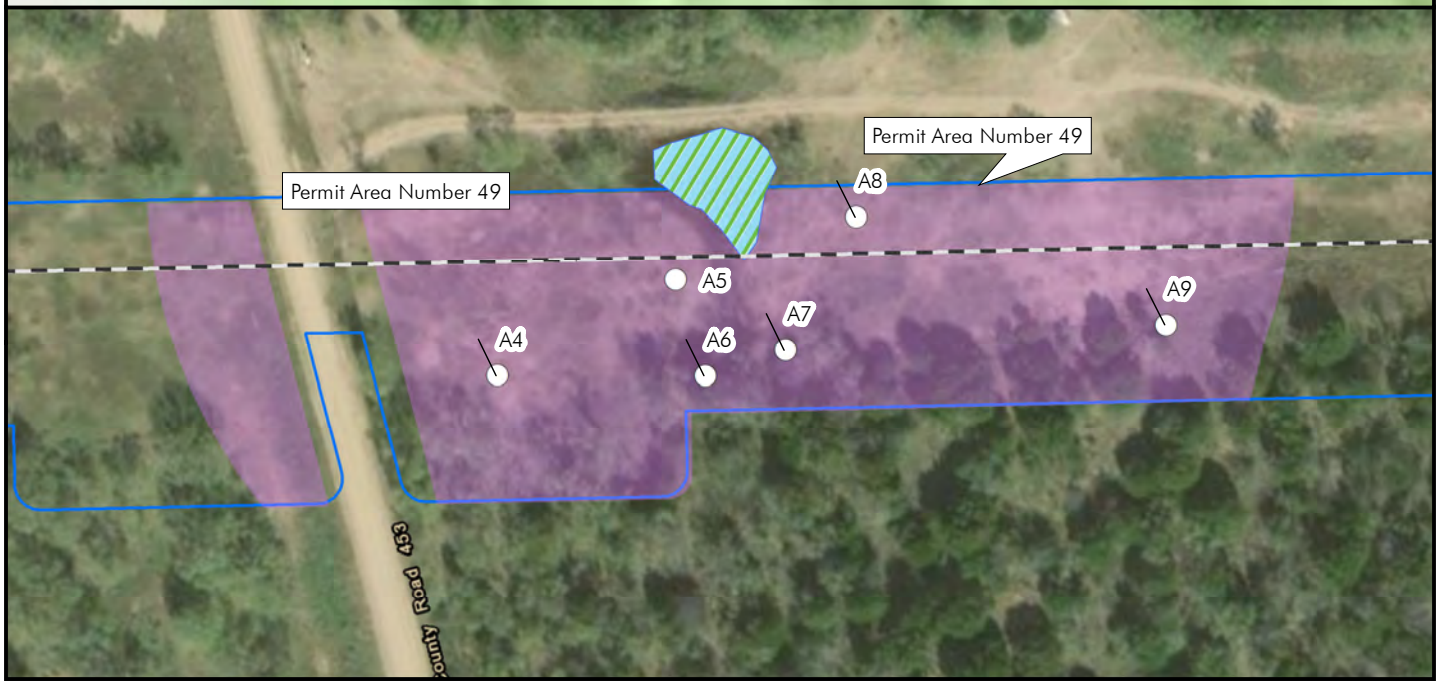


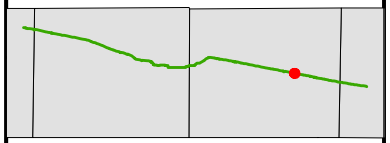
Field results within permit areas along the Loop 2 project alignment.

Figure B48

GRAY & PAPE HERITAGE MANAGEMENT

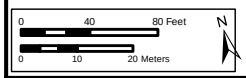






Legend

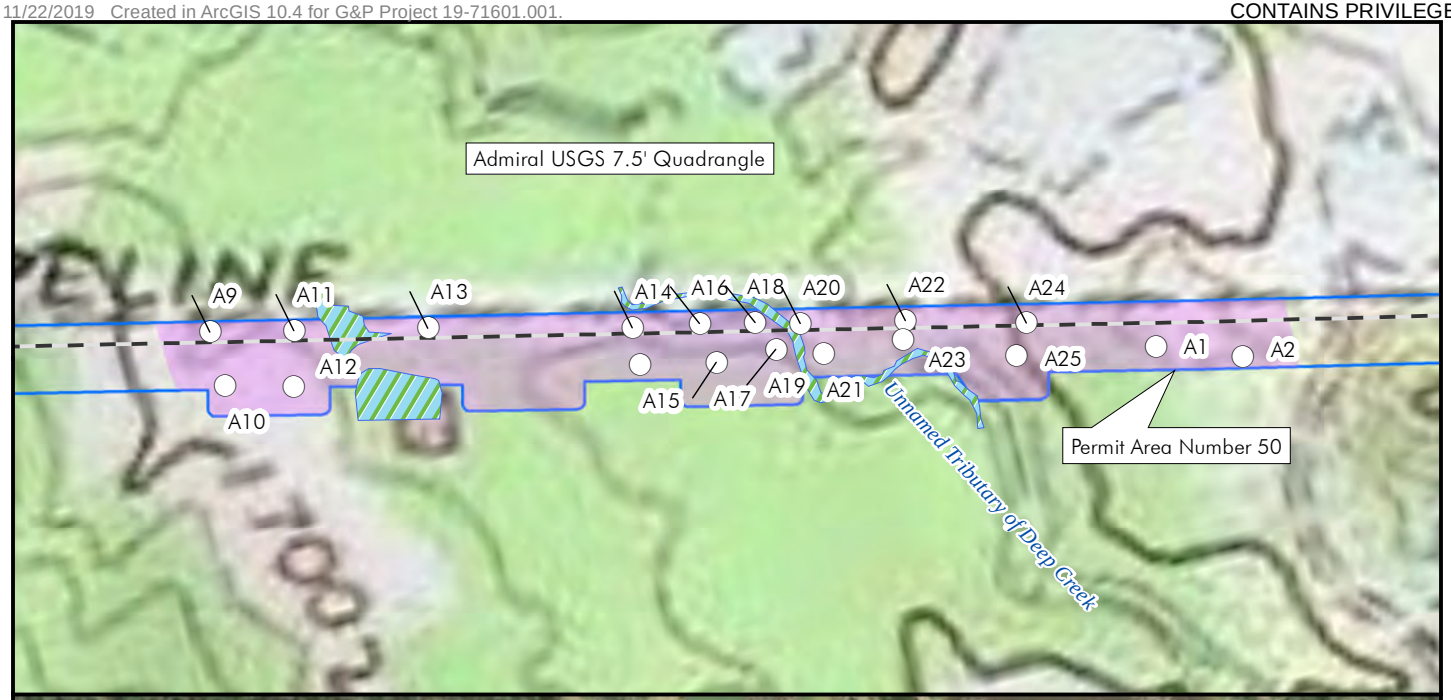
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

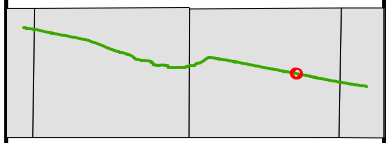


Field results within permit areas along the Loop 2 project alignment.

Figure B49

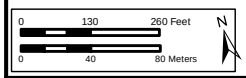
GRAY & PAPE HERITAGE MANAGEMENT





Legend

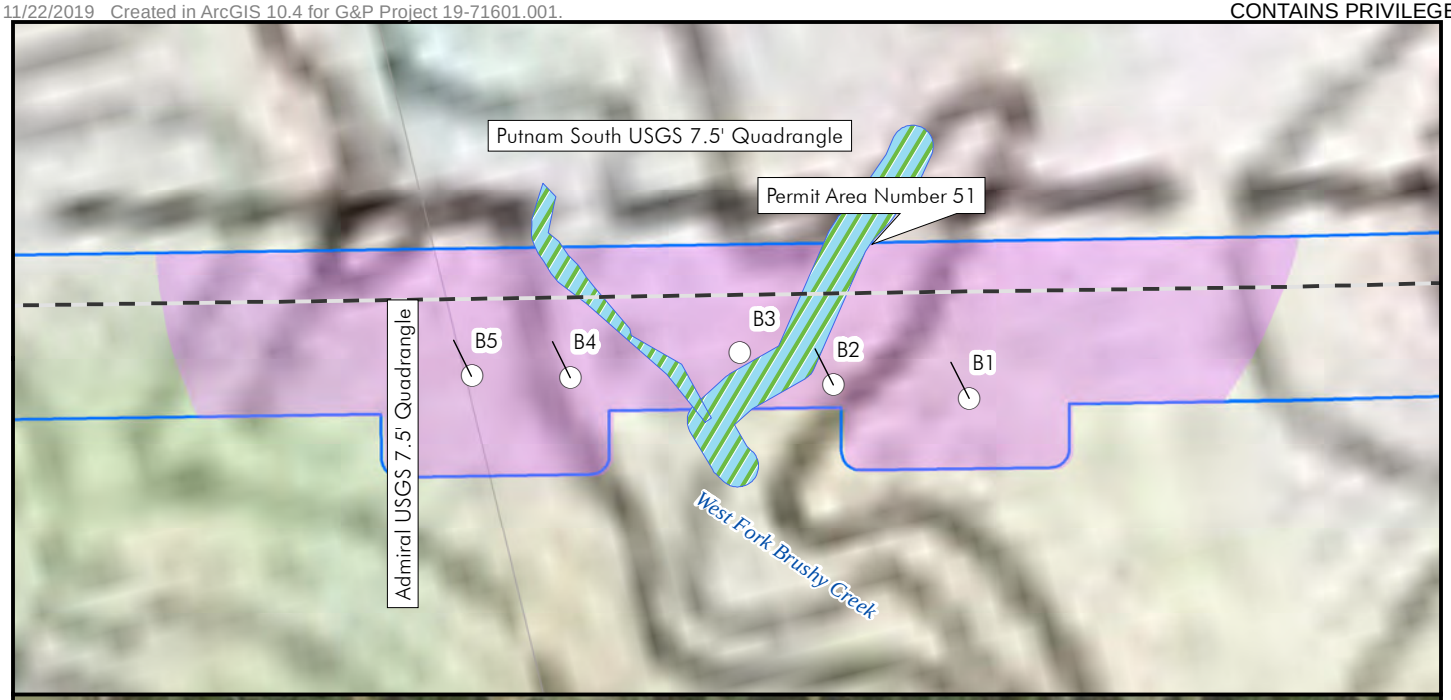
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

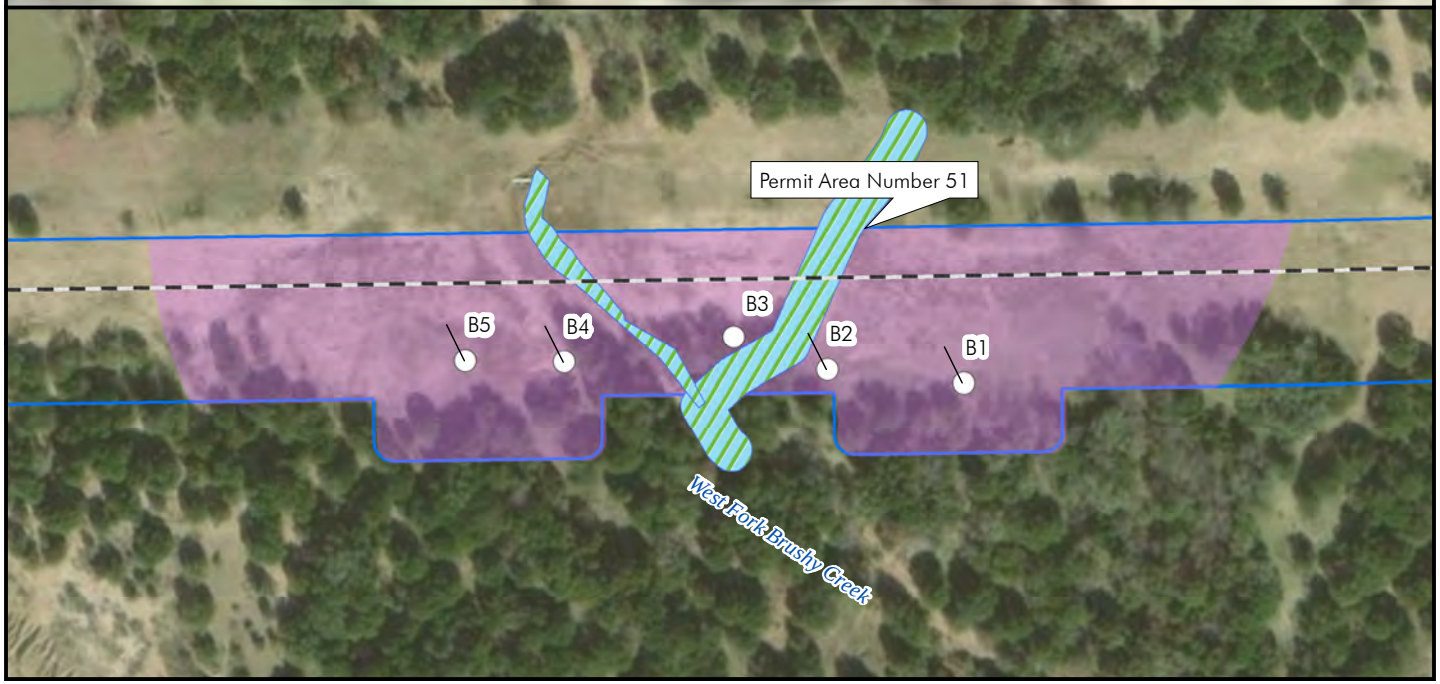


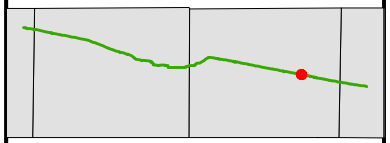
Field results within permit areas along the Loop 2 project alignment.

Figure B50

GRAY & PAPE HERITAGE MANAGEMENT

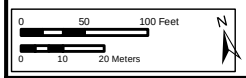






Legend

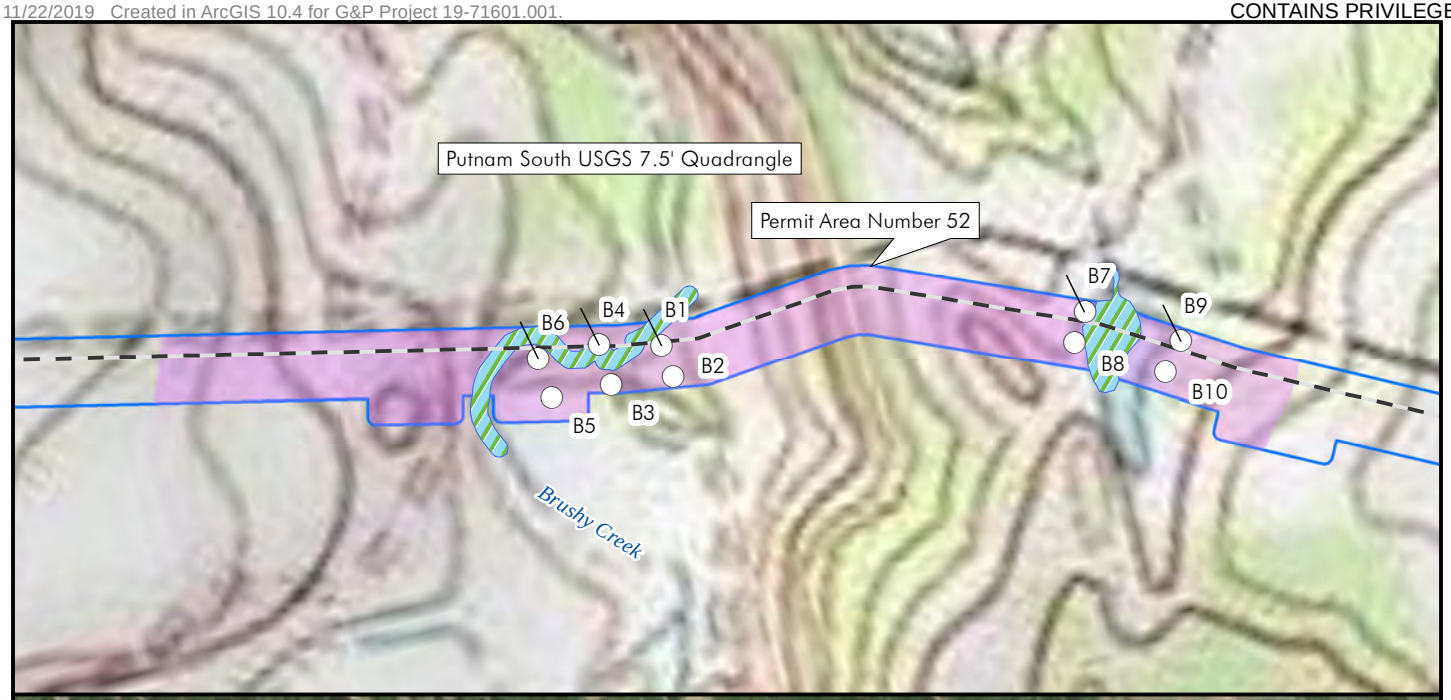
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

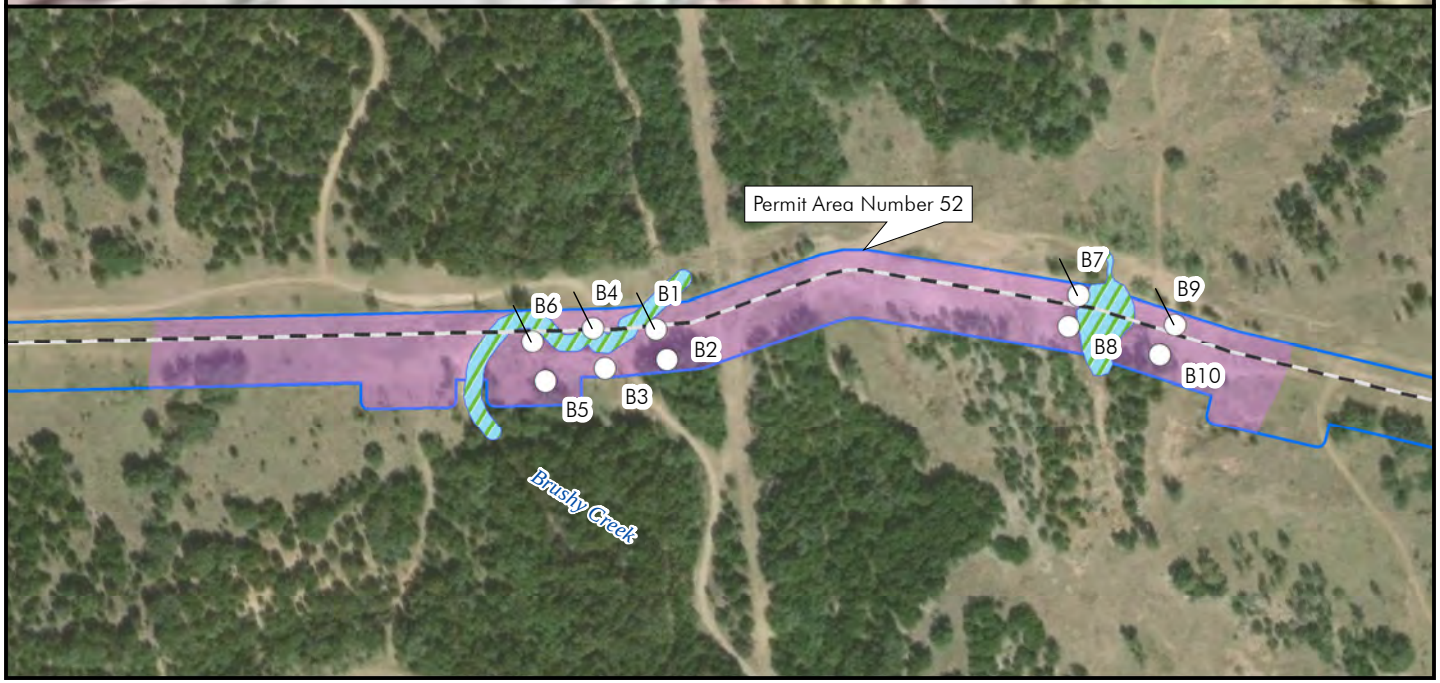


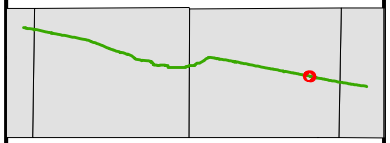
Field results within permit areas along the Loop 2 project alignment.

Figure B51

GRAY & PAPE HERITAGE MANAGEMENT

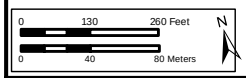






Legend

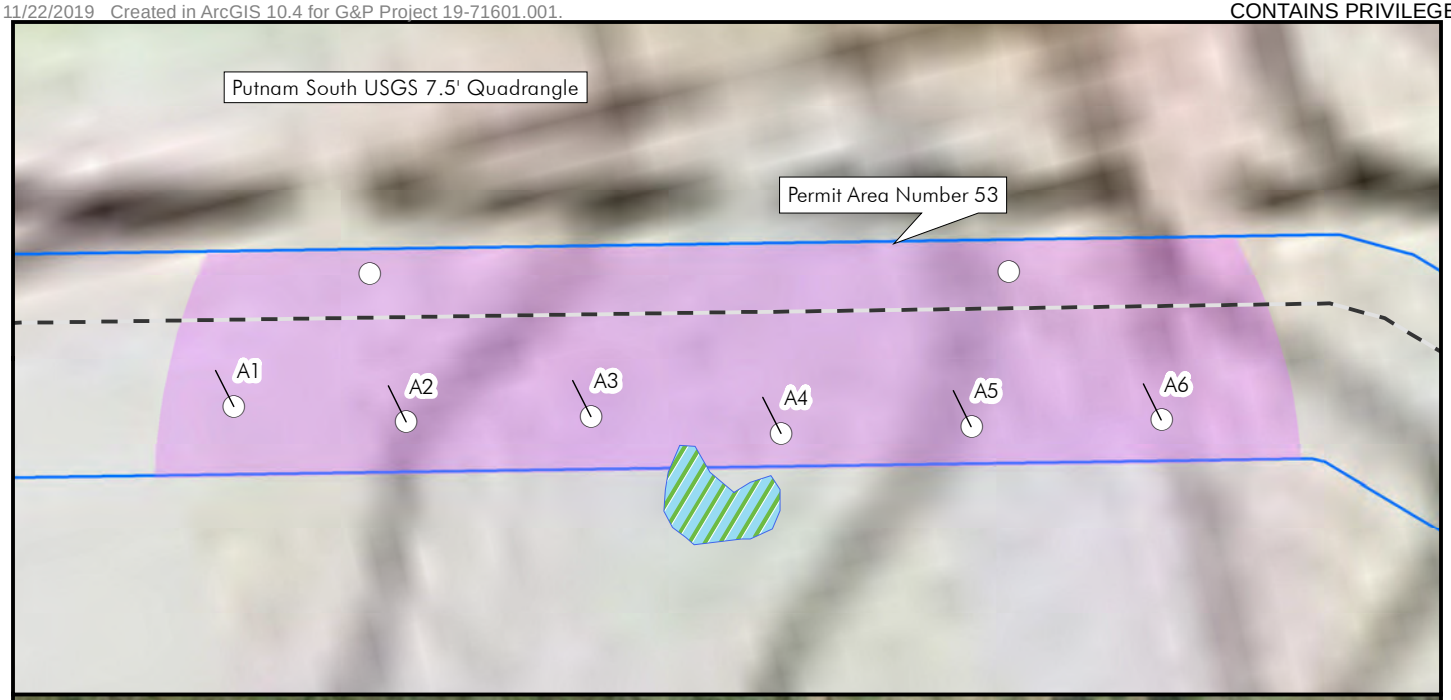
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

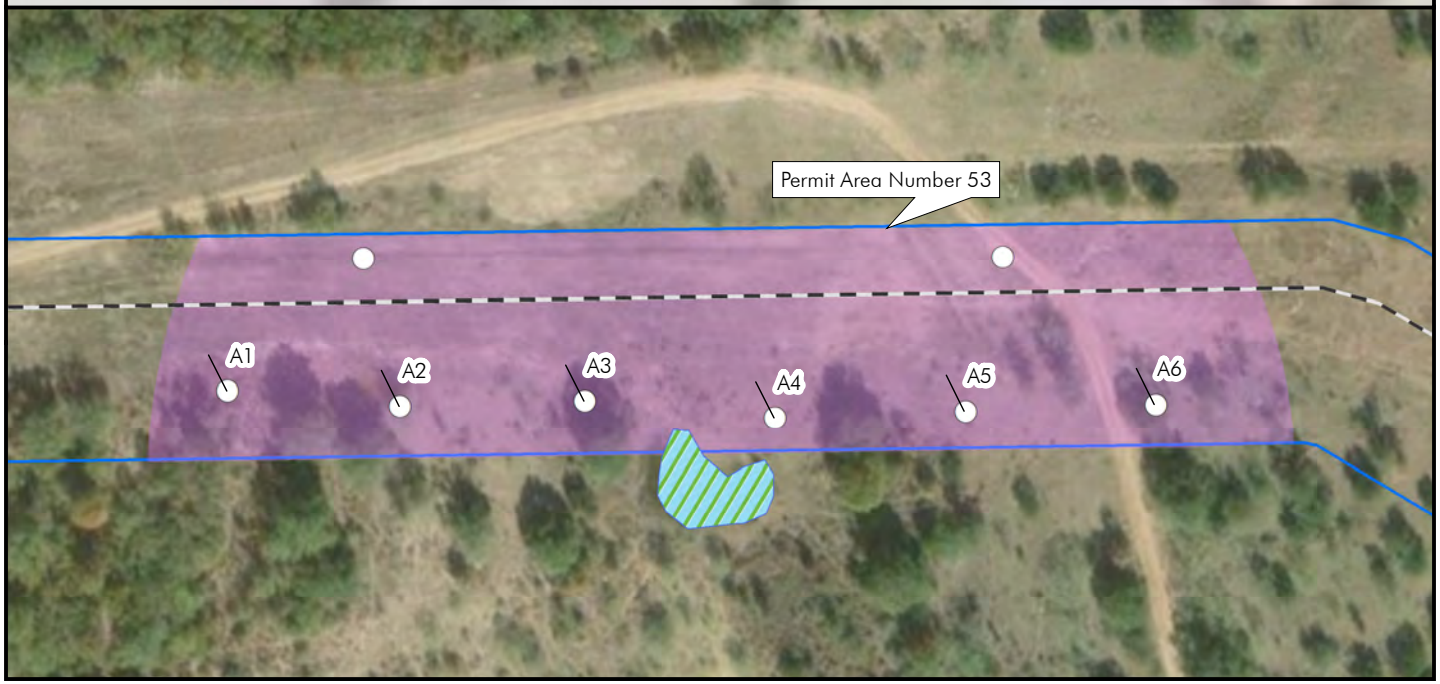


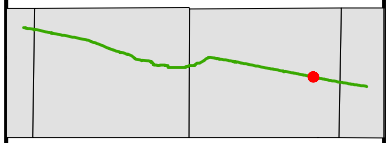
Field results within permit areas along the Loop 2 project alignment.

Figure B52

GRAY & PAPE HERITAGE MANAGEMENT

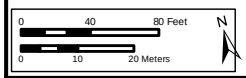






Legend

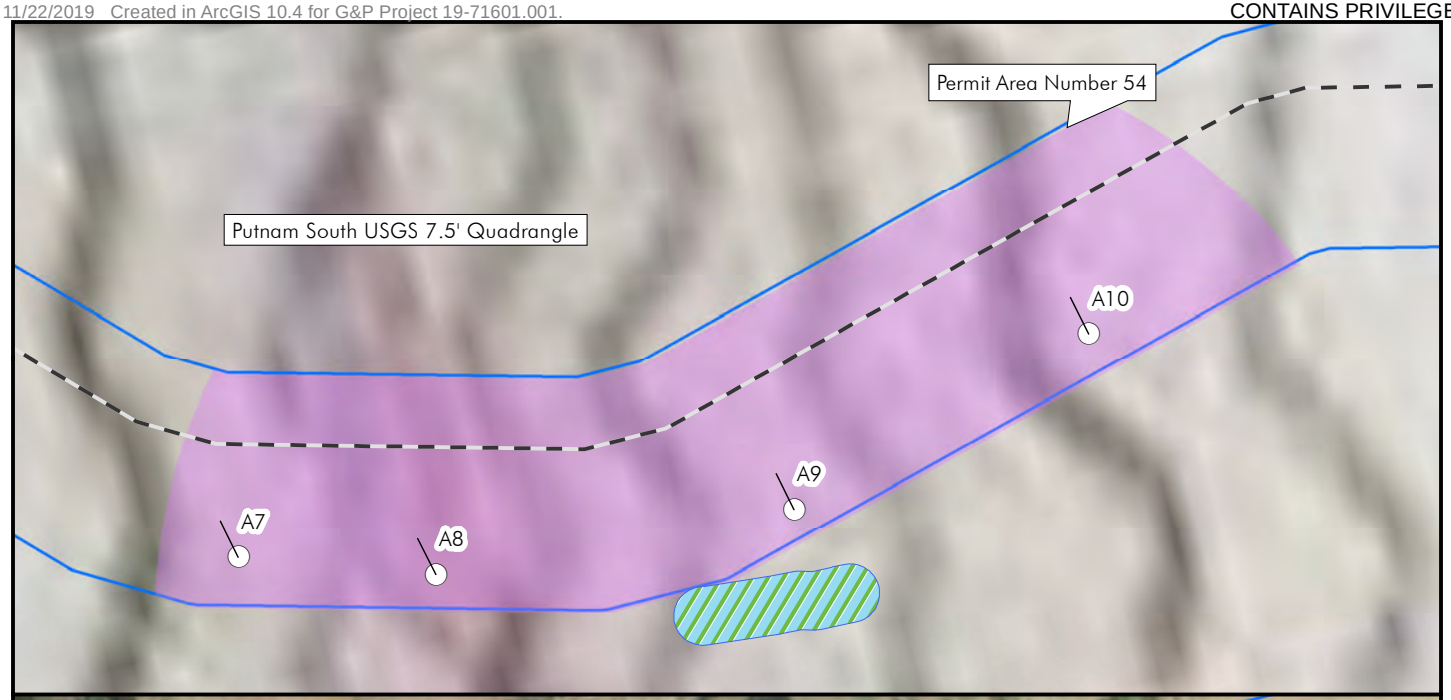
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

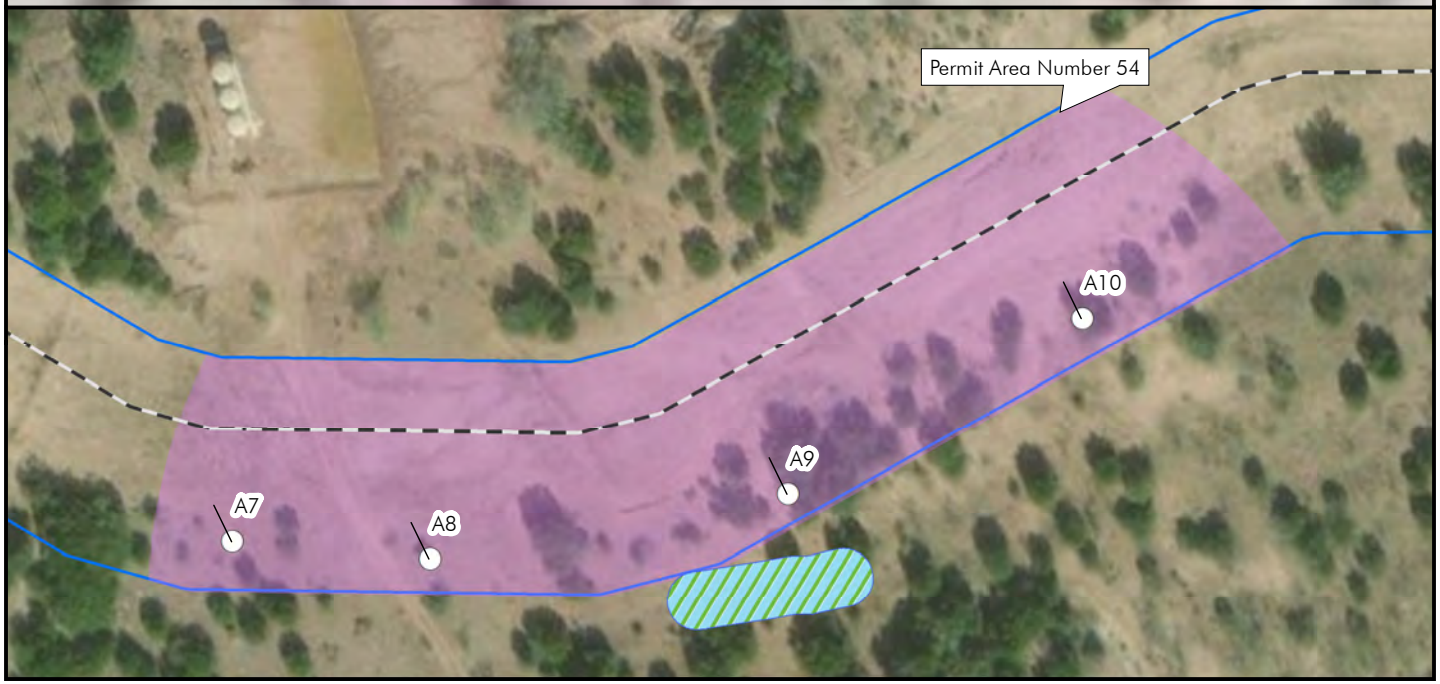


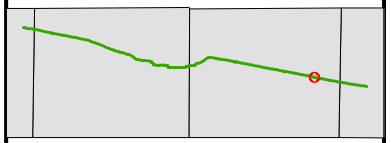
Field results within permit areas along the Loop 2 project alignment.

Figure B53

GRAY & PAPE HERITAGE MANAGEMENT

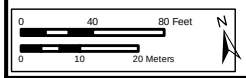






Legend

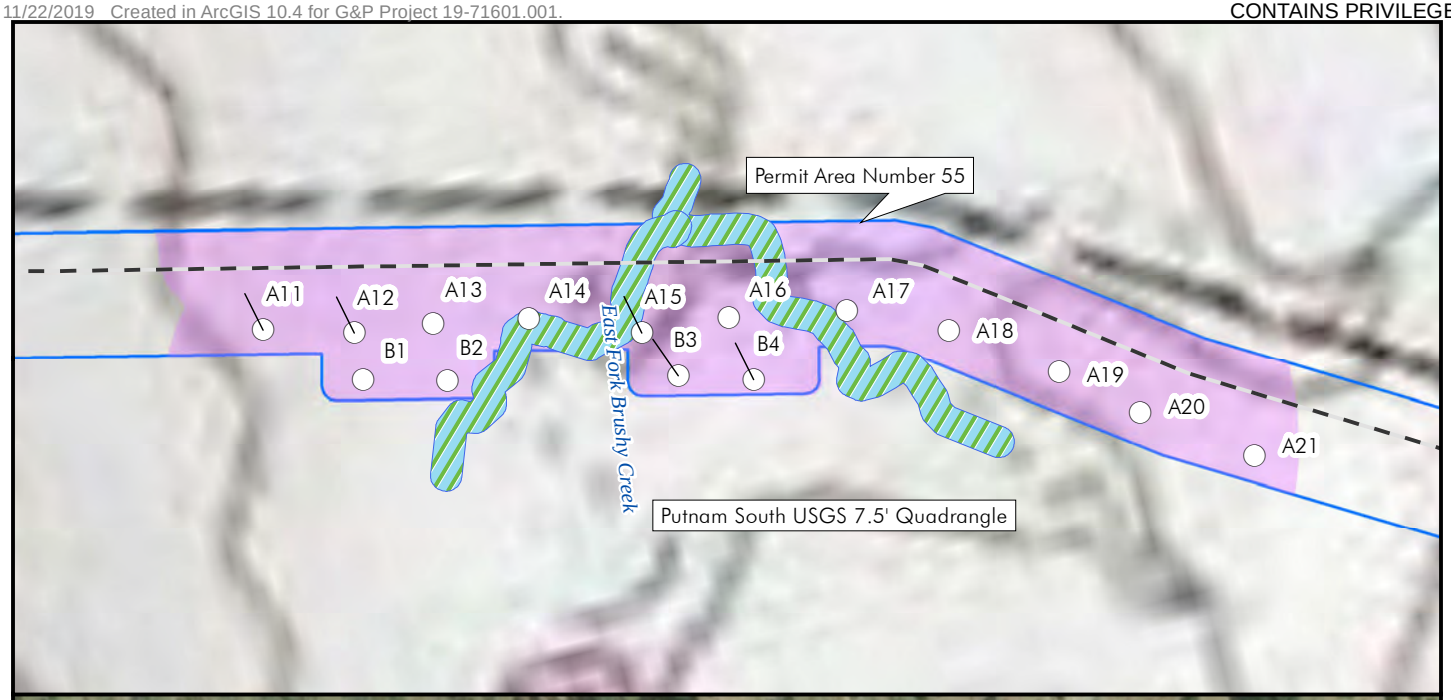
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

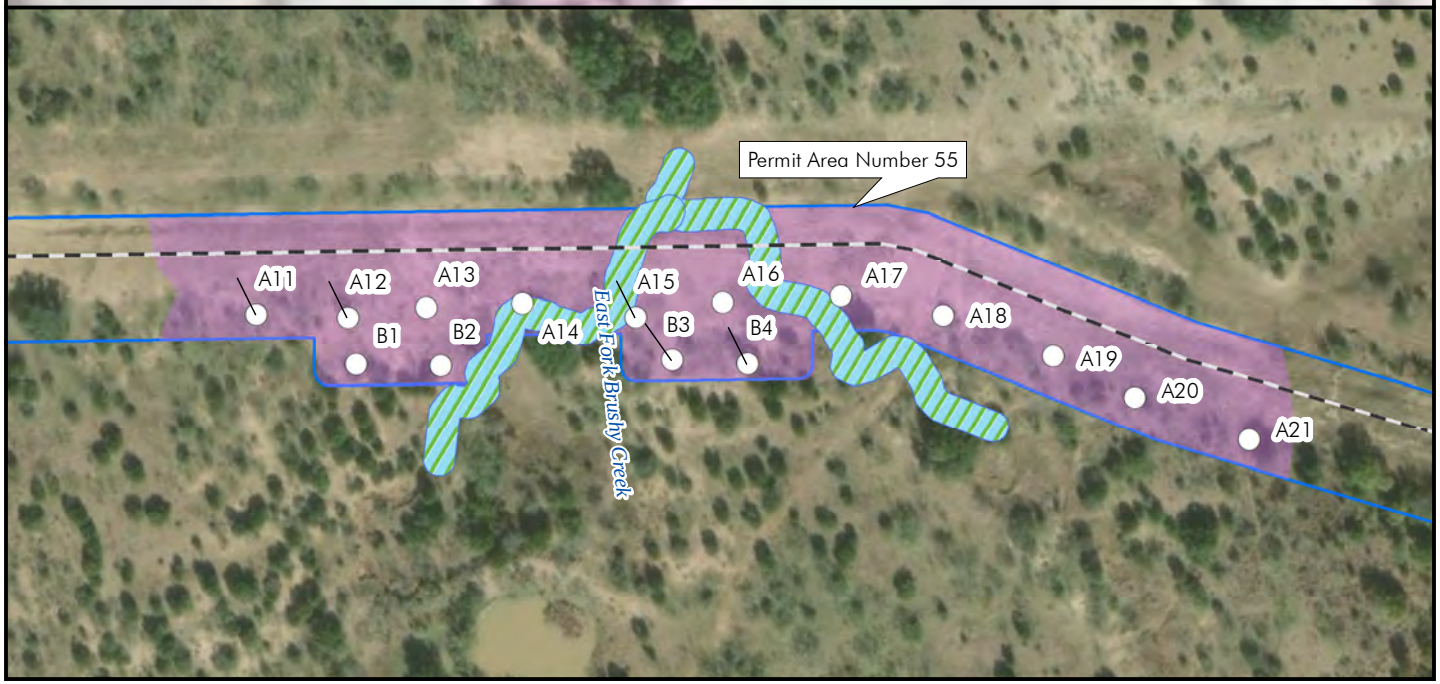


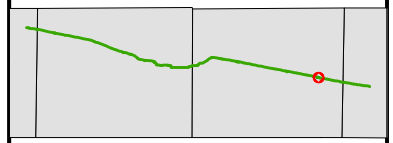
Field results within permit areas along the Loop 2 project alignment.

Figure B54

GRAY & PAPE HERITAGE MANAGEMENT

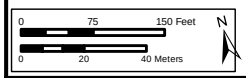






Legend

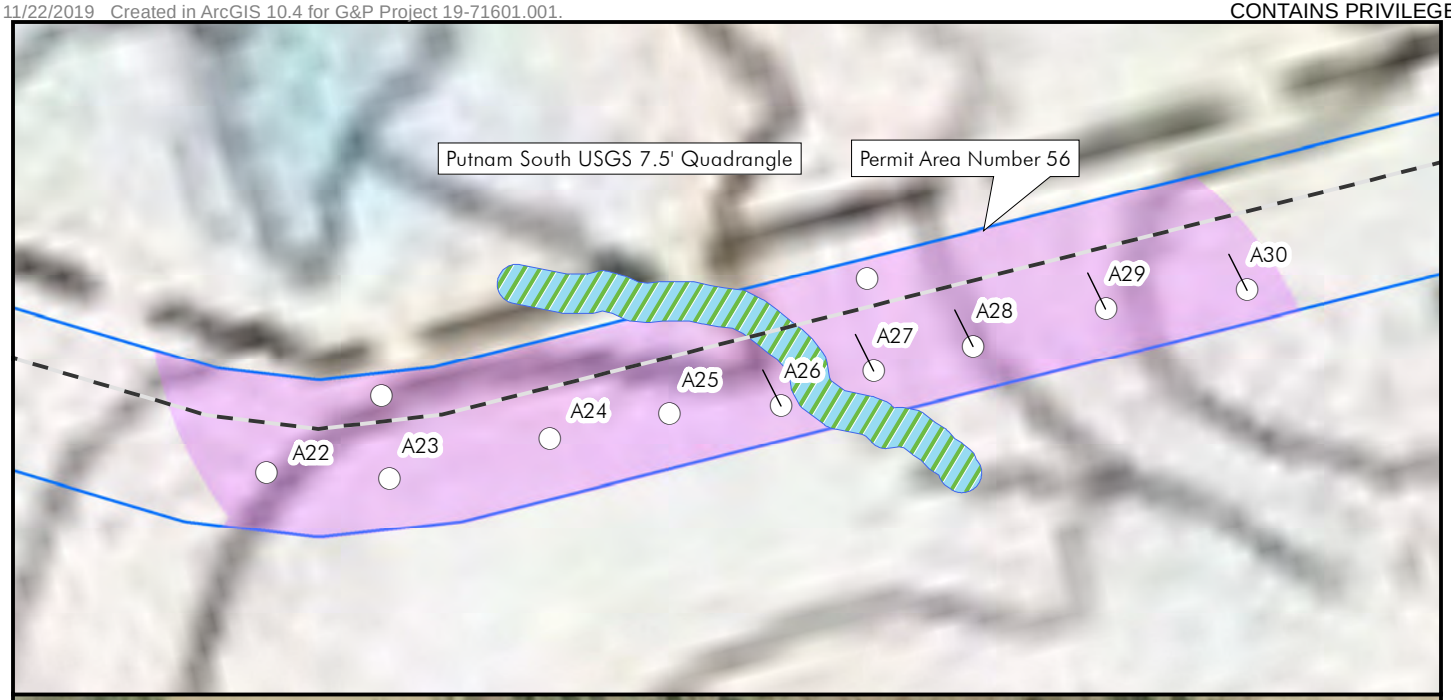
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

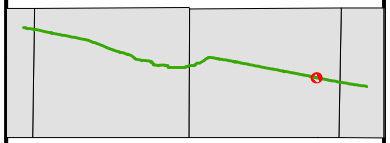


Field results within permit areas along the Loop 2 project alignment.

Figure B55

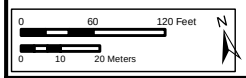
GRAY & PAPE HERITAGE MANAGEMENT





Legend

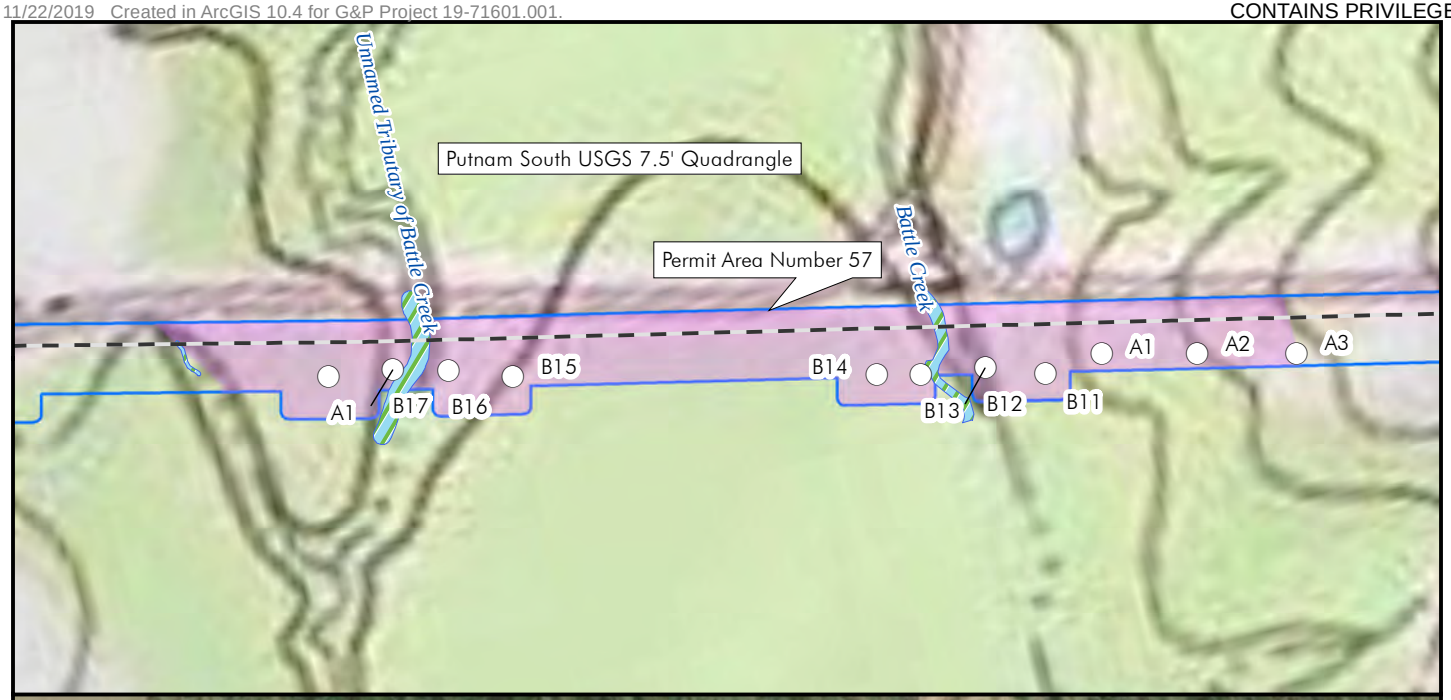
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

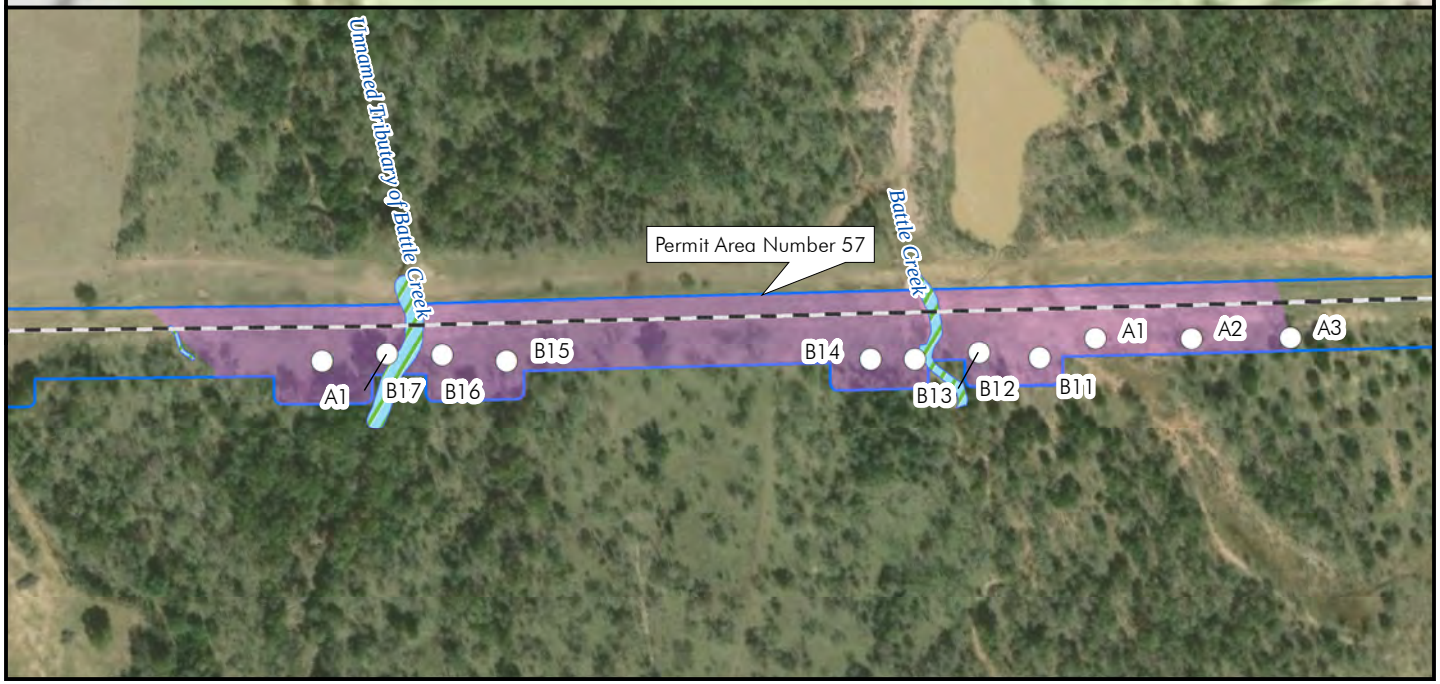


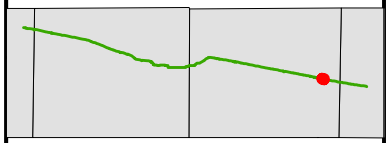
Field results within permit areas along the Loop 2 project alignment.

Figure B56

GRAY & PAPE HERITAGE MANAGEMENT

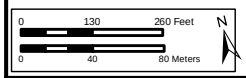






Legend

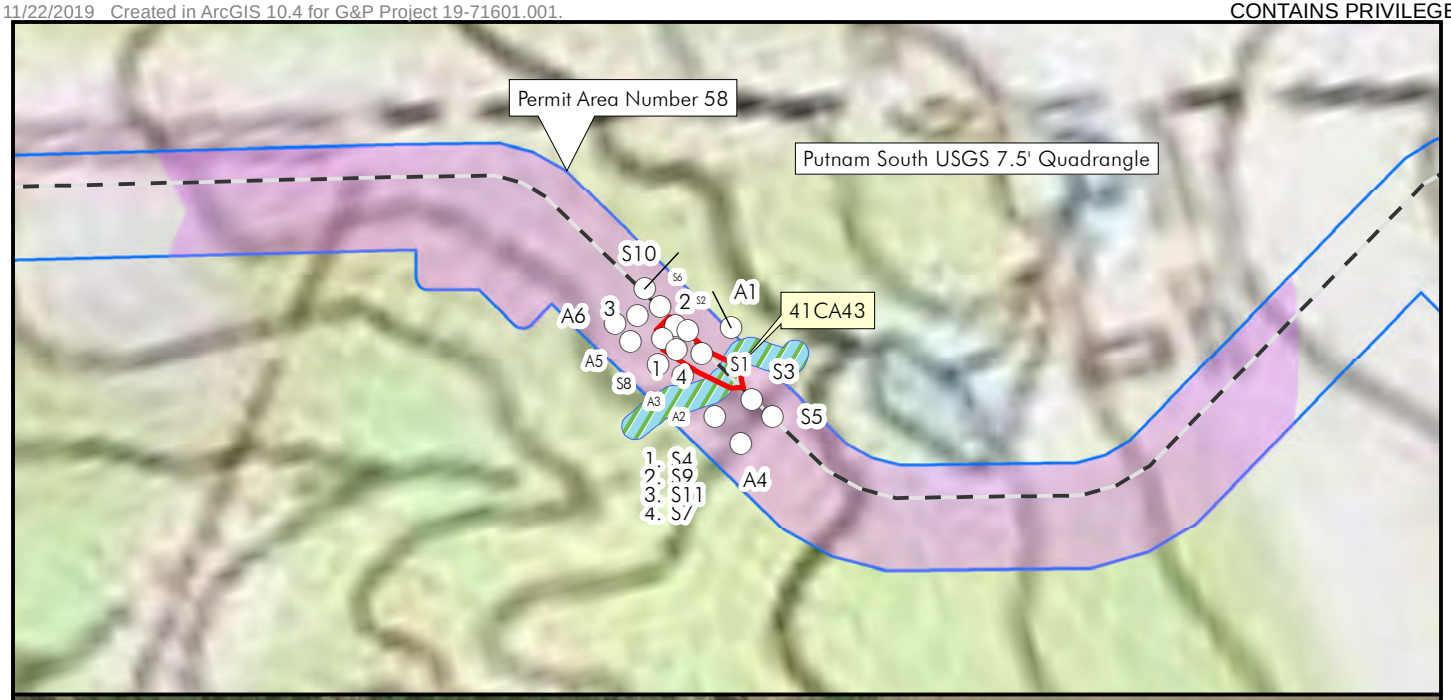
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

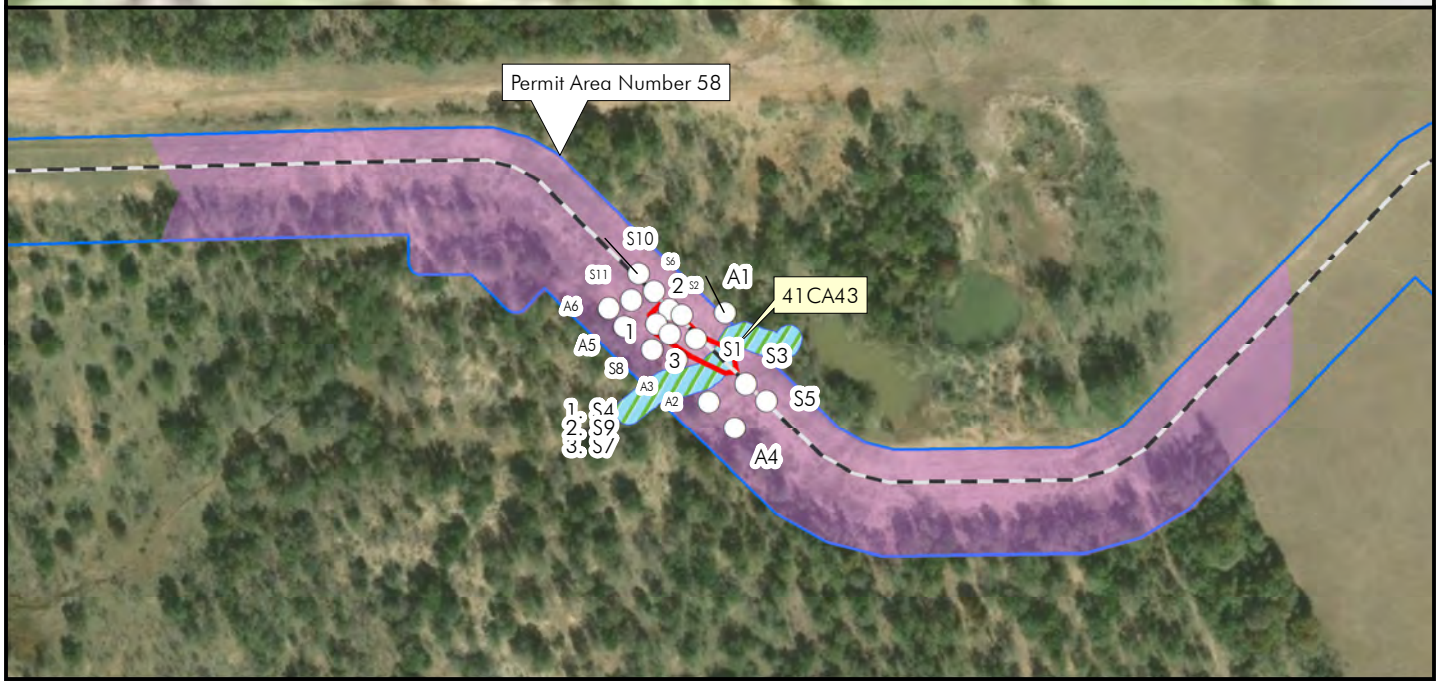


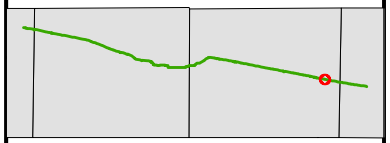
Field results within permit areas along the Loop 2 project alignment.

Figure B57

GRAY & PAPE HERITAGE MANAGEMENT

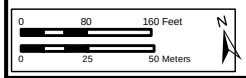






Legend

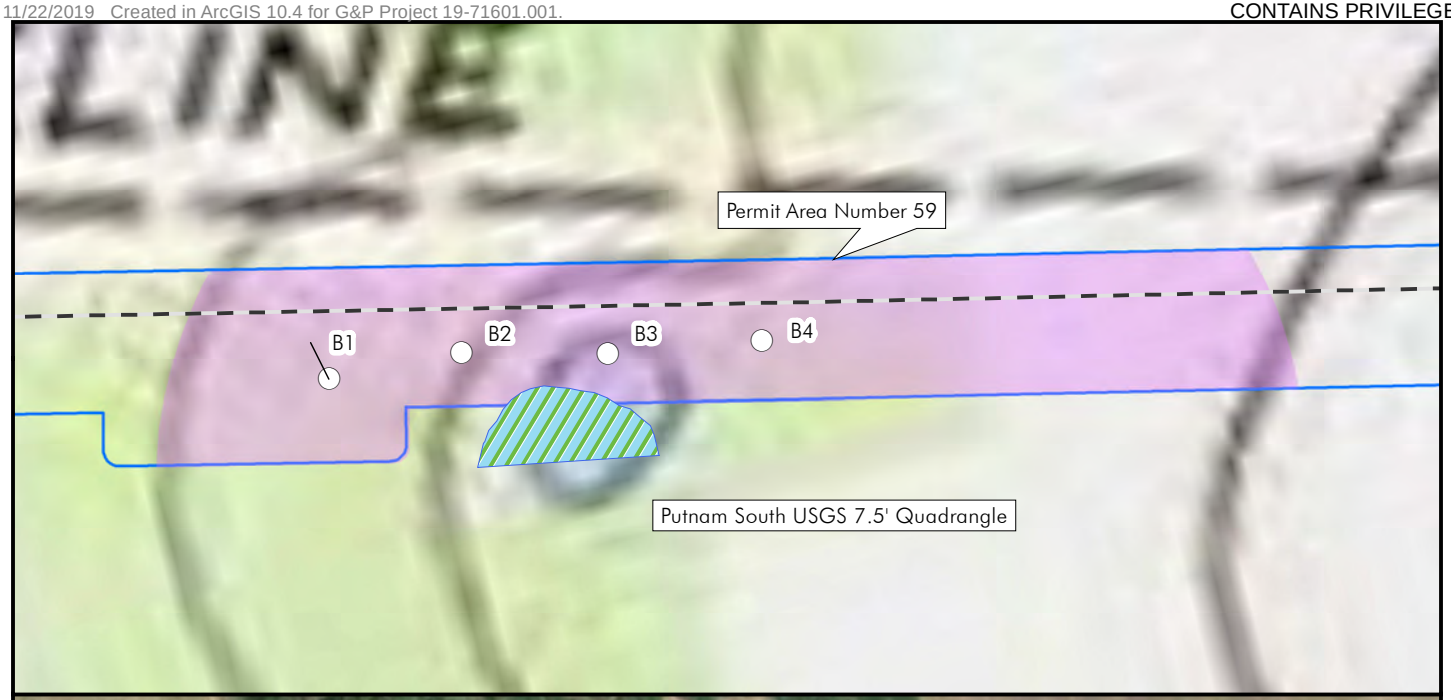
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

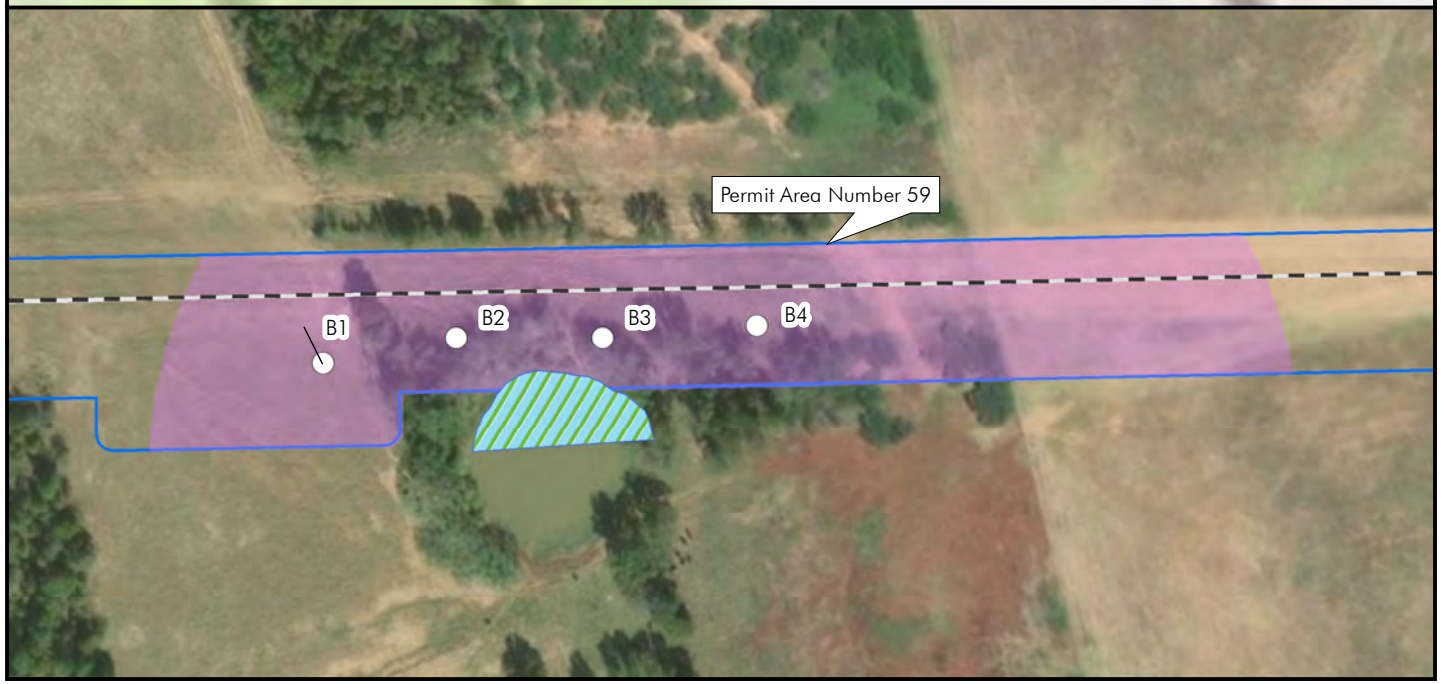


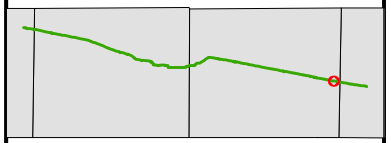
Field results within permit areas along the Loop 2 project alignment.

Figure B58

GRAY & PAPE
HERITAGE MANAGEMENT

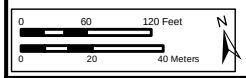






Legend

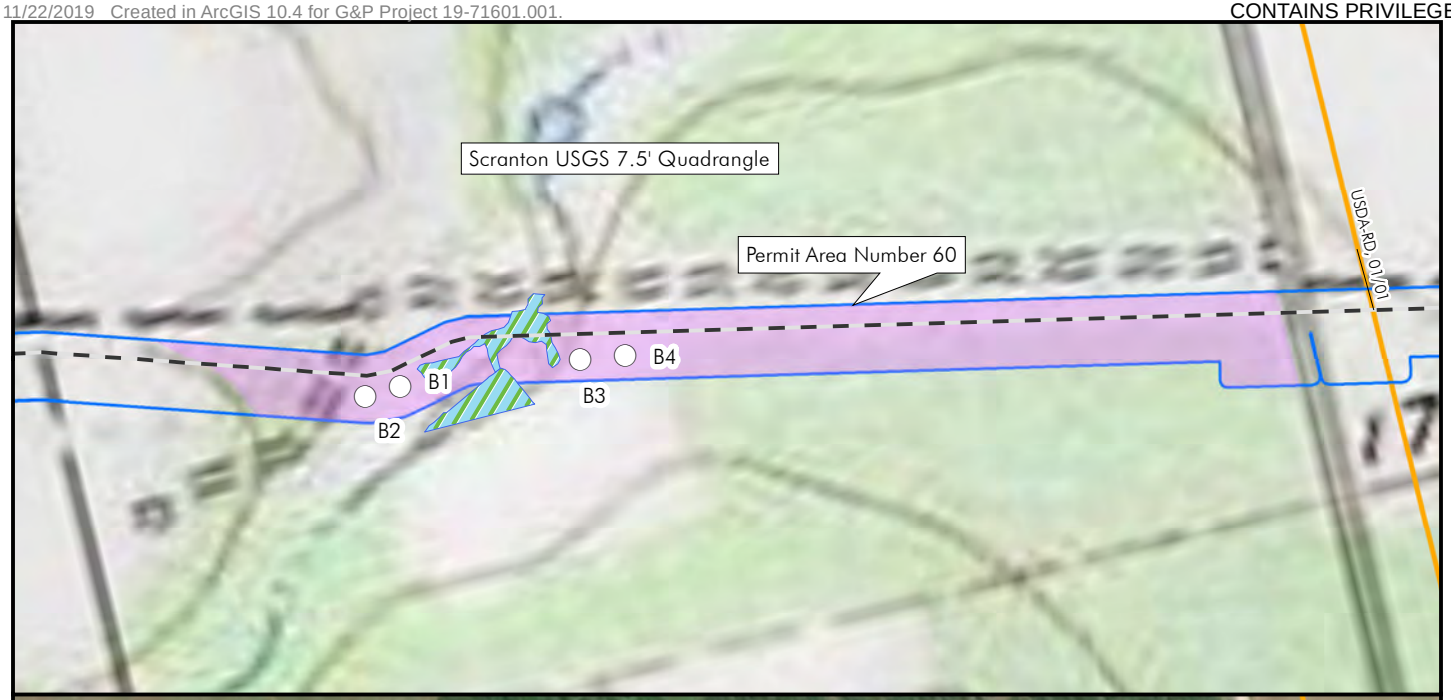
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

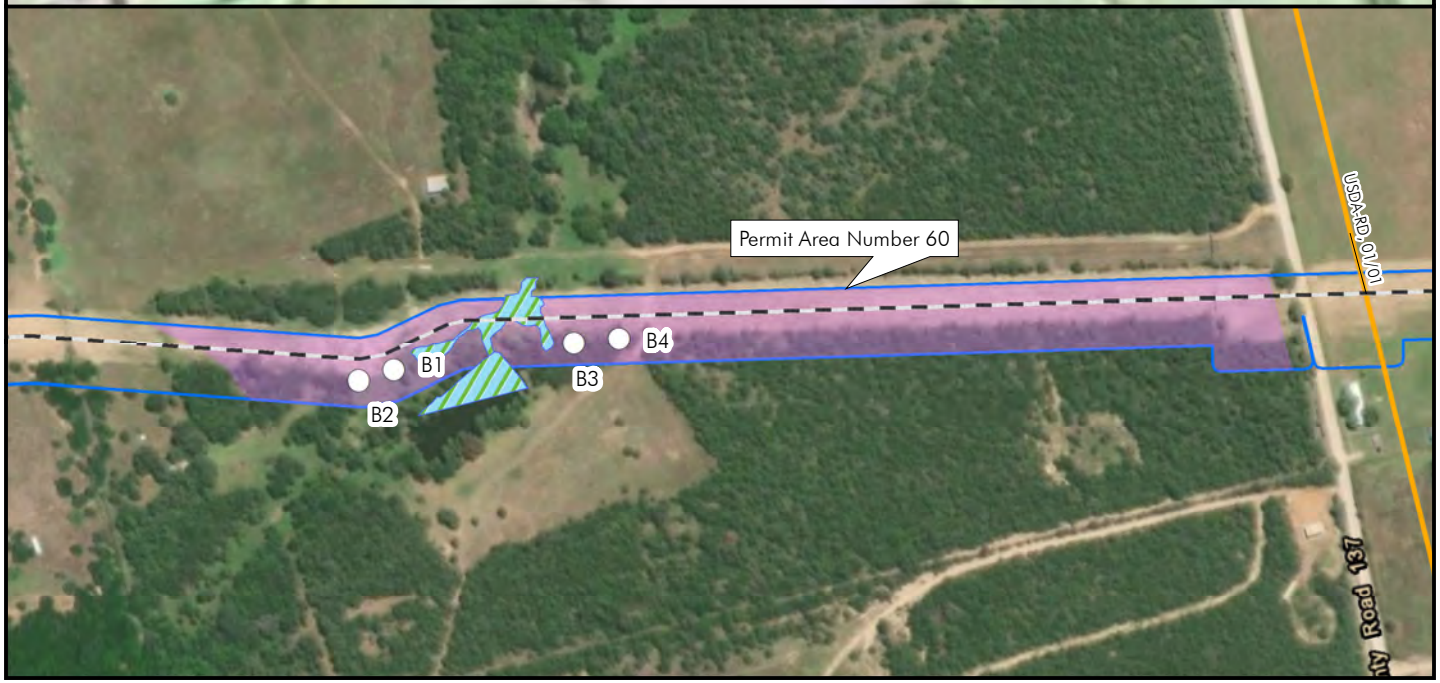


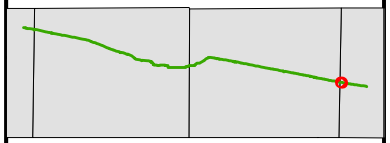
Field results within permit areas along the Loop 2 project alignment.

Figure B59

GRAY & PAPE HERITAGE MANAGEMENT







Legend

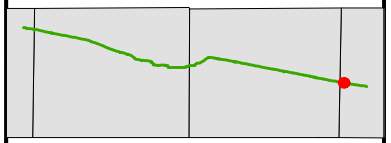
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

0 130 260 Feet
0 40 80 Meters
N

Field results within permit areas along the Loop 2 project alignment.

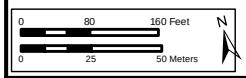
Figure B60

GRAY & PAPE HERITAGE MANAGEMENT



Legend

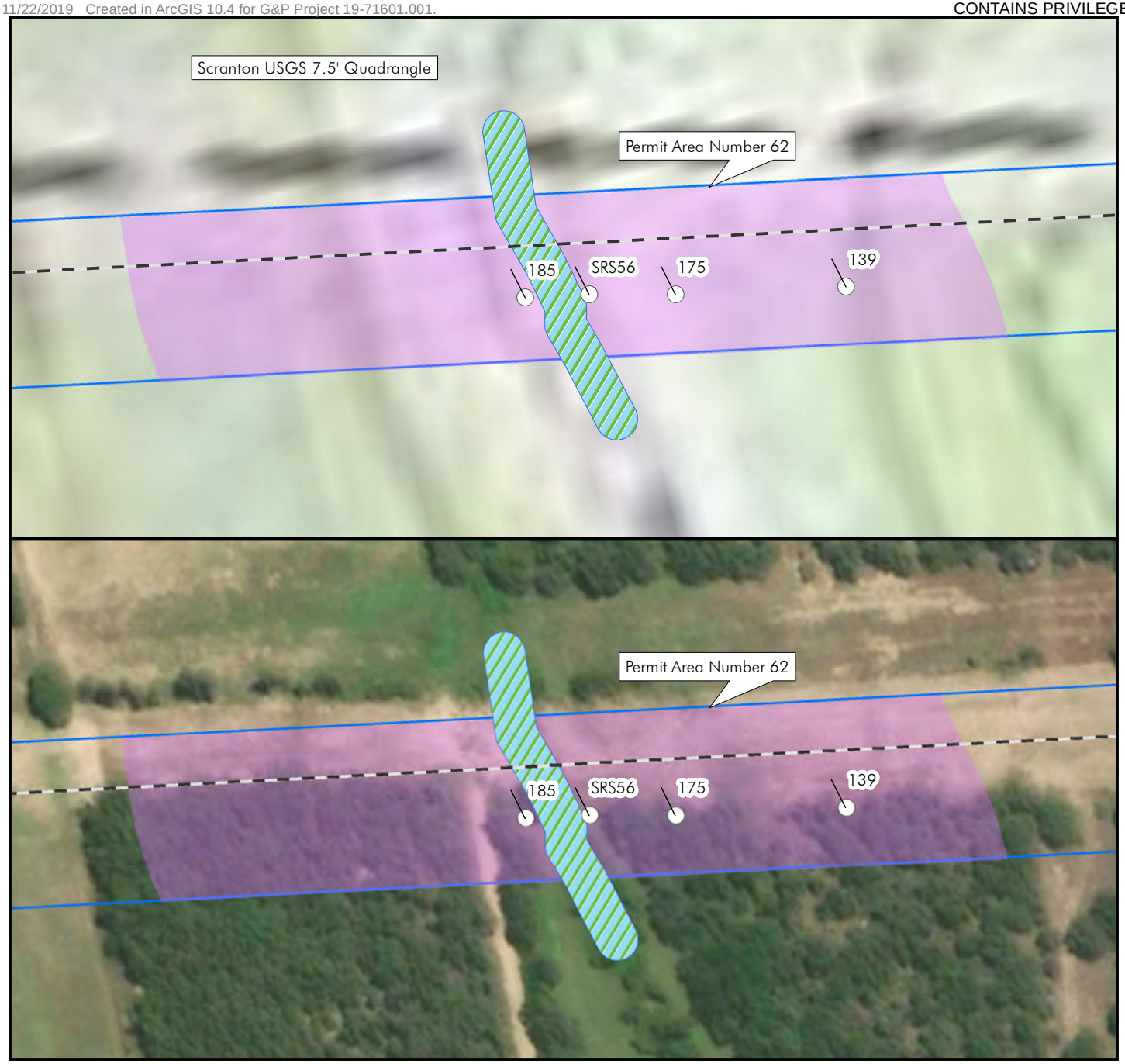
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

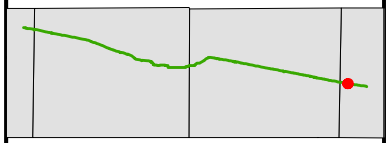


Field results within permit areas along the Loop 2 project alignment.

Figure B61

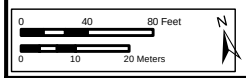
GRAY & PAPE HERITAGE MANAGEMENT





Legend

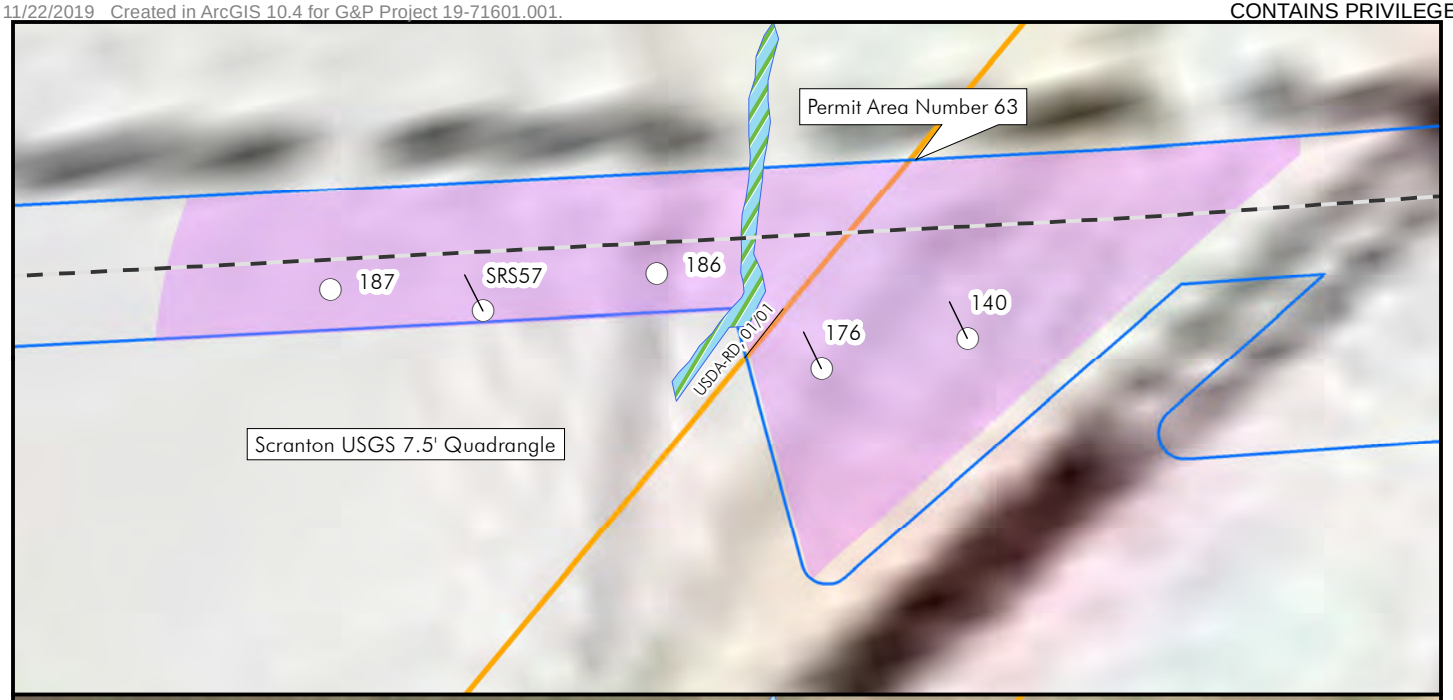
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

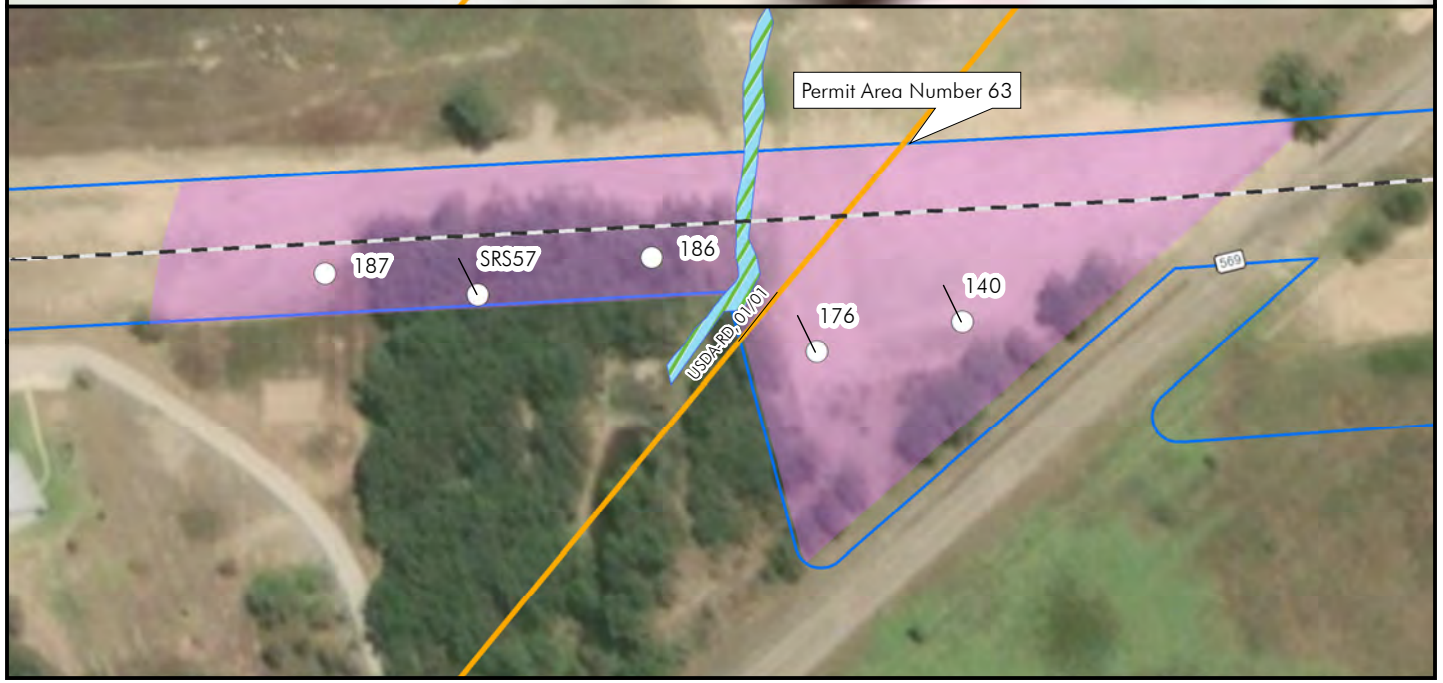


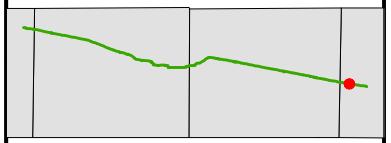
Field results within permit areas along the Loop 2 project alignment.

Figure B62

GRAY & PAPE HERITAGE MANAGEMENT

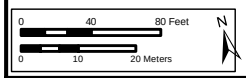






Legend

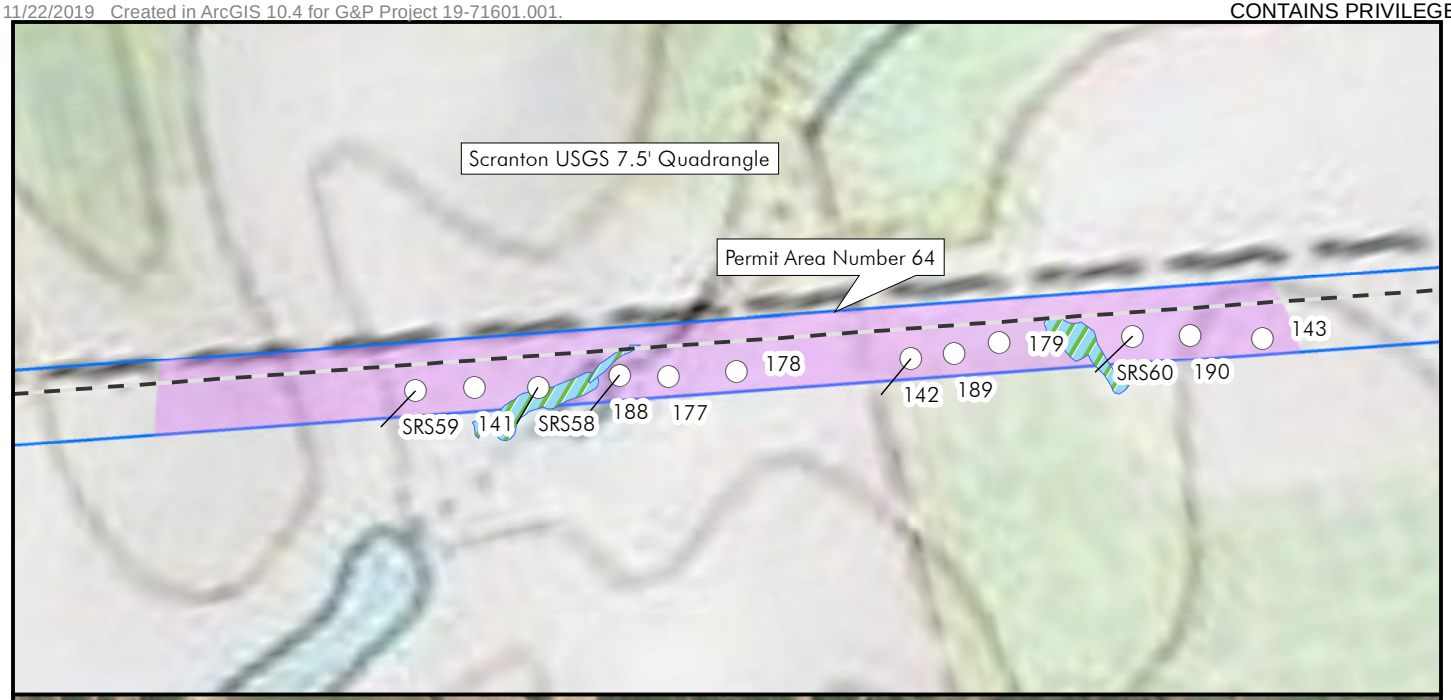
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

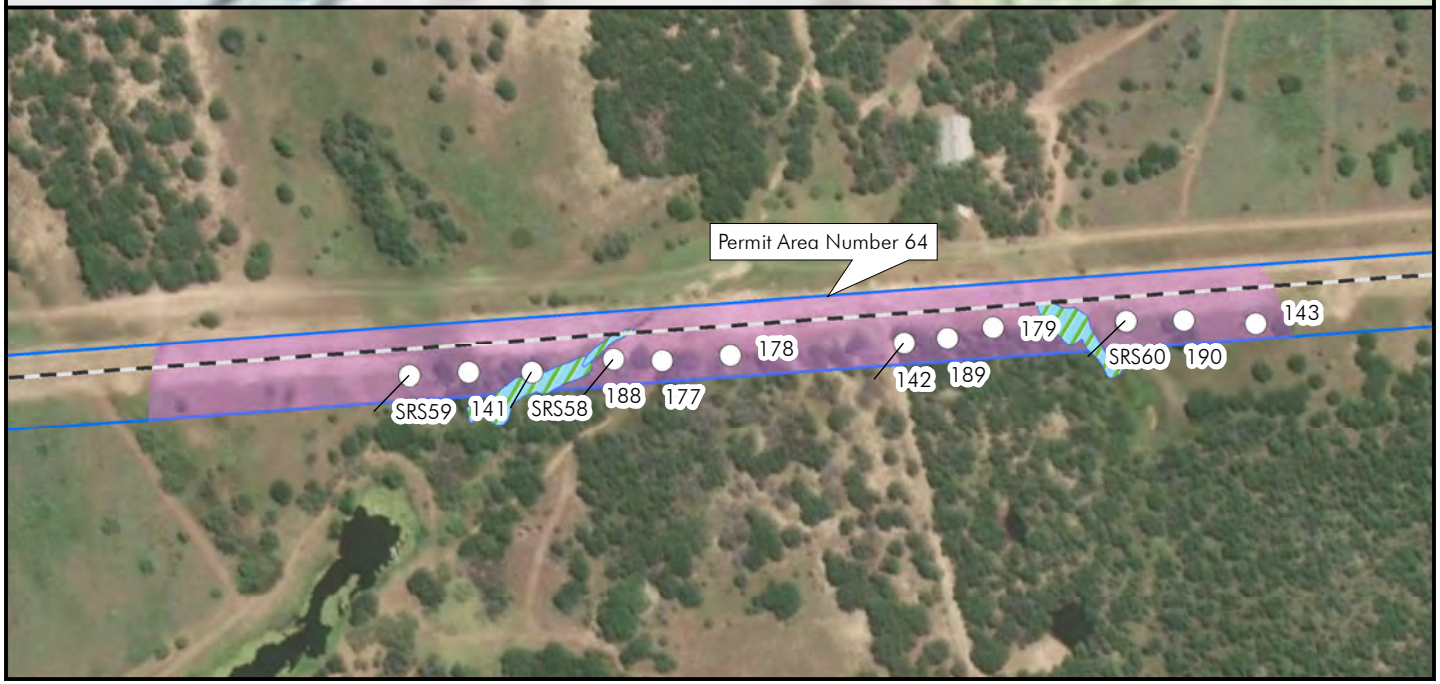


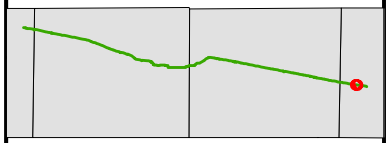
Field results within permit areas along the Loop 2 project alignment.

Figure B63

GRAY & PAPE HERITAGE MANAGEMENT

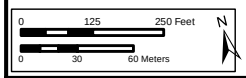






Legend

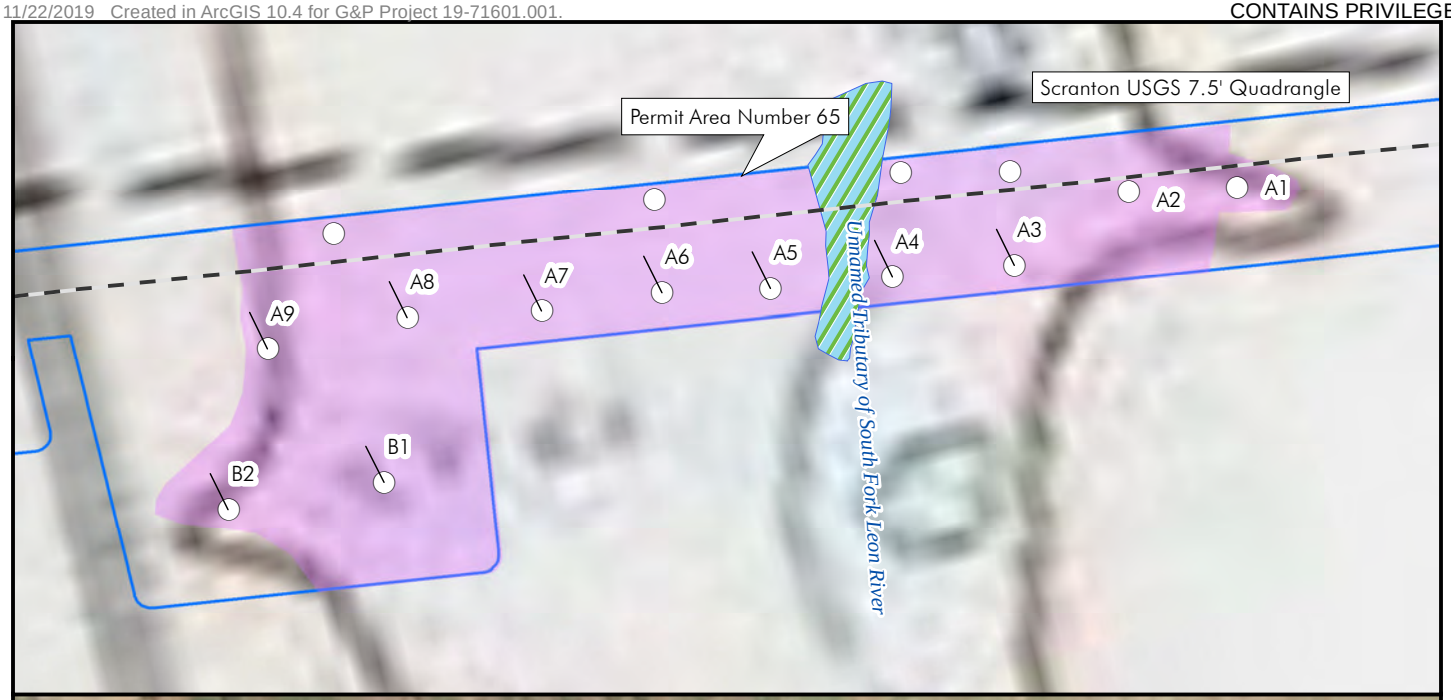
- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary

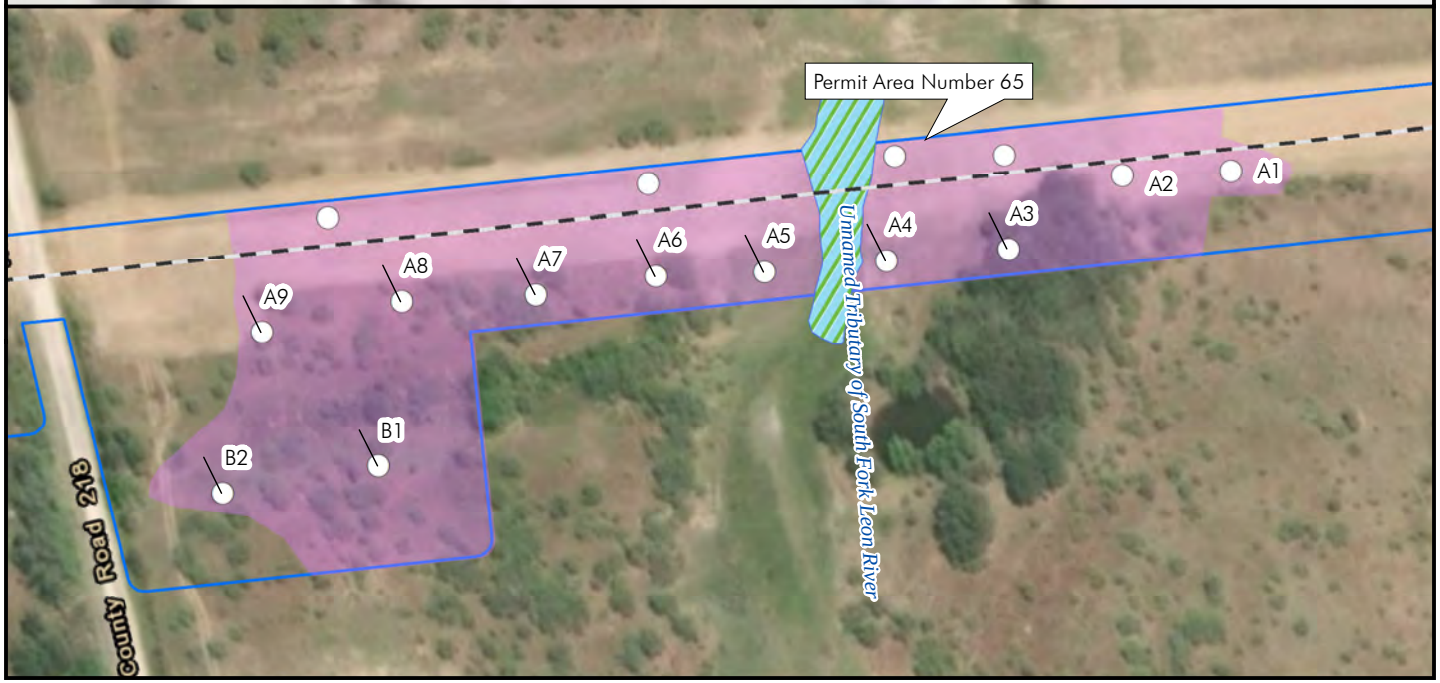


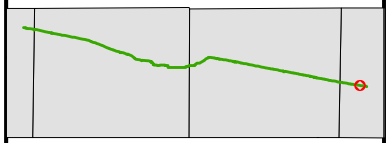
Field results within permit areas along the Loop 2 project alignment.

Figure B64

GRAY & PAPE HERITAGE MANAGEMENT

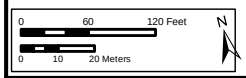






Legend

- Project Centerline
- Survey Corridor
- Field Delineated Water Features
- Permit Area
- Positive Shovel Test
- Negative Shovel Test
- Deep Test
- New/Confirmed Site Area
- Isolate Find
- Historical Markers
- Cemeteries
- Previous Linear Survey
- Previous Area Survey
- USGS Quadrangle Boundary



Field results within permit areas along the Loop 2 project alignment.

Figure B65

GRAY & PAPE HERITAGE MANAGEMENT

APPENDIX C: SHOVEL TEST LOG

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
0	LSX-NO-092.000	077	Horizon	Bedrock at surface	389881	3591117	41NL318	Negative	2		RK									
0	LSX-NO-092.000	A2	Gray & Pape	Delineation of 41NL318, outside of Permit Area	389903	3591007		Negative	5		rock									
0	LSX-NO-092.000	A3	Gray & Pape	Delineation of 41NL318, outside of Permit Area	389894	3590957		Negative	5		rock									
0	LSX-NO-093.000	A4	Gray & Pape	Delineation of 41NL318, outside of Permit Area	390136	3591180		Negative	5		rock									
0	LSX-NO-093.000	A5	Gray & Pape	Delineation of 41NL318, outside of Permit Area	390158	3591186		Negative	5		rock									
0	LSX-NO-093.000	A6	Gray & Pape	Delineation of 41NL318, outside of Permit Area	390032	3591238		Negative	5		rock									
0	LSX-NO-093.000	A7	Gray & Pape	Delineation of 41NL318, outside of Permit Area	390035	3591260		Negative	5		rock									
1	LSX-NO-092.000	A8	Gray & Pape	Terminated in Subsoil	389646	3591160		Negative	5		rock									
0	LSX-TA-050.000	A1	Gray & Pape	Delineation, outside of APE; Terminated at bedrock	416112	3583362		Negative	30	75yr4/4	salo				rock					
0	LSX-TA-050.000	A2	Gray & Pape	Delineation, outside of APE; Terminated at bedrock	416135	3583414		Negative	35	75yr4/4	salo				rock					
0	LSX-TA-050.000	A3	Gray & Pape	Delineation, outside of Permit Area; Terminated at bedrock	416459	3583061		Negative	30	75yr4/4	salo				rock					
0	LSX-TA-050.000	A4	Gray & Pape	Delineation, outside of APE; Terminated at bedrock	416252	3583041	41TA398	Negative	25	75yr4/4	salo				rock					
0	LSX-TA-050.000	A5	Gray & Pape	Delineation, outside of APE; Terminated at bedrock	416233	3582998		Negative	30	75yr4/4	salo				rock					
0	LSX-CA-076.000 / LSX-CA-077.000	A1	Gray & Pape	Terminated in Subsoil	484049	3571554		Negative - Disturbed	10	7.5YR 4/3	sacllo									
1	LSX-NO-092.000	A9	Gray & Pape	Terminated in Subsoil	389622	3591167		Negative	5		rock									
0	LSX-TA-078.000	167	Horizon	Adjacent south of Site 41TA371; plowed ag field; 100% vis	423638	3579589		Negative	20	brown	sandy loam		80	reddish brown	sandy clay loam					
0	LSX-TA-078.000	168	Horizon	Adjacent south of Site 41TA371; plowed ag field; 100% vis	423613	3579606		Negative	30	brown	sandy loam		70	reddish brown	sandy clay loam					
0	LSX-TA-078.000	169	Horizon	Adjacent south of Site 41TA371; plowed ag field; 100% vis	423611	3579640		Negative	20	brown	sandy loam		50	dark brown	sandy clay loam		70	reddish brown	clay	
0	LSX-TA-078.000	A4	Gray & Pape	Compact hardpan at surface, unable to excavate further	423886	3579380		Negative	11	5YR 3/4	si									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
0	LSX-TA-078.000	A3	Gray & Pape	Terminated in Subsoil	423840	3579394		Negative	25	5YR 4/6	silo		35	5YR 4/4	cl					
0	LSX-TA-078.000	A2	Gray & Pape	Terminated in Subsoil	423840	3579394		Negative	22	5YR 4/6	silo		32	5YR 4/4	cl					
0	LSX-TA-078.000	A2	Gray & Pape	Terminated in Subsoil	423817	3579441		Negative	23	5YR 4/6	silo		33	5YR 4/4	cl					
0	LSX-TA-078.000	A1	Gray & Pape	Terminated in Subsoil	423784	3579477		Negative	28	5YR 4/6	silo		38	5YR 4/4	cl					
0	LSX-NO-093.000	114	Horizon	Delineation, outside of Permit Area	389941	3591128	41NL318	Negative	20	2.5YR4/6	clay									
1	LSX-NO-092.000	112	Horizon		389654	3591169		Negative	20	5YR4/4	clay									
1	LSX-NO-092.000	113	Horizon		389712	3591156	41NL318	Negative	20	7.5YR3/4	clay									
0	LSX-NO-093.000	A1	Gray & Pape	3 flks on surface; outside of Permit Area	389974	3591179	41NL318	Negative	25	75yr4/4	salo				rock					
0	LSX-NO-093.000	115	Horizon		390155	3591184		Negative	25	very dark brown	dense clay									
1	LSX-NO-092.000	113	Horizon		389624	3591176		Negative	25	dark brown	dense clay									
1	LSX-NO-092.000	112	Horizon	Increased clay with depth dense@40	389561	3591190		Negative	50	reddish brown	sandy clay									
0	LSX-NO-093.000	SRS11	Horizon		390052	3591161	41NL318	Negative	30	5YR4/6	silty clay		40		gravels					
1	LSX-NO-092.000	114	Horizon	near isolate	389684	3591162	41NL318	Negative	30	dark brown	dense clay									
1	LSX-NO-092.000	078	Horizon	flake at surface	389839	3591128	41NL318	Negative	30	red	cl									
1	LSX-NO-092.000	079	Horizon	3 flakes within 1-meter radius at surface	389809	3591137	41NL318	Positive	30	dark reddish brown	cl	1 flake at 10 cmbs								
1	LSX-NO-092.000	080	Horizon	2 broken PREFORM, 2 flakes, 1 cobble at surface	389779	3591142	41NL318	Negative	40	reddish brown	cl									
2	LSX-TA-009.000	127	Horizon		397013	3589434		Negative	15	10YR4/6	clay		25	10YR3/4	clay					
2	LSX-TA-009.000	128	Horizon		396950	3589446		Negative	10	10YR4/6	clay		20	10YR5/6	clay					
2	LSX-TA-009.000	131	Horizon		397061	3589417		Negative	25	reddish brown	dense clay									
2	LSX-TA-009.000	132	Horizon	5% sand	397119	3589398		Negative	5	reddish brown	clay loam									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
2	LSX-TA-009.000	SRS19	Horizon		396984	3589439		Negative	30	5YR4/6	clay loam									
2	LSX-TA-009.000	087	Horizon		397093	3589408		Negative	30	dark reddish brown	cl									
2	LSX-TA-009.000	088	Horizon		397150	3589395		Negative	30	dark reddish brown	cl									
3	LSX-TA-009.000	129	Horizon		397450	3589398		Negative	50	10YR4/6	sandy clay loam		60	10YR4/6	clay					
3	LSX-TA-009.000	130	Horizon		397573	3589353	41TA396	Negative	30	2.5YR4/6	sandy clay loam		40	2.5YR4/6	clay					
3	LSX-TA-009.000	131	Horizon		397590	3589368	41TA396	Negative	20	2.5YR4/6	clay									
3	LSX-TA-009.000	133	Horizon		397507	3589382	TA-9-001	Negative	10	reddish brown	dense clay		30	reddish brown	dense clay					
3	LSX-TA-009.000	134	Horizon	iso delineation	397558	3589370		Negative	30	reddish brown	dense clay									
3	LSX-TA-009.000	SRS20	Horizon		397482	3589388		Negative	40	5YR4/6	clay loam									
3	LSX-TA-009.000	SRS21	Horizon		397418	3589404		Negative	50	5YR5/8	sand		75	5YR5/6	silty sand					
3	LSX-TA-009.000	S1	Gray & Pape	compact or cemented si or sicl and rock at surface	397607	3589363	41TA396	Negative	20	2.5yr 5/6 to 2.5yr 4/3	cllo									
3	LSX-TA-009.000	S2	Gray & Pape	compact or cemented si or sicl and rock at surface	397607	3589371	41TA396	Negative	5	2.5YR 4/6	siclrk									
3	LSX-TA-009.000	S3	Gray & Pape	compact or cemented si or sicl and rock at surface	397607	3589353	41TA396	Negative	3	2.5yr 4/6 and rock	siclrk									
3	LSX-TA-009.000	089	Horizon		397537	3589377		Negative	30	dark reddish brown	cl									
3	LSX-TA-009.000	090	Horizon	terminated due to ants	397570	3589368	41TA396	Positive	10	reddish brown	cl	1 flake at 10 cmbs								
3	LSX-TA-009.000	091	Horizon		397572	3589382	41TA396	Negative	30	reddish brown	cl									
3	LSX-TA-009.000	092	Horizon		397573	3589368	41TA396	Negative	20	reddish brown	cl lo		30	reddish brown	compact cl					
4	LSX-TA-013.000	132	Horizon		399365	3588888		Negative	20	2.5YR5/4	sandy loam		30	2.5YR4/4	clay					
4	LSX-TA-014.000 / LSX-TA-015.000	136	Horizon		399524	3588855		Negative	5	reddish brown	clay loam									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
	/ LSX-TA-016.000 / LSX-TA-017.000																			
4	LSX-TA-013.000	135	Horizon		399394	3588884		Negative	25	reddish brown	dense clay									
4	LSX-TA-014.000 / LSX-TA-015.000 / LSX-TA-016.000 / LSX-TA-017.000	093	Horizon		399491	3588861		Negative	20	reddish brown	cl lo		30	reddish brown	compact cl					
4	LSX-TA-014.000 / LSX-TA-015.000 / LSX-TA-016.000 / LSX-TA-017.000	094	Horizon		399549	3588850		Negative	20	reddish brown	cl lo		30	reddish brown	compact cl					
5	LSX-TA-019.000	135	Horizon		400836	3588550		Negative	20	5YR4/4	clay									
5	LSX-TA-019.000	136	Horizon		400859	3588540		Negative	20	5YR4/4	clay									
5	LSX-TA-018.000	134	Horizon		400686	3588582	41TA397	Negative	20	2.5YR4/6	clay									
5	LSX-TA-018.000	137	Horizon		400694	3588587	41TA397	Negative	20	5YR4/4	clay									
5	LSX-TA-019.000	138	Horizon		400805	3588559	TA-18-001	Negative	30	very dark brown	rocky clay									
5	LSX-TA-018.000	137	Horizon	rocks at top of horizon	400741	3588575	41TA397	Negative	15	brown	rocky sandy loam		25	very dark brown	dense clay					
5	LSX-TA-018.000	139	Horizon		400699	3588575	41TA397	Negative	25	very dark brown	moist dense clay									
5	LSX-TA-018.000	SRS23	Horizon		400713	3588579	41TA397	Positive	10	5YR4/6	silt	whiteware (1) @0-10	40	5YR3/4	clay					
5	LSX-TA-018.000	095	Horizon		400718	3588592	41TA397	Negative	30	very dark brown	cl									
6	LSX-TA-033.000	B3	Gray & Pape	Subsoil? Deep test recommended	406440	3587260		Negative	20	75yr4/4	sa		100	75yr4/4	sacl					
6	LSX-TA-033.000	B2	Gray & Pape	Terminated at bedrock	406525	3587240		Negative	5	75yr4/4 ; 75yr4/2	rock									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
6	LSX-TA-033.000	B1	Gray & Pape	Subsoil? Deep test recommended	406589	3587230		Negative	100	75yr4/4	sacl									
6	LSX-TA-033.000	A11	Gray & Pape	Terminated in Subsoil	406754	3587197	41TA353/534	Negative	5	75yr4/4 ; 75yr4/2	rock									
6	LSX-TA-033.000	A10	Gray & Pape	Terminated in Subsoil	406780	3587182	41TA353/534	Negative	5	75yr4/4 ; 75yr4/2	rock									
6	LSX-TA-033.000	A9	Gray & Pape	Terminated in Subsoil	406787	3587212	41TA353/534	Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
6	LSX-TA-033.000	A7	Gray & Pape	Terminated at bedrock	406802	3587181	41TA353/534	Negative	50	75yr4/4	sa				rock					
6	LSX-TA-033.000	A3	Gray & Pape	Terminated in Subsoil	406827	3587175	41TA353/534	Negative	5	75yr4/4 ; 75yr4/2	rock									
6	LSX-TA-033.000	A2	Gray & Pape	Terminated in Subsoil	406828	3587201	41TA353/534	Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
6	LSX-TA-033.000	A1	Gray & Pape	Terminated in Subsoil	406844	3587199	41TA353/534	Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
6	LSX-TA-033.000	A8	Gray & Pape	Terminated at bedrock	406953	3587142	41TA353/534	Negative	25	75yr4/4	sa				rock					
6	LSX-TA-033.000	A6	Gray & Pape	Terminated in Subsoil	407015	3587138	41TA353/534	Negative	5	75yr4/4 ; 75yr4/2	bedrock									
6	LSX-TA-033.000	A5	Gray & Pape	Terminated in Subsoil	407016	3587119	41TA353/534	Negative	5	75yr4/4 ; 75yr4/2	bedrock									
6	LSX-TA-033.000	A4	Gray & Pape	Terminated in Subsoil	407025	3587168	41TA353/534	Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
6	LSX-TA-034.000	A14	Gray & Pape	Terminated in Subsoil	407162	3587091		Negative	20	7.5yr4/4	salo		30	7.5yr4/4	sacl					
6	LSX-TA-034.000	A12	Gray & Pape	Terminated in Subsoil	407171	3587105		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
6	LSX-TA-034.000	A15	Gray & Pape	Terminated in Subsoil	407185	3587088		Negative	25	7.5yr4/4	salo		35	7.5yr4/4	sacl					
6	LSX-TA-034.000	A13	Gray & Pape	Terminated in Subsoil	407190	3587101		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
6	LSX-TA-034.000	B3	Gray & Pape	Terminated in Subsoil	407235	3587080		Negative	20	7.5yr4/4	salo		35	7.5yr4/4	sacl					
6	LSX-TA-034.000	B2	Gray & Pape	Terminated in Subsoil	407242	3587097		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
6	LSX-TA-034.000	B4	Gray & Pape	Terminated in Subsoil	407274	3587074		Negative	25	7.5yr4/4	salo		35	7.5yr4/4	cl					
6	LSX-TA-034.000	B1	Gray & Pape	Terminated in Subsoil	407277	3587093		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
6	LSX-TA-034.000	B5	Gray & Pape	Terminated in Subsoil	407397	3587045		Negative	20	75yr4/4	salo				hydric					

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
6	LSX-TA-031.000	B4	Gray & Pape	Recommended for deep test	406113	3587338		Negative	100	7.5YR 4/4	salo									
6	LSX-TA-033.000	f1-10e	Gray & Pape	cemented, rock through out	407010	3587152	41TA353/354: Feature 1	Negative	20	2.5yr 5/6 to 2.5yr 4/3	cllo									
6	LSX-TA-033.000	f1-5w	Gray & Pape	cemented, rock through out	406994	3587152	41TA353/354: Feature 1	Negative	20	2.5YR 5/8	sicl									
6	LSX-TA-033.000	f1-5n	Gray & Pape	cemented, rock through out	407000	3587158	41TA353/354: Feature 1	Negative	20	2.5yr 5/6 to 2.5yr 4/3	cllo									
6	LSX-TA-033.000	f1-1	Gray & Pape	center of feature, cemented, rock through out	406999	3587151	41TA353/354: Feature 1	Positive	20	2.5yr 5/6 to 2.5yr 4/3	cllo	1 flake 0-10								
6	LSX-TA-033.000	f1-5S	Gray & Pape	cemented, rock through out	406999	3587146	41TA353/354: Feature 1	Negative	25	2.5yr 5/6 to 2.5yr 4/3	cllo									
6	LSX-TA-033.000	f1-2	Gray & Pape	east center of feature, cemented, rock through out	407001	3587150	41TA353/354: Feature 1	Negative	10	2.5yr 5/6 to 2.5yr 4/3	cllo									
6	LSX-TA-033.000	f1-10S	Gray & Pape	cemented, rock through out	406999	3587146	41TA353/354: Feature 1	Negative	25	2.5yr 5/6 to 2.5yr 4/3	cllo									
7	LSX-TA-036.000	B1	Gray & Pape	Terminated in Subsoil	408095	3586832		Negative - Disturbed	5	75yr4/4 ; 75yr4/2	sacllo									
8	LSX-TA-039.000	B1	Gray & Pape	Terminated in Subsoil	409200	3586358		Negative	50	5yr4/4	sacllo									
8	LSX-TA-039.000	B2	Gray & Pape	Terminated in Subsoil, hydric	409249	3586332		Negative	20	5yr4/4	sacllo				hydric					
8	LSX-TA-038.000	B1	Gray & Pape	Terminated in Subsoil	409161	3586379		Negative	50	5yr4/4	sacllo				hydric					
8	LSX-TA-038.000	B2	Gray & Pape	Terminated in Subsoil	409055	3586437		Negative	50	5yr4/4	sacllo									
8	LSX-TA-038.000	B3	Gray & Pape	Terminated in Subsoil	408995	3586462		Negative	50	5yr4/4	sacllo									
8	LSX-TA-037.000	B1	Gray & Pape	Terminated in Subsoil	408861	3586523		Negative	50	5yr4/4	sacllo									
8	LSX-TA-038.000	B3	Gray & Pape	Terminated in Subsoil	409110	3586395		Negative	50	5yr4/4	sacllo									
8	LSX-TA-037.000	B2	Gray & Pape	Terminated in Subsoil	408914	3586494		Negative	50	5yr4/4	sacllo									
9	LSX-TA-040.000	A1	Gray & Pape	Terminated in Subsoil	411032	3585643		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
9	LSX-TA-040.000	A10	Gray & Pape	Terminated in Subsoil	410879	3585660		Negative	20	75yr4/4	cl									
9	LSX-TA-040.000	A11	Gray & Pape	Terminated in Subsoil	410952	3585636		Negative	25	75yr4/4	cl									
9	LSX-TA-040.000	A12	Gray & Pape	Terminated in Subsoil	410844	3585686		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
9	LSX-TA-040.000	A13	Gray & Pape	Terminated in Subsoil	410855	3585663		Negative	30	75yr4/4	cl									
9	LSX-TA-040.000	A2	Gray & Pape	Terminated in Subsoil	411072	3585630		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
9	LSX-TA-040.000	A3	Gray & Pape	Terminated in Subsoil	411110	3585621		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
9	LSX-TA-040.000	A4	Gray & Pape	Terminated in Subsoil	411024	3585621		Negative	25	75yr4/4	salo		35	75yr4/4	cl					
9	LSX-TA-040.000	A5	Gray & Pape	Terminated in Subsoil	411068	3585612		Negative	35	75yr4/4	salo		45	75yr4/4	sacl					
9	LSX-TA-040.000	A6	Gray & Pape	Terminated in Subsoil	411097	3585607	41TA314	Negative	30	75yr4/4	salo		40	75yr4/4	cl					
9	LSX-TA-040.000	A7	Gray & Pape	Terminated in Subsoil	411001	3585627		Negative	25	75yr4/4	salo		35	75yr4/4	cl					
9	LSX-TA-040.000	A8	Gray & Pape	Terminated in Subsoil	411005	3585650	41TA314	Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
9	LSX-TA-040.000	A9	Gray & Pape	Terminated in Subsoil	410878	3585674		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
9	LSX-TA-040.000	B1	Gray & Pape	Terminated in Subsoil	410764	3585704		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
9	LSX-TA-040.000	B2	Gray & Pape	Terminated in Subsoil	410727	3585721		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
9	LSX-TA-040.000	B3	Gray & Pape	Terminated in Subsoil	410755	3585688		Negative	15	75yr4/4	cl									
9	LSX-TA-040.000	B4	Gray & Pape	Terminated in Subsoil	410722	3585700		Negative	20	75yr4/4	cl									
9	LSX-TA-040.000	B5	Gray & Pape	Terminated in Subsoil	410615	3585750		Negative	50	75yr4/4	sacl									
9	LSX-TA-040.000	B7	Gray & Pape	dense and compact with rock and gravels, subsoil	410932	3585668	41TA314	Negative - Disturbed	25	7.5YR 4/3	sicllogv									
9	LSX-TA-040.000	B8	Gray & Pape	dense and compact with rock and gravels, subsoil	410972	3585660	41TA314	Negative - Disturbed	30	2.5YR 3/3	siclgv									
9	LSX-TA-040.000	S1	Gray & Pape	very compact, some pebbles and rock mixed in, subsoil	410999	3585648	41TA314	Negative	30	2.5YR 3/3	siclgv									
9	LSX-TA-040.000	S10	Gray & Pape	several gravels and rock, subsoil	410893	3585672		Negative	5	7.5YR 4/3	rock									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
9	LSX-TA-040.000	S11	Gray & Pape	dense and compact with rock and gravels, subsoil	410976	3585628		Negative	10	7.5YR 4/7	sicllogv									
9	LSX-TA-040.000	S12	Gray & Pape	dense and compact with rock and gravels, subsoil	410918	3585663		Negative	10	7.5YR 4/7	cllo									
9	LSX-TA-040.000	S13	Gray & Pape	dense and compact with rock and gravels, subsoil	410910	3585647		Negative	25	7.5YR 4/3	sicllogv									
9	LSX-TA-040.000	S2	Gray & Pape	dense and compact with rock and gravels, subsoil	411017	3585639		Positive	30	2.5YR 3/3	siclgv	1 flake 0-10								
9	LSX-TA-040.000	S3	Gray & Pape	very compact, some pebbles and rock mixed in, subsoil	410982	3585650	41TA314	Negative	20	7.5YR 4/3	cllo									
9	LSX-TA-040.000	S4	Gray & Pape	dense and compact with rock and gravels, subsoil	411031	3585639		Negative - Disturbed	30	2.5YR 3/3	siclgv									
9	LSX-TA-040.000	S5	Gray & Pape	very compact, some pebbles and rock mixed in, subsoil	410941	3585653	41TA314	Negative	15	7.5YR 4/3	sicllogv									
9	LSX-TA-040.000	S6	Gray & Pape	dense and compact with rock and gravels, subsoil	410932	3585655	41TA314	Negative	25	7.5YR 4/3	sicllogv									
9	LSX-TA-040.000	S7	Gray & Pape	very compact, subsoil	410938	3585641		Negative	25	7.5YR 4/3	sicllogv									
9	LSX-TA-040.000	S8	Gray & Pape	dense and compact with rock and gravels, subsoil	410944	3585662	41TA314	Negative	30	7.5YR 4/7	sicllogv									
9	LSX-TA-040.000	S9	Gray & Pape	dense and compact with rock and gravels, subsoil	410951	3585651	41TA314	Negative	15	7.5YR 4/3	sicllogv									
10	LSX-TA-040.100	B1	Gray & Pape	Terminated at bedrock	411506	3585390		Negative	25	7.5yr4/4	salo				rock					
10	LSX-TA-040.100	B2	Gray & Pape	Terminated in Subsoil	411546	3585368		Negative	50	75 yr4/4	sacllo				rock					
10	LSX-TA-040.100	B3	Gray & Pape	Terminated in Subsoil	411611	3585338		Negative	50	7.5yr4/4	salo		60	7.5yr4/4	cl					
10	LSX-TA-040.100	B4	Gray & Pape	Terminated in Subsoil	411655	3585320		Negative	50	7.5yr4/4	salo		60	7.5yr4/4	cl					
11	LSX-TA-046.000	143	Horizon		414997	3583722		Negative	10	2.5YR4/8	silty clay		20	2.5YR4/8	clay					
11	LSX-TA-046.000	144	Horizon		414925	3583750		Negative	30	reddish brown	gravelly dense clay									
11	LSX-TA-046.000	145	Horizon		414893	3583755		Negative	30	reddish brown	gravelly dense clay									
11	LSX-TA-046.000	SRS28	Horizon		414952	3583741		Negative	40	5YR4/6	clay loam									
11	LSX-TA-046.000	101	Horizon		415026	3583707		Negative	30	reddish brown	cl some silt									
11	LSX-TA-046.000	102	Horizon		415051	3583687		Negative	30	reddish brown	cl some silt									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
11	LSX-TA-046.000	B1	Gray & Pape	Terminated in subsoil	414859	3583747		Negative	25	5YR4/6	clay loam									
12	LSX-TA-050.000	A2	Gray & Pape	Terminated in Subsoil	415663	3583388		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
12	LSX-TA-050.000	147	Horizon		415670	3583384		Negative	30	dark reddish brown	dense clay									
12	LSX-TA-050.000	A1	Gray & Pape	Terminated in Subsoil	415698	3583379		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
12	LSX-TA-050.000	146	Horizon		415700	3583372		Negative	25	dark reddish brown	dense clay									
12	LSX-TA-050.000	B2	Gray & Pape		415848	3583308	41TA398	Negative	10	2.5YR4/6	sandy clay									
12	LSX-TA-050.000	B3	Gray & Pape		415942	3583270	41TA398	Negative	25	5YR4/6	silty clay loam									
12	LSX-TA-050.000	B4	Gray & Pape		416213	3583153	41TA398	Negative	15	2.5YR4/6	silty clay loam									
12	LSX-TA-050.000	B5	Gray & Pape		416283	3583122	41TA398	Negative	25	5YR4/6	silty clay loam									
12	LSX-TA-050.000	B6	Gray & Pape		416350	3583092	41TA398	Negative	30	5YR4/6	silty clay loam									
12	LSX-TA-050.000	SRS29	Horizon		415719	3583361	41TA398	Negative	65	5YR4/6	silty clay loam									
12	LSX-TA-050.000	144	Horizon		415741	3583351	41TA398	Negative	15	2.5YR4/6	sandy clay		25	2.5YR4/4	clay					
12	LSX-TA-050.000	103	Horizon		415775	3583339	41TA398	Negative	30	reddish brown	cl									
12	LSX-TA-050.000	145	Horizon		415800	3583336	41TA398	Negative	10	2.5YR4/6	sandy clay		20	2.5YR4/4	clay					
12	LSX-TA-050.000	149	Horizon		416004	3583244	41TA398	Negative	10	yellowish red	sandy loam		30	reddish brown	dense clay		30+	Caliche		
12	LSX-TA-050.000	148	Horizon		416032	3583234	41TA398	Negative	10	yellowish red	sandy loam		30	reddish brown	dense clay					
12	LSX-TA-050.000	SRS30	Horizon		416063	3583226	41TA398	Negative	30	5YR4/6	clay									
12	LSX-TA-050.000	146	Horizon		416077	3583215	41TA398	Negative	20	2.5YR4/6	sandy loam		40	2.5YR4/4	clay					
12	LSX-TA-050.000	104	Horizon		416109	3583199	41TA398	Negative	30	reddish brown	cl									
12	LSX-TA-050.000	105	Horizon		416135	3583187	41TA398	Negative	30	very dark brown	cl									

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12	LSX-TA-050.000	B1	Gray & Pape	Terminated in Subsoil	416433	3583073		Negative	25	7.5yr4/4	sacllo									
13	LSX-TA-050.000	147	Horizon		416694	3582945		Negative	15	2.5YR4/4	sandy clay		25	2.5YR5/6	clay					
13	LSX-TA-050.000	148	Horizon		416761	3582909		Negative	5	2.5YR4/4	sandy clay		15	2.5YR5/6	clay					
13	LSX-TA-050.000	149	Horizon		416892	3582866		Negative	20	2.5YR4/4	clay									
13	LSX-TA-052.000	150	Horizon		417134	3582758		Negative	20	5YR5/8	sandy clay		30	5YR4/4	clay					
13	LSX-TA-052.000	151	Horizon		417669	3582543		Negative	40	5YR5/6	sandy loam		50	5YR4/4	clay					
13	LSX-TA-052.000	152	Horizon		417712	3582524		Negative	30	7.5YR4/2	sandy loam		40	7.5YR4/7	clay					
13	LSX-TA-050.000	150	Horizon		416710	3582943		Negative	10	dark brown	fine sandy loam		30	dark reddish brown	dense clay					
13	LSX-TA-050.000	151	Horizon		416739	3582930		Negative	5	dark brown	fine sandy loam		36	dark reddish brown	dense clay					
13	LSX-TA-050.000	152	Horizon		416827	3582885		Negative	10	dark brown	moist clay		30	very dark brown	moist dense clay					
13	LSX-TA-050.000	153	Horizon	iso delineation	416861	3582883		Negative	5	brown	sandy loam		30	very dark brown	moist dense clay					
13	LSX-TA-052.000	154	Horizon		417115	3582778		Negative	15	brown	sandy loam		40	brown	clay					
13	LSX-TA-052.000	155	Horizon		417254	3582720		Negative	20	brown	sandy loam		30	brown	clay					
13	LSX-TA-052.000	156	Horizon		417581	3582580		Negative	15	brown	sandy loam		30	reddish brown	dense clay					
13	LSX-TA-052.000	157	Horizon		417554	3582591		Negative	30	brown	dense clay									
13	LSX-TA-050.000	SRS31	Horizon		416651	3582972		Negative	30	5YR4/6	clay									
13	LSX-TA-050.000	SRS32	Horizon		416621	3582976		Negative	30	5YR3/2	clay									
13	LSX-TA-050.000	SRS33	Horizon	flake (utilized) at surface	416857	3582869	TA-50-ISO-001	Positive	25	5YR3/2	clay loam	flake (1) at 0-10	40	5YR4/6	stream gravels					
13	LSX-TA-052.000	SRS34	Horizon		417198	3582751		Negative	25	5YR4/6	stream gravels									
13	LSX-TA-052.000	SRS35	Horizon		417177	3582730		Negative	70	5YR4/6	silty clay loam									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
13	LSX-TA-052.000	SRS36	Horizon		417607	3582573		Negative	55	5YR4/6	silty clay loam									
13	LSX-TA-050.000	106	Horizon		416671	3582958		Negative	20	dark brown	cl		30	reddish brown	cl					
13	LSX-TA-050.000	107	Horizon		416798	3582898		Negative	20	dark brown	cl		30	reddish brown	cl					
13	LSX-TA-050.000	108	Horizon		416845	3582876		Negative	30	very dark brown	lo		40	gray	cl					
13	LSX-TA-052.000	109	Horizon		417224	3582732		Negative	30	dark brown	cl									
13	LSX-TA-052.000	110	Horizon		417690	3582536		Negative	20	dark brown	cl		30	dark reddish brown	cl					
13	LSX-TA-050.000	B1	Gray & Pape		416580	3583002		Negative	25	5YR4/6	clay									
14	LSX-TA-054.000	153	Horizon		418385	3582242		Negative	20	2.5YR4/4	clay									
14	LSX-TA-053.000	154	Horizon		418334	3582262		Negative	20	5YR4/2	clay									
14	LSX-TA-054.000	158	Horizon		418370	3582250		Negative	10	brown	sandy loam		25	reddish brown	dense clay					
14	LSX-TA-054.000	SRS37	Horizon		418422	3582228		Negative	40	5YR4/6	silty clay loam									
14	LSX-TA-054.000	SRS38	Horizon		418488	3582203		Negative	60	5YR4/6	silty clay loam									
14	LSX-TA-054.000	111	Horizon		418454	3582216		Negative	30	dark red	cl									
14	LSX-TA-054.000	112	Horizon		418515	3582192		Negative	30	dark red	cl									
15	LSX-TA-066.000	155	Horizon		420114	3581717		Negative	20	5YR4/4	clay									
15	LSX-TA-066.000	156	Horizon		420168	3581714		Negative	20	5YR5/4	clay									
15	LSX-TA-066.000	A3	Gray & Pape	Terminated at bedrock	420088	3581711		Negative	25	75yr4/4	salo				rock					
15	LSX-TA-066.000	A4	Gray & Pape	Terminated in Subsoil	420090	3581732		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
15	LSX-TA-066.000	A5	Gray & Pape	Terminated in Subsoil	420058	3581741		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
15	LSX-TA-066.000	A6	Gray & Pape	Terminated at bedrock	420058	3581717		Negative	25	75yr4/4	salo				rock					

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
15	LSX-TA-066.000	159	Horizon		420067	3581719		Negative	10	brown	sandy loam		30	dark brown	moist dense clay					
15	LSX-TA-066.000	160	Horizon		420030	3581729		Negative	10	brown	sandy loam		25	dark brown	moist dense clay					
15	LSX-TA-066.000	113	Horizon		420148	3581713		Negative	30	dark yellowish brown	cl									
16	LSX-TA-069.000	A1	Gray & Pape	Terminated at bedrock	421264	3581289		Negative	35	75 yr3/3	salo				Rock					
16	LSX-TA-068.000	A1	Gray & Pape	Subsoil, disturbed area	421151	3581247		Negative - Disturbed	35	75 yr3/3	salo				Rock					
17	LSX-TA-072.000	A8	Gray & Pape	Terminated in Subsoil	421891	3581016		Negative - Disturbed	10	75yr3/3 ; 75yr4/2	sacllo									
17	LSX-TA-071.000	A6	Gray & Pape	Terminated at bedrock	421711	3581097		Negative	30	75 yr3/3	salo				Rock					
17	LSX-TA-071.000	A7	Gray & Pape	Terminated in Subsoil	421795	3581059		Negative	50	75 yr3/3	sacllo									
17	LSX-TA-073.000	A10	Gray & Pape	Terminated at bedrock	422059	3580937		Negative	20	75 yr3/3	salo				Rock					
17	LSX-TA-073.000	A9	Gray & Pape	Terminated in Subsoil	421980	3580976		Negative	35	75 yr3/3	Sand		45	75 yr3/3	Sandy clay					
18	LSX-TA-078.000	172	Horizon		423681	3579585		Negative	40	5YR4/4, 2.5YR5/6	sandy clay									
18	LSX-TA-078.000	173	Horizon		423694	3579558		Negative	20	5YR4/4, 2.5YR5/6	sand		40	2.5YR5/6	sandy clay					
18	LSX-TA-078.000	174	Horizon		423858	3579455		Negative	40	2.5YR5/6	sandy loam		50	2.5YR4/8	clay					
18	LSX-TA-078.000	182	Horizon		423776	3579502		Negative	15	brown	sandy loam		40	dark brown	dense clay					
18	LSX-TA-078.000	183	Horizon	clay increase with depth@40	423802	3579485		Negative	20	brown	clay loam		60	reddish brown	sandy clay					
18	LSX-TA-078.000	184	Horizon	clay increase with depth	423827	3579467		Negative	20	brown	sandy clay loam		70	reddish brown	compact sandy clay					
18	LSX-TA-078.000	A5	Gray & Pape	Compact hardpan at surface, unable to excavate further with hand tools	423908	3579396		Negative	5	5YR 3/4	si									
18	LSX-TA-078.000	A6	Gray & Pape	Compact hardpan at surface, unable to excavate further with hand tools	423927	3579384		Negative	11	5YR 3/4	si									
18	LSX-TA-081.000	A7	Gray & Pape	Compact hardpan at surface, unable to excavate further with hand tools	423956	3579392		Negative	9	5YR 4/6	si									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
18	LSX-TA-081.000	A8	Gray & Pape	Compact hardpan at surface, unable to excavate further with hand tools	423965	3579413		Negative	12	5YR 4/4	sacl									
18	LSX-TA-081.000	A8	Gray & Pape	Compact hardpan at surface, unable to excavate further with hand tools	423996	3579372		Negative	23	5YR 4/6	sacl									
18	LSX-TA-081.000	A9	Gray & Pape	Terminated in Subsoil	424047	3579380		Negative	20	5YR 4/6	cl									
18	LSX-TA-081.000	A10	Gray & Pape	Terminated due to bedrock, gravels and bedrock at surface throughout area. In drainage between ridge	424087	3579389		Negative	9	5YR 4/6	cl									
18	LSX-TA-081.000	A11	Gray & Pape	Terminated due to bedrock, gravels and bedrock at surface throughout area. In drainage between ridge	424127	3579376		Negative	5	5YR 4/6	cl									
18	LSX-TA-081.000	A12	Gray & Pape	Terminated due to bedrock, gravels and bedrock at surface throughout area. In drainage between ridge	424161	3579369		Negative	3	5YR 4/6	cl									
18	LSX-TA-078.000	SRS54	Horizon		423728	3579549		Negative	30	5YR4/4	sandy clay loam		70	5YR4/6	silty loam					
18	LSX-TA-078.000	SRS55	Horizon		423849	3579477		Negative	35	5YR4/6	clay loam		45	5YR5/8	silty loam					
18	LSX-TA-078.000	137	Horizon		423796	3579512		Negative	30	mottled dark reddish brown and reddish brown	cl		60	reddish brown	cl					
18	LSX-TA-078.000	138	Horizon		423820	3579496		Negative	30	mottled dark reddish brown and reddish brown	cl		60	reddish brown	cl					
19	LSX-TA-083.000	171	Horizon		425391	3579010		Negative	30	2.5YR5/2	clay									
19	LSX-TA-081.000	180	Horizon		425299	3579054		Negative	10	dark brown	dense clay loam		30	very dark brown	dense clay					
19	LSX-TA-081.000	181	Horizon		425270	3579071		Negative	15	dark brown	dense clay loam		30	very dark brown	dense clay					
19	LSX-TA-083.000	SRS52	Horizon		425424	3578999		Negative	35	5YR3/3	clay									
19	LSX-TA-083.000	SRS8	Horizon		425392	3579010		Negative	30	5yr4/6	clay									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
19	LSX-TA-083.000	SRS53	Horizon		425453	3578980		Negative	30	5YR3/3	clay									
20	LSX-TA-087.000	157	Horizon		426280	3578888		Negative	20	5YR3/4	sandy clay		30	5YR4/4	clay					
20	LSX-TA-087.000	158	Horizon		426246	3578890		Negative	20	5YR4/4	clay									
20	LSX-TA-087.000	159	Horizon		426218	3578893		Negative	20	5YR4/4	clay									
20	LSX-TA-087.000	118	Horizon		426312	3578884		Negative	20	dark brown	cl		30	dark reddish brown	cl					
20	LSX-TA-087.000	119	Horizon		426343	3578884		Negative	20	dark brown	cl		30	dark reddish brown	cl					
20	LSX-TA-087.000	120	Horizon		426373	3578880		Negative	30	brown	cl lo		40	dark brown	cl					
21	LSX-TA-089.000	B1	Gray & Pape	Terminated in Subsoil	428362	3578589		Negative	50	5YR 6/3	sacl									
21	LSX-TA-089.000	B2	Gray & Pape	Terminated in Subsoil	428364	3578603		Negative	35	5YR 6/3	sacl									
21	LSX-TA-089.000	B3	Gray & Pape	Terminated in Subsoil	428336	3578620		Negative	40	5YR 6/3	sacl									
21	LSX-TA-089.000	B4	Gray & Pape	Terminated in Subsoil	428320	3578602		Negative	50	5YR 6/3	sacl									
21	LSX-TA-089.000	A3	Gray & Pape	Terminated in Subsoil	428243	3578633		Negative	60	5YR 6/3	sacl									
21	LSX-TA-089.000	A2	Gray & Pape	Terminated in Subsoil	428408	3578570		Negative	45	5YR 6/3	sacl									
21	LSX-TA-089.000	A1	Gray & Pape	Terminated in Subsoil	428414	3578594		Negative	50	5YR 6/3	sacl									
22	LSX-TA-094.260	169	Horizon		429647	3577140		Negative	30	2.5YR5/6, 5YR3/4	clay									
22	LSX-TA-094.260	170	Horizon		429650	3577164		Negative	20	2.5YR2.5/4	clay		40	2.5YR2.5/2	clay					
22	LSX-TA-094.260	177	Horizon		429631	3577143		Negative	5	dark brown	clay loam		30	brown	dense clay					
22	LSX-TA-094.260	178	Horizon		429630	3577112		Negative	10	dark brown	clay loam		30	brown	dense clay					
22	LSX-TA-094.260	179	Horizon	disturbed road gravels	429630	3577229		Negative	5	yellowish brown	construction fill		30	mixed brown & dark brown	dense clay					

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
22	LSX-TA-094.270	A2	Gray & Pape	Terminated in Subsoil	429729	3577092		Negative	30	10YR4/4	silo		40	10YR3/2	sicllo					
22	LSX-TA-094.270	A3	Gray & Pape	Terminated in Subsoil	429673	3577089		Negative	30	10YR4/4	silo		40	10YR3/2	sicllo					
22	LSX-TA-094.270	A4	Gray & Pape	Terminated in Subsoil	429618	3577083		Negative	30	10YR4/4	silo		40	10YR3/2	sicllo					
22	LSX-TA-094.260	SRS50	Horizon		429629	3577168		Negative	50	5YR4/6	loamy clay									
22	LSX-TA-094.260	SRS51	Horizon		429630	3577198		Negative	30	5YR4/4	loamy clay									
22	LSX-TA-094.260	133	Horizon		429654	3577117		Negative	30	dark brown	si cl lo		40	very dark brown	cl					
22	LSX-TA-094.260	134	Horizon		429654	3577191		Negative	30	very dark reddish brown	si cl		40	reddish brown	cl					
22	LSX-TA-094.260	135	Horizon		429652	3577221		Negative	30	very dark reddish brown	si cl		40	reddish brown	cl					
23	LSX-TA-094.290	165	Horizon		430322	3577095		Negative	15	10YR3/4	clay		40	10YR5/6	sandy clay		50	10YR3/4	clay	
23	LSX-TA-094.290	167	Horizon		430219	3577093		Negative	20	5YR2.5/2	clay									
23	LSX-TA-094.290	168	Horizon		430269	3577092		Negative	20	5YR4/4	clay									
23	LSX-TA-094.305	163	Horizon		430352	3577096		Negative	15	2.5YR4/6	clay				bedrock					
23	LSX-TA-094.305	166	Horizon		430293	3577098		Negative	15	2.5YR2.5/4	clay		25	2.5YR2.5/4	sandy clay		40	2.5YR2.5/4	clay	
23	LSX-TA-094.290	173	Horizon	increase clay with depth	430361	3577074		Negative	5	reddish brown	clay loam		30	reddish brown	dense clay					
23	LSX-TA-094.290	174	Horizon		430332	3577074		Negative	10	reddish brown	sandy loam		60	reddish brown	sand		80	reddish brown	sandy clay	
23	LSX-TA-094.290	175	Horizon		430302	3577079		Negative	10	reddish brown	sandy loam		50	reddish brown	sand		80	reddish brown	sandy clay	
23	LSX-TA-094.290	176	Horizon	oxbow lake	430187	3577067		Negative	10	dark reddish brown	clay loam		40	reddish brown	dense clay					
23	LSX-TA-094.270	A1	Gray & Pape	Terminated in Subsoil	430079	3577091		Negative	30	10YR4/4	silo		40	10YR3/2	sicllo					
23	LSX-TA-094.290	SRS46	Horizon		430402	3577089		Negative	35	5YR4/6	loamy clay									
23	LSX-TA-094.290	SRS48	Horizon		430417	3577057		Negative	50	5YR4/6	loamy clay									

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23	LSX-TA-094.290	SRS49	Horizon		430189	3577092		Negative	40	5YR4/6	loamy clay									
23	LSX-TA-094.290	128	Horizon		430441	3577092		Negative	30	reddish brown	si cl lo		40	dark reddish brown	cl					
23	LSX-TA-094.290	129	Horizon		430472	3577092		Negative	30	reddish brown	si cl lo		40	dark reddish brown	cl					
23	LSX-TA-094.290	130	Horizon		430445	3577068		Negative	30	reddish brown	si cl lo		40	dark reddish brown	cl					
23	LSX-TA-094.290	131	Horizon		430216	3577067		Negative	30	very dark reddish brown	si cl lo									
23	LSX-TA-094.290	132	Horizon		430257	3577069		Negative	10	very dark reddish brown	si cl lo		80	reddish brown si lo						
23	LSX-TA-094.270	B1	Gray & Pape	Terminated in subsoil	430076	3577069		Negative	50	5YR4/6	si cl lo									
23	LSX-TA-094.290	B2	Gray & Pape	Terminated in subsoil	430147	3577070		Negative	50	5YR4/4	si cl lo									
23	LSX-TA-094.290	A2	Gray & Pape	Terminated in subsoil	430147	3577088		Negative	50	5YR4/6	si cl lo									
24	LSX-TA-124.000	160	Horizon		432616	3577109		Negative	20	2.5YR6/6	silty clay		30	2.5YR3/6	clay					
24	LSX-TA-124.000	161	Horizon		432647	3577135		Negative	20	2.5YR5/4	clay									
24	LSX-TA-124.000	162	Horizon		432670	3577116		Negative	20	5YR5/4	silty clay		30	5YR4/4	clay					
24	LSX-TA-123.000	B1	Gray & Pape	Terminated in Subsoil	431978	3577136		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
24	LSX-TA-123.000	B2	Gray & Pape	Terminated at bedrock	432079	3577137		Negative	25	75 yr4/4	sa				rock					
24	LSX-TA-123.000	B3	Gray & Pape	Terminated at bedrock	432181	3577130		Negative	15	75 yr4/4	sa				rock					
24	LSX-TA-123.000	B4	Gray & Pape	Terminated at bedrock	432223	3577131		Negative	20	75yr4/4	sa				rock					
24	LSX-TA-123.000	B5	Gray & Pape	Terminated at bedrock	432338	3577132		Negative	25	75yr4/4	sa				rock					
24	LSX-TA-123.000	B6	Gray & Pape	Terminated in Subsoil	432464	3577121		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
24	LSX-TA-123.000	B7	Gray & Pape	Terminated at bedrock	432060	3577137		Negative	20	75 yr4/4	salo				rock					

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
24	LSX-TA-124.000	170	Horizon		432552	3577124		Negative	5	brown	compact sandy loam		20	very dark brown	dense clay					
24	LSX-TA-124.000	171	Horizon		432585	3577112		Negative	15	brown	compact sandy loam		30	very dark brown	dense clay					
24	LSX-TA-124.000	172	Horizon		432569	3577132		Negative	10	brown	compact sandy loam		25	very dark brown	dense clay					
24	LSX-TA-125.000	S1	Gray & Pape	Brick concentration center, very compact, impenetrable, several gravels, subsoil	432815	3577116	41TA399	Negative	5	2.5YR 4/6	cllogv									
24	LSX-TA-125.000	S2	Gray & Pape	Brick concentration east edge, very compact, impenetrable, several gravels, subsoil	432820	3577117	41TA399	Negative	10	7.5YR 5/6	cllogv									
24	LSX-TA-125.000	S3	Gray & Pape	Brick concentration north edge, very compact, impenetrable, several gravels, subsoil	432815	3577121	41TA399	Negative	5	7.5YR 5/6	cllogv									
24	LSX-TA-125.000	S4	Gray & Pape	Historics concentration center, very compact, impenetrable, several gravels, subsoil	432800	3577113	41TA399	Negative	8	2.5YR 4/6	cllogv									
24	LSX-TA-125.000	S5	Gray & Pape	very compact, impenetrable, several gravels, subsoil	432799	3577130	41TA399	Negative	10	7.5YR 5/6	cllogv									
24	LSX-TA-125.000	S6	Gray & Pape	very compact, impenetrable, several gravels, subsoil	432868	3577126	41TA399	Negative	10	7.5YR 5/6	cllogv									
24	LSX-TA-125.000	S7	Gray & Pape	very compact, impenetrable, several gravels, subsoil	432849	3577128	41TA399	Negative	15	7.5YR 5/6	cllogv									
24	LSX-TA-125.000	S8	Gray & Pape	very compact, impenetrable, several gravels, subsoil	432869	3577114	41TA399	Negative	10	2.5YR 4/6	cllogv									
24	LSX-TA-125.000	S9	Gray & Pape	very compact, impenetrable, several gravels, subsoil	432833	3577111	41TA399	Negative	10	7.5YR 5/6	cllogv									
24	LSX-TA-125.000	S10	Gray & Pape	very compact, impenetrable, several gravels, subsoil	432779	3577130		Negative	5	7.5YR 5/6	cllogv									
24	LSX-TA-125.000	S11	Gray & Pape	very compact, impenetrable, several gravels, subsoil	432768	3577130		Negative	5	7.5YR 5/6	cllogv									
24	LSX-TA-125.000	S12	Gray & Pape	along access road, rutted, very compact, impenetrable, several gravels, subsoil	432800	3577094		Negative	10	2.5YR 4/6	cllogv									
24	LSX-TA-125.000	S13	Gray & Pape	along access road, rutted, very compact, impenetrable, several gravels, subsoil	432815	3577094		Negative	15	2.5YR 4/6	cllogv									
24	LSX-TA-125.000	S14	Gray & Pape	along access road, rutted, very compact, impenetrable, several gravels, subsoil	432842	3577093		Negative	10	2.5YR 4/6	cllogv									

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24	LSX-TA-125.000	S15	Gray & Pape	along access road, rutted, very compact, impenetrable, several gravels, subsoil	432867	3577093		Negative	10	2.5YR 4/6	cllogv									
24	LSX-TA-125.000	S16	Gray & Pape	along access road, rutted, very compact, impenetrable, several gravels, subsoil	432894	3577093		Negative	10	2.5YR 4/6	cllogv									
24	LSX-TA-125.000	121	Horizon	disturbed by pipeline	432712	3577109		Negative	30	reddish brown	cl									
24	LSX-TA-125.000	122	Horizon	Brick concentration south edge, terminated due to hardpan and bedrock at base	432818	3577114	41TA399	Negative	5	reddish brown	cl									
24	LSX-TA-125.000	123	Horizon	terminated due to hardpan and bedrock at base	432853	3577113	41TA399	Negative	5	reddish brown	cl									
24	LSX-TA-125.000	124	Horizon		432881	3577115	41TA399	Negative	30	reddish brown	cl (compact)									
24	LSX-TA-125.000	125	Horizon	bedrock at base	432804	3577122	41TA399	Negative	5	reddish brown	cl									
24	LSX-TA-125.000	126	Horizon		432817	3577128	41TA399	Negative	20	reddish brown	cl									
24	LSX-TA-125.000	127	Horizon		432832	3577125	41TA399	Negative	20	reddish brown	cl									
25	LSX-TA-137.000	B1	Gray & Pape	Terminated at bedrock	437151	3576230		Negative	25	75 yr4/4	salo				rock					
25	LSX-TA-137.000	B2	Gray & Pape	Terminated at bedrock	437151	3576246		Negative	25	75 yr4/4	salo				rock					
25	LSX-TA-137.000	B3	Gray & Pape	Terminated at bedrock	437260	3576250		Negative	20	75 yr4/4	salo				rock					
25	LSX-TA-137.000	B4	Gray & Pape	Terminated at bedrock	437262	3576230		Negative	20	75 yr4/4	salo				rock					
25	LSX-TA-137.500	B5	Gray & Pape	Terminated in Subsoil	437370	3576230		Negative	30	75yr4/4	salo		40	75yr4/2	cllo					
25	LSX-TA-137.500	B6	Gray & Pape	Terminated in Subsoil	437369	3576250		Negative	35	75yr4/4	salo		45	75yr4/2	cllo					
26	LSX-TA-137.500	B7	Gray & Pape	Terminated in Subsoil	437767	3576229		Negative	30	75yr4/2	salo		40	75yr4/4	cllo					
26	LSX-TA-137.500	B8	Gray & Pape	Terminated in Subsoil	437761	3576249		Negative	30	75yr4/2	salo		40	75yr4/4	cllo					
26	LSX-TA-137.500	B9	Gray & Pape	Terminated in Subsoil	437751	3576227		Negative	25	75yr4/2	salo				hydric					
26	LSX-TA-137.500	B10	Gray & Pape	Terminated in Subsoil	437732	3576227		Negative	25	75yr4/4	salo				hydric					
26	LSX-TA-137.500	B11	Gray & Pape	Terminated in Subsoil	437650	3576247		Negative - Disturbed	25	75yr4/4	cllo									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
27	LSX-TA-138.100	B11	Gray & Pape	Terminated in Subsoil	438520	3576220		Negative	50	75yr4/2	sacl									
27	LSX-TA-138.100	B12	Gray & Pape	Terminated in Subsoil	438519	3576197		Negative	35	75yr4/2	salo		45	75yr4/4	cllo					
27	LSX-TA-138.100	B13	Gray & Pape	Terminated in Subsoil	438669	3576209		Negative	50	75yr4/2	sacl									
27	LSX-TA-138.100	B14	Gray & Pape	Terminated in Subsoil	438661	3576183		Negative	50	75yr4/2	sacl									
27	LSX-TA-138.100	A1	Gray & Pape	Terminated in Subsoil	438628	3576217		Negative - Disturbed	40	75yr4/2	sacl									
28	LSX-TA-138.100	B15	Gray & Pape	Terminated in Subsoil	438929	3576212		Negative	50	75yr4/4	saclo									
28	LSX-TA-138.100	B16	Gray & Pape	Terminated in Subsoil	438930	3576189		Negative	60	75yr4/4	saclo									
28	LSX-TA-138.100	B17	Gray & Pape	Terminated in Subsoil	438967	3576216		Negative	25	75yr4/2	salo				hydric					
28	LSX-TA-138.100	B18	Gray & Pape	Terminated in Subsoil	438972	3576193		Negative	20	75yr4/2	salo				hydric					
28	LSX-TA-139.100	B21	Gray & Pape	Terminated in Subsoil	439174	3576199		Negative	30	75yr4/2	salo		40	75yr4/4	cllo					
28	LSX-TA-139.100	B22	Gray & Pape	Terminated in Subsoil	439171	3576219		Negative	25	75yr4/2	salo		35	75yr4/4	cllo					
28	LSX-TA-139.100	B19	Gray & Pape	Terminated in Subsoil	439014	3576204		Negative	20	75yr4/2	salo		35	75yr4/4	cllo					
28	LSX-TA-139.100	B20	Gray & Pape	Terminated in Subsoil	439062	3576217		Negative	15	75yr4/2	salo		25	75yr4/4	cllo					
29	LSX-TA-146.000 / LSX-CA-001.000	B1	Gray & Pape	Terminated in Subsoil	440604	3576698		Negative	15	75yr4/2	salo		25	75yr4/4	sacl					
29	LSX-TA-146.000 / LSX-CA-001.000	B2	Gray & Pape	Terminated in Subsoil	440605	3576675		Negative	15	75yr4/2	salo		25	75yr4/4	sacl					
29	LSX-TA-146.000 / LSX-CA-001.000	B3	Gray & Pape	Terminated in Subsoil	440606	3576641		Negative	50	75yr4/2	saclo									
29	LSX-TA-146.000 / LSX-CA-001.000	B4	Gray & Pape	Terminated in Subsoil	440605	3576627		Negative	50	75yr4/2	saclo									
29	LSX-TA-145.000	B5	Gray & Pape	Terminated in Subsoil	440460	3576558		Negative	50	75yr4/2	saclo									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
29	LSX-TA-145.000	B6	Gray & Pape	Terminated in Subsoil	440428	3576559		Negative	50	75yr4/2	saclo									
29	LSX-TA-145.000	B7	Gray & Pape	Terminated in Subsoil	440375	3576559		Negative	50	75yr4/2	saclo									
29	LSX-TA-145.000	B8	Gray & Pape	Terminated in Subsoil	440350	3576560		Negative	50	75yr4/2	saclo									
29	LSX-TA-143.000	B12	Gray & Pape	Terminated in Subsoil	439792	3576386		Negative	30	75yr4/4	salo		40	75yr4/2	cllo					
29	LSX-TA-143.000	B13	Gray & Pape	Terminated in Subsoil	439808	3576377		Negative	20	75yr4/4	salo				hydric					
29	LSX-TA-143.000	B14	Gray & Pape	Terminated in Subsoil	439806	3576399		Negative	30	75yr4/4	salo				hydric					
29	LSX-TA-143.000	B15	Gray & Pape	Terminated in Subsoil	439789	3576409		Negative	20	75yr4/2	salo				hydric					
29	LSX-TA-143.000	B9	Gray & Pape	Terminated in Subsoil	440055	3576525		Negative	40	75yr4/2	cllo									
29	LSX-TA-143.000	B10	Gray & Pape	Terminated in Subsoil	440131	3576528		Negative	50	75yr4/2	cllo									
29	LSX-TA-143.000	B11	Gray & Pape	Terminated in Subsoil	440198	3576521		Negative	35	75yr4/2	cllo									
30	LSX-CA-009.000	B3	Gray & Pape	Terminated in Subsoil	443673	3577709		Negative	30	75yr4/4	salo		40	75yr4/4	cllo					
30	LSX-CA-009.000	B4	Gray & Pape	Terminated in Subsoil	443629	3577710		Negative	25	75yr4/4	salo		35	75yr4/4	cllo					
30	LSX-CA-009.000	B5	Gray & Pape	Terminated in Subsoil	443672	3577726		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
30	LSX-CA-009.000	B6	Gray & Pape	Terminated in Subsoil	443632	3577728		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
30	LSX-CA-009.000	B7	Gray & Pape	Terminated in Subsoil	443482	3577725		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
30	LSX-CA-009.000	B8	Gray & Pape	Terminated in Subsoil	443395	3577733		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
30	LSX-CA-009.000	B9	Gray & Pape	Terminated at bedrock	443393	3577716		Negative	20	75yr4/4	salo		rock		rock					
30	LSX-CA-009.000	B10	Gray & Pape	Terminated in Subsoil	443551	3577728		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
30	LSX-CA-010.000	B1	Gray & Pape	Terminated in Subsoil	443998	3577708		Negative												
30	LSX-CA-009.000	B2	Gray & Pape	Terminated in Subsoil	443760	3577712		Negative												
31	LSX-CA-021.000	B9	Gray & Pape	Terminated in Subsoil	446926	3579841		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
31	LSX-CA-021.000 / LSX-CA-022.000	A1	Gray & Pape	Terminated in Subsoil	446954	3579853		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
32	LSX-CA-025.100	B3	Gray & Pape	Terminated in Subsoil	448276	3579771		Negative	25	75yr4/2	salo				hydric					
32	LSX-CA-025.100	B4	Gray & Pape	Terminated in Subsoil	448276	3579748		Negative	20	75yr4/4	salo				hydric					
32	LSX-CA-025.100	B5	Gray & Pape	Terminated in Subsoil	448229	3579775		Negative	25	75yr4/4	salo				hydric					
32	LSX-CA-025.100	B6	Gray & Pape	Terminated in Subsoil	448231	3579754		Negative	25	75yr4/4	salo				hydric					
32	LSX-CA-025.100	B7	Gray & Pape	Terminated at bedrock	448346	3579763		Negative	40	75yr4/4	salo				rock					
32	LSX-CA-025.100	B1	Gray & Pape	Terminated in Subsoil	448172	3579759		Negative												
32	LSX-CA-025.100	B2	Gray & Pape	Terminated in Subsoil	448335	3579738		Negative												
33	LSX-CA-027.000	B6	Gray & Pape	Terminated in Subsoil	448858	3579695		Negative	50	75 yr4/4	Sacl									
33	LSX-CA-027.000	B8	Gray & Pape	Terminated in Subsoil	448934	3579682		Negative	35	75 yr4/4	Sacl									
33	LSX-CA-027.000	B10	Gray & Pape	Terminated in Subsoil	449007	3579678		Negative	50	75 yr4/4	Sacl									
33	LSX-CA-027.000	B7	Gray & Pape	Terminated in Subsoil	448866	3579668		Negative	40	75 yr4/4	Sacl									
33	LSX-CA-027.000	B9	Gray & Pape	Terminated in Subsoil	449008	3579655		Negative	50	75 yr4/4	Sacl									
34	LSX-CA-028.000	B9	Gray & Pape	Terminated in Subsoil	450368	3579417		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
34	LSX-CA-028.000	B11	Gray & Pape	Terminated in Subsoil	450268	3579437		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
34	LSX-CA-028.000	B13	Gray & Pape	Terminated in Subsoil	450155	3579460		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
34	LSX-CA-028.000	B14	Gray & Pape	Terminated in Subsoil	450138	3579437		Negative												
34	LSX-CA-028.000	B12	Gray & Pape	Terminated in Subsoil	450235	3579416		Negative												
34	LSX-CA-028.000	B10	Gray & Pape	Terminated in Subsoil	450362	3579395		Negative												
35	LSX-CA-034.000 / LSX-CA-035.000	B9	Gray & Pape	Terminated in Subsoil	452470	3578962		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
	/ LSX-CA-036.000																			
35	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	B8	Gray & Pape	Terminated in Subsoil	452438	3578971		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
35	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	B7	Gray & Pape	Terminated in Subsoil	452490	3578955		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
35	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	B6	Gray & Pape	Terminated at bedrock	452485	3578935		Negative	30	75yr4/2	salo				rock					
35	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	B5	Gray & Pape	Terminated at bedrock	452459	3578943		Negative	25	75yr4/2	salo				rock					
35	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	B4	Gray & Pape	Terminated at bedrock	452427	3578950		Negative	15	75yr4/2	salo				rock					
35	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	B3	Gray & Pape	Terminated in Subsoil	452395	3578984		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
35	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	B2	Gray & Pape	Terminated at bedrock	452388	3578967		Negative	10	75yr4/2	salo				rock					
35	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	B1	Gray & Pape	Terminated in Subsoil	452346	3578973		Negative	15	75yr4/4 ; 75yr4/2	sacllo									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
36	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	A1	Gray & Pape	Terminated in Subsoil	453804	3578664		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
36	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	A2	Gray & Pape	Terminated in Subsoil	453841	3578657		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
36	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	A3	Gray & Pape	Terminated in Subsoil	453742	3578680		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
36	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	A4	Gray & Pape	Terminated in Subsoil	453710	3578688		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
36	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	A5	Gray & Pape	Terminated in Subsoil	453829	3578619		Negative	20	75yr4/2	cllo				rock					
36	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	A6	Gray & Pape	Terminated in Subsoil	453808	3578626		Negative	10	75yr4/2	cllo				rock					
36	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	A7	Gray & Pape	Terminated in Subsoil	453746	3578638		Negative	10	75yr4/2	cllo				rock					
36	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	A8	Gray & Pape	Terminated in Subsoil	453717	3578644		Negative	5		rock									
37	LSX-CA-034.000 / LSX-CA-035.000	A9	Gray & Pape	Terminated in Subsoil	454886	3578408		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
	/ LSX-CA-036.000																			
37	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	A10	Gray & Pape	Terminated in Subsoil	454792	3578438		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
37	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	A11	Gray & Pape	Terminated in Subsoil	454716	3578450		Negative - Disturbed	15	75yr4/4 ; 75yr4/2	sacllo									
37	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	B10	Gray & Pape	Terminated in Subsoil	454738	3578426		Negative	10	75yr4/4 ; 75yr4/2	sacllo									
37	LSX-CA-034.000 / LSX-CA-035.000 / LSX-CA-036.000	B9	Gray & Pape	Terminated in Subsoil	454839	3578399		Negative	20	75yr4/4 ; 75yr4/2	sacllo									
38	LSX-CA-037.000 / LSX-CA-038.000	A12	Gray & Pape	Terminated at bedrock	456608	3577981		Negative	40	75 yr4/4	sa				Bedrock					
38	LSX-CA-037.000 / LSX-CA-038.000	A13	Gray & Pape	Terminated at bedrock	456685	3577965		Negative	25	75 yr4/4	sa				Bedrock					
38	LSX-CA-037.000 / LSX-CA-038.000	A14	Gray & Pape	Terminated at bedrock	456732	3577952		Negative	20	75 yr4/4	sa				Bedrock					
38	LSX-CA-037.000 / LSX-CA-038.000	A15	Gray & Pape	Terminated at bedrock	456803	3577937		Negative	25	75 yr4/4	sa				Bedrock					
38	LSX-CA-037.000 / LSX-CA-038.000	A16	Gray & Pape	Terminated in Subsoil	456910	3577909		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
38	LSX-CA-037.000 / LSX-CA-038.000	A17	Gray & Pape	Terminated in Subsoil	457010	3577886		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
38	LSX-CA-037.000 / LSX-CA-038.000	A18	Gray & Pape	Terminated in Subsoil	457086	3577873		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
38	LSX-CA-037.000 / LSX-CA-038.000	A19	Gray & Pape	Terminated at bedrock	457214	3577839		Negative	15	75 yr4/4	Sand				Bedrock					
39	LSX-CA-039.000	A1	Gray & Pape	Caliche gravels throughout	459506	3577297		Negative	20	5YR 4/3	silo		30	5YR 3/2	sicl					
39	LSX-CA-039.000	A2	Gray & Pape	Caliche gravels throughout, strat 2 is caliche rock	459454	3577313		Negative	5	5YR 4/3	silo		7	Rock						
39	LSX-CA-039.000	A3	Gray & Pape	Caliche gravels throughout, strat 2 is caliche rock	459399	3577324		Negative	5	5YR 4/3	silo		7	Rock						
39	LSX-CA-039.000	A4	Gray & Pape	Caliche gravels throughout, strat 2 is caliche rock	459348	3577334		Negative	9	5YR 4/3	silo		14	Rock						
39	LSX-CA-039.000	A5	Gray & Pape	Caliche gravels throughout	459300	3577345		Negative	18	5YR 4/3	silo		28	5YR 3/2	sicl					
39	LSX-CA-039.000	A6	Gray & Pape	Caliche just under surface throughout area, mostly caliche and limestone	459256	3577358	41CA42	Negative	3	5YR 4/3	silo							bedrock		
39	LSX-CA-039.000	A8	Gray & Pape	No gravels on surface or subsurface	459205	3577371	41CA42	Negative	17	5YR 4/3	silo		25	5YR 3/3	sicl			bedrock		
39	LSX-CA-039.000	A7	Gray & Pape	Caliche just under surface throughout area, mostly caliche and limestone	459233	3577367	41CA42	Negative	3	5YR 4/3	silo				bedrock			bedrock		
39	LSX-CA-039.000	DW	Gray & Pape	No gravels on surface or subsurface	459189	3577375		Negative	15	5YR 4/3	silo		20	5YR 3/3	sicl			bedrock		
39	LSX-CA-039.000	DW2	Gray & Pape	No gravels on surface or subsurface	459180	3577378		Negative	20	5YR 4/3	silo		25	5YR 3/3	sicl			bedrock		
39	LSX-CA-039.000	DE	Gray & Pape	Caliche just under surface throughout area, mostly caliche and limestone	459269	3577355		Negative	10	5YR 4/3	silo		15	5YR 3/3	sicl			bedrock		
39	LSX-CA-039.000	DE2	Gray & Pape	Caliche just under surface throughout area, mostly caliche and limestone	459280	3577353		Negative	17	5YR 4/3	silo		20	5YR 3/3	sicl			bedrock		
39	LSX-CA-039.000	DN	Gray & Pape	Caliche just under surface throughout area, mostly caliche and limestone	459235	3577379		Negative	5	5YR 4/3	silo		10	5YR 3/3	sicl			bedrock		
39	LSX-CA-039.000	DS	Gray & Pape	No gravels on surface or subsurface	459231	3577356	41CA42	Negative	20	5YR 4/3	silo		28	5YR 3/3	sicl			bedrock		
39	LSX-CA-039.000	DE	Gray & Pape	Caliche gravels throughout, strat 2 is caliche rock	459392	3577336		Negative	5	5YR 4/3	silo				Rock					

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
39	LSX-CA-039.000	DS	Gray & Pape	Caliche gravels throughout, strat 2 is caliche rock	459382	3577329		Negative	10	5YR 4/3	silo				Rock					
39	LSX-CA-039.000	DS2	Gray & Pape	Caliche gravels throughout, strat 2 is caliche rock	459381	3577321		Negative	5	5YR 4/3	silo				Rock					
39	LSX-CA-039.000	DE2	Gray & Pape	Caliche gravels throughout, strat 2 is caliche rock	459401	3577334		Negative	10	5YR 4/3	silo				Rock					
39	LSX-CA-039.000	D	Gray & Pape	Caliche gravels throughout, strat 2 is caliche rock	459382	3577340		Negative	15	5YR 4/3	silo				Rock					
40	LSX-CA-045.000	B1	Gray & Pape	Terminated in Subsoil	462923	3576513		Negative - Disturbed	10	75yr4/4 ; 5yr5/6	sacllo									
40	LSX-CA-045.000	B2	Gray & Pape	Terminated in Subsoil	462891	3576504		Negative	5		rock									
40	LSX-CA-045.000	B3	Gray & Pape	Terminated in Subsoil	462836	3576520		Negative	5		rock									
40	LSX-CA-045.000	B4	Gray & Pape	Terminated in Subsoil	462869	3576525		Negative - Disturbed	10	75yr4/4 ; 5yr5/6	sacllo									
40	LSX-CA-045.000	B1	Gray & Pape	Terminated in Subsoil	462808	3576525		Negative	5	75yr4/4 ; 5yr5/6	sacllorck									
40	LSX-CA-045.000	B2	Gray & Pape	Terminated in Subsoil	462837	3576532		Negative - Disturbed	10	75yr4/4 ; 5yr5/6	sacllo									
40	LSX-CA-045.000	B3	Gray & Pape	Terminated in Subsoil	462809	3576542		Negative - Disturbed	10	75yr4/4 ; 5yr5/6	sacllo									
40	LSX-CA-045.000	B4	Gray & Pape	Terminated in Subsoil	462923	3576498		Negative	20	75yr4/2	cllo		25	75yr4/4 ; 5yr5/6	clrk					
40	LSX-CA-045.000	B5	Gray & Pape	Terminated in Subsoil	462903	3576519		Negative - Disturbed	10	75yr4/4 ; 5yr5/6	sacllo									
40	LSX-CA-045.000	B6	Gray & Pape	Terminated in Subsoil	463195	3576451		Negative - Disturbed	10	75yr4/4 ; 5yr5/6	sacllo									
40	LSX-CA-045.000	B7	Gray & Pape	Terminated in Subsoil	463231	3576445		Negative - Disturbed	10	75yr4/4 ; 5yr5/6	sacllo									
40	LSX-CA-045.000	B8	Gray & Pape	Terminated at bedrock	463198	3576426		Negative	35	75yr4/4	salo		40	75yr4/4 ; 5yr5/6	sacllorck					
40	LSX-CA-045.000	B9	Gray & Pape	Terminated at bedrock	463224	3576424		Negative	40	75yr4/5	salo		45	75yr4/4 ; 5yr5/6	sacllorck					
40	LSX-CA-045.000	B10	Gray & Pape	Terminated at bedrock	463247	3576415		Negative	35	75yr4/4	salo		40	75yr4/4 ; 5yr5/6	sacllorck					
40	LSX-CA-045.000	B11	Gray & Pape	Terminated in Subsoil	463265	3576435		Negative - Disturbed	10	75yr4/4 ; 5yr5/6	sacllo									
40	LSX-CA-045.000	B12	Gray & Pape	Terminated in Subsoil	463293	3576424		Negative - Disturbed	10	75yr4/4 ; 5yr5/6	sacllo									
40	LSX-CA-045.000	B13	Gray & Pape	Terminated at bedrock	463277	3576409		Negative	20	75yr4/2	salo			75yr4/4 ; 5yr5/6	sacllorck					

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40	LSX-CA-045.000	B14	Gray & Pape	Terminated at bedrock	463372	3576376		Negative	20	75yr4/2	salo			75yr4/4 ; 5yr5/6	sacllorck					
40	LSX-CA-045.000	B15	Gray & Pape	Terminated at bedrock	463405	3576370		Negative	25	75yr4/2	salo			75yr4/4 ; 5yr5/6	sacllorck					
40	LSX-CA-045.000	B16	Gray & Pape	Terminated in Subsoil	463415	3576394		Negative - Disturbed	10	75yr4/4 ; 5yr5/6	sacllo									
40	LSX-CA-045.000	B17	Gray & Pape	Terminated in Subsoil	463381	3576403		Negative - Disturbed	10	75yr4/4 ; 5yr5/6	sacllo									
40	LSX-CA-045.000	B18	Gray & Pape	Terminated at bedrock	463440	3576371		Negative	20	75yr4/4	sa		25	75yr4/4 ; 5yr5/6	sacllorck					
40	LSX-CA-045.000	B19	Gray & Pape	Terminated in Subsoil	463463	3576385		Negative - Disturbed	10	75yr4/4 ; 5yr5/6	sacllo									
40	LSX-CA-045.000	B20	Gray & Pape	Terminated in Subsoil	463493	3576376		Negative - Disturbed	10	75yr4/4 ; 5yr5/6	sacllo									
40	LSX-CA-045.000	A1	Gray & Pape	Terminated at bedrock	463598	3576324		Negative	50	75yr4/4	sa		60	75yr4/4 ; 5yr5/6	sacllorck					
40	LSX-CA-045.000	A3	Gray & Pape	Terminated in Subsoil	463591	3576350	41CA27	Negative - Disturbed	10	75yr4/4 ; 5yr5/6	sacllo									
40	LSX-CA-045.000	A4	Gray & Pape	Terminated in Subsoil	463560	3576355	41CA27	Negative - Disturbed	5	75yr4/4 ; 5yr5/6	sacllo									
40	LSX-CA-045.000	A5	Gray & Pape	Terminated in Subsoil	463643	3576335		Negative - Disturbed	15	75yr4/4 ; 5yr5/6	sacllo									
40	LSX-CA-045.000	A6	Gray & Pape	Terminated in Subsoil	463668	3576328		Negative - Disturbed	20	75yr4/4 ; 5yr5/6	sacllo									
40	LSX-CA-045.000	A6	Gray & Pape	Terminated in Subsoil	463654	3576307		Negative	5	75yr4/4 ; 5yr5/6	sacllorck									
40	LSX-CA-045.000	A7	Gray & Pape	Terminated in Subsoil	463675	3576303		Negative	5	75yr4/4 ; 5yr5/6	sacllorck									
40	LSX-CA-045.100	A1	Gray & Pape	Terminated in Subsoil	463722	3576297		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
40	LSX-CA-045.100	A2	Gray & Pape	Terminated at bedrock	463810	3576285		Negative	15	75 yr4/4	sa				Rock					
40	LSX-CA-045.000	A2	Gray & Pape	Terminated in Subsoil	463560	3576331		Negative	40	75yr4/4	sa		55	75yr4/4 ; 5yr5/6	sacllorck					
41	LSX-CA-045.200	A14	Gray & Pape	Terminated in Subsoil	465097	3575977		Negative	5		Bedrock									
41	LSX-CA-045.200	A15	Gray & Pape	Terminated in Subsoil	465195	3575962		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
41	LSX-CA-045.200	A16	Gray & Pape	Terminated in Subsoil	465332	3575914		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
41	LSX-CA-046.000	x1	Gray & Pape	Terminated in Subsoil	465427	3575892		Negative	20	10YR3/3	sicllo				Rock					

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
41	LSX-CA-046.000	x2	Gray & Pape	Terminated in Subsoil	465469	3575898		Negative	50	10YR3/3	sicllo				Rock					
41	LSX-CA-046.000	x3	Gray & Pape	Terminated in Subsoil	465506	3575888		Negative	15	10YR3/3	sicllo				Rock					
41	LSX-CA-046.000	x4	Gray & Pape	Terminated in Subsoil	465572	3575877		Negative	15	10YR3/2	sicllo				Rock					
41	LSX-CA-046.000	x5	Gray & Pape	Terminated in Subsoil	465609	3575867		Negative	25	10YR3/3	sicllo		35	10YR4/3	sicllo					
41	LSX-CA-046.000	x6	Gray & Pape	Terminated in Subsoil	465656	3575850		Negative	25	10YR5/4	sacllo									
41	LSX-CA-046.000	x7	Gray & Pape	Terminated in Subsoil	465759	3575826		Negative	10	10YR4/3	silo				rock					
42	LSX-CA-046.000	x9	Gray & Pape	Terminated in Subsoil	465998	3575772		Negative	25	10YR3/3	sicllo				Rock					
42	LSX-CA-046.000	x8	Gray & Pape	Terminated in Subsoil	465877	3575801		Negative	10	10YR3/3	silo				Rock					
43	LSX-CA-046.000	y3	Gray & Pape	Terminated in Subsoil	467470	3575475		Negative	35	10YR4/3	salo				Rock					
43	LSX-CA-046.000	y4	Gray & Pape	Terminated in Subsoil	467371	3575499		Negative	35	10YR3/1	sicl									
43	LSX-CA-046.000	y5	Gray & Pape	Terminated in Subsoil	467266	3575518		Negative	20	5YR4/4	sicllo		30	5YR4/4, 10YR4/3	sicllo					
44	LSX-CA-051.000	A3	Gray & Pape	Terminated in Subsoil	469365	3575033		Negative	5		bedrock									
44	LSX-CA-051.000	A4	Gray & Pape	Terminated in Subsoil	469317	3575037		Negative	5		bedrock									
44	LSX-CA-051.000	A5	Gray & Pape	Terminated in Subsoil	469322	3575058		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
44	LSX-CA-051.000	A6	Gray & Pape	Terminated in Subsoil	469354	3575050		Negative - Disturbed	5	75yr4/4 ; 75yr4/2	bedrock									
44	LSX-CA-051.000	A2	Gray & Pape	Terminated in Subsoil	469283	3575050		Negative	5	75yr4/4 ; 75yr4/2	sacllo									
44	LSX-CA-051.000	A1	Gray & Pape	Terminated in Subsoil	469461	3575011		Negative	10	75yr4/4 ; 75yr4/2	sacllo									
45	LSX-CA-052.000	A7	Gray & Pape	Terminated at bedrock	470244	3574833		Negative	20	75yr4/4	sa				rock					
45	LSX-CA-052.000	A8	Gray & Pape	Terminated in Subsoil	470245	3574850		Negative	5	75yr4/4	rock									
45	LSX-CA-052.000	A6	Gray & Pape	Terminated in Subsoil	470178	3574844		Negative	15	75yr4/4	rock									
46	LSX-CA-054.000	A9	Gray & Pape	Terminated at bedrock	471904	3574462		Negative	30	75yr4/4	sa				rock					

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
	/ LSX-CA-055.000																			
46	LSX-CA-054.000 / LSX-CA-055.000	A10	Gray & Pape	Terminated at bedrock	471875	3574467		Negative	30	75yr4/4	sa				rock					
46	LSX-CA-054.000 / LSX-CA-055.000	A11	Gray & Pape	Terminated at bedrock	471807	3574494		Negative	30	75yr4/4	sa				rock					
46	LSX-CA-054.000 / LSX-CA-055.000	A12	Gray & Pape	Terminated in Subsoil	471679	3574510		Negative	60	75yr4/3	salo		70	75yr4/4	cllo					
46	LSX-CA-054.000 / LSX-CA-055.000	A13	Gray & Pape	Terminated in Subsoil	471699	3574507		Negative	30	75yr4/2	salo		40	75yr4/4	cllo					
46	LSX-CA-054.000 / LSX-CA-055.000	A17	Gray & Pape	Terminated in Subsoil	471636	3574519		Negative	50	5YR 5/6	saclo									
46	LSX-CA-054.000 / LSX-CA-055.000	A18	Gray & Pape	Terminated in Subsoil	471614	3574523		Negative - Disturbed	10	75yr4/3 ; 75yr4/2	sacllo									
47	LSX-CA-056.000 / LSX-CA-057.000	A19	Gray & Pape	Terminated in Subsoil	472337	3574374		Negative	80	7.5YR 4/2; 5yr5/6	saclo									
47	LSX-CA-056.000 / LSX-CA-057.000	A20	Gray & Pape	Terminated in Subsoil	472296	3574383		Negative	80	7.5YR 4/2; 5yr5/6	saclo									
47	LSX-CA-056.000 / LSX-CA-057.000	A21	Gray & Pape	Terminated in Subsoil	472366	3574364		Negative	70	7.5YR 4/2; 5yr5/6	saclo									
47	LSX-CA-056.000 / LSX-CA-057.000	A22	Gray & Pape	Terminated in Subsoil	472459	3574332		Negative	80	7.5YR 4/2; 5yr5/6	saclo									
47	LSX-CA-056.000 / LSX-CA-057.000	A23	Gray & Pape	Terminated in Subsoil	472494	3574330		Negative	70	7.5YR 4/2; 5yr5/6	saclo									
48	LSX-CA-061.000	A3	Gray & Pape	Terminated in Subsoil	473757	3574050		Negative - Disturbed	10	75yr4/3 ; 75yr4/2	sacllo									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
48	LSX-CA-061.000	A4	Gray & Pape	Terminated in Subsoil	473728	3574040		Negative	25	75yr4/2	silo				wet					
48	LSX-CA-061.000	A2	Gray & Pape	Terminated in Subsoil	473750	3574034		Negative	20	75yr4/2	silo				hydric					
48	LSX-CA-061.000	A5	Gray & Pape	Terminated in Subsoil	473668	3574048		Negative	30	75yr4/2	silo									
48	LSX-CA-061.000	A1	Gray & Pape	Terminated in Subsoil	473810	3574019		Negative	35	75yr4/2	silo									
49	LSX-CA-063.000	A4	Gray & Pape	Terminated in Subsoil	474403	3573876		Negative - Disturbed	10	75yr4/3 ; 75yr4/2	sacllo									
49	LSX-CA-063.000	A5	Gray & Pape	Terminated in Subsoil	474438	3573885		Negative - Disturbed	10	75yr4/3 ; 75yr4/2	sacllo									
49	LSX-CA-063.000	A6	Gray & Pape	Terminated in Subsoil	474439	3573867		Negative	5		rock									
49	LSX-CA-063.000	A7	Gray & Pape	Terminated at bedrock	474454	3573868		Negative	15	75yr4/4	salo				rock					
49	LSX-CA-063.000	A8	Gray & Pape	Terminated in Subsoil	474472	3573888		Negative - Disturbed	10	75yr4/4 ; 75yr4/2	sacllo									
49	LSX-CA-064.000	A9	Gray & Pape	Terminated in Subsoil	474521	3573856		Negative	15	75yr4/4 ; 75yr4/2	sacllo									
50	LSX-CA-064.000	A9	Gray & Pape	Terminated in Subsoil	474682	3573840		Negative - Disturbed	10	75yr4/2; 5yr5/6	sacllo									
50	LSX-CA-064.000	A10	Gray & Pape	Terminated in Subsoil	474683	3573808		Negative	5		rock									
50	LSX-CA-064.000	A11	Gray & Pape	Terminated in Subsoil	474729	3573829		Negative - Disturbed	10	75yr4/2; 5yr5/6	sacllo									
50	LSX-CA-064.000	A12	Gray & Pape	Terminated in Subsoil	474721	3573798		Negative	30	5yr5/6	sacllo				rock					
50	LSX-CA-064.000	A13	Gray & Pape	Terminated in Subsoil	474804	3573812		Negative - Disturbed	10	75yr4/2; 5yr5/6	sacllo									
50	LSX-CA-064.000	A14	Gray & Pape	Terminated in Subsoil	474918	3573784		Negative - Disturbed	10	75yr4/2; 5yr5/6	sacllo									
50	LSX-CA-064.000	A15	Gray & Pape	Terminated in Subsoil	474917	3573762		Negative	70	5yr5/6	sacllo									
50	LSX-CA-064.000	A16	Gray & Pape	Terminated in Subsoil	474956	3573777		Negative	50	75yr4/2; 5yr5/6	sacllo									
50	LSX-CA-064.000	A17	Gray & Pape	Terminated in Subsoil	474960	3573753		Negative	70	5yr5/6	sacllo									
50	LSX-CA-064.000	A18	Gray & Pape	Terminated in Subsoil	474987	3573770		Negative - Disturbed	10	75yr4/2; 5yr5/6	sacllo									
50	LSX-CA-064.000	A19	Gray & Pape	Terminated in Subsoil	474995	3573752		Negative	70	5yr5/6	sacllo									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
50	LSX-CA-064.000	A20	Gray & Pape	Terminated in Subsoil	475012	3573763		Negative - Disturbed	10	75yr4/2; 5yr5/6	sacllo									
50	LSX-CA-064.000	A21	Gray & Pape	Terminated in Subsoil	475021	3573743		Negative	80	5yr5/6	sacllo									
50	LSX-CA-064.000	A22	Gray & Pape	Terminated in Subsoil	475071	3573750		Negative - Disturbed	10	75yr4/2; 5yr5/6	sacllo									
50	LSX-CA-064.000	A23	Gray & Pape	Terminated in Subsoil	475067	3573740		Negative	80	5yr5/6	sacllo									
50	LSX-CA-064.000	A24	Gray & Pape	Terminated in Subsoil	475138	3573732		Negative - Disturbed	10	75yr4/2; 5yr5/6	sacllo									
50	LSX-CA-064.000	A25	Gray & Pape	Terminated in Subsoil	475128	3573715		Negative	80	5yr5/6	sacllo									
50	LSX-CA-065.000	A1	Gray & Pape	Caliche and sandstone gravels throughout	475207	3573701		Negative	30	10YR 5/4	sicllo		40	10YR 6/6	sicl					
50	LSX-CA-065.000	A2	Gray & Pape	Caliche limestone and sandstone gravels at surface, strat 2 is rock	475254	3573683		Negative	5	10YR 5/4	sicllo									
51	LSX-CA-067.000	B1	Gray & Pape	Terminated at bedrock	476579	3573367		Negative	20	75yr4/4	sa				rock					
51	LSX-CA-067.000	B2	Gray & Pape	Terminated at bedrock	476548	3573378		Negative	30	75yr4/4	sa				rock					
51	LSX-CA-067.000	B3	Gray & Pape	Terminated in Subsoil	476528	3573391		Negative - Disturbed	10	75yr4/4 ; 75yr5/2	saclo									
51	LSX-CA-067.000	B4	Gray & Pape	Terminated at bedrock	476487	3573395		Negative	25	75yr4/4	salo				rock					
51	LSX-CA-067.000	B5	Gray & Pape	Terminated at bedrock	476464	3573401		Negative	15	75yr4/4	salo				rock					
52	LSX-CA-071.000	B1	Gray & Pape	Terminated in Subsoil	479159	3572805		Negative	5		rock									
52	LSX-CA-071.000	B2	Gray & Pape	Terminated in Subsoil	479161	3572786		Negative	5		rock									
52	LSX-CA-071.000	B3	Gray & Pape	Terminated in Subsoil	479125	3572790		Negative	5		rock									
52	LSX-CA-071.000	B4	Gray & Pape	Terminated in Subsoil	479124	3572814		Negative	5		rock									
52	LSX-CA-071.000	B5	Gray & Pape	Terminated in Subsoil	479090	3572791		Negative	5		rock									
52	LSX-CA-071.000	B6	Gray & Pape	Terminated in Subsoil	479088	3572815		Negative	5		rock									
52	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000	B7	Gray & Pape	Terminated in Subsoil	479401	3572765		Negative	5		rock									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
	/ LSX-CA-075.000																			
52	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	B8	Gray & Pape	Terminated in Subsoil	479391	3572749		Negative	5		rock									
52	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	B9	Gray & Pape	Terminated in Subsoil	479451	3572735		Negative	5		rock									
52	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	B10	Gray & Pape	Terminated in Subsoil	479438	3572720		Negative	5		rock									
53	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A1	Gray & Pape	Terminated in Subsoil	480306	3572466		Negative	20	10YR4/4	salo		50	10YR6/3	sacllo					
53	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A2	Gray & Pape	Inundated	480335	3572456		Negative	5		H2O									
53	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A3	Gray & Pape	Terminated in Subsoil	480367	3572449		Negative	20	10yr4/4	salo		30	10yr6/3	salo		40	7.5yr5/6	sacllo	
53	LSX-CA-072.000	A4	Gray & Pape	Terminated in Subsoil	480399	3572438		Negative	10	10YR5/4	sa		20	7.5YR4/6, 7.5YR6/2	sacllo					

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
	/ LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000																			
53	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A5	Gray & Pape	Terminated in Subsoil	480432	3572431		Negative	20	10YR5/4	sa		30	10YR5/4	sacllo					
53	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000		Gray & Pape	Terminated in Subsoil	480335	3572483		Negative - Disturbed	30	10YR5/4, 7.5YR4/6	dist sacllo									
53	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000		Gray & Pape	Terminated in Subsoil	480445	3572456		Negative - Disturbed	30	10YR5/4, 7.5YR4/6	dist sacllo									
53	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A6	Gray & Pape	Terminated in Subsoil	480465	3572424		Negative	20	10YR4/4	salo		30	7.5YR4/6	sacllo					
54	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A7	Gray & Pape	Terminated in Subsoil	480588	3572337		Negative	20	10YR4/4	dist cl lo		30	7.5YR5/8	cllo					
54	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000	A8	Gray & Pape	Terminated in Subsoil	480620	3572326		Negative	20	10YR4/4	dist cl lo		30	7.5YR5/8	cllo					

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
	/ LSX-CA-075.000																			
54	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A9	Gray & Pape	Terminated in Subsoil	480682	3572322		Negative	10	7.5YR4/6	salo		20	5YR6/2	salo				rock	
54	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A10	Gray & Pape	Terminated in Subsoil	480738	3572339		Negative	20	10YR4/4	sicllo									
55	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A11	Gray & Pape	Terminated in Subsoil	480885	3572327		Negative	25	10YR3/4	silo		35	7.5YR4/6	sicllo					
55	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A12	Gray & Pape	Terminated in Subsoil	480913	3572319		Negative	30	7.5YR3/3	cllo									
55	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	B1	Gray & Pape	Terminated in Subsoil	480912	3572304		Negative	20	10YR2/2	sicllo									
55	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	B2	Gray & Pape	Terminated in Subsoil	480938	3572297		Negative	20	10YR2/2	sicllo									
55	LSX-CA-072.000	A13	Gray & Pape	Terminated in Subsoil	480938	3572316		Negative	40	10YR4/4	salo				gravels					

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
	/ LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000																			
55	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A14	Gray & Pape	Terminated in Subsoil	480968	3572310		Negative	40	10YR4/4	salo				gravels					
55	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A15	Gray & Pape	-10 long due to creek	481002	3572297		Negative	30	10YR4/4	sa		70	10YR5/4	salo				hardpan	
55	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	B3	Gray & Pape	Terminated in Subsoil	481010	3572281		Negative	40	10YR4/4	salo		50	7.5YR4/6	sacllo					
55	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	B4	Gray & Pape	Terminated in Subsoil	481033	3572274		Negative	20	10YR4/4	salo		30	7.5YR4/6	sacllo					
55	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A16	Gray & Pape	Terminated in Subsoil	481030	3572295		Negative	10	10YR3/2	sacl		20	7.5YR4/6	sacllo					
55	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000	A17	Gray & Pape	Terminated in Subsoil	481067	3572288		Negative	30	10YR4/4, 10YR5/6	dist sa cl lo									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
	/ LSX-CA-075.000																			
55	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A18	Gray & Pape	Terminated in Subsoil	481097	3572274		Negative	30	10YR4/4, 10YR5/6	dist sa cl lo									
55	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A19	Gray & Pape	Terminated in Subsoil	481128	3572253		Negative	25	10YR4/4	salo		35	7.5YR4/6	sacllo					
55	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A20	Gray & Pape	Terminated in Subsoil	481150	3572234		Negative	30	10YR4/4	salo		50	7.5YR5/6	sacl					
55	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A21	Gray & Pape	Terminated in Subsoil	481182	3572212		Negative	50	10YR6/3	salo		60	7.5YR4/6	sacllo					
56	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A22	Gray & Pape	Terminated in Subsoil	481287	3572161		Negative	10	10YR3/4	salo		50	10YR6/3	salo		60	7.5YR4/6	sacllo	
56	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A23	Gray & Pape	Terminated in Subsoil	481317	3572152		Negative	20	10YR3/4	salo		40	10YR5/6	sa		50	2.5YR4/6	sacllo	
56	LSX-CA-072.000	A24	Gray & Pape	Terminated in Subsoil	481359	3572152		Negative	10	10YR3/2	salo		50	10YR5/4	sacllo					

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
	/ LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000																			
56	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A25	Gray & Pape	Terminated in Subsoil	481390	3572151		Negative	10	10YR5/4	sa		35	7.5YR4/6	sacllo					
56	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000		Gray & Pape	Terminated in Subsoil	481320	3572173		Negative - Disturbed	30	10YR3/4, 10YR5/4	dist sacllo									
56	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000		Gray & Pape	Terminated in Subsoil	481447	3572172		Negative - Disturbed	30	10YR3/4, 10YR5/4	dist sacllo									
56	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A26	Gray & Pape	Terminated in Subsoil	481418	3572146		Negative	30	10YR4/4	salo		40	7.5YR4/6	sacl					
56	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A27	Gray & Pape	Terminated in Subsoil	481443	3572149		Negative	20	7.5YR5/6	sicllo									
56	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000	A28	Gray & Pape	Terminated in Subsoil	481469	3572149		Negative	35	10YR4/4	salo		45	7.5YR4/3	sacllo					

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
	/ LSX-CA-075.000																			
56	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A29	Gray & Pape	Terminated in Subsoil	481504	3572150		Negative	50	10YR4/4	salo									
56	LSX-CA-072.000 / LSX-CA-073.000 / LSX-CA-074.000 / LSX-CA-075.000	A30	Gray & Pape	Terminated in Subsoil	481540	3572146		Negative	20	7.5YR4/4	salo		40	10YR4/6	sacllo					
57	LSX-CA-076.000 / LSX-CA-077.000	B11	Gray & Pape	Terminated at bedrock	483628	3571680		Negative	20	75yr4/4	sa				rock					
57	LSX-CA-076.000 / LSX-CA-077.000	B12	Gray & Pape	Terminated in Subsoil	483596	3571691		Negative	20	75yr4/4	sa		30	75yr4/4	sacl					
57	LSX-CA-076.000 / LSX-CA-077.000	B13	Gray & Pape	Terminated in Subsoil	483560	3571696		Negative	20	75yr4/4	salo		30	75yr4/4	sacl					
57	LSX-CA-076.000 / LSX-CA-077.000	B14	Gray & Pape	Terminated in Subsoil	483536	3571702		Negative	20	75yr4/4	salo		30	75yr4/4	sacl					
57	LSX-CA-076.000 / LSX-CA-077.000	B15	Gray & Pape	Terminated in Subsoil	483338	3571750		Negative	15	75yr4/4	salo		25	75yr4/4	sacl					
57	LSX-CA-076.000 / LSX-CA-077.000	B16	Gray & Pape	Terminated in Subsoil	483304	3571762		Negative	20	75yr4/4	salo		30	75yr4/4	sacl					
57	LSX-CA-076.000 / LSX-CA-077.000	B17	Gray & Pape	Terminated in Subsoil	483274	3571770		Negative	25	75yr4/4	salo		35	75yr4/4	sacl					
57	LSX-CA-076.000 / LSX-CA-077.000	A1	Gray & Pape	Terminated in Subsoil	483238	3571775		Negative	20	7.5YR 4/3	salo		30	Mottled 7.5YR 5/4	saclrk					

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
57	LSX-CA-076.000 / LSX-CA-077.000	A1	Gray & Pape	Terminated due to compact hard pan. Unable to excavate further with hand tools	483661	3571683		Negative	8	7.5YR 4/6	si									
57	LSX-CA-076.000 / LSX-CA-077.000	A2	Gray & Pape	Terminated due to compact hard pan. Unable to excavate further with hand tools	483713	3571670		Negative	5	5YR 5/4	si									
57	LSX-CA-076.000 / LSX-CA-077.000	A3	Gray & Pape	Terminated due to compact hard pan. Unable to excavate further with hand tools	483767	3571657		Negative	5	5YR 5/4	si									
58	LSX-CA-076.000 / LSX-CA-077.000	A2	Gray & Pape	Terminated in Subsoil	484035	3571523		Negative	5	7.5YR 4/3	saclrk									
58	LSX-CA-076.000 / LSX-CA-077.000	A3	Gray & Pape	Terminated in Subsoil	484027	3571541		Negative	5	7.5YR 4/3	saclrk									
58	LSX-CA-076.000 / LSX-CA-077.000	A4	Gray & Pape	Terminated at bedrock	484042	3571511		Negative	20	7.5YR 4/3	saclrk				rock					
58	LSX-CA-076.000 / LSX-CA-077.000	A5	Gray & Pape	Terminated at bedrock	484011	3571558		Negative	15	7.5YR 4/3	saclrk				rock					
58	LSX-CA-076.000 / LSX-CA-077.000	A6	Gray & Pape	Terminated in Subsoil	484007	3571566		Negative	5	7.5YR 4/3	rock									
58	LSX-CA-076.000 / LSX-CA-077.000	S1	Gray & Pape	compact sand, mutil colored cemented material at base	484036	3571547	41CA43	Negative	15	7.5YR 7/4	salo		25	7.5YR 5/8 mottled	saclrk					
58	LSX-CA-076.000 / LSX-CA-077.000	S2	Gray & Pape	some sand becomes very compact, several gravels	484029	3571560	41CA43	Negative	15	5YR 4/6	sacllo									
58	LSX-CA-076.000 / LSX-CA-077.000	S3	Gray & Pape	clumps of clay and compact sand, several gravels throughout, rock or cemented material at base	484050	3571526		Negative	10	mottled	sacllo									
58	LSX-CA-076.000 / LSX-CA-077.000	S4	Gray & Pape	clumps of clay and compact sand, several gravels throughout, rock or cemented material at base	484023	3571556	41CA43	Negative	10	Mottled 7.5YR 5/4	sacllo									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
58	LSX-CA-076.000 / LSX-CA-077.000	S5	Gray & Pape	clumps of clay and compact sand, several gravels throughout, rock or cemented material at base	484056	3571518		Negative	5	Mottled 7.5YR 5/4	sacllo		15	multi colored compact clay	cllork					
58	LSX-CA-076.000 / LSX-CA-077.000	S7	Gray & Pape		484027	3571551	41CA43	Negative	15	Mottled 7.5YR 5/4	salo		25	7.5YR 5/8 mottled	cllork					
58	LSX-CA-076.000 / LSX-CA-077.000	S8	Gray & Pape	compact sand, mutil colored cemented material at base	484019	3571547		Negative	25	7.5YR 7/4	salo		30	7.5YR 5/8 mottled	saclrk					
58	LSX-CA-076.000 / LSX-CA-077.000	S9	Gray & Pape	clumps of clay and compact sand, several gravels throughout, rock or cemented material at base	484033	3571554	41CA43	Negative	10	Mottled 7.5YR 5/4	sacllo		15	multi colored compact clay	saclrk					
58	LSX-CA-076.000 / LSX-CA-077.000	S6	Gray & Pape	very compact SII, gravels throughout	484025	3571568		Negative	25	7.5YR 4/3	salo		25	multi colored compact clay	cllork					
58	LSX-CA-076.000 / LSX-CA-077.000	S10	Gray & Pape	compact sand, mutil colored cemented material at base	484021	3571576		Negative	15	7.5YR 7/4	salo		25	7.5YR 5/8 mottled	saclrk					
58	LSX-CA-076.000 / LSX-CA-077.000	S11	Gray & Pape	clumps of clay and compact sand, several gravels throughout, rock or cemented material at base	484016	3571567		Negative	25	7.5YR 5/3	sacllo		25	multi colored compact clay	cllork					
59	LSX-CA-083.000	B1	Gray & Pape	Terminated in Subsoil	486785	3570970		Negative - Disturbed	10	5yr4/4 ; 2.5yr4/2	saclo									
59	LSX-CA-083.000	B2	Gray & Pape	Terminated in Subsoil	486823	3570968		Negative - Disturbed	10	5yr4/4 ; 2.5yr4/2	saclo									
59	LSX-CA-083.000	B3	Gray & Pape	Terminated in Subsoil	486863	3570958		Negative - Disturbed	10	5yr4/4 ; 2.5yr4/2	saclo									
59	LSX-CA-083.000	B4	Gray & Pape	Terminated in Subsoil	486906	3570951		Negative - Disturbed	10	5yr4/4 ; 2.5yr4/2	saclo									
60	LSX-EA-001.000	B1	Gray & Pape	Terminated in Subsoil	489143	3570450		Negative - Disturbed	10	75yr4/4 ; 10YR5/2	saclo									
60	LSX-EA-001.000	B2	Gray & Pape	Terminated in Subsoil	489122	3570449		Negative - Disturbed	10	75yr4/4 ; 10YR5/2	saclo									
60	LSX-EA-001.000	B3	Gray & Pape	Terminated in Subsoil	489248	3570440		Negative - Disturbed	10	75yr4/4 ; 10YR5/2	saclo									
60	LSX-EA-001.000	B4	Gray & Pape	Terminated in Subsoil	489274	3570436		Negative - Disturbed	10	75yr4/4 ; 10YR5/2	saclo									
61	LSX-EA-004.000	B5	Gray & Pape	Terminated in Subsoil	490124	3570251		Negative	25	75yr4/4	cl									

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
61	LSX-EA-004.000	B6	Gray & Pape	Terminated in Subsoil	490175	3570224		Negative	25	75yr4/4	cl				hydric					
61	LSX-EA-003.000	B7	Gray & Pape	Terminated in Subsoil	490050	3570264		Negative	30	75 yr4/4	cllo		40	75 yr4/2	cl					
61	LSX-EA-003.000	B8	Gray & Pape	Terminated in Subsoil	490067	3570260		Negative	20	75 yr4/2	cl									
62	LSX-EA-007.000	175	Horizon		491468	3569958		Negative	10	7.5YR4/1	sandy loam		20	10YR4/1	clay					
62	LSX-EA-007.000	185	Horizon	offset due to standing water	491433	3569966		Negative	20	dark brown	clay loam		40	pale brown	moist sandy clay		50	yellowish brown	clay	
62	LSX-EA-007.000	SRS56	Horizon		491448	3569963		Negative	20	5YR4/4	clay		45	5YR5/6	sand					
62	LSX-EA-007.000	139	Horizon		491508	3569950		Negative	10	brown	sa lo		60	yellowish brown	sa lo		80	yellowish red	so cl	
63	LSX-EA-008.500	176	Horizon		491906	3569863		Negative	5	7.5YR7/3	sand		20	2.5YR5/8, 2.5YR4/3, 7.5YR5/4	clay					
63	LSX-EA-008.000	186	Horizon		491882	3569886		Negative	30	pale brown	moist sandy loam		45	brown/ yellowish brown	dense clay					
63	LSX-EA-008.000	187	Horizon	B horizon	491826	3569897		Negative	20	dark brown	sandy loam		80	yellowish brown	fine sand					
63	LSX-EA-008.000	SRS57	Horizon		491851	3569887		Negative	20	5YR5/6	loamy sand		45	5YR6/3	clay					
63	LSX-EA-008.500	140	Horizon		491932	3569862		Negative	20	mottled brown, yellowish brown, yellowish red	sa cl		30	red	cl					
64	LSX-EA-014.000	177	Horizon		494103	3569468		Negative	10	7.5YR6/2	sand		20	2.5YR6/8	clay					
64	LSX-EA-014.000	178	Horizon		494139	3569462		Negative	30	7.5YR7/3	sandy loam		90	7.5YR7/3	sandy clay					
64	LSX-EA-015.000	179	Horizon	Terminated in watertable	494279	3569443		Negative	70	7.5YR7/3	sand				watertable					
64	LSX-EA-014.000	188	Horizon		494078	3569475		Negative	50	pale brown	moist sand		80	very dark brown	saturated sand					
64	LSX-EA-015.000	189	Horizon	B horizon	494254	3569443		Negative	20	grayish brown	sandy loam		80	pale brown	fine sand					
64	LSX-EA-015.000	190	Horizon	B horizon	494379	3569422		Negative	20	grayish brown	sandy loam		80	pale brown	fine sand					
64	LSX-EA-014.000	SRS58	Horizon		494034	3569479		Negative	15	5YR4/3	loamy sand		50	5YR7/2	sand					

Permit Area Number	TRACT_NUMB	Test Number	Firm	Comment	Easting	Northing	Site Number	Test Result	Strat I Depth	Strat I Munsell	Strat I Texture	Strat I FS	Strat II Depth	Strat II Munsell	Strat II Texture	Strat II FS	Strat III Depth	Strat III Munsell	Strat III Texture	Strat III FS
64	LSX-EA-014.000	SRS59	Horizon		493970	3569493		Negative	35	5YR5/4	loamy sand		100	5YR7/3	sand					
64	LSX-EA-015.000	SRS60	Horizon		494349	3569429		Negative	40	5YR5/4	loamy sand		45	5YR7/3	sand					
64	LSX-EA-014.000	141	Horizon		494001	3569487		Negative	10	gray brown	lo sa		70	yellowish brown	lo sa		80	yellowish brown	cl	
64	LSX-EA-015.000	142	Horizon		494231	3569446		Negative	10	gray brown	sa lo		80	yellowish brown	sa					
64	LSX-EA-015.000	143	Horizon		494416	3569411		Negative	75	yellowish brown	sa lo		80	strong brown	sa cl					
65	LSX-EA-016.000	A1	Gray & Pape	Terminated in Subsoil	495354	3569287		Negative - Disturbed	30	10YR4/3, 5YR4/4	dist sa cl									
65	LSX-EA-016.000	A2	Gray & Pape	Terminated in Subsoil	495325	3569293		Negative - Disturbed	25	10YR4/3, 5YR4/4	dist sa cl									
65	LSX-EA-016.000	A3	Gray & Pape	Terminated in Subsoil	495290	3569281		Negative	10	10YR4/3	salo		30	10YR6/3	salo		50	5YR4/4	cl	
65	LSX-EA-016.000	A4	Gray & Pape	Terminated in Subsoil	495257	3569286		Negative	10	10YR4/3	salo		35	10YR6/3	salo		65	5YR4/4	cl	
65	LSX-EA-016.000		Gray & Pape	Terminated in Subsoil	495295	3569306		Negative - Disturbed	30	10YR4/3, 5YR4/4	dist sa cl									
65	LSX-EA-016.000		Gray & Pape	Terminated in Subsoil	495266	3569313		Negative - Disturbed	30	10YR4/3, 5YR4/4	dist sa cl									
65	LSX-EA-016.000	A5	Gray & Pape	Terminated in Subsoil	495224	3569291		Negative	15	10YR4/3	salo		30	10YR6/3	salo		50	5YR4/4	cl	
65	LSX-EA-016.000	A6	Gray & Pape	Terminated in Subsoil	495195	3569297		Negative	15	10YR4/3	salo		25	10YR6/3	salo		45	5YR4/4	cl	
65	LSX-EA-016.000		Gray & Pape	Terminated in Subsoil	495199	3569322		Negative - Disturbed	30	10YR4/3, 5YR4/4	dist sa cl									
65	LSX-EA-016.000	A7	Gray & Pape	Terminated in Subsoil	495162	3569300		Negative	10	10YR4/2	losa		20	10YR7/2	losa		50	2.5YR3/6	sacl	
65	LSX-EA-016.000	A8	Gray & Pape	Terminated in Subsoil	495126	3569307		Negative	5	10YR4/2	losa		25	10YR7/2	losa		45	2.5YR3/6	sacl	
65	LSX-EA-016.000	A9	Gray & Pape	Terminated in Subsoil	495087	3569308		Negative	20	10YR4/2	losa		25	10YR7/2	losa		50	2.5YR3/6	sacl	
65	LSX-EA-016.000	B1	Gray & Pape	Terminated in Subsoil	495109	3569265		Negative	20	10YR4/2	losa		40	10YR7/2	losa		50	2.5YR3/6	sacl	
65	LSX-EA-016.000	B2	Gray & Pape	Terminated in Subsoil	495066	3569268		Negative	10	10YR4/2	losa		35	10YR7/2	losa		55	2.5YR3/6	sacl	
65	LSX-EA-016.000		Gray & Pape	Terminated in Subsoil	495112	3569334		Negative - Disturbed	30	10YR4/2, 2.5YR3/6	sacllo									

APPENDIX D: DEED RESEARCH FOR SITE 41TA396

SUPPLEMENT & UPDATE TO LIMITED TITLE CERTIFICATE

Project: Lone Star Express II – Baden to LSX4
AFE NO: 453 000 000 541

Prepared For: Lone Star NGL Pipeline LP
Current Tract No(s): LSX-TA-009.000

Supplementing / Updating: A prior LTC dated 1/15/2015 for Tract No: LSE-TA-009.000 for 2015 LSE Project.

LEGAL DESCRIPTION OF SUBJECT PROPERTY

That certain tract of land, containing 557 acres, more or less, situated in Section 61, A-375 and Section 52, A-1251, Block 19 of the T & P RR. Co. Surveys, Taylor County, Texas, and being the same land described in that certain Warranty Deed with Vendor's Lien from R.W. McDonnell to Dink Whisenhunt and wife, Jan Whisenhunt, filed for record on December 31, 1992 in Volume 1897, Page 548, in the Official Public Records of Taylor County, Texas.

PRESENT OWNERS OF RECORD (AS TO SURFACE INTEREST)		
Name & Marital Status / Legal Styling	**Mailing Address**	**Ownership %**
Jan Whisenhunt, aka Janet A. Whisenhunt, Individually and as Independent Executrix of the Will and Estate of Alvis Dwayne Whisenhunt, deceased	P.O. Box 311 Merkel, TX 79536-0311	100.00%

TAX ASSESSMENT SUMMARY					
Tax Parcel No(s).	**Tax Parcel Acreage**	**Assessed to**	**Mailing Address**	**Assessed %**	**Taxes Paid (Y/N)**
69643	397.00	Janet A Whisenhunt	P.O. Box 311 Merkel, TX 79536-0311	100.00%	Y
14306	160	Janet A Whisenhunt	P.O. Box 311 Merkel, TX 79536-0311	100.00%	Y

ENCUMBRANCES SEARCHED / IDENTIFIED

CONTRACTS TO PURCHASE (Include any current Contracts to Purchase even if referenced on Prior LTC):
None found new of record

MORTGAGES (Include any open mortgages or DOTs even if referenced on Prior LTC):
None found new of record

LIENS (Include any open Liens even if referenced on Prior LTC):
None found new of record

SURFACE LEASES AND TENANTS (excluding mining & mineral interest leases)
None found new of record

EASEMENTS (Only Include New Easements Identified since Prior LTC, for older easements refer to Prior LTC):
Permanent Easement Agreement to Lone Star NGL Pipeline LP filed at Inst. # 2015-00004475

JUDGMENTS AND LIS PENDENS (Include any current Judgments even if referenced on Prior LTC):
None found new of record

Certification: We certify that we have made a careful search of the subject property in the public land records of Taylor County, Texas, from the date listed on the above referenced prior LTC, and located the following supplemental documents recorded therein. It is expressly understood that this Limited Title Certificate is not a guaranty or warranty of title.

Supplemental Instruments Identified					
Document Type	Probate	Volume		Doc Date	3/29/2016 (DOD)
Grantor	The Will and Estate of Alvis Dwayne Whisenhunt, deceased	Page		Date Filed	5/24/2016
Grantee	Jan Whisenhunt, Independent Executrix	Inst. No.	Cause No. 28724		
Legal Description	Subject 557 acre property and other lands described in Inventory				
Comments	Jan Whisenhunt devisee in the Will and Issued letters testamentary appointing her Independent Executrix. Inventory Approved containing subject property. No formal disposition from the Estate.				
Document Type	Permanent Easement Agreement	Volume		Doc Date	3/16/2015
Grantor	Dink Whisenhunt and wife, Jan Whisenhunt	Page		Date Filed	3/31/2015
Grantee	Lone Star NGL Pipeline LP	Inst. No.	2015-00004475		
Legal Description	Subject 557 acre property				
Comments	50’ permanent pipeline easement				
Document Type		Volume		Doc Date	
Grantor		Page		Date Filed	
Grantee		Inst. No.			
Legal Description					
Comments					
Document Type		Volume		Doc Date	
Grantor		Page		Date Filed	
Grantee		Inst. No.			
Legal Description					
Comments					
Document Type		Volume		Doc Date	
Grantor		Page		Date Filed	
Grantee		Inst. No.			
Legal Description					
Comments					

Researcher Notes: None

Research Conducted From: 1/15/2015 good through: **6/8/2018**
Research By: G. Doyle
Date Submitted: 12/5/2018
Title Reviewed By: Jim Dennard
Date Reviewed: 1/2/2018
Any Supplemental Documents referenced above are Enclosed

Name of Title Company
Upperline Energy Partners

Tract No(s): LSX-TA-009.000

Taylor CAD

Property

Account

Property ID:	14306	eg al Description:	A1251 SUR 52 T & P RY CO, BLOCK 19, ACRES 160.0
Geographic ID:	A1251000300	Agent Code:	
Type:	Real		
Property Use Code:			
Property Use Description:			

Location

Address:	CR 365	Mapsco:	
Neighborhood:	TRENT ISD RURAL ABSTRACTS	Map ID:	TB04
Neighborhood CD:	905		

Owner

Name:	WHISENHUNT JANET A	Owner ID:	298485
Mailing Address:	PO BOX 311 MERKEL, TX 79536-0311	% Ownership:	100.0000000000%
		Exemptions:	

Values

(+) Improvement Homesite Value:	+	$0	
(+) Improvement Non-Homesite Value:	+	$0	
(+) Land Homesite Value:	+	$0	
(+) Land Non-Homesite Value:	+	$911	Ag / Timber Use Value
(+) Agricultural Market Valuation:	+	$144,792	$13,660
(+) Timber Market Valuation:	+	$0	$0

(=) Market Value:	=	$145,703	
(–) Ag or Timber Use Value Reduction:	–	$131,132	

(=) Appraised Value:	=	$14,571	
(–) HS Cap:	–	$0	

(=) Assessed Value:	=	$14,571	

Taxing Jurisdiction

Owner:	WHISENHUNT JANET A
% Ownership:	100.0000000000%
Total Value:	$145,703

Entity	Description	Tax Rate	Appraised Value	Taxable Value	Estimated Tax
CAD	TAYLOR APPRAISAL DISTRICT	0.000000	$14,571	$14,571	$0.00
GTA	TAYLOR COUNTY	0.609100	$14,571	$14,571	$88.75
STR	TRENT ISD	1.450000	$14,571	$14,571	$211.28
	Total Tax Rate:	2.059100			
				Taxes w/Current Exemptions:	$300.03
				Taxes w/o Exemptions:	$300.03

Improvement / Building

No improvements exist for this property.

and

#	Type	Description	Acres	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
1	4T	Tillable Class 4	45.7000	1990692.00	0.00	0.00	$41,616	$4,479
2	4P	Pasture Class 4	52.6000	2291256.00	0.00	0.00	$47,900	$3,366
3	6P	Pasture Class 6	10.9000	474804.00	0.00	0.00	$9,926	$763
4	6T	Tillable Class 6	15.8000	688248.00	0.00	0.00	$14,388	$2,196
5	3T	Tillable Class 3	34.0000	1481040.00	0.00	0.00	$30,962	$2,856
6	CM	Commercial	1.0000	43560.00	0.00	0.00	$911	$0

Roll Value History

Year	Improvements	Land Market	Ag Valuation	Appraised	S Cap	Assessed
2019	N/A	N/A	N/A	N/A	N/A	N/A
2018	$0	$145,703	13,660	14,571	$0	$14,571
2017	$0	$145,703	13,835	14,746	$0	$14,746
2016	$0	$145,703	13,783	14,694	$0	$14,694
2015	$0	$123,206	13,783	14,553	$0	$14,553
2014	$0	$114,541	13,783	14,499	$0	$14,499
2013	$0	$111,568	13,683	14,380	$0	$14,380
2012	$0	$108,341	13,446	14,123	$0	$14,123
2011	$0	$96,603	13,196	13,800	$0	$13,800
2010	$0	$96,603	12,965	13,569	$0	$13,569
2009	$0	$96,603	12,965	13,569	$0	$13,569
2008	$86,087	$96,603	12,965	99,656	$0	$99,656
2007	$68,263	$90,522	12,965	81,794	$0	$81,794
2006	$7,500	$90,522	13,372	20,872	$0	$20,872
2005	$0	$82,779	13,372	13,372	$0	$13,372

Deed History - (Last 3 Deed Transactions)

#	Deed Date	Type	Description	Grantor	Grantee	Volume	Page	Deed Number
1	5/24/2016	PRO	PROBATE	WHISENHUNT DINK & JAN	WHISENHUNT ANET A			
2	12/31/1992	F	F	UNKNOWN	UNKNOWN	1897	548	
3	5/29/1992			ARDIN SIMMONS	MC DONNELL R W	1853	244	

Lone Star NGL Pipeline LP

Chain of Title

Project:	Lone Star NGL Pipeline LP

PARCEL NUMBER(S)	TRACT NO.
A0375000500/PID 69643 A1251000300/PID 14306	LSE-TA-009.000

Description:

That certain tract of land, containing 557 acres, more or less, situated in Sections 61 & 52, Block 19 of the T & P RR. Co. Surveys, Taylor County, Texas and being the same land described in that certain Warranty Deed with Vendor's Lien from R. W. McDonnell to Dink Whisenhunt and wife, Jan Whisenhunt, filed for record on December 31, 1992 in Volume 1897, Page 548, in the Official Public Records of Taylor County, Texas.

Present Status:	Taxes	Liens	Judgments
CURRENT	Paid	None	None

Chain of Title:

Grantor:	Dink Whisenhunt and wife, Jan Whisenhunt	Document:	Permanent Easement Agreement
		Dated:	March 10, 2014
conveyed		Filed:	June 2, 2014
to:		Doc. No.:	2014-00008035
Grantee:	Sunoco Pipeline L.P., a Texas limited partnership	Volume:	N/A
		Page:	N/A
		Acreage:	397 acres Sec. 61 Blk. 19 T & P Ry Co. Surveys Abst. 375
Notes:	40 ft for one pipeline		

Grantor:	Dink Whisenhunt and wife, Jan Whisenhunt	Document:	Deed of Trust
		Dated:	January 4, 1999
conveyed		Filed:	January 4, 1999
to:		Doc. No.:	50
Grantee:	George D. Jones, Trustee	Volume:	2379
		Page:	507
		Acreage:	557 acres Sec. 61 Blk. 19 T & P RR Co. Sur.
Notes:	OUTSTANDING. In the amount $95,000 dated 1/4/1999 maturing 180 months from this date, payable to James Ted Averitt		

Grantor:	Dink Whisenhunt	Document:	Right of Way Easement
		Dated:	November 3, 1998
conveyed		Filed:	November 17, 1998
to:		Doc. No.:	21665
Grantee:	Blair Water Supply Corp	Volume:	2366
		Page:	634
		Acreage:	563.97 acres being part of Sec. 61 & 52 Blk. 19 T & P RR Co. Sur.
Notes:	15 ft		

Grantor:	Dink Whisenhunt and wife, Jan Whisenhunt	Document:	Homestead Affidavit and Designation
		Dated:	March 29, 1996
conveyed		Filed:	April 11, 1996
to:		Doc. No.:	5977
Grantee:	The Public	Volume:	2150
		Page:	858
		Acreage:	Part of 557 acres Sec. 61 & 52 Blk. 19 T & P RR Co. Sur.
Notes:			

Lone Star NGL Pipeline LP

Chain of Title

Grantor:	R. W. McDonnell	**Document:**	Warranty Deed with Vendor's Lien
		Dated:	December 31, 1992
conveyed		**Filed:**	December 31, 1992
to:		**Doc. No.:**	21253
Grantee:	Dink Whisenhunt and wife, Jan Whisenhunt	**Volume:**	1897
		Page:	548
		Acreage:	557 acres being part of Sec. 61 & 52, Blk. 19, T & P RR Co. Surveys
Notes:	*VESTING. Lien in the amount of $111,577.50 to George D. Jones, Trustee. REL 2379/504.*		

Grantor:	Hardin-Simmons University, a corporation	**Document:**	Warranty Deed
		Dated:	May 28, 1992
conveyed		**Filed:**	May 29, 1982
to:		**Doc. No.:**	8629
Grantee:	R. W. McDonnell	**Volume:**	1853
		Page:	244
		Acreage:	1816.7 acres being all Sec. 60 & parts of Secs. 65, 61, 52, and 49 Blk. 19 T & P RR Co. Sur.
Notes:	*Containing 1816.7 acres ; of which 19.22 acres lie within F. M. Hwy. 1082, 23.5 acres with Santa Fe RR right of way and 18 acres, deeded to Taylor County along the RR in SW part of Sec. 61, leaving 1772.1 acres net, more or less.*		

Grantor:	Hardin-Simmons University	**Document:**	Easement and ROW
		Dated:	April 19, 1985
conveyed		**Filed:**	June 10, 1985
to:		**Doc. No.:**	11458
Grantee:	West Texas Utilities Company, a private Corporation	**Volume:**	1409
		Page:	566
		Acreage:	307 and 412 acre tract Sec. 60 and 61 Block 19 T & P RR Co Sur.
Notes:	*Electric lines*		

Grantor:	First National Bank of Abilene, Texas, Independent Executor of the Estate of William Arch Daniel, Deceased	**Document:**	Correction Warranty Deed
		Dated:	September 1, 1983
conveyed		**Filed:**	September 7, 1983
to:		**Doc. No.:**	18454
Grantee:	Hardin-Simmons University, HSU Station	**Volume:**	1312
		Page:	360
		Acreage:	395 acres 61 Blk. 19 T&P RR Co. Sur. Abst. 375, 160 acres and Sec. 52 Blk. 19 T&P RR Co. Sur. Abst. 1251
Notes:	*Correct and supersedes WD 1150/642.*		

Grantor:	First National Bank of Abilene, Texas, Independent Executor of the Estate of William Arch Daniel, Deceased	**Document:**	Warranty Deed
		Dated:	April 15, 1980
conveyed		**Filed:**	May 19, 1980
to:		**Doc. No.:**	7662
Grantee:	Hardin-Simmons University	**Volume:**	1150
		Page:	642
		Acreage:	395 acres 61 Blk. 19 T&P RR Co. Sur. Abst. 375, 160 acres and Sec. 52 Blk. 19 T&P RR Co. Sur. Abst. 1251
Notes:			

Agent: Ryan Freeland
Date: 1/22/2015

APPENDIX E: DEED RESEARCH FOR SITE 41TA397

SUPPLEMENT & UPDATE TO LIMITED TITLE CERTIFICATE

Project: Lone Star Express II – Baden to LSX4 **Prepared For:** Lone Star NGL Pipeline LP
AFE NO: 453 000 000 541 **Current Tract No(s): LSX-TA-018.000-REV 1**

Supplementing / Updating: A prior LTC dated 1/3/2015 for Tract No: LSE-TA-018.000 for 2015 LSE Project.

LEGAL DESCRIPTION OF SUBJECT PROPERTY

That certain tract of land, containing 160 acres, more or less, being called the Northwest Quarter (NW/4) of Section 6, Block 18, T & P Ry. Co. Surveys, A-751, Taylor County, Texas, and being more particularly described in that certain Warranty Deed from Nora L. Pruitt et al to Bob Malone, filed for record on March 18, 1944 in Volume 324, Page 260, of the Deed Records of Taylor County, Texas;

SAVE AND EXCEPT that certain tract of land, containing 3.04 acres, more or less, out of Section 6, Block 18, T & P Ry. Surveys, Taylor County, Texas and being the same land described in that certain Warranty Deed from Sheri Shipman, a married person, not joined herein by her spouse, as the property hereby conveyed constitutes no part of their business or residence homestead and is in her sole management and control; to Kenneth E. Lantrip, filed for record on November 4, 2003 in Volume 2895, Page 81, of the Official Public Records of Taylor County, Texas.

PRESENT OWNERS OF RECORD (AS TO SURFACE INTEREST)		
Name & Marital Status / Legal Styling	**Mailing Address**	**Ownership %**
Sheri Shipman, a/k/a Sheri L. Shipman	P.O. Box 508 Merkel, TX 79536	100%

TAX ASSESSMENT SUMMARY					
Tax Parcel No(s).	**Tax Parcel Acreage**	**Assessed to**	**Mailing Address**	**Assessed %**	**Taxes Paid (Y/N)**
28857	156.595	Sheri Shipman	P.O. Box 508 Merkel, TX 79536	100.00%	$320.72 Owed 2018

ENCUMBRANCES SEARCHED / IDENTIFIED

CONTRACTS TO PURCHASE (Include any current Contracts to Purchase even if referenced on Prior LTC):
None found of record

MORTGAGES (Include any open mortgages or DOTs even if referenced on Prior LTC):
None found of record

LIENS (Include any open Liens even if referenced on Prior LTC):
None found of record

SURFACE LEASES AND TENANTS (excluding mining & mineral interest leases)
None found of record

EASEMENTS (Only Include New Easements Identified since Prior LTC, for older easements refer to Prior LTC):
Sheri Shipman to Lone Star NGL Pipeline LP, recorded 4/20/2016. (Instrument # 2015-00005597)
Sheri Shipman to West Texas LPG Pipeline LP, recorded 2/11/2019 (Instrument # 2019-00001920)

JUDGMENTS AND LIS PENDENS (Include any current Judgments even if referenced on Prior LTC):
None found of record

Certification: We certify that we have made a careful search of the subject property in the public land records of Taylor County, Texas, from the date listed on the above referenced prior LTC, and located the following supplemental documents recorded therein. It is expressly understood that this Limited Title Certificate is not a guaranty or warranty of title.

Supplemental Instruments Identified					
Document Type	Right of Way Agreement	Volume		Doc Date	2/7/2019
Grantor	Sheri Shipman	Page		Date Filed	2/11/2019
Grantee	West Texas LPG Pipeline LP	Inst. No.	201901920		
Legal Description	160 acres in NW/4 of Section 6, Block 18, A-751 Taylor County, Texas				
Comments	New Document				
Document Type	Permanent Easement Agreement	Volume		Doc Date	3/23/2015
Grantor	Sheri Shipman	Page		Date Filed	4/20/2015
Grantee	Lone Star NGL Pipeline LP	Inst. No.	2015-00005597		
Legal Description	160 acres in NW/4 of Section 6, Block 18, A-751 Taylor County, Texas, LESS AND EXCEPT 3.04 acres.				
Comments					
Document Type		Volume		Doc Date	
Grantor		Page		Date Filed	
Grantee		Inst. No.			
Legal Description					
Comments					
Document Type		Volume		Doc Date	
Grantor		Page		Date Filed	
Grantee		Inst. No.			
Legal Description					
Comments					
Document Type		Volume		Doc Date	
Grantor		Page		Date Filed	
Grantee		Inst. No.			
Legal Description					
Comments					

Researcher Notes: None

Research Conducted From: 1/3/2015 good through: **12/7/2018**
Research By: Graham Doyle
Date Submitted: 12/7/2018
Title Reviewed By: Jim Dennard
Date Reviewed: 12/28/2018

Name of Title Company
Upperline Energy Partners

UPPERLINE
ENERGY PARTNERS

Update by: Lindsey Landry
New Certified Date: 2/18/2019
Note: Added an Easement filed 2/11/2019 Instr. # 201901920

Any Supplemental Documents referenced above are Enclosed

Tract No(s): LSX-TA-018.000-REV 1

Lone Star NGL Pipeline LP

Chain of Title

Project:	Lone Star NGL Pipeline LP

PARCEL NUMBER(S)	TRACT NO.
A0751000400 / PID 28857	LSE-TA-018.000

Description:

That certain tract of land, containing 160 acres, more or less, situated in the Northwest Quarter (NW/4) of Section 6, Block 18, T & P Ry. Co. Surveys, A-751, Taylor County, Texas, and being more particularly described in that certain Warranty Deed from Nora L. Pruitt and husband, O. D. Pruitt; Opal Lowery Primrose and husband, E. E. Primrose, George C. Lowery and wife, Mabel Lowery, and Ruth Lowery Shore and husband, R. E. Shore to Bob Malone, filed for record on March 18, 1944 in Volume 260, Page 324, of the Deed Records of Taylor County, Texas; and

SAVE AND EXCEPT that certain tract of land, containing 3.04 acres, more or less, out of Section 6, Block 18, T & P Ry. Surveys, Taylor County, Texas and being the same land described in that certain Warranty Deed from Sheri Shipman, a married person, not joined herein by her spouse, as the property hereby conveyed constitutes no part of their business or residence homestead and is in her sole management and control; to Kenneth E. Lantrip, filed for record on November 4, 2003 in Volume 2895, Page 81, of the Official Public Records of Taylor County, Texas.

Present Status:	Taxes	Liens	Judgments
CURRENT	Paid	None	None

Chain of Title:

Grantor:	Sheri L. Shipman	**Document:**	REFFERENCE for legal description: Deed of Trust
		Dated:	August 17, 2009
conveyed		**Filed:**	August 20, 2009
to:		**Doc. No.:**	2009-00012989
Grantee:	Gary Galbraith, Trustee for the American State Bank, beneficiary	**Volume:**	N/A
		Page:	N/A
		Acreage:	160 acres being the NW/4 of Sec. 6, Block 18, T&P Ry. Co Survey, less and except 3.04 acres
Notes:	*This Deed of Trust is released in Document # 2013-12203 dated 7/12/2013. This Deed of Trust has the correct legal description.*		

Grantor:	Estate of Goldia L. Malone, deceased, Cause No. 22,886, County Court of Taylor County, Texas	**Document:**	Probate
		Dated:	May 21, 1999
conveyed		**Filed:**	June 25, 2001
to:		**Doc. No.:**	Cause No. 22,886
Grantee:	Sheri L. Shipman	**Volume:**	389
		Page:	739
		Acreage:	Not listed in Inventory, as decedent had previously deeded out subject property but demises any property she may own.
Notes:	*Date of Death: 4/16/1999, Taylor County, Texas* *Application: 5/21/1999* *Will: 7/8/1994* *Executor/tricks(s): Sheri L. Shipman* *Codicil: None* *Order Probating Will: Amended Order dated 1/31/2000* *Inventory: 1/19/2001* *Order Approving Inventory: 6/25/2001* *Spouse: Robert Nathaniel Malone, predeceased in 1947* *Children: None* *Devisees: Sheri Shipman* *Other: N/A*		

Lone Star NGL Pipeline LP

Chain of Title

Grantor:	Sheri Shipman, a married person, not joined herein by her spouse, as the property hereby conveyed constitutes no part of their business or residence homestead and is in her sole management and control	**Document:**	OUTSALE: Warranty Deed
		Dated:	October 30, 2003
conveyed		**Filed:**	November 4, 2003
to:		**Doc. No.:**	03022828
Grantee:	Kenneth E. Lantrip	**Volume:**	2895
		Page:	81
		Acreage:	3.04 acres out of Sec. 6, Block 18, T&P Ry. Co Surveys
Notes:	*Outsale of 3.04 acres out of her 160 acres in Section 6, Block 18, T&P Ry. Co Survey*		

Grantor:	Sheri L. Shipman, Co-Trustee of the Goldia Malone Revocable Living Trust	**Document:**	Correction Warranty Deed
		Dated:	April 13, 1995
conveyed		**Filed:**	April 24, 1995
to:		**Doc. No.:**	6293
Grantee:	Sheri L. Shipman, as her sole and separate property	**Volume:**	2081
		Page:	757
		Acreage:	160 Ac's of the NE/4 of Sec. 6, Block 18, T&P Ry. Co Survey, Plus other Lands
Notes:	*This document is a Correction Deed for 2048/814. The Deed corrects the Section 1 to Section 6, **but fails to correct the NE/4 to NW/4.***		

Grantor:	Goldia Malone, Individually, and as Trustee of the Goldia Malone Revocable Living Trust	**Document:**	Correction Warranty Deed
		Dated:	July 8, 1994
conveyed		**Filed:**	April 24, 1995
to:		**Doc. No.:**	6292
Grantee:	Sheri L. Shipman, as her sole and separate property	**Volume:**	2081
		Page:	754
		Acreage:	160 acres, the NE/4 of Sec. 6, Block 18, T&P Ry. Co Survey, Plus other Lands
Notes:	*This document is a Correction Deed for 2048/811. The Deed corrects the Section 1 to Section 6, **but fails to correct the NE/4 to NW/4.***		

Grantor:	Sheri L. Shipman, Co-Trustee of the Goldia Malone Revocable Living Trust	**Document:**	Warranty Deed
		Dated:	July 8, 1994
conveyed		**Filed:**	October 26, 1994
to:		**Doc. No.:**	18828
Grantee:	Sheri L. Shipman, as her sole and separate property	**Volume:**	2048
		Page:	814
		Acreage:	160 acres, the NE/4 of Sec. 1, Block 18, T&P Ry. Co Survey, Plus other Lands
Notes:	*Subject property is NW/4 of Section 6. This deed conveys NE/4 of Section 1. Correction Warranty Deed recorded 2081/754, corrects Section 1 to Section 6, **but does not correct NE/4 to NW/4.***		

Grantor:	Goldia Malone, Individually, and as Trustee of the Goldia Malone Revocable Living Trust	**Document:**	Warranty Deed
		Dated:	June 20, 1994
conveyed		**Filed:**	October 26, 1994
to:		**Doc. No.:**	18827
Grantee:	Sheri L. Shipman, as her sole and separate property	**Volume:**	2048
		Page:	811
		Acreage:	160 acres of NE/4 of Sec. 1, Block 18, T&P Ry. Co Survey, Plus other Lands
Notes:	*Subject property is NW/4 of Section 6. This deed conveys NE/4 of Section 1. Correction Warranty Deed recorded*		

Lone Star NGL Pipeline LP

Chain of Title

Grantor:	Goldia Malone	**Document:**	Durable Power of Attorney
conveyed to:		**Dated:**	March 22, 1993
		Filed:	March 25, 1993
		Doc. No.:	4659
Grantee:	Sheri L. Shipman	**Volume:**	1913
		Page:	736
		Acreage:	N/A
Notes:			

Grantor:	Goldia Malone	**Document:**	Quit Claim
conveyed to:		**Dated:**	March 1, 1993
		Filed:	March 25, 1993
		Doc. No.:	4658
Grantee:	Goldia Malone, as Trustee of the Goldia Malone Revocable Living Trust, with Life Estate reserved to Grantor	**Volume:**	1913
		Page:	733
		Acreage:	160 acres, the NE/4 of Sec. 1, Block 18, T&P RR Co Survey
Notes:	*Legal description is incorrect: **conveys NE/4 of Section 1 - should be NW/4 of Section 6.***		

Grantor:	Goldia Malone	**Document:**	Right of Way
conveyed to:		**Dated:**	March 22, 1978
		Filed:	April 24, 1979
		Doc. No.:	6232
Grantee:	Blair Water Supply Corp.	**Volume:**	1115
		Page:	639
		Acreage:	160 acres in 553/153
Notes:	*15 ft water supply line*		

Grantor:	Goldia Malone	**Document:**	Right of Way
conveyed to:		**Dated:**	April 10, 1959
		Filed:	May 11, 1959
		Doc. No.:	6816
Grantee:	Magnolia Pipe Line Company, a corporation organized under the laws of the State of Texas	**Volume:**	583
		Page:	408
		Acreage:	NW/4 of Sec. 6, Block 18, T&P RR Co Survey
Notes:	*Electric transmission and power lines*		

Grantor:	Goldia Malone, a widow, individually and as Independent Executrix of the Estate of Bob Malone, Deceased	**Document:**	Right of Way
conveyed to:		**Dated:**	September 7, 1951
		Filed:	October 5, 1951
		Doc. No.:	9502
Grantee:	Gulf Refining Company	**Volume:**	434
		Page:	214
		Acreage:	NW/4 of Sec. 6, Block 18, T&P RR Co Survey
Notes:	*60 ft. pipeline*		

Grantor:	Estate of Bob Malone, deceased, Cause No. 3733, County Court of Taylor County, Texas	**Document:**	Probate
conveyed to:		**Dated:**	December 1, 1947
		Filed:	December 15, 1947
		Doc. No.:	3733
Grantee:	Goldia Malone	**Volume:**	N/A
		Page:	N/A
		Acreage:	NW/4, Section 6, Block 18, T&P Ry Co. Land
Notes:	*Application Filed 12/1/1947*		

Lone Star NGL Pipeline LP

Chain of Title

Grantor:	Cause No. 1538 styled Guardianship of J. H. Lowery and Lila Mae Lowery, Minors, County Court of Jones County, Texas	**Document:**	Order Confirming Sale of Real Estate
		Dated:	March 7, 1944
conveyed to:		**Filed:**	March 7, 1944
		Doc. No.:	Cause 1538
Grantee:	Bob Malone	**Volume:**	322
		Page:	676
		Acreage:	NW/4 of Sec. 6, Block 18, T&P Ry. Co Surveys
Notes:	*The court approves T. O. Massey, Guardian to sell Lila Mae Lowery and J. H. Lowery's undivided 1/5 Interest*		

Grantor:	Cause No. 1538 styled Guardianship of J. H. Lowery and Lila Mae Lowery, Minors, County Court of Jones County, Texas	**Document:**	Application for Sale of Real Estate
		Dated:	January 28, 1944
conveyed to:		**Filed:**	January 29, 1944
		Doc. No.:	1538
Grantee:	The Public	**Volume:**	322
		Page:	672
		Acreage:	NW/4 of Sec. 6, Block 18, T&P Ry. Co Survey
Notes:	*T. O. Massey, Guardian of the Estates of J.H. Lowery and Lila Mae Lowery, minors, which have an undivided 1/5 interest in the NW/4. The Remaining 4/5 Interest desire to sell their Interest, and T.O. believes its in the Children's best Interest to sell their Interest as well*		

Grantor:	Cause No. 1538 styled Guardianship of J. H. Lowery and Lila Mae Lowery, Minors, County Court of Jones County, Texas	**Document:**	Resignation of Guardian and Order Appointing of New Guardian
		Dated:	November 26, 1943
conveyed to:		**Filed:**	March 16, 1944
		Doc. No.:	1385
Grantee:	T. O. Massey, Guardian of J. H,. Lowery and Lila Lowery, minors	**Volume:**	322
		Page:	665
		Acreage:	NW/4 of Sec. 6, Block 18, T&P Ry. Co Survey
Notes:	*Nora L. Pruitt resigns as Guardian of the estates of J.H. Lowery and Lila Lowery, minors, her Children. T. O. Massey is then appointed as the Guardian. The estates owns, is an undivided 1/5 Interest into NW/4 of Sec. 6, Block 18, T&P Ry. Co. Survey*		

Grantor:	Nora Pruitt and husband O.D. Pruitt; Opal Lowery Primrose and husband, E. E. Primrose; George G. Lowery and wife, Mabel Lowery; and Ruth Lowery Shore and husband, R. E. Shore	**Document:**	Warranty Deed with Vendors Lien
		Dated:	September 27, 1943
conveyed to:		**Filed:**	March 18, 1944
		Doc. No.:	1450
Grantee:	Bob Malone	**Volume:**	324
		Page:	260
		Acreage:	NW/4 of Sec. 6, Block 18, T&P Ry. Co Survey
Notes:	*Vendor's Lien in the amount of $5,000.00 payable to The Farmers & Merchants National Bank of Merkel, Texas. Released in 222/691.*		

Grantor:	Cause No. 1538 styled Application for Guardianship of Opal Lowery, et al Minors, County Court of Jones County, Texas	**Document:**	Application for Guardianship CC
		Dated:	August 13, 1937
conveyed to:		**Filed:**	August 30, 1937
		Doc. No.:	3789
Grantee:	Mrs. Nora Pruitt, Guardian for Opal Lowery, 16 year old girl, J. H. Lowery, 13 year old boy and Lila Mae Lowery, 9 year girl	**Volume:**	277
		Page:	516
		Acreage:	NW/4 of Sec. 6, Block 18, T&P Ry. Co Survey
Notes:	*Nora L. Pruitt, formerly Nora Lowery, is the widow of G. C. Lowery who died 5/5/1938 and was the children's father. The court grants guardianship to Nora L. Pruitt, for the children's partial undivided interest in the NW/4 of Sec. 6, Block 18. G. C. Lowery's Probate was not filed in Taylor County. In the Inventory it is stated that appraised value of minors 3/10 interest in said land. In the Mechanic's Lien documents it appears Nora Lowery Pruitt, as widow of G.C. Lowery, owns 1/2 interest, then minors Opal, J. H. and Lila Mae -1/10 each, then Ruth Lowery 1/10 and George Lowery 1/10 - 2 children who were not minors, so it appears that the land was community property is Nora Lowery Pruitt owns 1/2 community interest.*		

Lone Star NGL Pipeline LP

Chain of Title

Grantor:	G. R. Holloway et ux, Virginia Holloway	**Document:**	Warranty Deed
		Dated:	October 28, 1931
conveyed		**Filed:**	October 28, 1931
to:		**Doc. No.:**	4215
Grantee:	G. C. Lowery	**Volume:**	237
		Page:	412
		Acreage:	(160 acres) NW/4 of Sec. 6, Block 18, T&P Ry. Co Survey
Notes:	*Assumption of indebtedness of $2000.00 owing to Thorn Investment Company and execution of 3 notes of $166.66 each*		

Agent: Larry Richards
Date: 2/3/2015

APPENDIX F: DEED RESEARCH FOR SITE 41TA399

SUPPLEMENT & UPDATE TO LIMITED TITLE CERTIFICATE

Project: Lone Star Express II – Baden to LSX4 **Prepared For:** Lone Star NGL Pipeline LP
AFE NO: 453 000 000 541 **Current Tract No(s): LSX-TA-125.000-REV 1**

Supplementing / Updating: A prior LTC dated 2/3/2015 for Tract No: LSE-TA-125.000 for 2015 LSE Project.

LEGAL DESCRIPTION OF SUBJECT PROPERTY

That certain tract of land, containing 48.548 acres, more or less, situated in the Lunatic Asylum Lands, Section No. 26, A-1258, Taylor County, Texas and being the same land described in that certain Warranty Deed from Tommie Allen and husband, Cecil Allen to Anton Melnyk and wife, Kim Melnyk, filed for record on May 9, 2006 in Volume 3226, Page 662 in the Official Public Records of Taylor County, Texas.

PRESENT OWNERS OF RECORD (AS TO SURFACE INTEREST)		
Name & Marital Status / Legal Styling	**Mailing Address**	**Ownership %**
Anton Melnyk and wife, Kim Melnyk	1520 Key Ln Abilene, TX 79602-7618	100.00%

TAX ASSESSMENT SUMMARY					
Tax Parcel No(s).	**Tax Parcel Acreage**	**Assessed to**	**Mailing Address**	**Assessed %**	**Taxes Paid (Y/N)**
109134	48.283	Anton Melnyk and Kimberly M. Melnyk	1520 Key Ln Abilene, TX 79602-7618	100.00%	103.01 Due in 2018

ENCUMBRANCES SEARCHED / IDENTIFIED

CONTRACTS TO PURCHASE (Include any current Contracts to Purchase even if referenced on Prior LTC):
None found of record

MORTGAGES (Include any open mortgages or DOTs even if referenced on Prior LTC):
None found of record

LIENS (Include any open Liens even if referenced on Prior LTC):
None found of record

SURFACE LEASES AND TENANTS (excluding mining & mineral interest leases)
None found of record

EASEMENTS (Only Include New Easements Identified since Prior LTC, for older easements refer to Prior LTC):
Lone Star NGL Pipeline LP (inst. # 2015-00008902)

JUDGMENTS AND LIS PENDENS (Include any current Judgments even if referenced on Prior LTC):
No open Judgments or Lis Pendens
Note: Lone Star NGL Pipeline LP vs. Anton Melnyk and wife, Kimberly Melnyk, dated 2/17/2015 Condemnation Suit – Order of Dismissal, dated 5/27/2015. Filed in the Civil Records of Taylor County, Texas. No copies provided as suit was dismissed.

Certification: We certify that we have made a careful search of the subject property in the public land records of Taylor County, Texas, from the date listed on the above referenced prior LTC, and located the following supplemental documents recorded therein. It is expressly understood that this Limited Title Certificate is not a guaranty or warranty of title.

Supplemental Instruments Identified					
Document Type	Permanent Easement Agreement	Volume		Doc Date	5/26/2015
Grantor	Anton Melnyk and wife, Kim Melnyk	Page		Date Filed	6/16/2015
Grantee	Lone Star NGL Pipeline LP	Inst. No.	2015-00008902		
Legal Description	48.548 acres, more or less, situated in the Lunatic Asylum Lands, Section No. 26, A-1258, Taylor County, Texas				
Comments	50 foot wide easement for a single 24 inch line.				

Researcher Notes: None

Research Conducted From: 2/3/2015 good through: **12/13/2018**
Research By: Matthew D. Wicker
Date Submitted: 12/13/2015
Title Reviewed By: Jim Dennard
Date Reviewed: 12/20/2018

Name of Title Company
Upperline Energy Partners

Revised: Jana Haynes
Date: 4/23/2019
Note: **Revised ownership to style names as title was vested in Warranty Deed recorded in Vol. 3226, Pg. 662.**

Any Supplemental Documents referenced above are Enclosed

Taylor CAD

Property Search Results > 109134 MELNYK ANTON & KIMBERLY M for Year 2018

Property

Account

Property ID:	109134	Legal Description:	A1258 SUR 26 L A L SE/4, ACRES 48.283
Geographic ID:	A1258002900	Agent Code:	
Type:	Real		
Property Use Code:			
Property Use Description:			

Location

Address:	HWY 204	Mapsco:	M07
Neighborhood:	CORONADO,ELDORADO,TRAILS END	Map ID:	TM10
Neighborhood CD:	888		

Owner

Name:	MELNYK ANTON & KIMBERLY M	Owner ID:	137797
Mailing Address:	1520 KEY LN ABILENE, TX 79602-7618	% Ownership:	100.0000000000%
		Exemptions:	

Values

(+) Improvement Homesite Value:	+	$0		
(+) Improvement Non-Homesite Value:	+	$0		
(+) Land Homesite Value:	+	$0		
(+) Land Non-Homesite Value:	+	$0	Ag / Timber Use Value	
(+) Agricultural Market Valuation:	+	$273,719	$5,444	
(+) Timber Market Valuation:	+	$0	$0	

(=) Market Value:	=	$273,719		
(–) Ag or Timber Use Value Reduction:	–	$268,275		

(=) Appraised Value:	=	$5,444		
(–) HS Cap:	–	$0		

(=) Assessed Value:	=	$5,444		

Taxing Jurisdiction

Owner: MELNYK ANTON & KIMBERLY M
% Ownership: 100.0000000000%
Total Value: $273,719

Entity	Description	Tax Rate	Appraised Value	Taxable Value	Estimated Tax
CAD	TAYLOR APPRAISAL DISTRICT	0.000000	$5,444	$5,444	$0.00

GTA	TAYLOR COUNTY	0.609100	$5,444	$5,444	$33.16
SWY	WYLIE ISD	1.283000	$5,444	$5,444	$69.85
	Total Tax Rate:	1.892100			
				Taxes w/Current Exemptions:	$103.01
				Taxes w/o Exemptions:	$103.01

Improvement / Building

No improvements exist for this property.

Land

#	Type	Description	Acres	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
1	6T	Tillable Class 6	28.3259	1233876.20	0.00	0.00	$160,581	$3,937
2	7T	Tillable Class 7	0.7200	31363.20	0.00	0.00	$4,082	$122
3	7P	Pasture Class 7	19.2371	837968.08	0.00	0.00	$109,056	$1,385

Roll Value History

Year	Improvements	Land Market	Ag Valuation	Appraised	HS Cap	Assessed
2019	N/A	N/A	N/A	N/A	N/A	N/A
2018	$0	$273,719	5,444	5,444	$0	$5,444
2017	$0	$273,719	5,324	5,324	$0	$5,324
2016	$0	$216,009	5,324	5,324	$0	$5,324
2015	$0	$177,015	5,324	5,324	$0	$5,324
2014	$0	$171,643	5,324	5,324	$0	$5,324
2013	$0	$171,643	5,263	5,263	$0	$5,263
2012	$0	$171,643	5,171	5,171	$0	$5,171
2011	$0	$165,910	5,070	5,070	$0	$5,070
2010	$0	$154,513	4,982	4,982	$0	$4,982
2009	$0	$154,513	4,982	4,982	$0	$4,982
2008	$0	$142,936	4,982	4,982	$0	$4,982
2007	$0	$131,215	4,982	4,982	$0	$4,982
2006	$0	$111,212	4,982	4,982	$0	$4,982

Deed History - (Last 3 Deed Transactions)

#	Deed Date	Type	Description	Grantor	Grantee	Volume	Page	Deed Number
1	5/9/2006	WD	WARRANTY DEED	ALLEN TOMMIE V	MELNYK ANTON & KIMBERLY M	3226	662	

Tax Due

Property Tax Information as of 12/13/2018

Amount Due if Paid on:

Year	Taxing Jurisdiction	Taxable Value	Base Tax	Base Taxes Paid	Base Tax Due	Discount / Penalty & Interest	Attorney Fees	Amount Due
2018	TAYLOR COUNTY	$5,444	$33.16	$0.00	$33.16	$0.00	$0.00	$33.16
2018	WYLIE ISD	$5,444	$69.85	$0.00	$69.85	$0.00	$0.00	$69.85

								$103.01
2017	TAYLOR COUNTY	$5,324	$32.11	$32.11	$0.00	$0.00	$0.00	$0.00
2017	WYLIE ISD	$5,324	$59.90	$59.90	$0.00	$0.00	$0.00	$0.00
	2017 TOTAL:		**$92.01**	**$92.01**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
2016	TAYLOR COUNTY	$5,324	$28.48	$28.48	$0.00	$0.00	$0.00	$0.00
2016	WYLIE ISD	$5,324	$60.16	$60.16	$0.00	$0.00	$0.00	$0.00
	2016 TOTAL:		**$88.64**	**$88.64**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
2015	TAYLOR COUNTY	$5,324	$28.05	$28.05	$0.00	$0.00	$0.00	$0.00
2015	WYLIE ISD	$5,324	$61.44	$61.44	$0.00	$0.00	$0.00	$0.00
	2015 TOTAL:		**$89.49**	**$89.49**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
2014	TAYLOR COUNTY	$5,324	$27.68	$27.68	$0.00	$0.00	$0.00	$0.00
2014	WYLIE ISD	$5,324	$55.37	$55.37	$0.00	$0.00	$0.00	$0.00
	2014 TOTAL:		**$83.05**	**$83.05**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
2013	TAYLOR COUNTY	$5,263	$26.56	$26.56	$0.00	$0.00	$0.00	$0.00
2013	WYLIE ISD	$5,263	$54.74	$54.74	$0.00	$0.00	$0.00	$0.00
	2013 TOTAL:		**$81.30**	**$81.30**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
2012	TAYLOR COUNTY	$5,171	$24.96	$24.96	$0.00	$0.00	$0.00	$0.00
2012	WYLIE ISD	$5,171	$53.78	$53.78	$0.00	$0.00	$0.00	$0.00
	2012 TOTAL:		**$78.74**	**$78.74**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
2011	TAYLOR COUNTY	$5,070	$23.96	$23.96	$0.00	$0.00	$0.00	$0.00
2011	WYLIE ISD	$5,070	$57.29	$57.29	$0.00	$0.00	$0.00	$0.00
	2011 TOTAL:		**$81.25**	**$81.25**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
2010	TAYLOR COUNTY	$4,982	$23.53	$23.53	$0.00	$0.00	$0.00	$0.00
2010	WYLIE ISD	$4,982	$56.29	$56.29	$0.00	$0.00	$0.00	$0.00
	2010 TOTAL:		**$79.82**	**$79.82**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
2009	TAYLOR COUNTY	$4,982	$23.29	$23.29	$0.00	$0.00	$0.00	$0.00
2009	WYLIE ISD	$4,982	$56.29	$56.29	$0.00	$0.00	$0.00	$0.00
	2009 TOTAL:		**$79.58**	**$79.58**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
2008	TAYLOR COUNTY	$4,982	$23.33	$23.33	$0.00	$0.00	$0.00	$0.00
2008	WYLIE ISD	$4,982	$56.29	$56.29	$0.00	$0.00	$0.00	$0.00
	2008 TOTAL:		**$79.62**	**$79.62**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
2007	TAYLOR COUNTY	$4,982	$23.45	$23.45	$0.00	$0.00	$0.00	$0.00
2007	WYLIE ISD	$4,982	$54.31	$54.31	$0.00	$0.00	$0.00	$0.00
	2007 TOTAL:		**$77.76**	**$77.76**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
2006	TAYLOR COUNTY	$4,982	$24.81	$24.81	$0.00	$0.00	$0.00	$0.00
2006	WYLIE ISD	$4,982	$63.27	$63.27	$0.00	$0.00	$0.00	$0.00
	2006 TOTAL:		**$88.08**	**$88.08**	**$0.00**	**$0.00**	**$0.00**	**$0.00**

NOTE: Penalty & Interest accrues every month on the unpaid tax and is added to the balance. Attorney fees may also increase your tax liability if not paid by July 1. If you plan to submit payment on a future date, make sure you enter the date and RECALCULATE to obtain the correct total amount due.

Questions Please Call (325) 676-9381.

Lone Star NGL Pipeline LP

Chain of Title

Project:	Lone Star NGL Pipeline LP

PARCEL NUMBER(S)	TRACT NO.
Acct No. A1258002000ID 109134	LSE-TA-126.000

Description:

That certain tract of land, containing 48.548 acres, more or less, situated in the Lunatic Asylum Lands Survey/League, Section No. 26, A-1258, Taylor County, Texas and being the same land described in that certain Warranty Deed, from Tommie Allen and husband, Cecil Allen to Anton Melnyk and wife, Kim Melnyk, filed for record on May 8, 2006 in Volume 3226, Page 662, in the Official Public Records of Taylor County, Texas.

Present Status:	Taxes	Liens	Judgments
CURRENT	Paid	None	None

Chain of Title:

Grantor:	Tommie Allen and husband, Cecil Allen	Document:	Warranty Deed
		Dated:	May 8, 2006
conveyed		Filed:	May 9, 2006
to:		Doc. No.:	6008513
Grantee:	Anton Melnyk and wife, Kim Melnyk	Volume:	3226
		Page:	662
		Acreage:	48.548 acres, Lunatic Asylum Lands, Sec. 26
Notes:	Convey subject property.		

Grantor:	Tommie Allen	Document:	Easement and Right of Way
		Dated:	May 22, 2003
conveyed		Filed:	May 22, 2003
to:		Doc. No.:	3009764
Grantee:	American Electric Power, a private corporation	Volume:	2822
		Page:	18
		Acreage:	52 acres, Sec. 26, Lunatic Asylum Lands
Notes:	Electric and telecommunications line.		

Grantor:	Tommie Allen	Document:	OUTSALE: Deed
		Dated:	September 24, 2002
conveyed		Filed:	February 28, 2003
to:		Doc. No.:	3003757
Grantee:	State of Texas, acting by and through the Texas Transportation Commission	Volume:	2790
		Page:	151
		Acreage:	0.1391 acre, Sec. 26, Lunatic Asylum Lands
Notes:	OUTSALE: 0.1391 of an acre. Reference to deed 2113/330.		

Grantor:	Victor G. Carrillo, County Judge authorized by action of the Commissioners Court of Taylor County	Document:	Quitclaim Deed
		Dated:	February 4, 2003
conveyed		Filed:	February 5, 2003
to:		Doc. No.:	3002281
Grantee:	Tommie Allen	Volume:	2782
		Page:	228
		Acreage:	0.333 acres, out of the SE/4 of Sec 26, Lunatic Asylum lands. Among other land.
Notes:	Convey to Grantee.		

Lone Star NGL Pipeline LP

Chain of Title

Grantor:	Cecil L. Allen and wife, Tommie V. Allen	**Document:**	Warranty Deed
conveyed to:		**Dated:**	September 22, 1995
		Filed:	October 2, 1995
		Doc. No.:	15375
Grantee:	Tommie Allen as her separate property	**Volume:**	2113
		Page:	330
		Acreage:	49.086 acres, SE corner of Sec 26, Lunatic Asylum Lands
Notes:	*Convey 52 acres with reference to Less and Except: 2 acre tract 746/27 & 0.914 acre tract 1862/419*		

Grantor:	Cecil L. Allen and wife, Tommie V. Allen	**Document:**	OUTSALE: Warranty Deed with Vendor's Lien
conveyed to:		**Dated:**	June 30, 1994
		Filed:	July 1, 1994
		Doc. No.:	11871
Grantee:	Thomas E. Hough and wife, Kathy L. Hough	**Volume:**	2023
		Page:	178
		Acreage:	2.0 acres, SE corner of Sec 26, Lunatic Asylum Lands
Notes:	*OUTSALE: Convey 2 acres with reference to Deed 697/411*		

Grantor:	Donald R. Grubbs and wife, Carolyn Grubbs	**Document:**	Warranty Deed
conveyed to:		**Dated:**	February 23, 1994
		Filed:	February 28, 1994
		Doc. No.:	3383
Grantee:	Tommie Allen and husband, Cecil L. Allen	**Volume:**	1993
		Page:	64
		Acreage:	12.698 acre interest, in a 52 acre tract, SE corner of Sec 26, Lunatic Asylum Lands
Notes:	*Conveys a 12.698 acre interest in and to the surface only of a 52 acre tract - with reference to Less and Except: 2 acre tract 746/27 & 0.914 acre tract 1862/419.*		

Grantor:	Donald R. Grubbs and wife, Carolyn Grubbs	**Document:**	Warranty Deed
conveyed to:		**Dated:**	February 23, 1994
		Filed:	February 28, 1994
		Doc. No.:	3382
Grantee:	Tommie Allen and husband, Cecil L. Allen	**Volume:**	1993
		Page:	61
		Acreage:	11.845 acre interest, in a 52 acre tract, SE corner of Sec 26, Lunatic Asylum Lands
Notes:	*Conveys a 11.845 acre interest in and to the surface only of a 52 acre tract - with reference to Less and Except: 2 acre tract 746/27 & 0.914 acre tract 1862/419.*		

Grantor:	Don R. Grubbs and Tommie V. Allen	**Document:**	Affidavit
conveyed to:		**Dated:**	May 29, 1992
		Filed:	July 10, 1992
		Doc. No.:	11307
Grantee:	To the Public	**Volume:**	1862
		Page:	429
		Acreage:	n/a
Notes:	*States that Affiants are the beneficiaries of the Estate of Lucille A. Grubbs, Deceased. Claim estate value did not exceed $200k.*		

Grantor:	Don R. Grubbs and Tommie V. Allen, not joined herein by our spouses since this property constitutes no part of our homestead	**Document:**	OUTSALE: Warranty Deed with Vendor's Lien
conveyed to:		**Dated:**	July 9, 1992
		Filed:	July 10, 1992
		Doc. No.:	11305
Grantee:	Michael J. Farmer and wife, Kelly M. Farmer	**Volume:**	1862
		Page:	419
		Acreage:	0.914 acres out of a 52 ac tract, Sec 26, Lunatic Asylum Lands
Notes:	*Lien in the amount of $65,200.00 to Richard Hutchins, Trustee payable to McAfee Mortgage & Investment.*		

Lone Star NGL Pipeline LP

Chain of Title

Grantor:	Estate of Lucille A. Grubbs, Deceased, Cause No.19749, County/Probate Court of Taylor County, Texas	**Document:**	Probate - Application for Probate of Will as Muniment of Title
		Dated:	January 27, 1992
conveyed		**Filed:**	January 27, 1992
to:		**Doc. No.:**	Cause No. 19749
Grantee:	Tommie V. Allen (50%) and Don R. Grubbs (50%)	**Volume:**	N/A
		Page:	N/A
		Acreage:	Not in Inventory

Notes: *Date of Death: 1/18/1992 Taylor , County, Texas*
Application: 1/27/1992
Will: 7/22/1986
Executor/trix(s): Tommie V. Allen and Don R. Grubbs
Codicil: None
Order Probating Will: 2/19/1992
Inventory: Not included in probate
Order Approving Inventory: Not included in probate
Spouse: Troy T. Grubbs, Deceased
Children: Tommie V. Allen and Don R. Grubbs
Heirs: Tommie V. Allen and Don R. Grubbs
Other: N/A

Grantor:	Lucille Grubbs, Don R. Grubbs, Tommie Allen	**Document:**	Drainage Easement for Highway Purposes
		Dated:	February 28, 1991
conveyed		**Filed:**	June 27, 1991
to:		**Doc. No.:**	9298
Grantee:	State of Texas, acting by and through the State Highway and Public Transportation Commission	**Volume:**	1790
		Page:	662
		Acreage:	2.873 acres, SE/4 of Sec 26, Lunatic Asylum Lands

Notes: *Drainage channel. Rel: Deed 697/411*

Grantor:	Lucille Grubbs (aka Mrs. Troy T. Grubbs)	**Document:**	Power of Attorney
		Dated:	July 22, 1985
conveyed		**Filed:**	March 6, 1991
to:		**Doc. No.:**	3215
Grantee:	Don Grubbs and Tommie Allen	**Volume:**	1771
		Page:	126
		Acreage:	N/A

Notes: *Appoints as true and lawful attorneys.*

Grantor:	Don R. Grubbs and Cecil Allen	**Document:**	Affidavit of Heirship
		Dated:	February 28, 1991
conveyed		**Filed:**	March 6, 1991
to:		**Doc. No.:**	3214
Grantee:	To the Public	**Volume:**	1771
		Page:	122
		Acreage:	N/A

Notes: *Affiants state that Troy Tony Grubbs died intestate 5/2/1970 and no administration has been had on the Estate and none is necessary. Troy Toney Grubbs was married once to Lucille Grubbs. Affiants are the children of Troy Tony Grubbs.*

Grantor:	Cecil Allen and wife, Tommie V. Allen	**Document:**	Affidavit
		Dated:	April 5, 1976
conveyed		**Filed:**	April 20, 1976
to:		**Doc. No.:**	5047
Grantee:	To the Public	**Volume:**	1027
		Page:	949
		Acreage:	2 acres, out of a 52 acre tract, SE corner, Sec 26, Lunatic Asylum Lands

Notes: *States this property is their homestead.*

Lone Star NGL Pipeline LP

Chain of Title

Grantor:	T. T. Grubbs and wife, Lucille A. Grubbs	**Document:**	OUTSALE: Warranty Deed
conveyed to:		**Dated:**	June 24, 1964
		Filed:	July 6, 1964
		Doc. No.:	8087
Grantee:	Cecil Allen and his wife, Tommie Allen	**Volume:**	746
		Page:	27
		Acreage:	2 acres, out of a 52 acre tract, SE corner, Sec 26, Lunatic Asylum Lands
Notes:	*Conveys 2 acres out of the 52 acre tract out of 120 acres, more or less, out of the SE corner of Sec. 26, Lunatic Asylum Lands. Reference to Deed 697/411.*		

Grantor:	T. T. Grubbs and wife, Lucille A. Grubbs	**Document:**	Right of Way Easement
conveyed to:		**Dated:**	March 2, 1964
		Filed:	March 18, 1964
		Doc. No.:	3485
Grantee:	Potosi Water Supply Corporation	**Volume:**	737
		Page:	126
		Acreage:	52 acres, SE corner of Sec 26, Lunatic Asylum Lands
Notes:	*Perpetual easement for water pipe line.*		

Grantor:	Novel Baize and wife, Vida M. Baize	**Document:**	Warranty Deed with Vendor's Lien
conveyed to:		**Dated:**	December 12, 1962
		Filed:	December 18, 1962
		Doc. No.:	15434
Grantee:	T. T. Grubbs and wife, Lucille A. Grubbs	**Volume:**	697
		Page:	411
		Acreage:	52 acres, SE corner of Sec 26, Lunatic Asylum Lands
Notes:	*Conveys subject property. Vendor's Lien in the amount of $8,900.00, due 1/1/1965, Charles E. Erwin, Trustee for Novel and Vida M. Baize. Vendor's Lien in the amount of $2,176.00 due 3/1/1963, Charles E. Erwin, Trustee for Novel and Vida M. Baize. Partial Release of Lien 956/630. Release of Lien $8,900.00 Vol. 2023/194. Reference to an incorrect ROW 485/425 to the State of Texas by Grantors. Researcher's Note: Believe this second WDVL was issue due to Assignment of the original loan.*		

Grantor:	Novel Baize and wife, Vida M. Baize	**Document:**	Warranty Deed with Vendor's Lien
conveyed to:		**Dated:**	April 19, 1962
		Filed:	April 24, 1962
		Doc. No.:	5003
Grantee:	T. T. Grubbs and wife, Lucille A. Grubbs	**Volume:**	677
		Page:	223
		Acreage:	52 acres, SE corner of Sec 26, Lunatic Asylum Lands
Notes:	*Conveys subject property. Vendor's Lien in the amount of $8,900.00, due 1/1/1965, Charles E. Erwin, Trustee for Novel and Vida M. Baize. Vendor's Lien in the amount of $2,176.00 due 3/1/1963, Charles E. Erwin, Trustee for Novel and Vida M. Baize. Partial Release of Lien $2,176.00 Vol. 956/630. Release of Lien $8,900.00 Vol. 2023/194. Reference to an incorrect ROW 485/425 to the State of Texas by Grantors.*		

Grantor:	George D. Kiker and wife, Alesa Kiker	**Document:**	Deed
conveyed to:		**Dated:**	May 25, 1954
		Filed:	October 15, 1954
		Doc. No.:	11309
Grantee:	State of Texas acting by and through the State Highway Commission	**Volume:**	485
		Page:	524
		Acreage:	Parcel B: 1.840 acres, off the east side, Sec. 26, Lunatic Asylum Lands
Notes:	*Strip of land off the east side of subject property. Reference was made in 697/411.*		

Agent: Roxanne Wetherwax
Date: 2/4/2015