PHASE I CULTURAL RESOURCES SURVEY OF THE PROPOSED INDEX 1-36 REPLACEMENT AND RELOCATION PROJECT SMITH COUNTY, TEXAS

Prepared for

Gulf South Pipeline Company, LP

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ABSTRACT

Perennial Environmental Services, LLC (Perennial), on behalf of Gulf South Pipeline Company, LP (Gulf South), a subsidiary of Boardwalk Pipeline Partners, LP (Boardwalk), conducted an intensive cultural resources survey of the proposed Index 1-36 Replacement and Relocation Project (Project) located approximately 2.2 miles (mi) (3.5 kilometers [km]) northwest of Lindale in Smith County, Texas. The Project involves the replacement of approximately 930.0 feet (ft) (283.5 meters [m]) of 6-inch natural gas pipeline along Gulf South's existing Index 1-36 pipeline via Horizontal Directional Drilling (HDD). Additionally, Gulf South intends to utilize approximately 0.9 mi (1.5 km) of temporary access roads to connect County Road (CR) 431 with the proposed HDD workspace location. Where possible, Gulf South intends to utilize existing pipeline corridors to facilitate temporary access to the HDD workspace for construction vehicles.

The proposed Project may require the usage of a Nationwide Permit (NWP) issued by the US Army Corps of Engineers (USACE). As such, portions of the Project may fall under the jurisdiction of the USACE. Additionally, as the Index 1-36 pipeline is regulated by the Federal Energy Regulatory Commission (FERC), cultural resources surveys were conducted for the Project in accordance with the provisions outlined in Boardwalk's Blanket Environmental Clearance (effective January 2016 to December 2019). The survey was designed to inventory and assess cultural resources across the Project. These efforts involved both surface and subsurface archaeological survey conducted accordance with Section 106 of the National Historic Preservation Act (NHPA).

The workspace required for the HDD efforts measures approximately 3.1 acres in size. This workspace lies adjacent to the Gulf South Index 1-36 pipeline and includes both permanent and temporary workspaces. The access road measures approximately 0.9 mi (1.5 km) in length and approximately 25.0 ft (7.6 m) in width with a total acreage of 2.8 acres.

The area of potential effect (APE) measures approximately 5.9 acres with depths of impact extending to depths of 1.0 to 2.0 ft (0.3 to 0.6 m) within the temporary workspace and access road locations. Deep impacts (greater than 6.0 ft [1.8 m]) will only occur within Gulf South's existing pipeline corridor at the 2.0 by 2.0 ft (0.6 by 0.6 m) diameter HDD drill locations.

To allow for flexibility in engineering design, Gulf South requested that Perennial complete an intensive cultural resources survey within an expanded Environmental Survey Area (ESA) for the Project. The total area surveyed within the Project ESA measures approximately 28.1 acres. Perennial conducted the intensive Phase I archaeological investigation within the boundaries of the Project ESA between July 5-8, 2016 and July 25-28, 2016. Jennifer L. Cochran served as the Principal Investigator (PI) for the Project and conducted the fieldwork with the assistance of Michael Maddox.

In total, 154 shovel tests were excavated across the entire ESA. The survey investigations resulted in the documentation of five newly recorded sites (41SM474, 41SM475, 41SM476, 41SM477, and 41SM478) and the revisit of site 41SM391 mapped within the Project ESA. These include one historic-age artifact scatter (41SM474), three Transitional Archaic/Early Woodland period open campsites (41SM475,

41SM476, and 41SM477), one multiple component site consisting of historic-age artifacts and prehistoric lithic debris (41SM478), and one historic-age farmstead (41SM391).

In regard to the revisit of site 41SM391, no evidence of any cultural materials or features were observed within surface or subsurface contexts along the portion of the Project ESA in proximity to site 41SM391. As such, it is Perennial's opinion that site 41SM391 does not extend into the Project ESA and will not be impacted by any construction activities associated with the Project. No further work is recommended for site 41SM391 within the Project ESA.

Site 41SM474 consists of a late-nineteenth to mid-twentieth century historic artifact scatter composed of non-diagnostic materials, while site 41SM478 consists of a multiple component site represented by late-nineteenth to mid-twentieth artifact scatter intermixed with a scatter of prehistoric artifacts of an undetermined age. Since each of the sites was only delineated within the boundaries of the original Project ESA, the full extent of each site is unknown. As such, the overall NRHP eligibility status of each site is considered to be undetermined. However, an oral history account from the current landowner of the property on which sites 41SM474 and 41SM478 are located did not reveal that the sites are associated with any persons or events of historical significance. Based on the landowner interviews, these sites likely represent the remnants of short-term tenant occupations within an expansive plantation owned by the Bowdoin family. It is unlikely that additional deed or archival research would provide definitive information on the tenant families that occupied these areas. Additionally, based on the lack of intact structures or features and the lack of significant, intact cultural deposits, it is Perennial's opinion that the portion of site 41SM474 within the Project ESA and the historic-age component of site 41SM478 within the Project ESA be considered noncontributing elements to the overall NRHP eligibility of the site. Based upon the lack of temporally diagnostic tools fragments or significant, intact prehistoric cultural deposits it is also Perennial's opinion that the prehistoric component of 41SM478 be considered a noncontributing element to the overall NRHP eligibility of the site. No additional investigations are recommended on sites 41SM474 and 41SM478 within the boundaries of the original Project ESA. Due to a change in engineering design for the Project footprint, sites 41SM474 and 41SM478 no longer fall within the current Project footprint and will not be impacted by any construction activities associated with the Project.

Sites 41SM475, 41SM476, and 41SM477, all likely represent Transitional Archaic/Early Woodland period open campsites. In regards to site 41SM475, based upon the presence of temporally diagnostic tool fragments, in conjunction with prehistoric ceramic material, and the presence of buried deposits, it is Perennial's opinion that the NRHP eligibility of site 41SM475 remains undetermined. In regards to site 41SM476, based upon the presence of temporally diagnostic tool fragments, prehistoric ceramic material, preserved floral and faunal remains and the presence of buried deposits, it also Perennial's opinion that that the NRHP eligibility of site 41SM476 remains undetermined. It is unclear at this time if there are intact, features/occupation zones are present within unexcavated portions of either of these sites within the Project ESA. As such, Perennial recommends the avoidance and protection of the portion of sites 41SM475 and 41SM476 within the Project ESA until more comprehensive site delineation efforts or Phase II testing can be conducted on these sites.

In regard to site 41SM477, the site was only delineated within the boundaries of the Project ESA and the full extent of the site is unknown. As such, the overall NRHP eligibility status of the site is considered to be undetermined. However, based on the lack of intact cultural features and the lack of significant, intact cultural deposits, it is Perennial's opinion that the portion of site 41SM477 within the Project ESA be

considered a noncontributing element to the overall NRHP eligibility of the site. No additional investigations are recommended within the boundaries of the current Project ESA.

Due to Gulf South's aggressive construction scheduling, Perennial consulted with the THC concerning interim clearance on a suitable strategy to avoid any impacts to sites 41SM475, 41SM476, and 41SM477. Gulf South intends to utilize 25.0 ft- (7.6-m) wide travel lanes for restricted access across the top of newly recorded site 41SM476. Gulf South also intends to place wooden timber construction matting across the surface of those travel lanes along the portion of site 41SM476 within the Project ESA in order to protect the subsurface deposits located on the site. Additionally, construction matting with be placed across the surface of a portion of the proposed HDD workspace (where the site extends into this location) and no subsurface activities will occur in any of these locations within the site boundary. Gulf South intends to place wooden timber construction matting across the surface of the portion of sites 41SM475 and 41SM477 within the Project ESA in order to protect the deposits located on these sites. Additionally, any vegetation removal necessary across any portions of these sites within the Project ESA will be removed by hand or removed at ground surface level, rather than pulled up from the ground in order to limit causing extensive ground disturbance to the sites.

Gulf South has provided three travel lane alternatives that traverse site 41SM476 in different locales and requested interim clearance on all three alternatives across the site. This avoidance plan was initially presented to the THC during a July 20, 2016 meeting with Perennial and Gulf South in order to obtain interim clearance to accommodate Gulf South's necessarily aggressive construction schedule to relocate portions their Index 1-36 pipeline. The THC concurred with Gulf South's timber matting strategy to protect the subsurface deposits associated with sites 41SM475, 41SM476, and 41SM477 on August 9, 2016 via an email correspondence. Since Gulf South is planning to avoid any impacts to these sites, no additional work is recommended at this time for sites 41SM475, 41SM476, and 41SM477 in conjunction with the current Project.

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I. INTRODUCTION

Perennial Environmental Services, LLC (Perennial), on behalf of Gulf South Pipeline Company, LP (Gulf South), a subsidiary of Boardwalk Pipeline Partners, LP (Boardwalk), conducted an intensive cultural resources survey of the proposed Index 1-36 Replacement and Relocation Project (Project) located approximately 2.2 miles (mi) (3.5 kilometers [km]) northwest of Lindale in Smith County, Texas (Figure 1). The Project involves the replacement of approximately 930.0 feet (ft) (283.5 meters [m]) of 6-inch natural gas pipeline along Gulf South's existing Index 1-36 pipeline via Horizontal Directional Drilling (HDD). Additionally, Gulf South intends to utilize approximately 0.9 mi (1.5 km) of temporary access roads to facilitate access from County Road (CR) 431 to the proposed HDD workspace location. Where possible, Gulf South intends to utilize existing pipeline corridors to facilitate temporary access to the HDD workspace for construction vehicles.

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fieldwork efforts with the assistance of Michael Maddox.

The survey investigations resulted in the documentation of five newly recorded sites (41SM474, 41SM475, 41SM476, 41SM477, and 41SM478) and one site revisit (41SM391). These newly recorded sites include one late-nineteenth to mid-twentieth century trash scatter (41SM474), three Transitional Archaic/Early Woodland period open campsites (41SM475, 41SM476, and 41SM477), and one multiple component site consisting of a surface scatter of late-nineteenth to early-twentieth century artifacts and temporally non-diagnostic prehistoric lithic material (41SM478). No evidence of site 41SM391 (a historic-age farmstead) was documented within the ESA during the site revisit.

Survey results maps are presented in Appendix A, while shovel test data for the five newly recorded archaeological sites 41SM474 to 41SM478 are presented in Appendix B. Appendix C presents the complete artifact inventory for sites 41SM475 to 41SM478. Finally, correspondence with the State Historic Preservation Office (SHPO) concerning interim clearance for the Project is presented in Appendix D.

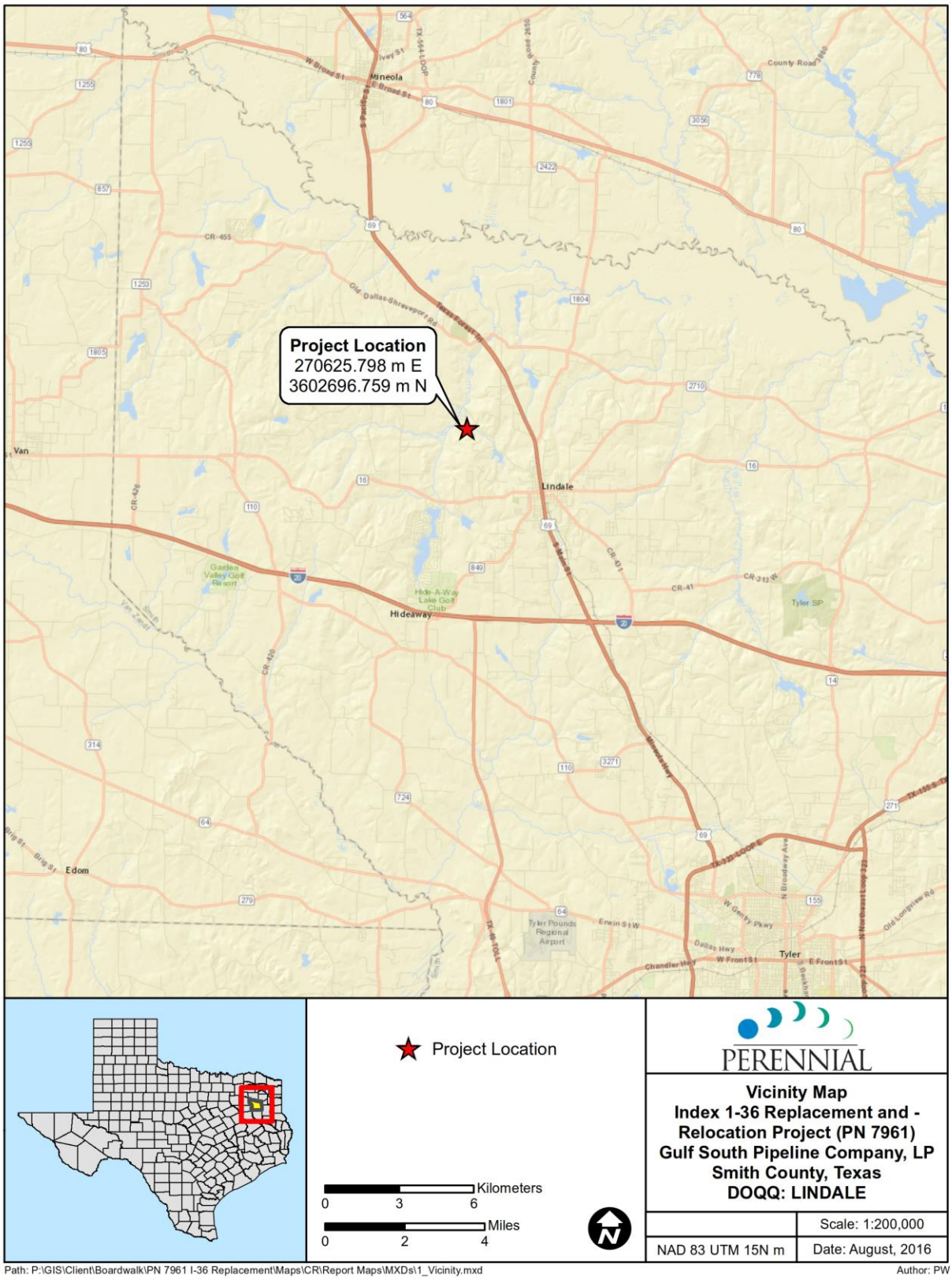

Figure 1. Project Vicinity Map

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II. PROJECT ESA DESCRIPTION

The Project ESA is located immediately west of County Road (CR) 431 approximately 0.6 mi (1.0 km) north of the intersection of CR 431 and CR 4118 in Smith County, Texas. The Project ESA is situated approximately 2.2 mi (3.5 km) northwest of the town of Lindale and can be found on the USGS 7.5-minute Lindale topographic quadrangle map. The Project ESA consists of a woodland and pastureland setting that is intersected by several pipeline corridors. Land use in the surrounding area is dominated by rangeland and agricultural activities. Residences are scattered within the vicinity of the Project ESA and are predominately concentrated within the town of Lindale to the southeast, or along prominent county roads.

The Project ESA is located within the Tertiary Uplands subregion of the Southern Central Plains ecoregion (Griffith et al. 2007). Locally known as the 'Piney Woods", the South Central Plains were once covered by a mixture of pine and hardwood forests. However, much of the region is now covered in loblolly and shortleaf plantation pine (Griffith et al. 2007). Soils are mostly acidic sands and sandy loams.

Specifically, the Project ESA is situated within the rolling Tertiary Uplands subregion of the Southern Central Plains. Natural vegetation includes loblolly pine, shortleaf pine, southern red oak, post oak, white oak, hickory, and sweetgum, and mid and tall grasses such as yellow Indiangrass, pinehill bluestem, narrowleaf woodoats, and panicums. American beautyberry, sumac, greenbriar, and hawthorn are part of the understory (Griffith et al. 2007). Many areas have been replanted with loblolly pine for timber production or converted to improved pasture. Lumber and pulpwood production, livestock grazing, and poultry production are typical land uses. Oil and gas production is also widespread.

Geologically, the Project ESA is underlain by Queen City Sand (Eqc), with some alluvium (Qal) along the Project's northern margin. The Queen City Sand consists of fine- to medium-grained quartz sand derived from Eocene-age marine sediments (USGS 2016). Alluvial soils along the northern margin of the Project ESA consist of Holocene-age sand and silt deposits (USGS 2016) that are concentrated along an unnamed floodplain which drains into tributary systems of the Neches River, located 8.5 mi (13.67 km) to the southwest. This interfluvial environment is situated between the uplands and floodplain to the north, with elevation range between 370.0 and 480.0 ft (112.7 and 146.6 m) above mean sea level (amsl) (USGS 2016).

Soils mapped within the Project ESA include the Elrose fine sandy loam, Redsprings very gravelly sandy loam, Cuthbert gravelly fine sandy loam, and Keechi loam. The Elrose, Redsprings, and Cuthbert series are all well drained upland soils that are derived from glauconitic marine sediments (NRCS 2016). The Keechi series consists of very deep, very poorly drained, and slowly permeable soils, that are derived from alluvial deposits typical of flood plains (NRCS 2016).

III. CULTURAL SETTING

PALEOINDIAN PERIOD (CA. 11,500 TO 10,000 B.P.)

The Paleoindian period marks the first presence of human populations living on the American continents. Chronologically, this period extends from the terminal Pleistocene into the early Holocene. Paleoindian groups were likely composed of loosely affiliated bands of highly mobile familial units that foraged for plants as well as hunted small game. The early population density during this time was low, with archaeological sites reflecting camps of small transient groups situated within the valley of major stream basins (Perttula 2004). Lithic technology during this time consisted of distinctive expertly crafted lanceolate projectile points, such as, Clovis, Folsom, and Plainview. These points exhibit finely worked surfaces, with some fluted types. Paleoindian sites are relatively sparse across East Texas, however the widely dispersed nature of the cultural material found across variable settings within the landscape suggest that these groups were highly mobile hunters and gathers rather than specialized in tracking and hunting extinct megafauna such as mammoths (*Mammuthus* sp.) and bison (*Bison antiquus*).

ARCHAIC PERIOD (CA. 6,000 TO 200 B.C.)

The Archaic period is broadly defined by the development of novel tool assemblages and the intensification and greater diversity of subsistence strategies. During this time, reliance on smaller game, such as deer and rabbits, increases as well as greater utilization of edible botanicals.

The Archaic Period can be further subdivided into three subperiods; the Early Archaic (6.000 to 4,000 B.C.), Middle Archaic (4,000 to 2,000 B.C.), and Late Archaic (2,000 to 200 B.C.). These subperiods are differentiated by the continued development of subsistence strategies and projectile point styles (Saunders 2003). While the Early Archaic period does not reflect a dramatic departure from the lifeways of the Paleoindian period, a few important cultural developments define the subperiod, including increased specialization as reflected by lithic technology (Miller et al. 2000; Smith et al. 1983; Watkins 2006). During the Early Archaic period the manufacture of fluted points ceased, and the use of notched points increased with a greater focus on exploitation of the microenvironment.

As the climate became warmer and dryer during the Middle Archaic, more sedentary lifestyles developed along with increased exploitation of riverine resources. The Middle Archaic is most notably characterized by open campsites with distinctive blade-notched hunting tools as well as generalized cutting and scraping tools, debris, groundstone tools and cores (Perttula 2004:375). The occurrence of burned rock features increases during the Middle Archaic demonstrating an importance on cooking and food processing as a subsistence strategy. The Middle Archaic period also marks the first construction of earthen mounds in Louisiana (Gibson 2006). Numerous mounds have been observed in Louisiana, the majority of which are located within northern Louisiana. This mound construction suggests the development of increasing more complex societies.

Late Archaic period sites are widely distributed in the Pineywoods along both major and minor stream bodies and upland formations. The distribution of sites across the landscape suggests that Late Archaic groups extensively exploited the region during this time. However, there are only a few well-dated Late Archaic sites located in northeast Texas (Perttula 2004: 376). Such sites as 41CS151, 41RK222, and 41TT150 all have Late Archaic components. Burned rock features and pits still characterize the Late Archaic, however there is no paleobotanical evidence to suggest that these groups were cultivating native plant species like as seen in populations further to the east (Perttula 2004:376).

EARLY CERAMIC OR WOODLAND (CA.200 B.C. TO 800 B.C.)

The Early Ceramic period, also known as the Woodland or the Fourche Maline period, is characterized by plain and relatively thick-walled ceramic bowls and flowerpot-shaped jars, double-bitted axe heads, smaller and thinner projectile points, (such as Gary points) and corner-notched arrow points (Perttula 2004:376; Thurmond 1990).

While there is still much to learn about the Woodland period populations in East Texas, evidence does suggest that these groups were becoming decreasingly less mobile through time. Excavations at Woodland period sites, like the Ray Site, have revealed several structures and large midden deposits.

Evidence suggests that Woodland period populations utilized root/tubers and both terrestrial and aquatic animal sources, predominantly white-tail deer (Perttula 2004:377). Some maize cultivation strategies were also utilized towards the end of the Early Ceramic.

According to Perttula (2004), no Woodland Period burials have been recorded in the northeast Texas Pineywoods region. However, Woodland burials have been observed further north and east along the Red River and within Arkansas and northwestern Louisiana. The setting for these burials typically include blufftops and alluvial settings (Perttula 2004:377).

LATE PREHISTORIC (CA. A.D. 800 TO 1700)

The Formative, Early, Middle, and Late Caddo periods define the Late Prehistoric in the Pineywoods and Post Oak Savanna in northeastern Texas. Caddo sites are typically located within alluvial settings and rises along both major and minor stream settings. The majority of Caddo period sites represent permanent settlement. Excavations of many of these sites have recorded well-preserved villages and hamlets consisting of earthen mound features, residential structures, cemeteries, and midden deposits. The diversity of cultural material among these Caddo groups is quite extensive. Common tools observed at these sites include well-made, corner-notched, and rectangular-stemmed arrow points; along with silt-stone and greenstone celts, perforators, and borers (Perttula 2004: 386).

A well-known Formative and Early Caddoan period site in the area is the George C. Davis site. This site consists of a large village site with numerous mounds and structures. An extensive burial complex was also noted at the site (Perttula 2004). Well defined radiocarbon

dates demonstrate a long, continual occupation sequence at the site. Two additional well known sites within the Texas Pinewoods include Oak Hill Village (41RK214) and Tyson (41SY92). Both of these sites contain extensive residential and burial complexes.

Late Caddo period sites consist of small farmsteads, hamlets, and mound centers. A culturally distinctive group of these sites, located between Sabine and Sulphur Rivers, northeast of the Project ESA, has been identified as the Late Caddoan Titus phase (ca. AD 1430-1680) (Perttula 2004, 396). Titus phase components also include family cemeteries and larger community cemeteries. One of the most widely studied community cemetery with high-status burials is the Tuck Carpenter site (41CP5), which contains over 70 internments dating between A.D. 1350 and 1550 (Perttula 2004, 402). Maize cultivation appears to be the main food source with some deer and other animals supplemented. Local lithics were primarily used for tool manufacture and ceramics contained considerable variation with respect to surface treatments and decorations (Perttula 2004).

HISTORIC (CA. A.D. 1700 TO 1950)

The first European to the area now known as Smith County was José Francisco Calahorra y Saenz, a Spanish missionary who travelled through the area in 1765 on the way to Neches Saline (McCroskey 2008b). At this time, the Anadarko Indians were the primary native inhabitants of the region. The Caddo were forced from the area by disease and other threats and the Cherokees settled in Smith County in 1820 after being displaced from North Texas by hostile tribes (McCroskey 2008b).

European settlement in the area was relatively sparse until 1820, when the Mexican government issued land grants in Smith County (McCroskey 2008b). The city of Lindale, located approximately 2.2 mi (3.5 km) southeast of the Project ESA, was settled in 1873 with the opening of a post office. By 1860, the population of Smith County was 13,392 including 4,980 slaves and two free blacks (McCroskey 2008a). The increased population, slave labor force, and railroad network allowed farms to produce even larger quantities of subsistence crops like corn, sweet potatoes, peas, and beans (McCroskey 2008b). By 1884, the population of Lindale reached 300 and the production of cotton and fruit became mainstays of the economy (McCroskey 2008a). By the early-twentieth century, Lindale was the third largest city in the county and rise of the timber industry stimulated the growth of the local economy. Area farmers participated in the nearby Civilian Conservation Corp Camp 896 study of soil erosion, known as the Duck Creek Project. This initiative sustained the town through the Great Depression (McCroskey 2008a). In 1931 Guy V. Lewis drilled the first oil well in Smith County and oil companies began opening offices in Tyler (McCroskey 2008a). All sectors of the economy continued to grow throughout the mid-twentieth century including the oil industry and the production of crops like roses, cotton, corn, and livestock. In 2014, the population of Smith County was 218,842 and oil and gas firms, educational and medical facilities, and retail shops were the largest employers (McCroskey 2008b).

BACKGROUND REVIEW

Prior to initiating fieldwork, Perennial conducted a records and literature review of the Texas Historical Commission (THC)'s Texas Archeological Sites Atlas (Atlas) online database and the NRHP database to identify previously recorded cultural resource sites, historic structures, properties listed in the NRHP, designated historic districts, or State Antiquities Landmarks (SAL) which could potentially be affected by the proposed undertaking. Previously recorded cultural resource site forms, reports of archaeological investigations, general historical documents, and secondary sources concerning the background of the area were reviewed. The records search included a review of all previously recorded site forms, cemetery data, and surveys on file within a 1.0-mi (1.6-km) review radius of the Project ESA.

In addition to a records and literature search, archaeologists gathered information from secondary sources concerning the prehistoric and historic background of the area. Documents associated with the history of the area were used to model prehistoric and historic settlement patterns in relation to the landscape and terrain characteristics as well as cultural patterns and regional trends. National Resources Conservation Service (NRCS) soil data, US Geological Survey (USGS) 7.5-minute topographic quadrangles, aerial photographs, and contemporary geologic and physiographic features were also examined.

BACKGROUND REVIEW RESULTS

The background review revealed the presence of six previously recorded archaeological sites (41SM391, 41SM392, 41SM393, 41SM394, 41SM395, 41SM163) and two previous cultural resource surveys within a 1.0-mi (1.6-km) radius of the Project ESA (Atlas 2016) (Figure 2). According to Atlas (2016), one Phase I cultural resource survey, conducted in 2008 for the US69/Loop 49 North Lindale Relief Route by Hicks & Company, documented five of the six sites (41SM391, 41SM392, 41SM393, 41SM394, 41SM395) within the review radius (Campbell et al. 2010). This previously surveyed area intersects the Project ESA in two locations, and site 41SM391 is mapped within the current Project ESA (Figure 2). Site 41SM391 consists of a single component historic farmstead with a rectangular cement building foundation. The site is located on an upland slope with a deciduous woodland setting that overlooks a floodplain to the north (Campbell et al. 2010). Soils at the site consist of Redsprings very gravelly sandy loam (NRCS 2016), with an approximate elevation of 425.0 ft (129.5 m) amsl (USGS 2016). Archaeological materials observed at site 41SM391 were predominately non-diagnostic, consisting of brick fragments, historic ceramics, colorless glass and wire nails. The site was recommended not eligible for listing on the NRHP (Campbell et al. 2010).

The second previously conducted survey by Hick & Company in 2011 consisted of Phase II testing at site 41SM393 and testing of a landform that appeared to contain a possible mound feature (Haefner et al. 2014). These additional survey efforts were conducted at two locations approximately 0.1 mi (0.2 km) and 0.2 mi (0.3 km) southeast of the Project ESA.

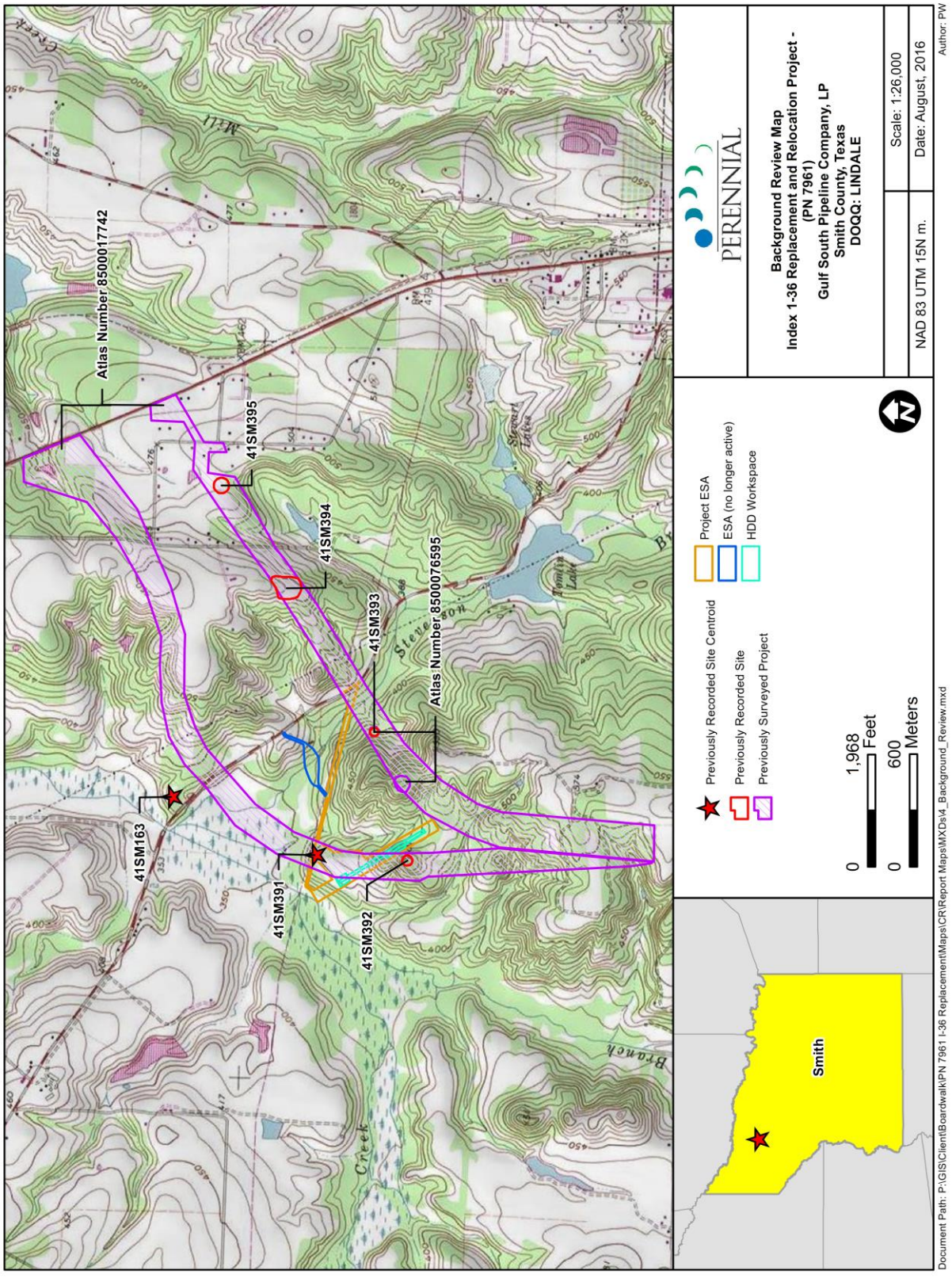

Figure 2. Previously recorded sites and surveys within the 1.0-mi radius of the Project ESA

Site 41SM392 is located 173.8 ft (53.0 m) west of the Project ESA. Cultural materials observed across the site consist of a historic-age artifact scatter of brown and colorless glass, metal barrel hoops, and agricultural equipment (Campbell et al. 2010). These materials were recovered from both surface and shallow subsurface contexts (up to 11.8 in [30.0 cm] below surface). The site measures approximately 0.6 ac (0.2 ha) in size and is confined to an upland ridge overlooking Duck Creek to the west at approximately 161.5 ft (530.0 m) amsl (Campbell et al. 2010). Soils at the site consist of Redsprings very gravelly sandy loam (NRCS 2016), (USGS 2016). The site was recommended as not eligible for inclusion in the NRHP.

Site 41SM393 is located 0.2 mi (0.3 km) southeast of the Project ESA. The site represents a Late Woodland to Early Caddo period artifact scatter. The site was originally documented during the 2008 survey by Hicks & Company. At the time of the initial survey, only a sparse scatter of lithic debitage and undecorated ceramics was recovered (Campbell et al. 2010). Hicks & Company returned to the site in 2011 to conduct Phase II investigations including mechanical trenching and hand excavations (Haefner et al. 2014). An artifact scatter, approximately 196.8 ft (60.0 m) by 164.0 ft (50.0 m) in size was recorded consisting of 131 decorated and undecorated ceramic sherds, eight pipe stem fragments, 247 pieces of lithic debitage, six bifaces/biface fragments, a core, a retouched flake, and eleven projectile points (Haefner et al. 2014). The archaeological assemblage across 41SM393 consisted of a subsurface component extending to a depth of 31.4 in (80.0 cm) below surface. Soils at the site consist of Elrose fine sandy loam (NRCS 2016), with an approximate elevation of 460 ft (140.2 m) amsl (USGS 2016). Based upon the results of additional testing, Hicks and Company recommended site 41SM393 as eligible for inclusion in the NRHP.

Site 41SM394 is located 0.5 mi (0.7 km) east of the Project ESA. Cultural material recovered from the site consists of a scatter of prehistoric lithic artifacts. The site measures approximately 3.8 ac (1.5 ha) in size and is located on a plowed upland ridge. Soils across the site consist of Oakwood fine sandy loam and Cuthbert gravelly fine sandy loam (NRCS 2016), with an approximate elevation of 515 ft (156.9 m) amsl (USGS 2016). Materials on site 41SM394 were recovered from surface and subsurface contexts extending up to 19.6 in (50 cm) below surface. Site 41SM394 currently has an undetermined NRHP eligibility status and further testing is necessary in in order to make an NRHP eligibility determination (Campbell et al. 2010). However, based upon the site's distance from the Project ESA, proposed construction activities within the Project ESA do not have any potential to impact site 41SM394.

Site 41SM395 is located 0.8 mi (1.3 km) east of the Project ESA in a pastureland setting. The site consists of a scatter of prehistoric lithic debitage. The site measures approximately 1.4 ac (0.5 ha) in size, and is located on an upland ridge overlooking an intermittent drainage to the south. Soils across site 41SM395 consist of Pickton loamy fine sand (NRCS 2016), with an approximate elevation of 500.0 ft (152.4 m) amsl (USGS 2016). The artifact assemblage at site 41SM395 has a substantial subsurface component ranging from 15.7 to 55.1 in (40.0

to 140.0 cm) below surface (Campbell et al. 2010). Site 41SM395 currently has an undetermined NRHP eligibility status and further testing is necessary in in order to make an NRHP eligibility determination (Campbell et al. 2010). However, based upon the site's distance from the Project ESA, proposed construction activities within the Project ESA do not have any potential to impact site 41SM395.

The centroid of site 41SM163 is recorded approximately 0.4 mi (0.6 km) north of the Project ESA in a deciduous woodland setting. Soils at the site consist of Cuthbert gravelly fine sandy loam (NRCS 2016), with an approximate elevation of 410 ft (124.9 m) amsl (USGS 2016). No additional information about the site's cultural affiliation, site dimensions, date of investigation, site recorder, conclusions or NRHP eligibility determination was available. Site 41SM163 currently has an undetermined NRHP eligibility status and further testing is necessary in in order to make an NRHP eligibility determination. Based upon the site's distance from the Project ESA, proposed construction activities within the Project ESA do not have any potential to impact the site.

IV. FIELD METHODS

Perennial's investigations consisted of an intensive pedestrian survey and shovel testing efforts within the Project ESA. A team of two Perennial staff archeologists examined the ground surface as well as erosional profiles and exposures for cultural resources. Subsurface investigations involved the excavation of a series of shovel tests across the Project ESA. In addition to the shovel testing, the field crew completed a series of pedestrian survey transects across Project ESA.

Shovel tests measured approximately 11.8 inches (in) (30 centimeters [cm]) in diameter and were excavated to a maximum depth of 4.3 ft (1.3 m). In some cases, shovel tests were terminated at shallower depths due to the presence of compact clays or a lens of impenetrable sandstone gravels encountered within the shovel tests. Due to dry environmental conditions, the matrix encountered within several of the shovel tests was very compact. In many cases, the excavation of the shovel tests to depths of project impacts was not possible utilizing a shovel. In these instances, a hand-operated bucket auger was utilized at the base of these shovel tests in order to assess the lower portions of each test pit. The auger probes were initiated between 13.8 and 33.5 in (35.0 and 85.0 cm) below surface. The matrix from each shovel test was screened through 0.25-in (6.0-millimeter [mm]) mesh. If dense, clays were encountered and could not be successfully screened, the clay matrix was trowel-sorted and visually inspected. For each shovel test, Perennial recorded the following information on standardized shovel test forms: location, maximum depth, and the number of soil strata. For each soil stratum, thickness, texture, color, and the presence or absence and nature of cultural materials were recorded. During field survey, the archaeologist was equipped with a handheld sub-meter GeoXT Trimble Global Positioning System (GPS) device, topographic maps and aerial photographs of the workspace, a digital camera, as well as shovel test and photographic logs, and daily journal forms.

The Texas State Minimum Archeological Survey Standards (TSMASS) require a minimum of 16 shovel tests per 1.0 mi (1.6 km) for linear surveys measuring up to 100.0 ft (30.5 m) in width. The majority of the proposed access road corridors within the Project ESA are narrow measuring approximately 30.0 to 75.0 ft (9.1 to 22.9 m) in width. However, additional portions of the Project ESA measure up to 600.0 ft (182.9 m) in width. Based upon the varying corridor widths across the Project ESA, a minimum of 47 shovel tests were needed within the ESA in order to satisfy the TSMASS. Perennial exceeded the TSMASS by excavating 154 shovel tests across the Project ESA. The high volume of shovel tests excavated across the ESA is a result of recording five new sites and revisiting one previously recorded site in the area. Shovel tests were placed between 164.0 and 328.0-ft (50.0 and 100.0-m) intervals apart across most of the Project ESA. However, in areas with the highest probability to contain subsurface cultural deposits, shovel tests were placed between 32.8-65.6-ft (10.0-20.0-m) intervals apart. Portions of the Project ESA contained existing buried utility corridors. As such, subsurface tests were spaced to avoid disturbed settings. In addition to the subsurface testing, the field crew traversed the entire Project ESA in order to observe the modern

ground surface for cultural materials between shovel test intervals. Pedestrian survey transects were intended to provide adequate coverage of the space between shovel tests.

The artifact collection strategy included the collection of all prehistoric artifacts encountered in subsurface contexts to provide vertical pattering data within prehistoric site deposits. For surface components, only diagnostic artifacts were collected while the concentration and densities of surface assemblages was quantified through pedestrian surveys.

The collected artifact assemblage for each site has been temporarily housed in Perennial's laboratory in Austin, Texas for processing and analysis. All collected artifacts were washed, quantified, catalogued in tabular format. Diagnostic artifacts such as ceramic sherds or projectile points were typed to the extent possible based on defining characteristics, design, or through comparative analysis of comparable assemblages in the region. Photos were taken of all artifact classes, and artifacts will be returned to landowners upon request.

V. RESULTS OF FIELD SURVEY

Perennial conducted an intensive surface and subsurface cultural resources investigation within the Project ESA between July 5-8, 2016 and July 25-28, 2016. The Project ESA is situated in a rural, wooded setting surrounded by large-acreage farmsteads and located essentially in between two existing pipeline corridors. The direct setting of the Project ESA consists of rolling uplands approximately 0.5 mi (0.8 km) to the south of the confluence of Hubbard Branch and Stevenson Branch.

The survey investigations resulted in the documentation of five newly recorded sites (41SM474, 41SM475, 41SM476, 41SM477, and 41SM478) and one site revisit (41SM391) (Figure 3 and Figure 4). These newly recorded sites include one late-nineteenth to mid-twentieth century historic artifact scatter (41SM474), three Transitional Archaic/Early Woodland period open campsites (41SM475, 41SM476, and 41SM477), and one multiple component site consisting of a surface scatter of late-nineteenth to early-twentieth century artifacts intermixed with non-diagnostic prehistoric lithic material (41SM478). No evidence of site 41SM391 (a historic-age farmstead) was documented within the ESA during the site revisit.

Generally speaking, the materials associated with the prehistoric campsites suggest they were occupied contemporaneously. With the exception of one decorated ceramic sherd, all prehistoric ceramic materials consist of undecorated, thick-walled, grog-tempered sherds. Only body sherds were recovered from sites 41SM476, and 41SM477, while one rim sherd was recovered from site 41SM475. This sherd appears to represent a thick-walled bowl fragment. Since no additional diagnostic rim or base sherds were recovered, a discussion of vessel form is not presented here. The lithic artifacts vary in raw material including locally sourced coarse-grained chert, quartzite, silicified wood, and ironstone. Lower quantities of non-local raw material including Edwards chert, and Arkansas novaculite are also represented. The comprehensive projectile point assemblage suggests a general transitional Archaic settlement across this area. No definitive Woodland period features (post molds, pit features, or hearth features) were observed with any of the sites. However, given the quantity of ceramic material associated with the sites it is likely these sites likely dated to the Early Woodland/Caddo Period. A detailed discussion of each site is presented separately below.

SITE 41SM474

Setting

Site 41SM474 consists of a historic-age artifact scatter located approximately 0.6 mi (1.0 km) northwest from the intersection of CR 431 (also Old Mineola Road) and CR 4118 (also Joe Mea Road) just outside of Lindale in Smith County, Texas (see Appendix A).

The ground surface of the site has been disturbed due to cattle trampling and vehicular traffic via a two-track road that bisects the middle of the site (Figure 5 and Figure 6). At the time of the survey, ground surface visibility was quite variable ranging from zero to nearly 80 percent.

Based upon the distribution of materials along the modern ground surface, it is likely that

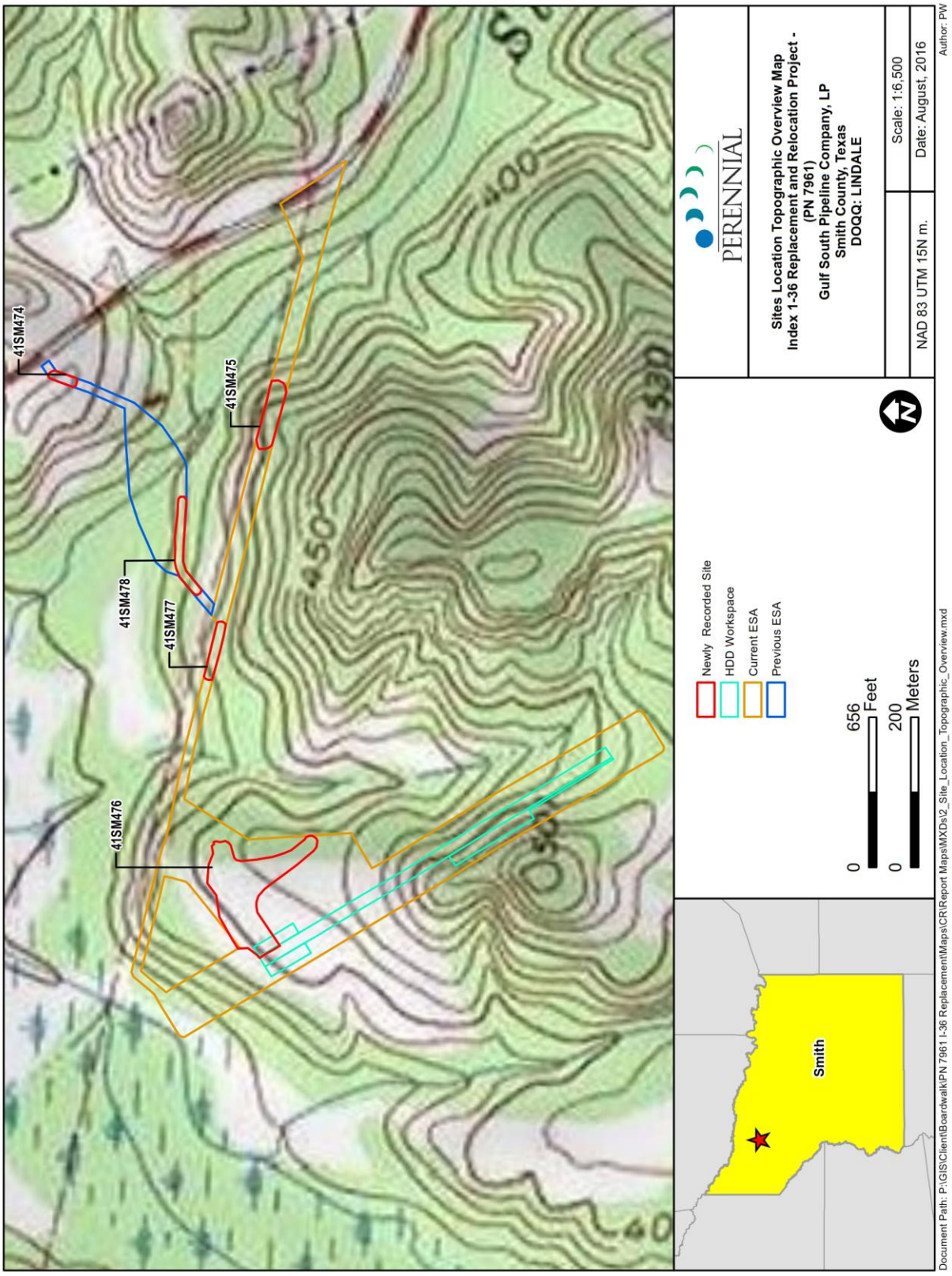

Figure 3. Newly recorded site location map on topographic quadrangle

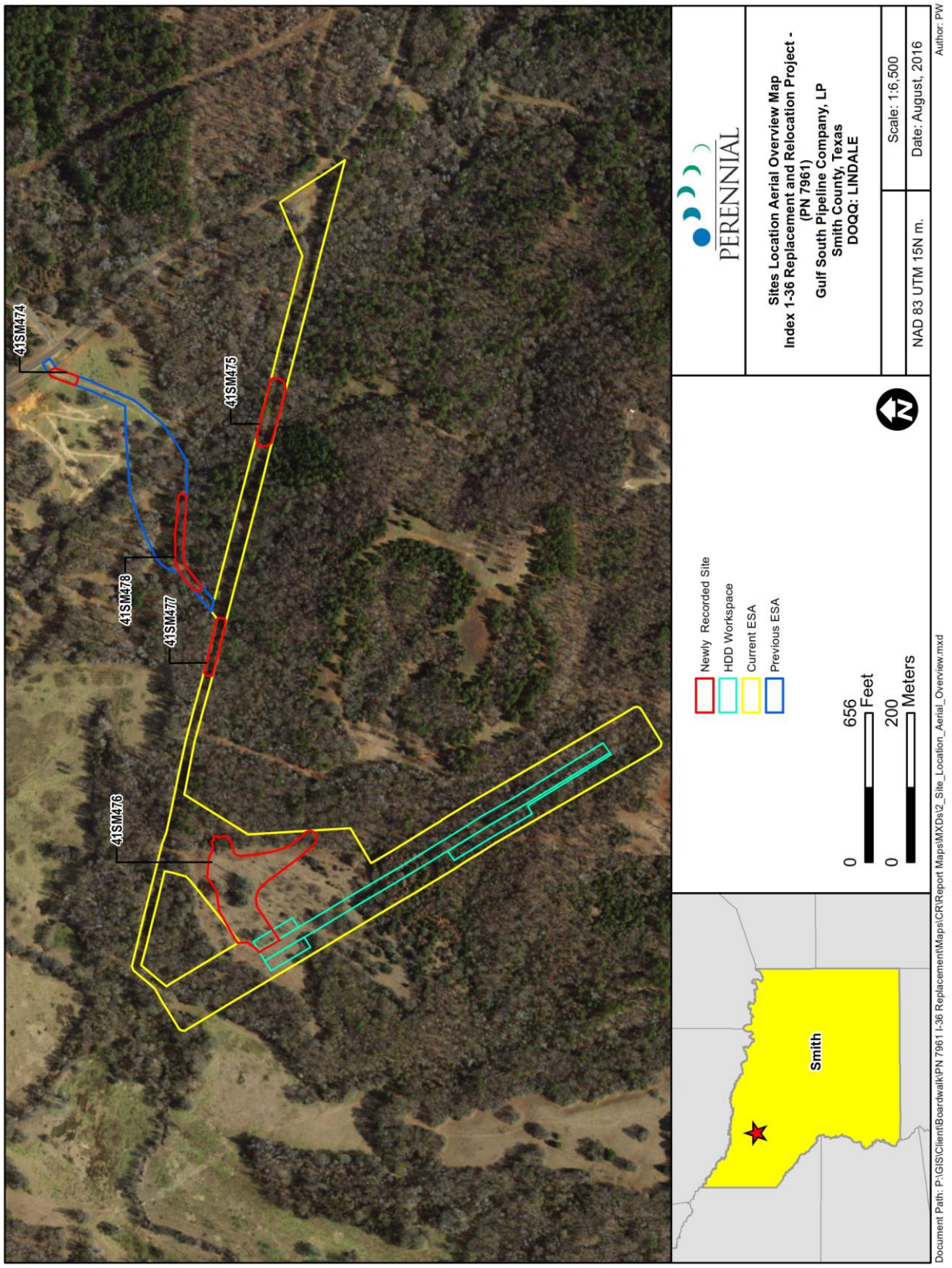

Figure 4. Newly recorded site location map on aerial imagery

Figure 5. Overview of site 41SM474, facing south.

Figure 6. Another view of site 41SM474, facing south.

41SM474 extends to the south beyond the boundaries of the Project ESA. As such, only the NRHP eligibility status for the portion of the site located within the current Project ESA was evaluated.

Work Completed

Site 41SM474 was recorded on July 5, 2016. A total of seven shovel tests excavated on site 41SM474 revealed up to 23.6 in (60.0 cm) of brown to strong brown sandy loam and sand overlying red and yellowish-red sandy clay (Figure 7). One shovel test (JC-01) was terminated at approximately 25.6 in (65.0 cm) due to the presence of compact, gravelly clays. The remaining six shovel tests excavated across the site were terminated between 5.9 and 17.7 in (15.0 and 45.0 cm) below surface due to the presence of dense, impenetrable sandstone deposits. Cultural materials were observed in the upper 11.8 in (50.0 cm) of sediments in two of the seven shovel tests excavated on the site; however, cultural materials are predominantly restricted to the modern ground surface.

Soils identified within the site boundary consist of Cuthbert gravelly fine sandy loam, 12 to 30 percent slopes. The Cuthbert series are well-drained and slowly to moderately slowly permeable soils composed of moderately deep to weakly consolidated sandstone and shale. These soils are on strongly sloping to steep uplands (NRCS 2016). Based on available NRCS (2016) soil data, the A horizon within the site extends to a depth of only 4.0 in (10.0 cm) below surface in these areas. There is no evidence of any buried A horizon soils present within the any of the shovel tests in these locations. The shovel testing data coupled with the NRCS soils data suggests a decreased potential for any unidentified buried cultural deposits in these locations. Appendix B provides the soils profiles for the shovel test excavated on site 41SM474.

Based on the distribution of the materials along the modern ground surface and within shovel tests, site 41SM474 measures approximately 124.6 ft (38.0 m) northeast to southwest by 39.3 ft (12.0 m) northwest to southeast and covers approximately 0.11 acres (0.05 hectares). The entire Project ESA within this location was examined through pedestrian survey transects spaced approximately 16.4-ft (5.0- m) intervals apart. Perennial archaeologists preformed a general surface inspection and determined that site 41SM474 likely extends to the south beyond the current Project ESA boundaries.

Observed Cultural Materials

Cultural materials recovered from site 41SM474 consist of a domestic assemblage consisting of historic-age ceramics, glass shards, and metal fragments. Historic-age artifacts include eight plain whiteware ceramic sherds, one American stoneware sherd, more than 40 shards of colorless glass, three amber glass shards, two opaque white (milk glass) glass shards, 15 wire nail fragments, four unidentified metal fragments, one carved bone button, more than 50 fragments of asphalt shingles (Figure 8 to Figure 12).

Opaque white (milk glass) was utilized from 1890s to the mid-twentieth century in the production of the cosmetics/toiletry jars and ointment jars (Lindsey 2016). Additionally, the asphalt shingle fragments likely date to the early- to mid-twentieth century (CASMA 2016). These recovered diagnostic artifacts indicate that the site may have been associated

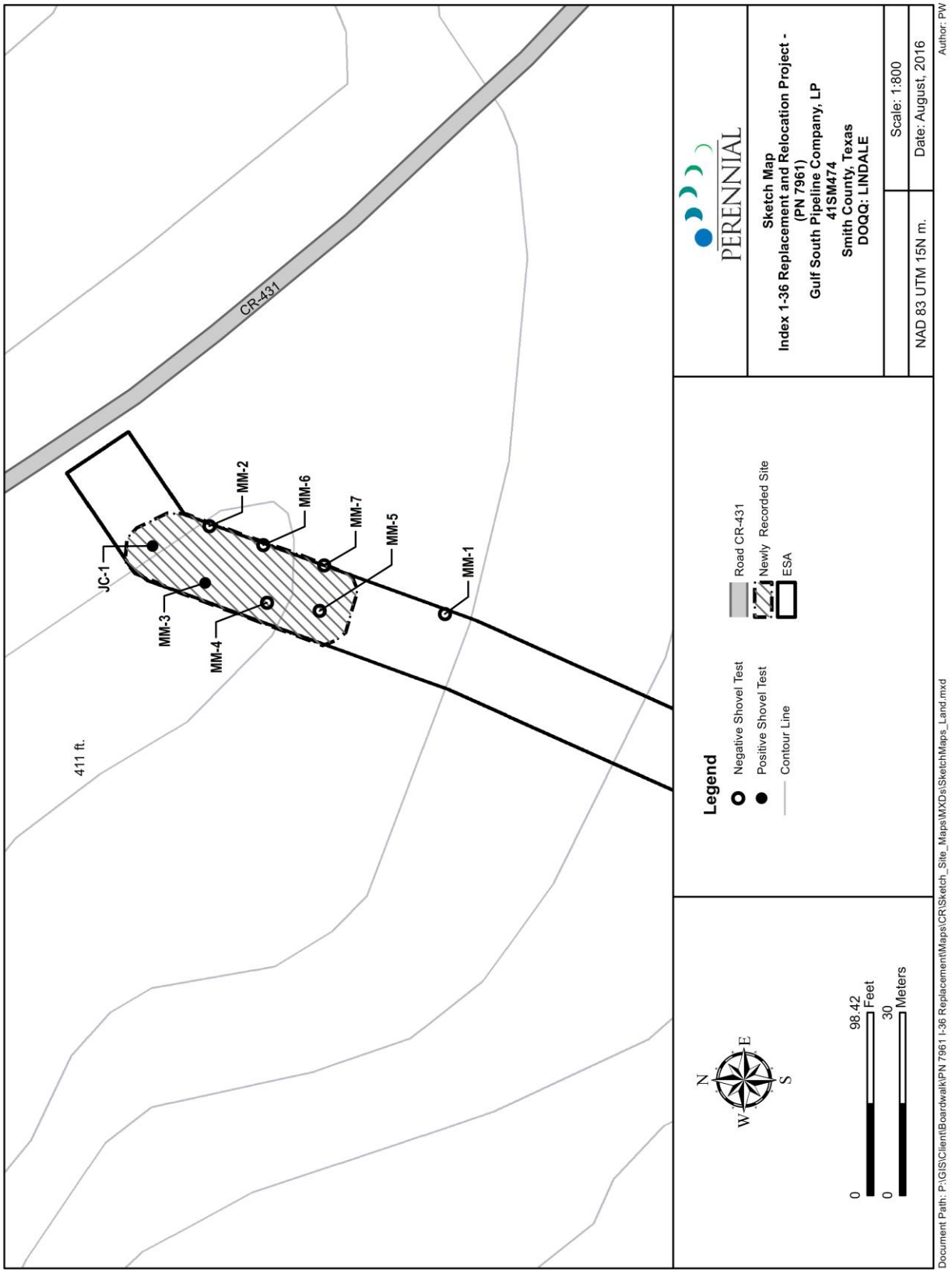

Figure 7. Site 41SM474 sketch map.

Figure 8. Ceramic assemblage observed on site 41SM474.

Figure 9. Ferrous metal assemblage observed on site 41SM474.

Figure 10. Glass assemblage observed on site 41SM474.

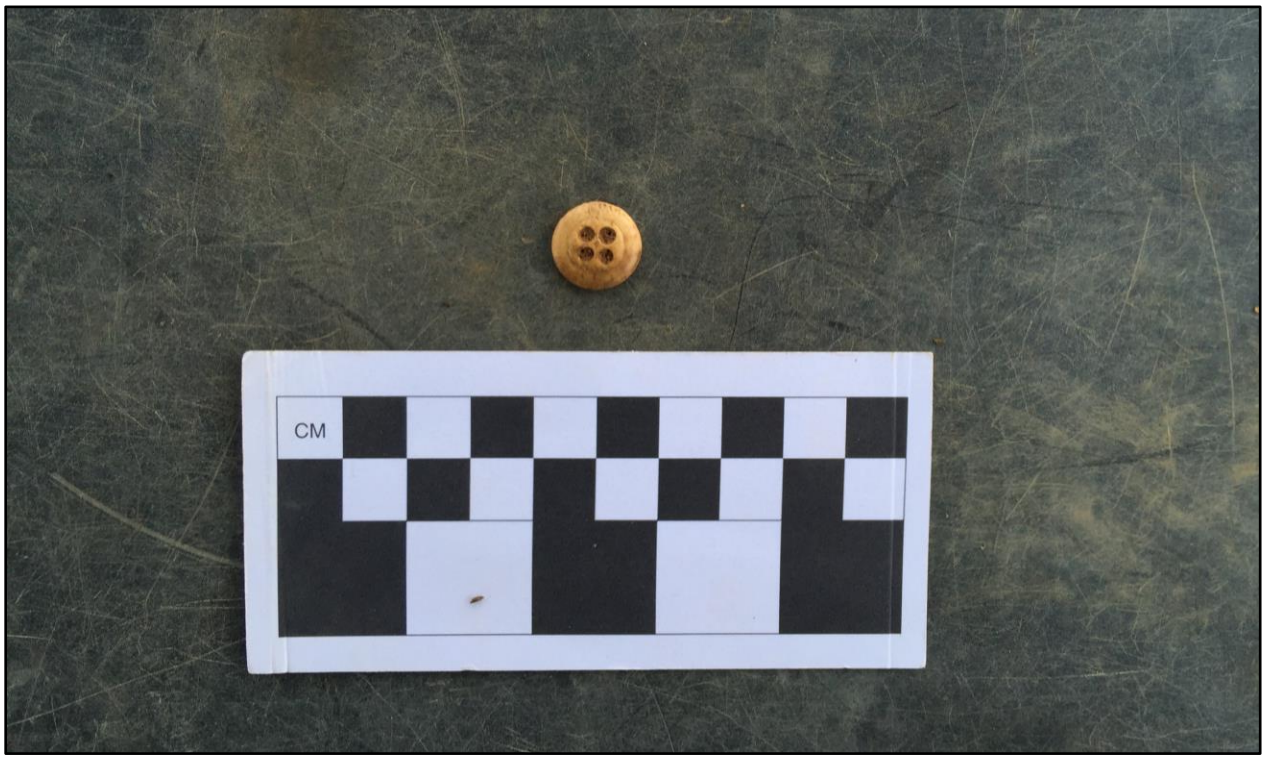

Figure 11. Bone button observed on site 41SM474.

Figure 12. Asphalt shingles observed on site 41SM474.

with a late-nineteenth or early-twentieth century occupation.

Cultural Features

No cultural features or structures were observed along the modern ground surface or within any of the seven shovel tests excavated across the site. Additionally, no remnants of any standing structures were observed within the adjacent to the site boundaries.

Historical Research and Oral History

A desktop review was conducted of the available Tyler (USGS 2016 [1956, 1963]) and Lindale (USGS 2016 [1962]) historic-age topographic quadrangle maps was conducted for the area within and surrounding the boundaries of site 41SM474. No structures are mapped within the location of the documented site boundary or within the immediate vicinity of the site.

Additionally, an informant interview was conducted with the current landowner (Mr. Harold Spidle) of the property on which site 41SM474 is located. Mr. Spidle indicated that his property was once part of a larger 2000-acre land tract owned by the (Frank) Bowdoin family. Mr. Spidle recounted that the large parcel supported approximately 20 tenant farming families during the late-nineteenth and early-twentieth century before the parcel was partitioned into smaller land tracts sometime during the first half of the twentieth century. Mr. Spidle indicated that his knowledge of the early history of the property was obtained from several families residing nearby that have multi-generational history in the area (personal communication, 2016).

A search of the surname Bowdoin was conducted at the Texas State Historical Association (TSHA) Handbook of Texas Online (TSHA 2016) website. No entries matching Frank Bowdoin were found. Additional research on Frank Bowdoin or Bowdoin plantation did not reveal connections to any persons of historical significance and the property does not appear to be associated any known historical events.

Deed research for the property on which site 41SM474 is located was not conducted at the time of the field investigations. The artifact assemblage is domestic in nature and based upon oral history accounts, is likely associated with tenant farming occupations (rather than the property owner) during the late nineteenth century to the mid-twentieth century. Aside from the presence of asphalt shingles and nails observed in one shovel test, no evidence exists that resembles the remains of a structure or structures. The absence of any structures or associated features makes it difficult to identify any definitive connections between the artifact assemblage and a particular person or family that may have resided on the property during this period. Therefore, deed research on the property would not have likely failed to establish provided a real connection between this ephemeral artifact assemblage associated with site 41SM474 and historic-age households.

Recommendations

Site 41SM474 is a sparse, historic-age artifact scatter with material likely dating from the late nineteenth century to the mid-twentieth century. The historic-age artifacts were scattered primarily along modern ground surface, however a subsurface component (up to 19.6 in [50.0 cm]) below ground surface was present within a small portion of the site. Only one shovel test contained materials this deep. The materials located within the shovel test were situated immediately beneath a layer of asphalt shingles and appears to be trash that was dumped and covered. The modern ground surface across the site shows signs of disturbances from both vehicular and cattle traffic. Overall, the deposits within the site boundaries consist of a low- density domestic trash and architectural debris without any associated historic-age structures or features observed on the site. The absence of any mapped structures on historical topographic maps within the boundaries of the site also suggests that site 41SM474 was likely not directly associated with a primary residence, but could be the remnants of debris associated with a temporary farming or hunting structure.

Since the site was only delineated within the boundaries of the Project ESA, the full extent of site 41SM474 remains unknown. As such, the overall NRHP eligibility status of the site is considered to be undetermined. However, an informant interview with the current landowner of the property on which site 41SM474 is located revealed that the property was likely once occupied by numerous tenant farmers (associated with the Bowdoin family farming activities) during the late-nineteenth to mid-twentieth century. Background research conducted for the property on which site 41SM474 is located did not identify connections to any persons or events of historical significance. Additionally, based on the lack of intact structures or features and the lack of significant, intact cultural deposits, it is Perennial's opinion that the portion of site

41SM474 within the Project ESA be considered a noncontributing element to the overall NRHP eligibility of the site. No additional investigations are recommended on site 41SM474 within the boundaries of the Project ESA. Due to a change in engineering design for the Project, site 41SM474 no longer falls within the current Project footprint and will not be impacted by any construction activities associated with the Project.

SITE 41SM475

Setting

Site 41SM475 consists of a prehistoric open campsite located approximately 0.5 mi (0.8 km) northwest from the intersection of CR 431 (also Old Mineola Road) and CR 4118 (also Joe Mea Road) just outside of Lindale in Smith County, Texas (see Appendix A). The portion of the site within the Project ESA is also located within a cleared and maintained pipeline corridor (Figure 13 and Figure 14). The cultural materials scattered across the surface of the site likely have been displaced due to erosion and previous pipeline construction activities. However, the materials recovered in subsurface contexts along the margins of the pipeline corridor appear to be *in situ*. At the time of the survey, ground surface visibility was quite variable ranging from zero to nearly 80 percent in areas with heavy erosion. Based upon the distribution of materials along the modern ground surface and within shovel tests, it appears that 41SM475 may extend to the south beyond the boundaries of the survey corridor. As such, only the NRHP eligibility status for the portion of the site located within the current Project ESA was evaluated.

Soils identified within the assessed portion of 41SM475 consist of Elrose fine sandy loam, and Keechi loam (NRCS 2016). The Elrose series are upland soils that consist of deep, well drained, slowly to moderately permeable soils that are derived from glauconite marine sediments, while the Keechi series are common to flood plains and consist of very deep, very poorly drained, slowly permeable soils that form in stratified loamy and sandy alluvial sediments (NRCS 2016). The site is located along the edge of a hillslope, at an elevation ranging from of 418.0 to 453.0 ft (127.4 to 138.1 m) amsl (USGS 2016). The site is situated overlooking Stevenson Branch approximately 360.8 ft (110.0 m) to the northeast.

Work Completed

Site 41SM475 was recorded on July 8, 2016. A total of 8 shovel tests excavated on site 41SM475 revealed up to 29.5 in (75.0 cm) of pinkish-gray to yellowish-brown and yellowish-red to red sandy loam and sandy clay loam overlying red sandy clay.

High quantities of sandstone gravels were observed within several of the shovel tests. In many cases, the volume of sandstone inclusions increased with depth, and the shovel tests were terminated due to these impenetrable sandstone deposits. Cultural materials were observed in the upper 11.8 in (50.0 cm) of sediments in 3 of the 7 shovel tests excavated on the site. Additionally, cultural materials are dispersed along the surface of site 41SM475 within surface exposures caused by erosion and

Figure 13. Overview of site 41SM475 along an existing pipeline corridor, facing southeast.

Figure 14. Another view of site 41SM475 along an existing pipeline corridor, facing west.

previous pipeline construction activities. Appendix B provides the soils profiles for the shovel tests excavated at the site as well as depths for the artifact assemblage associated with the shovel tests.

Based on the distribution of the materials along the modern ground surface and within shovel tests, site 41SM475 measures approximately 310.0 ft (94.5 m) northwest to southeast by 75.0 ft (22.8 m) northeast to southwest and covers approximately 0.50 acres (0.20 hectares) Figure 15). The entire Project ESA within this location was examined through pedestrian survey transects spaced approximately 16.4-ft (5.0- m) intervals apart. Based upon a general surface inspection of the site and positive shovel tests along the margins of the site, Perennial determined that site 41SM475 likely extends to the north and south beyond the current boundaries of the Project ESA.

Observed Cultural Materials

Cultural materials recovered from site 41SM475 consist of primarily prehistoric ceramic and lithic material, however four historic-age whiteware sherds (likely from the same vessel) were also recovered from the site. The historic-age ceramic sherds consist of two plain whiteware sherds and two hand painted whiteware sherds (Figure 16). These painted sherds have a manufacture range from 1830-1900 (Majewski and O'Brien 1987).

The prehistoric component of site 41SM475 consists of ceramic and lithic materials. Ceramic materials recovered from the site include unslipped and undecorated body sherds (Figure 17). The ceramic materials recovered have buff colored surfaces, contain a very dark gray and dark gray (10YR 3/1 and 10YR 4/1) paste, and are either grog- tempered or sandy paste plain wares. One rim sherd was recovered from site 41SM475. This sherd appears to represent a short-walled bowl fragment. Since no additional rim or base diagnostic sherds were recovered, a discussion of vessel form is not presented here. These ceramic materials are generally consistent with non-diagnostic utility wares (Perttula et al. 1995). Lithic materials consist of secondary and tertiary flakes manufactured from petrified or silicified wood, medium-grain and coarse-grained chert that range in color from dark gray to reddish-brown (Figure 18). At least one specimen shows evidence heat treatment. Three dart point fragments were recovered in subsurface contexts from site 41SM475 (Figure 19).

The majority of the dart point assemblage is too fragmented to determine point type with the exception of the point seen on the right of the image in Figure 19. This point has a short, triangular body with prominent shoulders, and expanding stem and a slightly concave base reminiscent of an Edgewood style point (Turner and Hester 1999). This point style type suggests and Transitional Archaic to Early Woodland occupation for site 41SM475.

The ceramic artifacts recovered from 41SM475 are largely non-diagnostic. The presence of ceramic materials at all coincides generally with the late prehistoric Woodland/Caddoan period ceramic cultures (Perttula et al. 1995), however ceramic technologies of Northeast Texas are extremely diversified throughout this time producing a broad variety of both utilitarian and fine wares (Thurmond 1990). The presence of grog-tempered specimen is potentially diagnostic in conjunction with

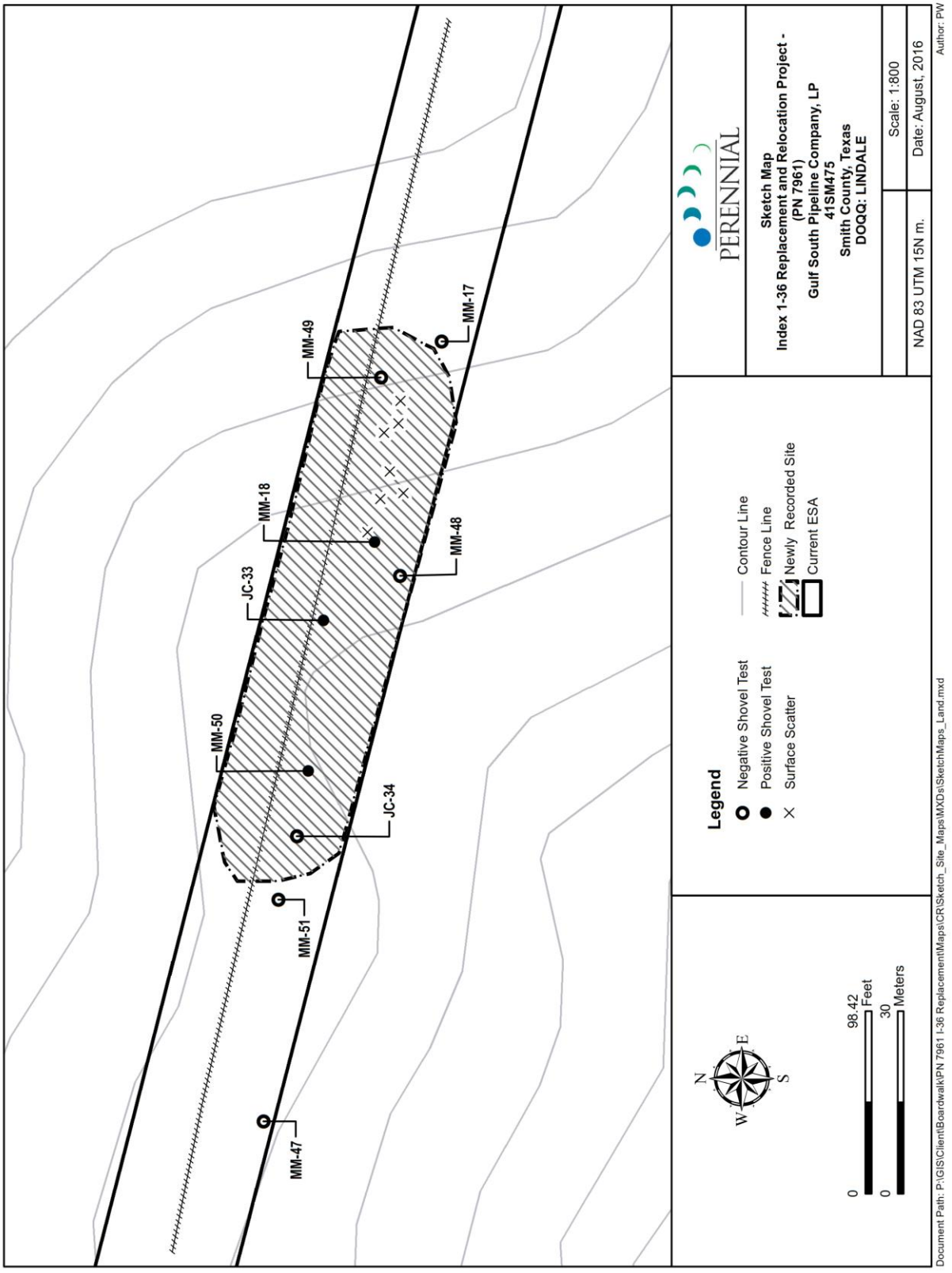

Figure 15. Sketch map of site 41SM475

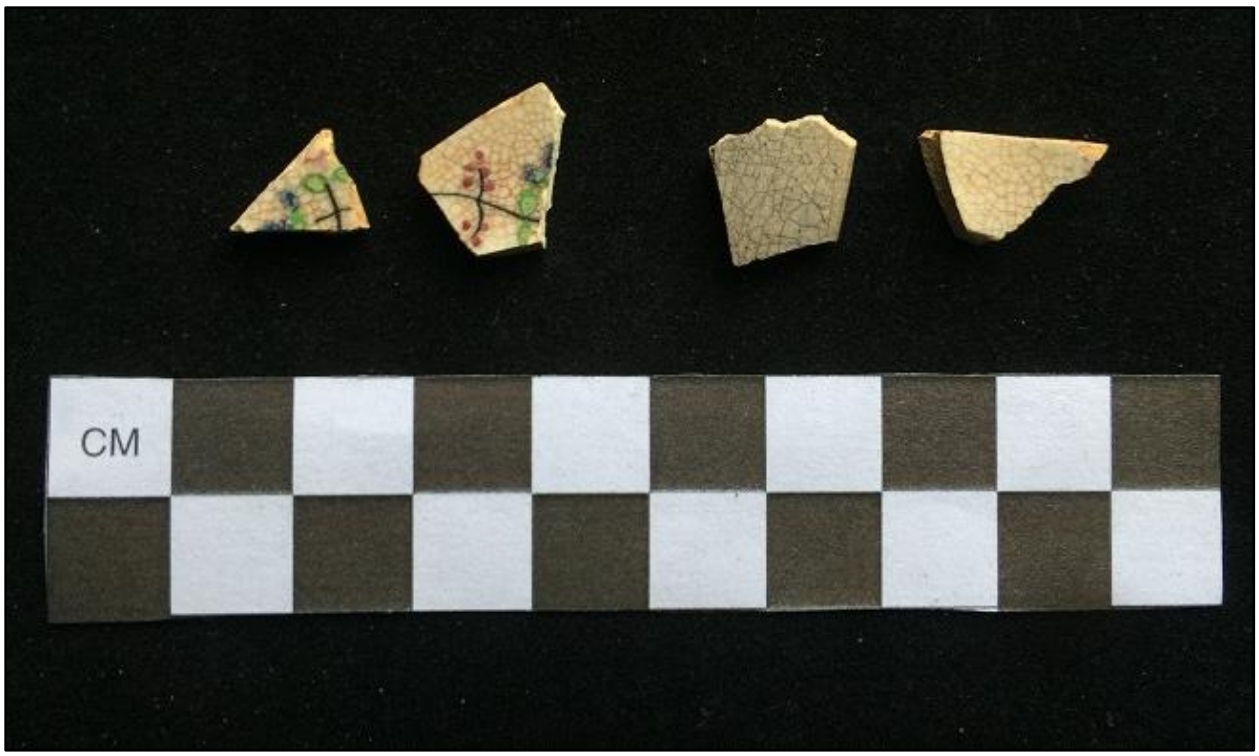

Figure 16. Hand painted ceramic sherds observed on site 41SM475.

Figure 17. Ceramic assemblage observed on site 41SM475.

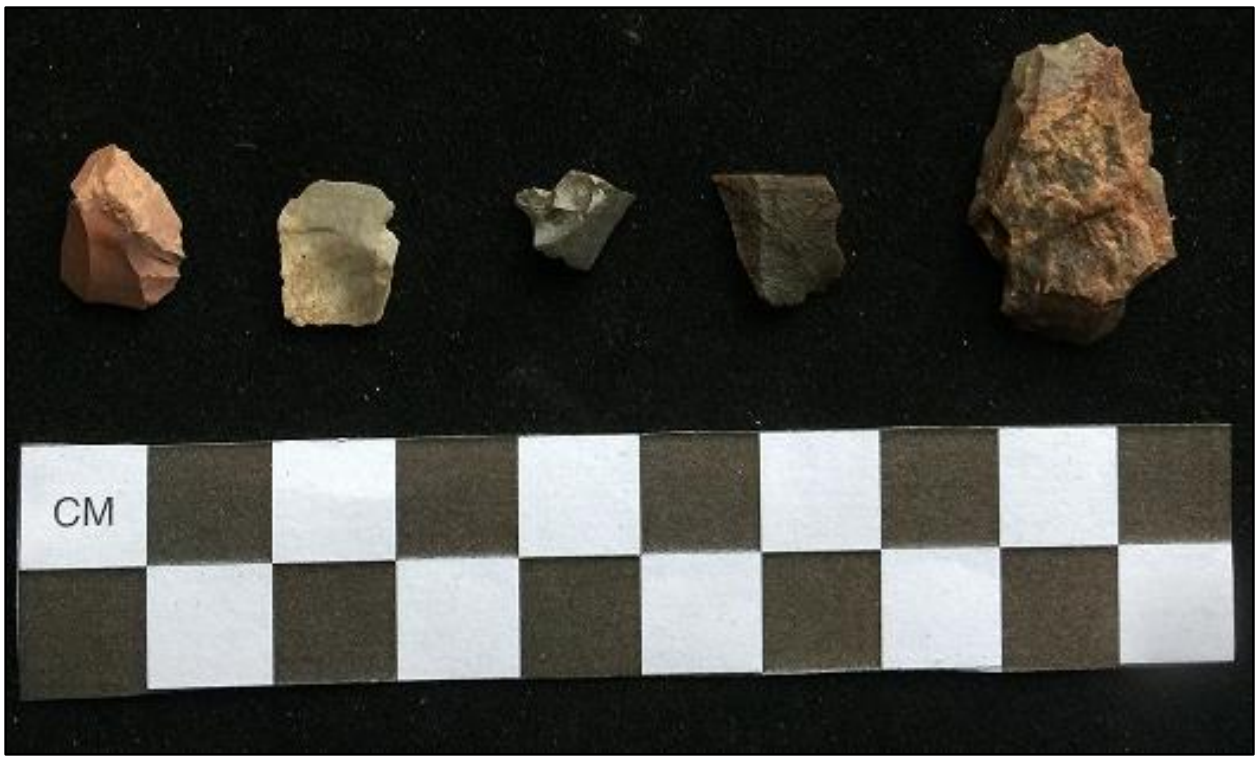

Figure 18. Lithic debitage observed on site 41SM475.

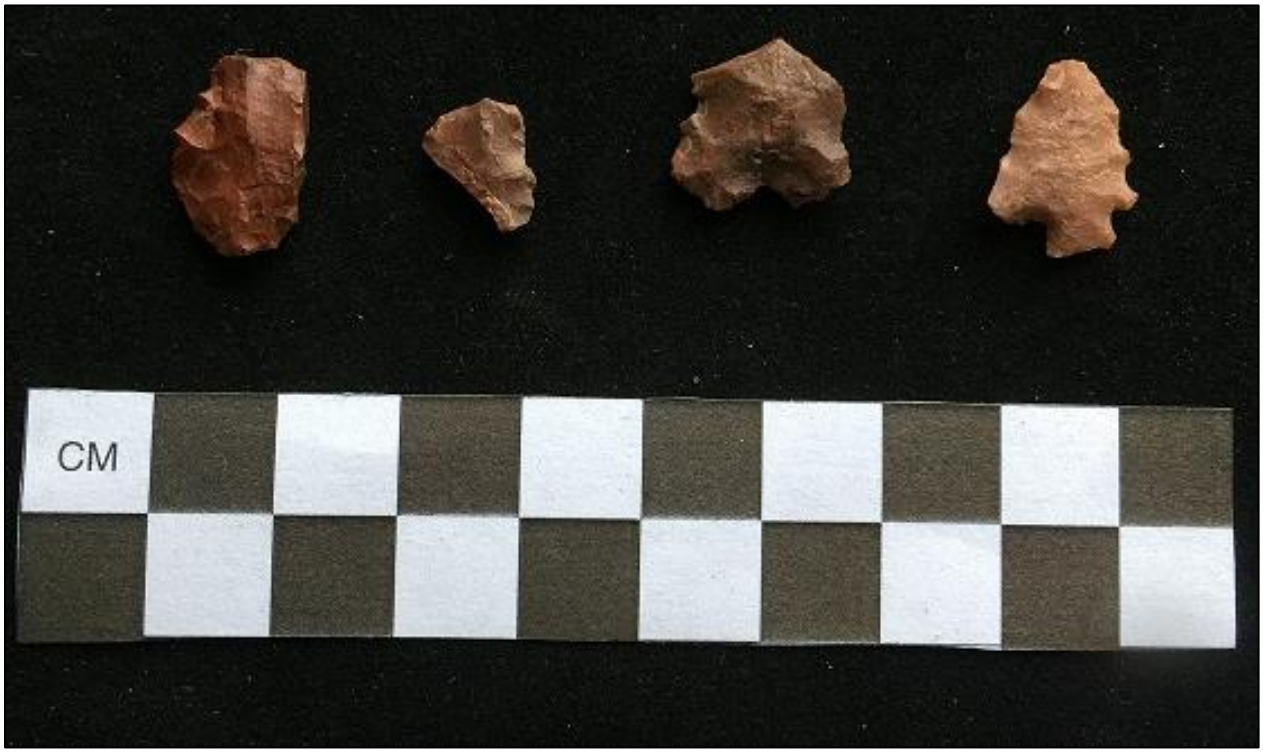

Figure 19. Point assemblage observed on site 41SM475.

additional vessel features, however this type of tempering provides little temporal distinction when referenced without other defining characteristics. In the absence of vessel form, rim and body design, decoration or slip, and exterior features such as applique, more precise inferences about cultural affiliation and production period from ceramic materials recovered from site 41SM475 cannot be directly inferred.

Cultural Features

No cultural features or structures were observed along the modern ground surface or within any of the seven shovel tests excavated across the site. Additionally, no evidence of any standing structures or structure foundations was observed within the site boundaries or within proximity to the site.

Historical Map Review

The density of historic-age cultural materials was very low, however a desktop review was conducted of the available Tyler (USGS 2016 [1956, 1963]) and Lindale (USGS 2016 [1962]) historic-age topographic quadrangle maps for the area within and surrounding the boundaries of site 41SM475 to determine if any historic-age structures were mapped within or immediately adjacent to the boundaries of the site or the Project ESA. No structures are mapped within the documented site boundary or within the vicinity of the site.

Recommendations

Site 41SM475 is prehistoric open campsite that likely dates to the Transitional Archaic to Early Woodland occupation. A small scatter of historic-age ceramics (likely from the same vessel) was also recovered from the surface and likely date to the late-nineteenth century. The site is located within an existing pipeline corridor, and portions of the site's surface shows signs of disturbance from erosion and pipeline construction activities (likely displacing cultural materials observed along the ground surface). However, the subsurface component of the site along the outer margins of the pipeline corridor show little disturbance suggesting potential for intact, buried deposits.

Since the site was only delineated within the boundaries of the Project ESA, the full extent of site 41SM475 is unknown. As such, the overall NRHP eligibility status of the site is considered to be undetermined pending more comprehensive site delineation efforts or Phase II testing. Additional archival or deed research may also be warranted for the historic-age component of the site. Based on the presence of temporally diagnostic tool fragments and the presence of ceramic materials recovered from subsurface contexts suggest the potential exists for intact, deposits within unexcavated portions of the site within the Project ESA. As such, it remains to be determined if the deposits within the Project ESA are contributing elements to the site's overall NRHP eligibility status.

Gulf South has agreed to place wooden timber mats across the entire length of the site to be used as an avoidance measure. This portion of the Project ESA will only be used as a temporary travel lane for construction vehicles to access HDD workspaces. The timber matting will be in place across the site for the duration of the Project activities to ensure no adverse impacts occur to the site.

Figure 20 demonstrates the matting areas for site 41SM475. Additionally, any vegetation removal necessary across portions of the site

within the Project ESA will be removed by hand or cut at ground surface level, rather than pulled up from the ground causing extensive ground disturbance. This avoidance plan was presented to the THC during a July 20, 2016 meeting with Perennial and Gulf South in order to obtain interim clearance to accommodate Gulf South's aggressive construction schedule. The THC concurred with Gulf South's timber matting strategy to protect the subsurface deposits associated with site 41SM475 on August 9, 2016 via an email correspondence. A copy of the correspondence is located in Appendix D.

SITE 41SM476

Setting

Site 41SM476 is a Transitional Archaic/Early Woodland campsite located approximately 0.9 mi (1.5 km) northwest from the intersection of CR 431 (also Old Mineola Road) and CR 4118 (also Joe Mea Road) outside of Lindale in Smith County, Texas. The site is located within a terraced field between two existing pipeline corridors. Vegetation across site 41SM476 consists of dense, waist-high grasses with scattered groves of cedar and mesquite trees (Figure 21 and Figure 22). Mixed hardwood forest, including mature oaks and pines with a moderate understory of briars and assorted vines, line the edges of the terraced field. The terracing along the landform is subtle and likely represents an effort in erosion control. The date of the field terracing is unknown; however, it may be associated with the one of the two early-twentieth century farmsteads (41SM391 and 41SM392) located in close proximity field (see Figure 2). The site is located on a landform that gradually slopes downward to the northwest. At the time of survey, ground surface visibility was very poor (zero percent) due to the presence of thick, tall grasses.

Due to the limitations of the Project ESA, portions of site 41SM476 may exist along unsurveyed portions of the same landform. As such, only the portion of site 41SM476 located within the current Project ESA was assessed in accordance with the criteria for inclusion in the NRHP.

The soil setting within the assessed portion of 41SM476 consists Elrose fine sandy loam soils (NRCS 2016). The Elrose series consist of upland soils that consist of deep, well drained, slowly to moderately permeable soils that are derived from glauconite marine sediments (NRCS 2016) The topography at the site consist of the edge of a rolling hillslope, at an elevation ranging from 408.0 to 435.0 ft (124.4 to 132.6 m) amsl (USGS 2016).

Work Completed

Site 41SM476 was recorded on July 6-7, 2016 and July 25-27, 2016. Perennial archaeologists identified the site while conducting systematic shovel testing along the Project ESA. A total of 45 shovel tests excavated on site 41SM476 revealed reddish-brown sandy loam and sandy clay loam overlying red sandy clay (Figure 23 and Figure 24). Shovel tests were excavated to variable depths from 23.6 to 51.2 in (60.0 to 130.0 cm) below ground surface. Due to the extremely compact soils within the boundaries 41SM476, many shovel tests were excavated to approximately 19.6 in (55.0 cm) using a shovel and then excavated to greater depth using a hand auger. Soils encountered with the shovel tests placed along the terrace rows were less

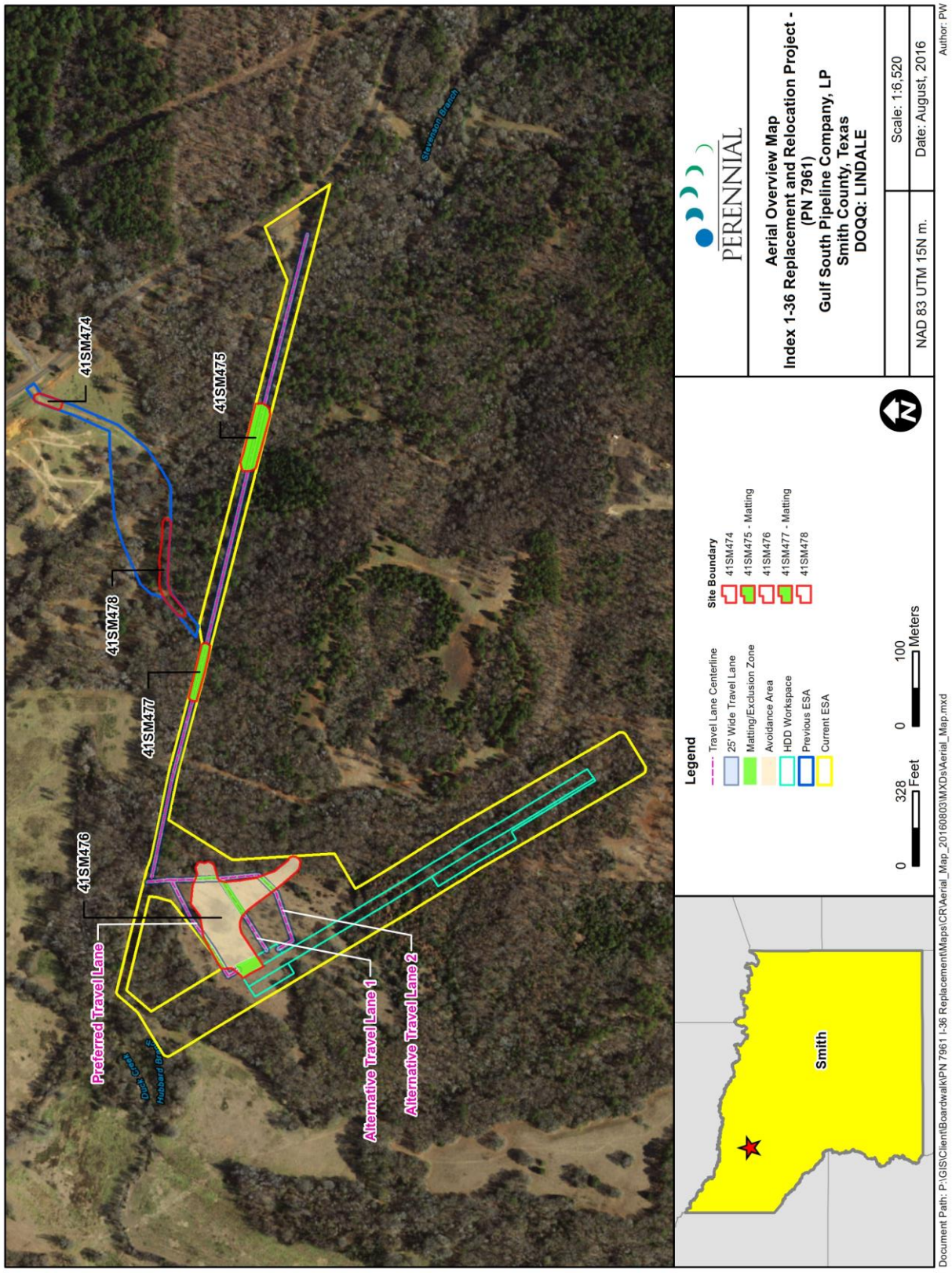

Figure 20. Map showing matting and avoidance areas for sites 41SM475, 41SM476, and 41SM477.

Figure 21. Overview of site 41SM476, facing northwest.

Figure 22. Another view of site 41SM476 within a terraced field, facing south.

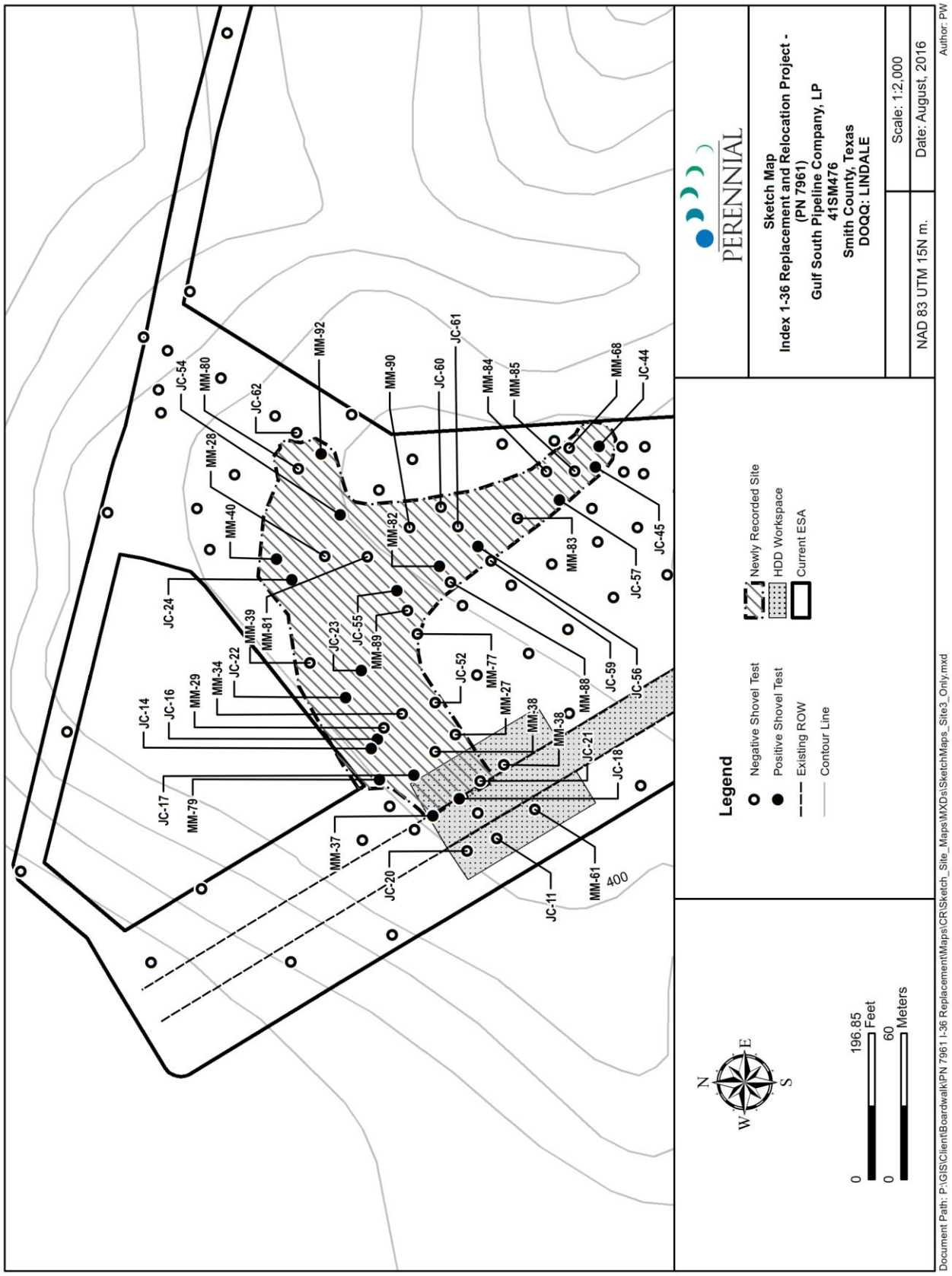

Figure 23. Sketch map of site 41SM476

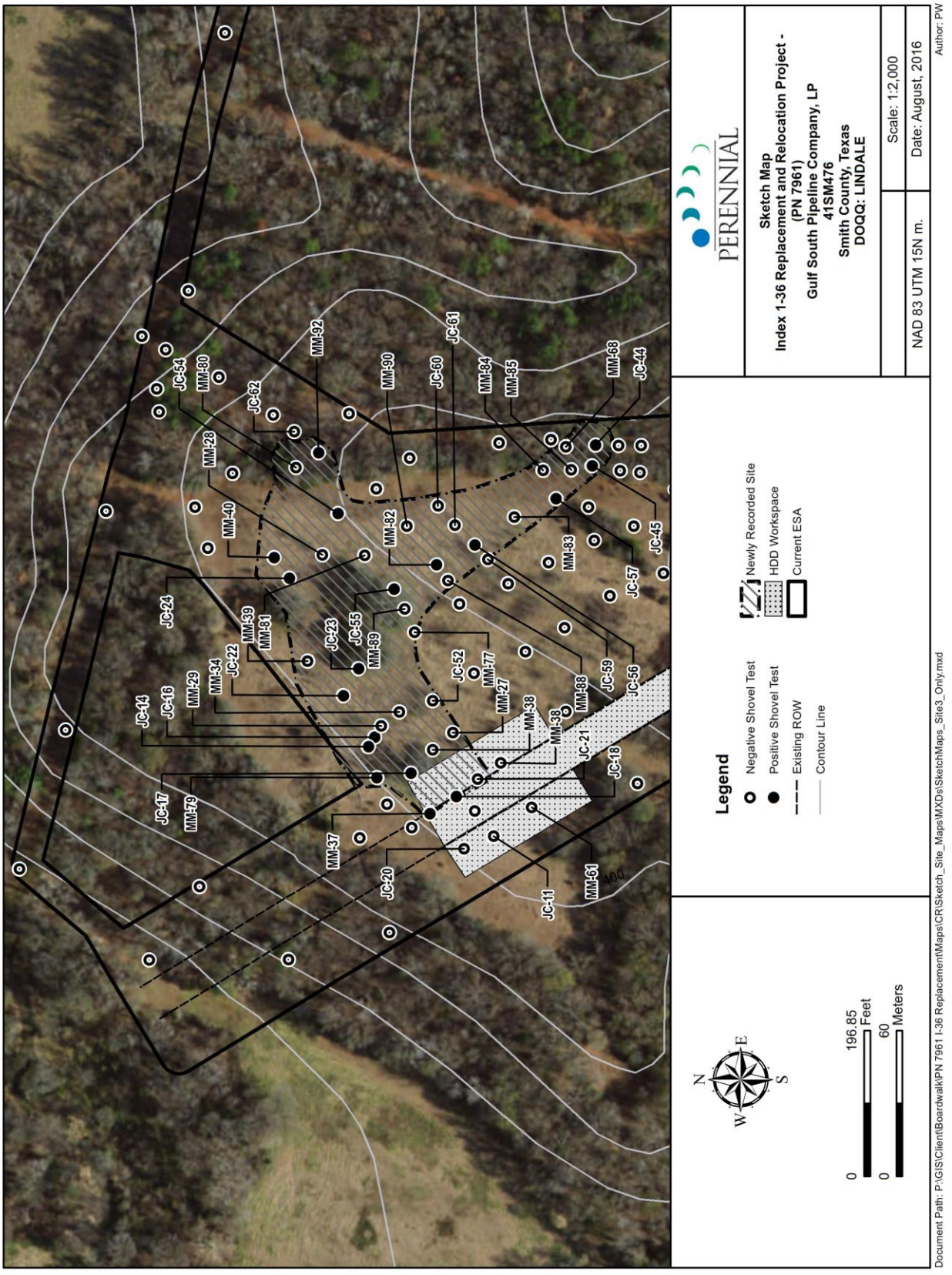

Figure 24. Sketch map of site 41SM476 on aerial photograph.

compact and easier to excavate than the surrounding ground surface. Cultural materials were observed within both the terrace rows and adjacent furrows. Eighteen of the 45 excavated shovel tests were positive for cultural materials at depths up 35.4 in (90.0 cm) below surface. In most cases, field personnel delineated site boundaries with double negative shovel tests, excavated at 32.8-ft (10.0-m) intervals. A complete summary of the site 41SM476 shovel test results are provided in Appendix B.

Perennial archaeologists conducted an intensive pedestrian survey across the extent of the Project ESA. No cultural features were observed at the site, however the poor surface visibility limited the ability to effectively examine the modern ground surface. Based on the distribution of positive shovel tests, site 41SM476 measures approximately 524.8 ft (160.0 m) northeast to southwest by 508.4 (155.0 m) northwest to southeast (at the widest point), and covers an area of approximately 2.48 ac (1.0 ha). Site 41SM476 has a highly irregular site boundary, which is likely a factor of historic terracing. However, the site appears to coincide roughly with the natural topography of the landscape and likely extends beyond the limits of the Project ESA.

Observed Cultural Materials

The cultural materials recovered from site 41SM476 consist of ceramic and lithic materials as well as floral and faunal remains. Ceramic materials recovered from the site include unslipped and undecorated body sherds (Figure 25). The ceramic materials recovered are buff colored, contain a very dark gray and dark gray (10YR 3/1 and 10YR 4/1) paste, and most ceramic sherds are grog-tempered with some sandy paste wares, generally consistent with non-diagnostic utility wares (Perttula et al. 1995). One ceramic sherd appears to be grog- and bone-tempered, though the bone tempering element is represented by one visible inclusion.

The lithic materials consist primarily of tertiary flakes manufactured from a variety of raw material types recovered in low quantities from across multiple positive shovel tests (Error! Reference source not found.). Additionally, two tool fragments were recovered from site 41SM476 (Figure 27). Unfortunately, the tool presented in the upper portion of Figure 27 is too fragmented to determine point type, while the bifacially-worked tool presented in the lower portion of the photo is crudely made or reworked to the point where the type is not recognizable. The types of raw materials utilized within the lithic assemblage ranges from coarse-grained and fine-grained chert, quartizite, and ironstone. Several fragments of the fine-grained chert vary in color and appear translucent when held to the light. These fragments may represent Arkansas novaculite, a non-local chert source located in the Ouachita Mountains of Arkansas and Oklahoma.

Additional cultural materials recovered from site 41SM476 include four charcoal samples. These recovered samples are small, representing a collection of flecks rather than large fragments that might be easily identified as wood or other organic materials. One non-human bone fragment was also recovered from the site. The fragment is small and lacks any diagnostic traits to aid in species designation. The presence of preserved charcoal (floral) and faunal remains suggests that the potential for intact datable features to be present within unexcavated portions of the site. Prehistoric artifacts recovered from 41SM476 are largely

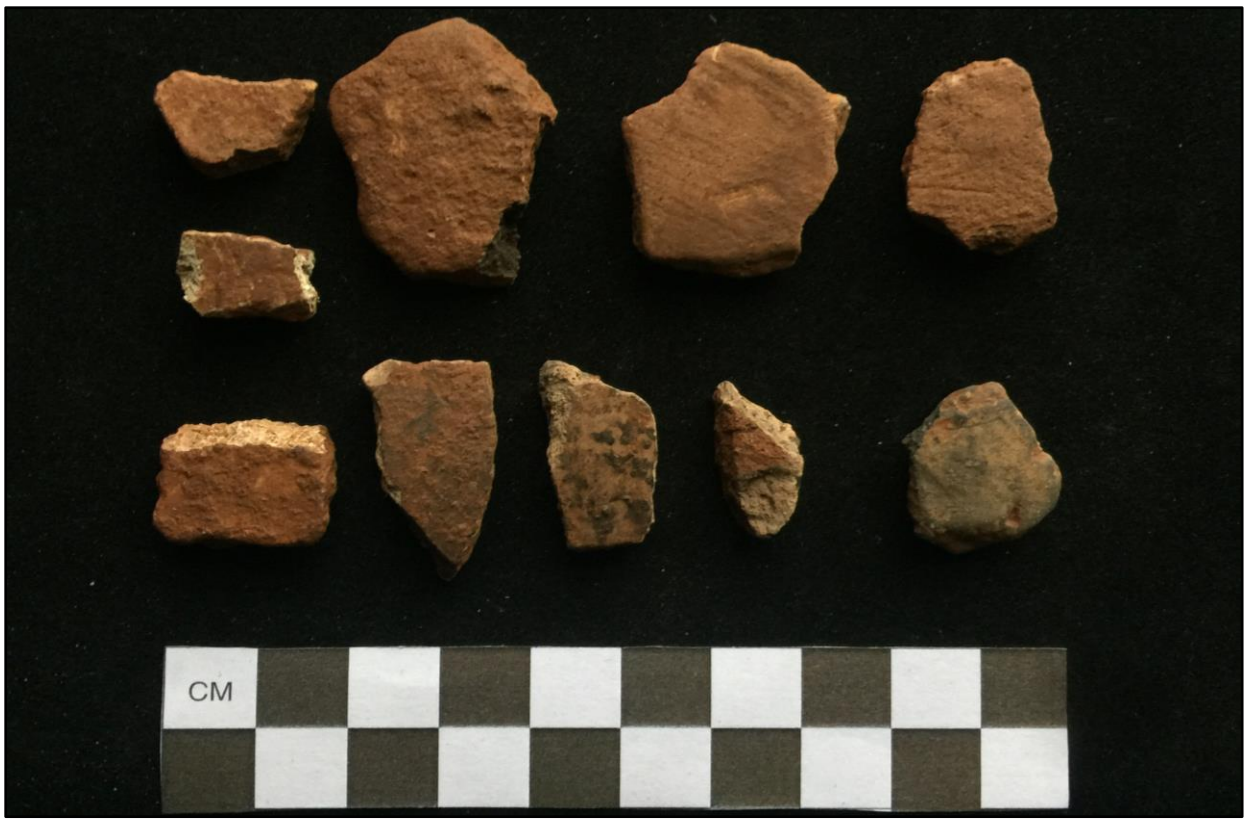

Figure 25. View of ceramic assemblage observed on site 41SM476

Figure 26. View of lithic assemblage observed on site 41SM476

Figure 27. Worked tool assemblage observed on site 41SM476

non-diagnostic. The presence of ceramic materials coincides generally with the late prehistoric Woodland/Caddoan period ceramic cultures (Perttula et al. 1995), however ceramic technologies of Northeast Texas are extremely diversified throughout this time producing a broad variety of both utilitarian and fine wares (Thurmond 1990).

The presence of grog and bone tempering is potentially diagnostic in the presence of additional vessel features but provide little information alone. In the absence of vessel form, rim and body design, decoration or slip, and exterior features such as applique, more precise inferences about cultural affiliation and production period from cultural materials recovered from site 41SM476 cannot be made.

Cultural Features

No cultural features or were observed along the modern ground surface or within any of the 45 shovel tests excavated across the site. Additionally, no apparent soils stains or discolorations were observed within any of the excavated shovel tests. However, charcoal fragments were observed in four separate shovel tests (JC-16, JC-44, MM-79, and MM-82) excavated across the site. The proximity of carbonized materials observed within JC-16 and MM-79 indicate an increased potential that a cultural feature or features could be present in unexcavated portions of the site. Additionally, this suggests that soil conditions are conducive to preserve organic remains elsewhere across the site.

Recommendations

Site 41SM476 is prehistoric open campsite that likely date to Transitional Archaic/ Early Woodland period. The site is located between two pipeline corridors within an open field that has been previously terraced, however these terraces have eroded considerably and are barely visible as distinguished landscape features. Cultural materials were collected from 18 positive shovel tests up to 35.4 in (90.0 cm) below surface. At this time, the subsurface materials do not appear to have a distinct, vertical distribution consistent with habitation zones to occupation surface. It is also not clear at this time how the artificial terracing has affected the integrity of the site. No cultural features were observed on site 41SM476, however, based upon the presence of worked tools, ceramics, and preserved floral and faunal remains, the NRHP eligibility of site 41SM476 remains undetermined. It is unclear at this time if there are intact, features/occupation zones are present within unexcavated portions of the site within the Project ESA. As such, Perennial recommends the avoidance and protection of the portion of site 41SM476 within the Project ESA until additional investigations can be conducted on the site.

Due to Gulf South's aggressive construction schedule, Perennial consulted with the THC concerning interim clearance on a suitable strategy to avoid any impacts to site 41SM476. Gulf South intends to utilize a 25.0 ft- (7.6-m) wide temporary travel lane across the top of the landform to access the proposed HDD workspaces. Gulf South has provided three travel lane alternatives that traverse the site in different locales. Each travel lane alternative poses different feasibility constraints relating to slope, vegetation clearing needs, and general access for heavy construction vehicles. The chosen alternative will include mandatory matting across the limits of site 41SM476 as demonstrated in Figure 20. All construction traffic will travel across the site on top of these protective timber mats to ensure no portion of the site is adversely impacted by tire rutting, or inadvertent soil displacement. Additionally, construction matting with be placed on a portion of the proposed HDD workspace (where the site extends into this location) and no subsurface activities will occur in any of these locations within the site boundary. Additionally, any vegetation removal necessary across portions of the site within the Project ESA will be removed by hand or removed at ground surface level, rather than pulled up from the ground causing extensive ground disturbance.

Gulf South has proposed three travel lane options and requested interim clearance on all three options. This avoidance plan was initially presented to the THC during a July 20, 2016 meeting with Perennial and Gulf South in order to obtain interim clearance to accommodate Gulf South's necessarily aggressive construction schedule to relocate portions their Index 1-36 pipeline. The THC concurred with Gulf South's timber matting strategy to protect the subsurface deposits associated with site 41SM476 on August 9, 2016 via an email correspondence. A copy of the correspondence is located in Appendix D.

Since Gulf South is planning to avoid any impacts to the site, no additional further work is recommended at this time for site 41SM476 in conjunction with the current Project.

SITE 41SM477

Setting

Site 41SM477 consists of a Transitional Archaic/Early Woodland campsite located approximately 0.7 mi (1.0 km) northwest from the intersection of CR 431 (also Old Mineola Road) and CR 4118 (also Joe Mea Road) outside of Lindale in Smith County, Texas. The site is located on a two-track access road within an existing pipeline corridor and is surrounded by mixed hardwood forest (see Figure 3 and Figure 4). Artifacts on site 41SM477 were recovered from both a surface and subsurface contexts along the existing access road/ pipeline corridor and its margins. The surface of the access road has been disturbed by prolonged vehicular traffic and bioturbation from cattle trampling. Additionally, one buried gas pipeline is located in the southern half of the cleared corridor (Figure 28 and

Figure 29). The site is located on a landform that slopes downward to the northwest. At the time of survey, ground surface visibility was good, ranging from 65 to 85 percent along the access road and its margins. Due to the limitations of the Project ESA, portions of site 41SM477 that may extend beyond the boundary of the Project ESA were not investigated. As such, only the portion of site 41SM477 located within the current Project ESA was assessed.

The soil setting within the assessed portion of 41SM477 consists of Redsprings very gravelly sandy loam, and Elrose fine sandy loam soils (NRCS 2016). Both the Redsprings series and Elrose series are upland soils that consist of deep, well drained, slowly to moderately permeable soils that are derived from glauconite marine sediments (NRCS 2016). The topography at the site is an interfluvial setting with rolling hillslopes at an approximate elevation of 430.0 ft (131.0 m) amsl (USGS 2016).

Work Completed

Site 41SM477 was recorded on July 7-8, 2016. Perennial archaeologists identified the site while conducting systematic shovel testing and intensive pedestrian survey along the Project ESA. One shovel test (MM-31) was positive for a chert tertiary flake at 3.9 to 7.9 in (10.0 to 20.0 cm) below surface. Field personnel delineated the site with double negative shovel tests, excavated at 32.8-ft (10.0-m) intervals apart. Nine shovel tests were excavated across the site, revealing compact, very gravelly, red sandy loam and sandy clay soils (Figure 30). Stratigraphic profiles observed at site 41SM477 are consistent with the Redsprings and Elrose soil series, with a gravelly sandy loam A horizon followed by a shallow B horizon from 5.1 to 12.9 in (13.0 to 33.0 cm).

The artifact assemblage from site 41SM477 was primarily recovered from a surficial context, with no additional positive shovel tests. A complete summary of the site 41SM477 shovel test results is provided in Appendix B.

Perennial archaeologists conducted an intensive pedestrian survey across the extent of the Project ESA. No cultural features were observed at the site.

Based upon the extent of the artifact scatter across the modern ground surface and within shovel test, site 41SM477 measures approximately 311.6 ft (94.0 m) east to west by

Figure 28. Overview of site 41SM477 along a dirt two-track road and cleared pipeline corridor with hillslope in background, facing west.

Figure 29. Site 41SM477 ground surface with woodland area beyond Project ESA, facing south.

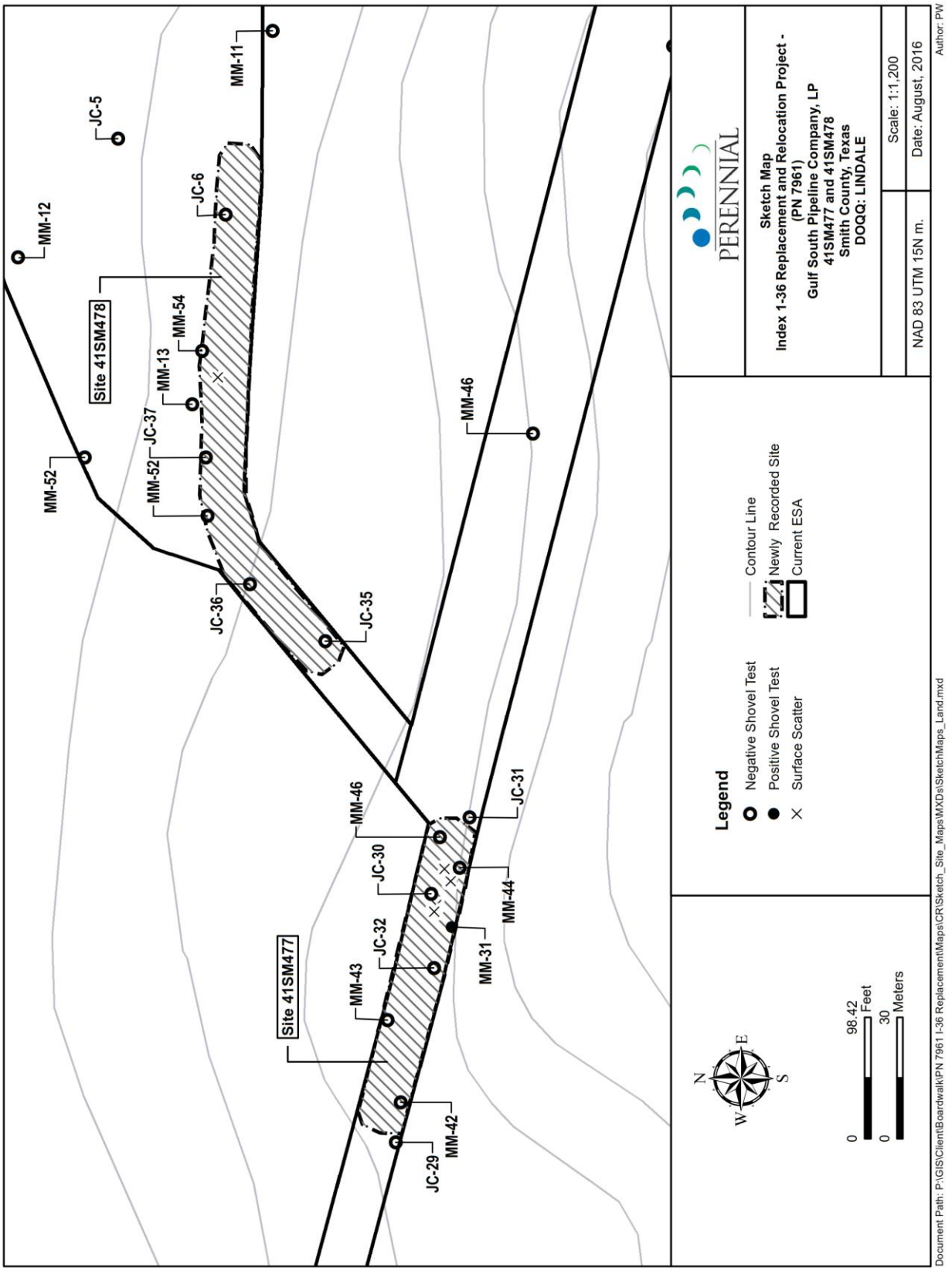

Figure 30. Sketch map for sites 41SM477 and 41SM478.

49.2 (15.0 m) north to south, and covers an area of approximately 0.23 ac (0.09 ha). Due to the limitations of the Project ESA, the site may extend the north and south beyond the boundaries of the Project ESA.

Observed Cultural Materials

The archaeological assemblage recovered from site 41SM477 consists of Transitional Archaic/ Early Woodland ceramic and lithic materials. Prehistoric ceramics recovered from the site include four unslipped and undecorated body sherds, and one unslipped and incised striated, body sherd (Figure 31). The ceramic materials recovered are buff colored, contain a dark gray (10YR 4/1) paste, and most all grog-tempered, or sandy paste plain wares generally consistent with non-diagnostic utility wares (Perttula et al. 1995). Prehistoric lithic materials consist of one primary flake, two secondary flakes, and six tertiary flakes (Figure 32). Additionally, two points fragments (one possible Elam or Dallas point, and one untyped chert point) and one broken chert biface were recovered on site 41SM477 (Figure 33). One of the points cannot be typed, while the other point is reminiscent of a Dallas style type. The shoulders are weak at the stem and appear to be ground (Turner and Hester 1999). The shoulders appear to have almost been completely removed through extensive re-sharpening. This point type is characteristic of the Transitional Archaic, though might be closer to the Early Woodland period given the presence of ceramics in association with this specimen.

The prehistoric ceramic artifacts recovered from 41SM477 are largely non-diagnostic. The presence of ceramic materials coincides generally with the late prehistoric Woodland/Caddoan period ceramic cultures (Perttula et al. 1995), however as discussed on sites 41SM475, and 41SM476, ceramic technologies of Northeast Texas are extremely diversified throughout this time producing a broad variety of both utilitarian and fine wares (Thurmond 1990). The presence of grog tempering and incised striations are potentially diagnostic in the presence of additional features but provide little information alone. In the absence of vessel form, rim and body design, decoration or slip, and exterior features such as applique, more precise inferences about cultural affiliation and production period from cultural materials recovered from site 41SM477 cannot be made.

Cultural Features

No cultural features or intact archaeological deposits were observed along the modern ground surface or within any of the nine shovel tests excavated across the site.

Recommendations

Site 41SM477 is a fragmented artifact scatter of Transitional Archaic/ Early Woodland ceramic and lithic materials. Prehistoric artifacts recovered from site 41SM477 are largely non-diagnostic and were recovered from the highly disturbed surface and shallow subsurface of a two-track access road. The setting in which the site is located has experienced prolonged surface traffic, in addition to clearing and subsurface disturbance from oil and gas activities. Due to the low density of the artifact scatter and complete absence of integrity, prehistoric materials recovered from site 41SM477 provide little to no insight into the function or occupational history of the site. The limited prehistoric data present does not possess significant research

Figure 31. From left to right, one decorated sherd, one striated unslipped sherd, and four undecorated unslipped sherds recovered from site 41SM477.

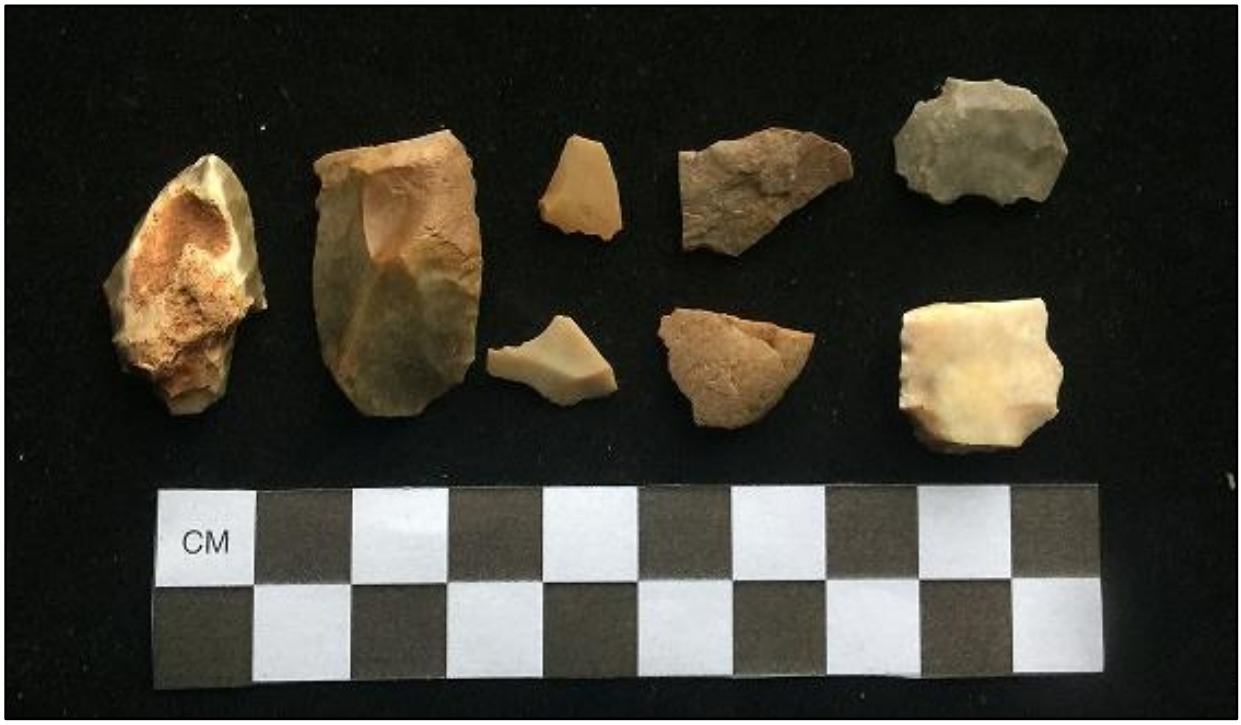

Figure 32. Overview of lithic flakes assemblage recovered from site 41SM477.

Figure 33. From left to right, one chert point, one chert biface, one possible Elam or Dallas point type recovered from site 41SM477.

potential and is unlikely to enhance an understanding of the region's prehistory.

Due to the limitations of the Project ESA, the full extent of site 41SM477 is unknown and the overall NRHP eligibility status is undetermined. Although the site may continue to the north and south, outside the Project ESA, the portions of 41SM477 recorded during the Perennial field investigations lack any depositional context provide little diagnostic cultural materials or features which may contribute to the site's overall eligibility. As such, it is Perennial's opinion that the portion of site 41SM477 within the Project ESA be considered a noncontributing element to the overall NRHP eligibility of the site. No additional investigations are recommended within the boundaries of the current Project ESA.

Gulf South intends to place wooden timber construction matting across the surface of the portion of site 41SM477 within the Project ESA in order to protect the deposits located on the site. Additionally, any vegetation removal necessary across portions of the site within the Project ESA will be removed by hand or cut at ground surface level.

SITE 41SM478

Setting

Site 41SM478 consists of a multicomponent artifact scatter located approximately 0.62 mi (0.99 km) northwest from the intersection of CR 414 (also Old Mineola Road) and CR 4118 (also Joe Mea road) just outside of Lindale in Smith County, Texas. The artifact assemblage recovered from site 41SM478 consists of prehistoric lithic artifacts and historic-age

trash. The site is located along a dirt two-tract road surrounded by cattle pasture (Figure 34 and Figure 35). The road is bordered with a marginal woodland area to the south that intersects a slight upland rise along the woodland area (Figure 36). The materials along site 41SM478 are isolated to the two-track road that has been disturbed by prolonged vehicular traffic and bioturbation. At the time of survey, ground surface visibility ranged from near zero in the pasture field, to 85 percent over the two-track road.

The soil setting within the assessed portion of 41SM478 includes Redsprings very gravelly sandy loam, Elrose fine sandy loam, and Keechi loam (NRCS 2016). The Redsprings series and Elrose series are both upland soils that consist of deep, well drained, slowly to moderately permeable soils that are derived from glauconite marine sediments (NRCS 2016). The Keechi series are common to flood plains and consist of very deep, very poorly drained, slowly permeable soils that form in stratified loamy and sandy alluvial sediments (NRCS 2016). The topographic setting consists of an interfluvial hillslope, at an approximate elevation of 380.0 ft (115.8 m) amsl (USGS 2016).

Work Completed

Perennial archaeologists recorded site 41SM478 on July 8, 2016. During the course of the field investigations, the field crew encountered a diffuse and highly fragmented surficial artifact scatter on the dirt two-track road located along the southern boundary of the Project ESA. Eight shovel tests were excavated at the site (see Figure 30), revealing a compact, very gravelly, red sandy clay loam and red sandy clay to a depth of 33.4 in (85.0 cm) below surface. Stratigraphic profiles observed at site 41SM478 are consistent with the Redsprings and Elrose soil series, with a gravelly sandy loam A horizon followed by a B horizon 5.1 to 12.9 in (13.0 to 33.0 cm) below surface. Shovel tests were excavated to a depth ranging from 13.7 to 33.4 in (35.0 to 85.0 cm) below surface, terminating in archaeological subsoil of the B horizon. Cultural materials were limited to the surface of the access road at the site and all eight shovel tests were negative for archaeological materials. Appendix B provides a complete summary of the shovel test results from site 41SM478.

No standing structures or archaeological features were observed at the site. Due to the high ground surface visibility over two-track, pedestrian survey, along transects spaced approximately 16.4-ft (5.0- m) apart, was the primary site delineation method.

Based on the extent of the artifact scatter along the ground surface, site 41SM478 measures approximately 452.6 ft (137.9 m) east to west by 32.8 ft (10.0 m) north to south, and covers an area of approximately 0.38 ac (0.16 ha).

The access road intersects a topographic landform which continues to the south of the site. Due to the limitations of the Project ESA only the portions of the site portions of the site that may exist over the landform to the south were not surveyed.

Observed Cultural Materials

The archaeological assemblage recovered from site 41SM478 consists of an undetermined age prehistoric component and a fragmented historic-age component. Prehistoric cultural

Figure 34. Overview of site 41SM478, facing southwest.

Figure 35. Another view of site 41SM478, facing west.

Figure 36. Overview of landform south of Project ESA, facing southwest.

materials consist of four tertiary flakes composed of local chert and ironstone, and one chert drill tip fragment (Figure 37 and Figure 38). Prehistoric artifacts recovered from site 41SM478 are non-diagnostic and have an undetermined cultural affiliation. Historic-age cultural materials from site 41SM478 consist of highly fragmented ceramic and glass artifacts. The historic-age ceramic assemblage includes two white-bodied refined earthenware sherds, two yellow ware sherds (annular-banded and undecorated) (1828-1930), and three undecorated white granite ware sherds (1840-1885) (Majewski and O'Brien 1987). In addition, six colorless container glass body shards were recovered from the site which provide no chronological information (Figure 39). The historic-age artifact assemblage from site 41SM478 is largely non-diagnostic and possesses little to no integrity. The presence of yellow ware (Figure 40) and white granite ware (Figure 41) ceramic materials at the site generally coincide with the Late Statehood period (1865-1900) of Texas history (Majewski and O'Brien 1987).

Cultural Features

No cultural features or structures were observed along the modern ground surface or within any of the eight shovel tests excavated across the site. Additionally, no evidence of any standing structures or structure foundations was observed within the site boundary or within close proximity to the site.

Historical Research and Oral History

A review of the available Tyler (USGS 2016

A desktop review was conducted of the available Tyler (USGS 2016 [1956, 1963]) and Lindale (USGS 2016 [1962]) historic-age topographic quadrangle maps was conducted for the area within and surrounding the

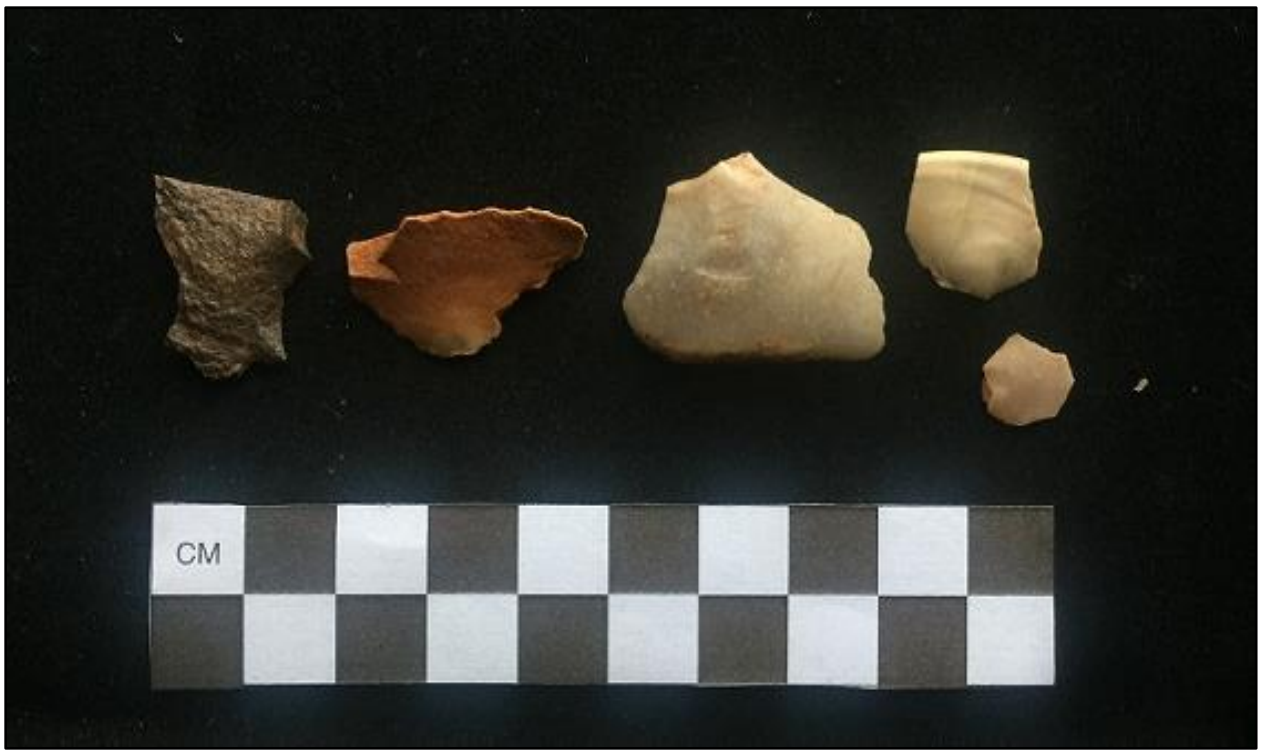

Figure 37. From left to right, one basal ironstone point fragment and three chert tertiary flakes.

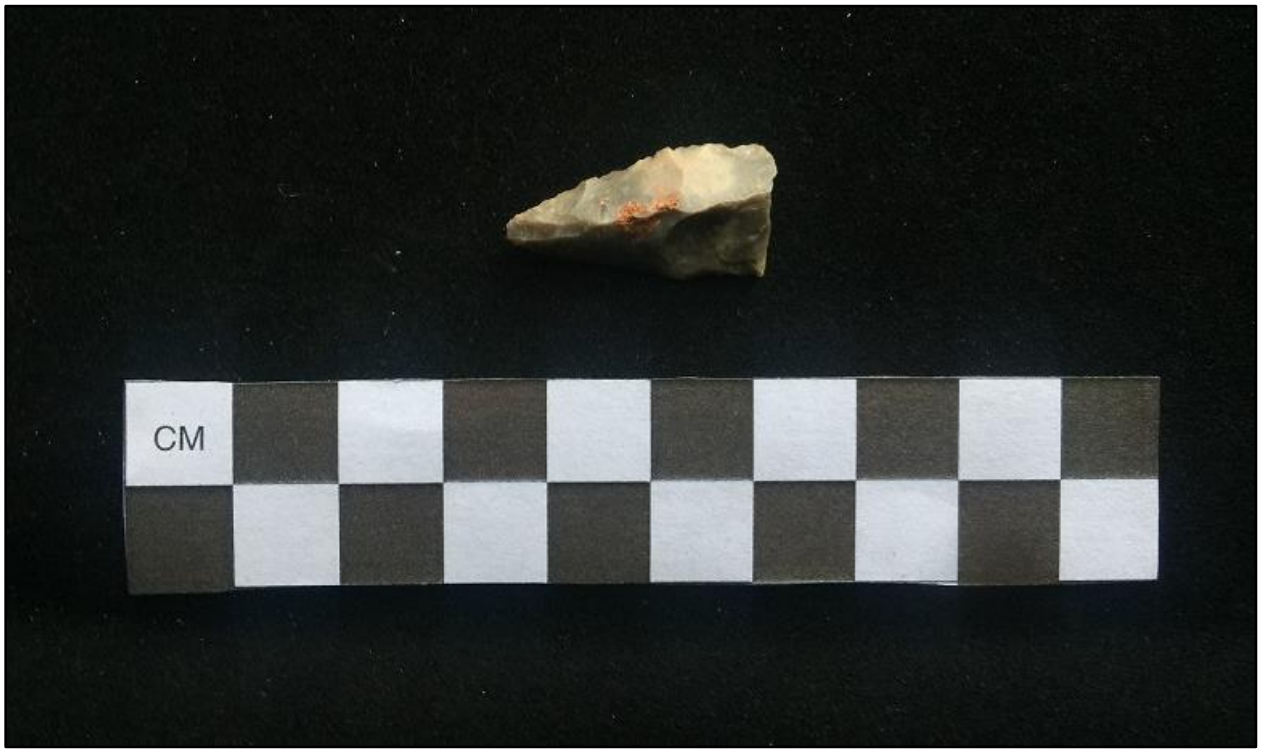

Figure 38. Overview of possible chert drill point fragment.

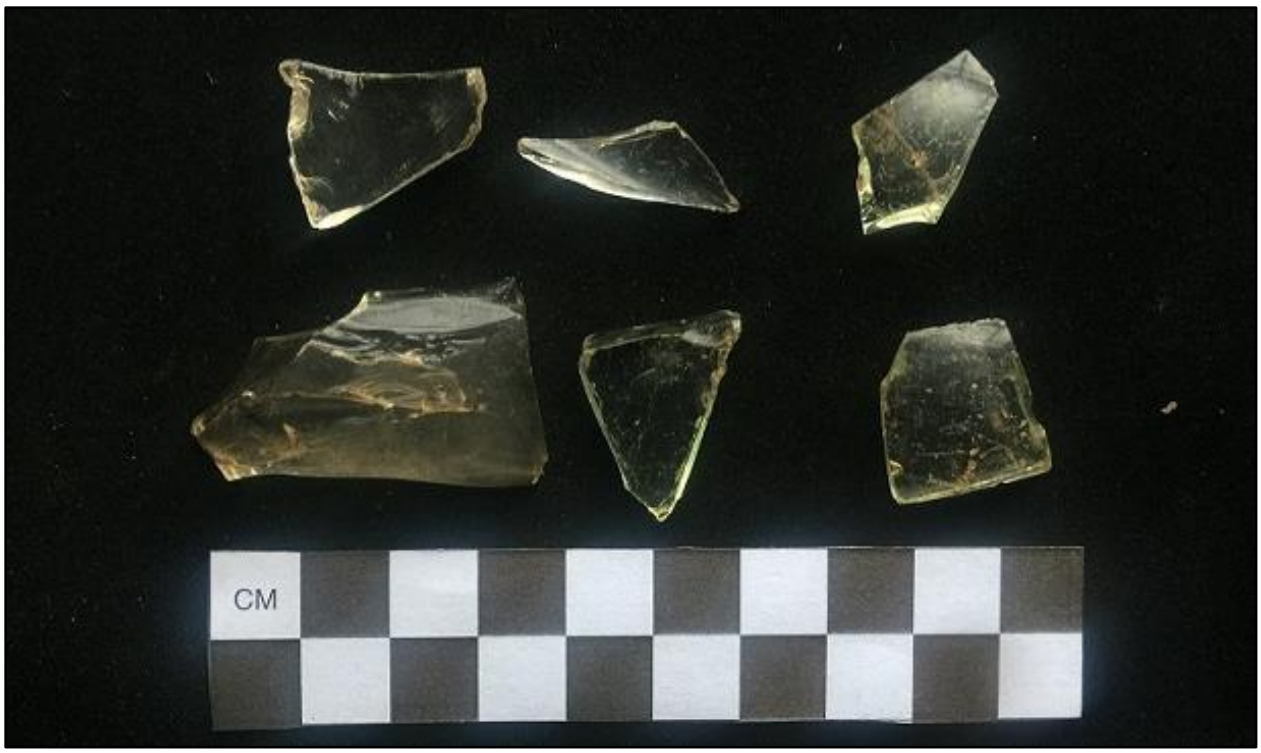

Figure 39. Overview of colorless glass assemblage.

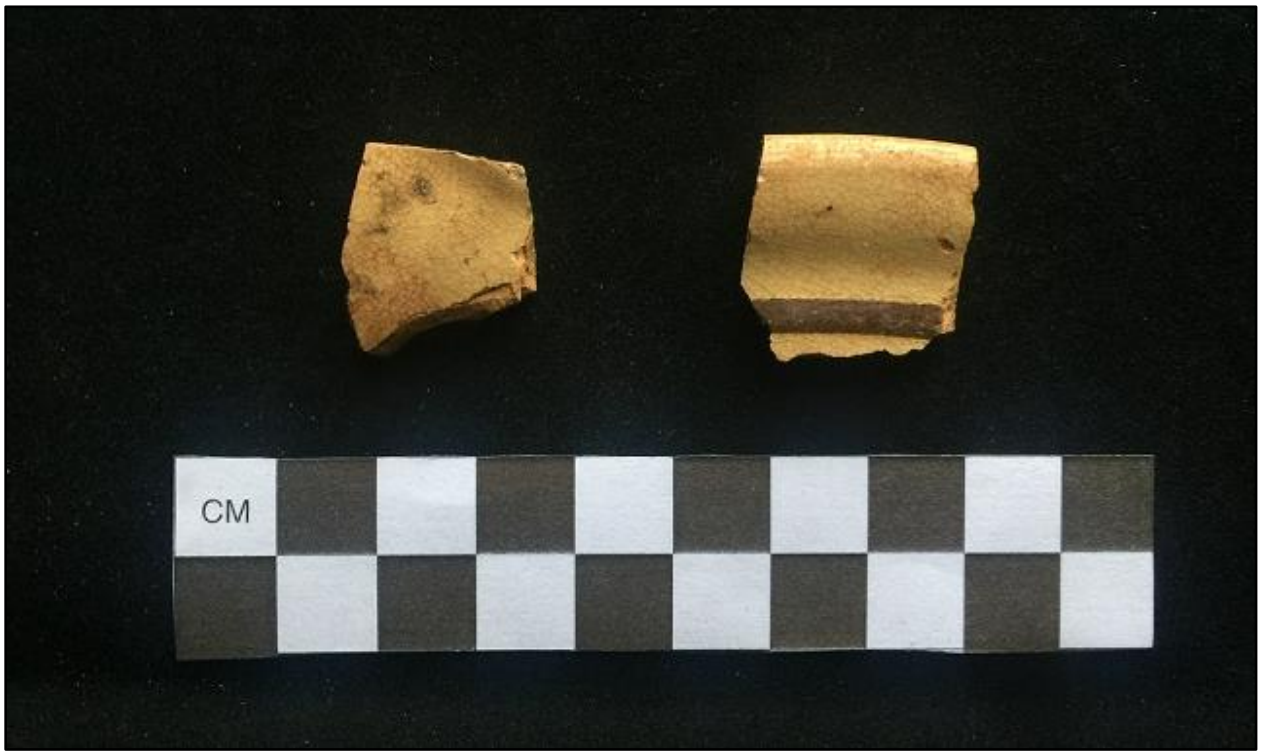

Figure 40. Overview of one undecorated and one annular-banded yellow ware ceramic sherds.

Figure 41. Historic-age ceramic sherds recovered from site 41SM478

boundaries of site 41SM478. No structures are mapped within the location of the documented site boundary or within the immediate vicinity of the site.

Additionally, an informant interview was conducted with the current landowner (Mr. Harold Spidle) of the property on which site 41SM478 is located. Mr. Spidle indicated that his property was once part of a larger 2000-acre land tract owned by the (Frank) Bowdoin family. Mr. Spidle recounted that the large parcel supported approximately 20 tenant farming families during the late-nineteenth and early-twentieth century before the parcel was partitioned into smaller land tracts sometime during the first half of the twentieth century. Mr. Spidle indicated that his knowledge of the early history of the property was obtained from several families residing nearby that have multi-generational history in the area (personal communication, 2016).

A search of the surname Bowdoin was conducted at the TSHA Handbook of Texas Online (TSHA 2016) website. No entries matching Frank Bowdoin were found. Additional research on Frank Bowdoin or the Bowdoin plantation did not reveal connections to any persons of historical significance and the property does not appear to be associated any known historical events. Deed research for the property on which site 41SM478 is located was not conducted at the time of the field investigations. Like site 41SM474, the artifact assemblage is domestic in nature and based upon oral history accounts, is likely associated with tenant farming occupations (rather than the property owner) during the late nineteenth century to the mid-twentieth century. No

evidence of any architectural debris exists in the artifact assemblage that resembles the remains of a structure or structures. The absence of any structures or associated features makes it difficult to identify any definitive connections between the artifact assemblage and a particular person or family that may have resided on the property during this period. Therefore, deed research on the property would not have likely failed to establish provided a real connection between this ephemeral artifact assemblage associated with site 41SM478 and historic-age households.

Recommendations

Site 41SM478 consists of a multicomponent surficial artifact scatter with an undetermined prehistoric artifact assemblage and a fragmented historic-age artifact assemblage dating to the Late Statehood period (1865-1900) of Texas history.

Prehistoric artifacts recovered from site 41SM478 are non-diagnostic and are limited to a surficial scatter on a two-track road which has experienced prolonged disturbance. Although the prehistoric component may continue outside the Project ESA to the south, the portions of 41SM478 recorded herein lack any depositional context and include no features which may contribute to the site's overall eligibility. Due to the low density and complete absence of integrity, prehistoric materials recovered from site 41SM478 do not provide insight into the function or occupational history of the site. The limited prehistoric data does not possess significant research potential and is unlikely to enhance the understanding regarding the prehistory of the region.

The historic-age component present at site 41SM478 is domestic in nature but is not associated with any intact features or standing structures in the area. Additionally, no structures are mapped within the site or surrounding area that may be associated with the historic-age artifacts recovered at the site. Historic-age artifacts recovered at 41SM478 are likely within a secondary or tertiary context relating to the historic-age use of the road and pastureland for ranching or the construction of the road itself.

Due to the limitations of the Project ESA along the southern boundary of the site, the full extent of site 41SM478 is unknown and the overall NRHP eligibility status is undetermined. However, an informant interview with the current landowner of the property on which site 41SM474 is located revealed that the property was likely once occupied by numerous tenant farmers (associated with the Bowdoin family farming activities) during the late-nineteenth to mid-twentieth century. Background research conducted for the property on which site 41SM474 is located did not identify connections to any persons or events of historical significance. Based upon the absence of structures and intact features, the lack of archaeological deposition, and the limited contextual integrity of the site, it is Perennial's opinion that the portion of 41SM478 within the Project ESA be considered a noncontributing element to the overall NRHP eligibility of the site. The portion of 41SM478 within the Project ESA has been extensively disturbed by prolonged vehicular traffic, ranching activities, and the construction of the access road itself.

Due to the level of disturbance, the paucity of materials recovered, and the lack of contextual integrity, no further work at site 41SM478 is recommended within the current Project ESA. Due to a change in engineering design for the Project, site 41SM478 no longer falls within the current Project footprint and not be impacted by any construction activities associated with the Project.

SITE 41SM391 REVISIT

As discussed in the background review section, site 41SM391 consists of a historic-age farmstead that includes a rectangular cement building foundation (Figure 42 and Figure 43). The site is located on an upland slope with a deciduous woodland setting that overlooks a floodplain to the north (Campbell et al. 2010). The original recorders of the site observed cultural materials at site consisting of predominately non-diagnostic brick fragments, historic-age ceramics, colorless glass and wire nails. The site was recommended not eligible for listing on the NRHP (Campbell et al. 2010).

The mapped location of site 41SM391 was revisited on July 7, 2016. According the Atlas (2016) the site appears to be mapped within the boundaries of the Project ESA (see Figure 2). However, the remnants of the structure foundation were relocated approximately 50.0 ft (15.2 m) to the north of the boundaries of the Project ESA.

The ground surface of the Project ESA in the vicinity of the mapped site centroid was thoroughly examined through pedestrian survey and shovel testing efforts. Four shovel tests were excavated within the Project ESA adjacent to the observed structure foundations, all of which were negative for cultural resources. No evidence of any cultural materials or cultural features was observed in surface or subsurface contexts within the portion of the Project ESA in proximity to site 41SM391. As such, it is Perennial's opinion that site 41SM391 does not extend into the Project ESA and will not be impacted by any construction activities associated with the Project. No further work is recommended for site 41SM391 within the Project ESA.

Figure 42. Overview of site 41SM391 from existing pipeline corridor, facing northeast.

Figure 43. View of remnant foundation observed on site 41SM391, facing north.

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VI. CONCLUSIONS AND RECOMMENDATIONS

Perennial, on behalf of Gulf South, a subsidiary of Boardwalk, conducted an intensive cultural resources survey of the proposed Index 1-36 Replacement and Relocation Project located northwest of Lindale in Smith County, Texas. The Project involves the replacement of approximately 930.0 ft (283.5 m) of 6-inch natural gas pipeline along Gulf South's existing Index 1-36 pipeline via HDD. Additionally, Gulf South intends to utilize approximately 0.93 mi (1.5 km) of temporary access roads to connect the adjacent county road with the proposed HDD workspace location. The survey was designed to inventory and assess cultural resources across the Project. These efforts involved both surface and subsurface archaeological survey and were conducted in accordance with Section 106 of the National Historic Preservation Act NHPA.

The APE measures approximately 5.9 acres with depths of impact extending to depths of 1.0 to 2.0 ft (0.3 to 0.6 m) within the temporary workspace and access road locations. Deep impacts (greater than 6.0 ft [1.8 m]) will only occur within Gulf South's existing pipeline corridor at the HDD drill diameter locations.

To allow for flexibility in engineering design, Gulf South requested that Perennial complete an intensive cultural resources survey within an expanded ESA for the Project. The total area surveyed within the Project ESA measures approximately 28.1 acres. Perennial conducted the intensive Phase I archaeological investigation within the boundaries of the Project ESA between July 5-8, 2016 and July 25-28, 2016. Jennifer L. Cochran served as the PI for the Project and conducted the fieldwork with the assistance of Michael Maddox.

In total, 154 shovel tests were excavated across the entire ESA. The survey investigations resulted in the documentation of five newly recorded sites (41SM474, 41SM475, 41SM476, 41SM477, and 41SM478) and the revisit of site 41SM391 mapped within the Project ESA. These include one historic-age artifact scatter (41SM474), three Transitional Archaic/Early Woodland period open campsites (41SM475, 41SM476, and 41SM477), and one multiple component site consisting of historic-age artifacts and prehistoric lithic debris (41SM478), and one historic-age farmstead (41SM391).

In regard to the revisit of site 41SM391, no evidence of any cultural materials or features were observed within surface or subsurface contexts along the portion of the Project ESA in proximity to site 41SM391. As such, it is Perennial's opinion that site 41SM391 does not extend into the Project ESA and will not be impacted by any construction activities associated with the Project. No further work is recommended for site 41SM391 within the Project ESA.

Site 41SM474 consists of a late-nineteenth to mid-twentieth century historic artifact scatter composed of non-diagnostic materials, while site 41SM478 consists of a multiple component site represented by late-nineteenth to mid-twentieth artifact scatter intermixed with a scatter of prehistoric artifacts of an undetermined age. Since each of the sites was only delineated within the boundaries of the original Project ESA, the full extent of each site

is unknown. As such, the overall NRHP eligibility status of each site is considered to be undetermined. However, an oral history account from the current landowner of the property on which sites 41SM474 and 41SM478 are located did not reveal that the sites are associated with any persons or events of historical significance. Based on the landowner interviews, these sites likely represent the remnants of short-term tenant occupations within an expansive plantation owned by the Bowdoin family. It is unlikely that additional deed or archival research would provide definitive information on the tenant families that occupied these areas.

Additionally, based on the lack of intact structures or features and the lack of significant, intact cultural deposits, it is Perennial's opinion that the portion of site 41SM474 within the Project ESA and the historic-age component of site 41SM478 within the Project ESA be considered noncontributing elements to the overall NRHP eligibility of the site. Additionally, based upon the lack of temporally diagnostic tools fragments or significant, intact prehistoric cultural deposits it is also Perennial's opinion that the prehistoric component of 41SM478 be considered a noncontributing element to the overall NRHP eligibility of the site. No additional investigations are recommended on sites 41SM474 and 41SM478 within the boundaries of the original Project ESA. Due to a change in engineering design for the Project footprint, sites 41SM474 and 41SM478 no longer fall within the current Project footprint and will not be impacted by any construction activities associated with the Project.

Sites 41SM475, 41SM476, and 41SM477, all likely represent Transitional Archaic/Early Woodland period open campsites. In regards to site 41SM475, based upon the presence of temporally diagnostic tool fragments, in conjunction with prehistoric ceramic material, and the presence of buried deposits, it is Perennial's opinion that the NRHP eligibility of site 41SM475 remains undetermined. In regards to site 41SM476, based upon the presence of temporally diagnostic tool fragments, prehistoric ceramic material, preserved floral and faunal remains and the presence of buried deposits, it also Perennial's opinion that that the NRHP eligibility of site 41SM476 remains undetermined. It is unclear at this time if there are intact, features/occupation zones are present within unexcavated portions of either of these sites within the Project ESA. As such, Perennial recommends the avoidance and protection of the portion of sites 41SM475 and 41SM476 within the Project ESA until more comprehensive site delineation efforts or Phase II testing can be conducted on these sites.

In regard to site 41SM477, the site was only delineated within the boundaries of the Project ESA and the full extent of the site is unknown. As such, the overall NRHP eligibility status of the site is considered to be undetermined. However, based on the lack of intact cultural features and the lack of significant, intact cultural deposits, it is Perennial's opinion that the portion of site 41SM477 within the Project ESA be considered a noncontributing element to the overall NRHP eligibility of the site. No additional investigations are recommended within the boundaries of the current Project ESA.

Due to Gulf South's aggressive construction scheduling, Perennial consulted with the THC concerning interim clearance on a suitable strategy to avoid any impacts to sites 41SM475, 41SM476, and 41SM477. Gulf South intends to utilize 25.0 ft- (7.6-m) wide travel lanes for restricted access across the top of newly recorded site 41SM476. Gulf South also intends to place wooden timber construction matting across the surface of those travel lanes along the portion of site 41SM476 within the Project ESA in order to protect the subsurface deposits located on the site. Additionally, construction matting with be placed across the surface of a portion of the proposed HDD workspace (where the site extends into this location) and no subsurface activities will occur in any of these locations within the site boundary. Gulf South intends to place wooden timber construction matting across the surface of the portion of sites 41SM475 and 41SM477 within the Project ESA in order to protect the deposits located on these sites. Additionally, any vegetation removal necessary across any portions of these sites within the Project ESA will be removed by hand or removed at ground surface level, rather than pulled up from the ground in order to limit causing extensive ground disturbance to the sites.

Gulf South has provided three travel lane alternatives that traverse site 41SM476 in different locales and requested interim clearance on all three alternatives across the site. This avoidance plan was initially presented to the THC during a July 20, 2016 meeting with Perennial and Gulf South in order to obtain interim clearance to accommodate Gulf South's necessarily aggressive construction schedule to relocate portions their Index 1-36 pipeline. The THC concurred with Gulf South's timber matting strategy to protect the subsurface deposits associated with sites 41SM475, 41SM476, and 41SM477 on August 9, 2016 via an email correspondence. Since Gulf South is planning to avoid any impacts to these sites, no additional work is recommended at this time for sites 41SM475, 41SM476, and 41SM477 in conjunction with the current Project.

In the event that human remains are encountered, all activity that might disturb the remains shall cease, and may not resume until authorized by appropriate law enforcement, the FERC, the USACE and/or THC.

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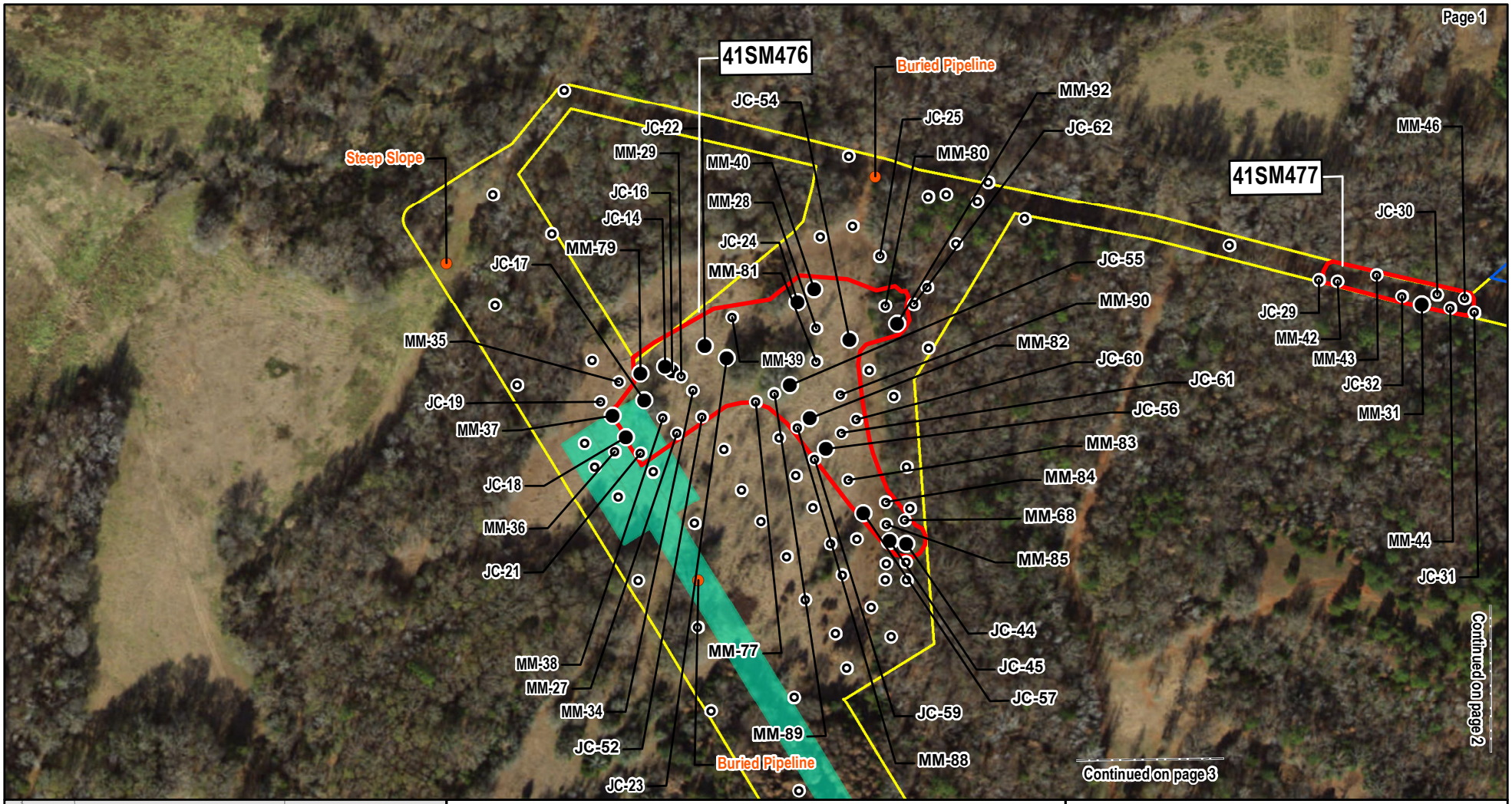
APPENDIX A: SURVEY RESULTS MAPS



Negative Shovel Test
Positive Shovel Test
Disturbance
Newly Recorded Site
HDD Workspace
Current ESA
Previous ESA

0 328 Feet

0 100 Meters

PERENNIAL

Aerial Survey Results Map
Index 1-36 Replacement and Relocation Project - (PN 7961)
Gulf South Pipeline Company, LP
Smith County, Texas
DOQQ: LINDALE

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NAD 83 UTM 15N m.	Date: August, 2016

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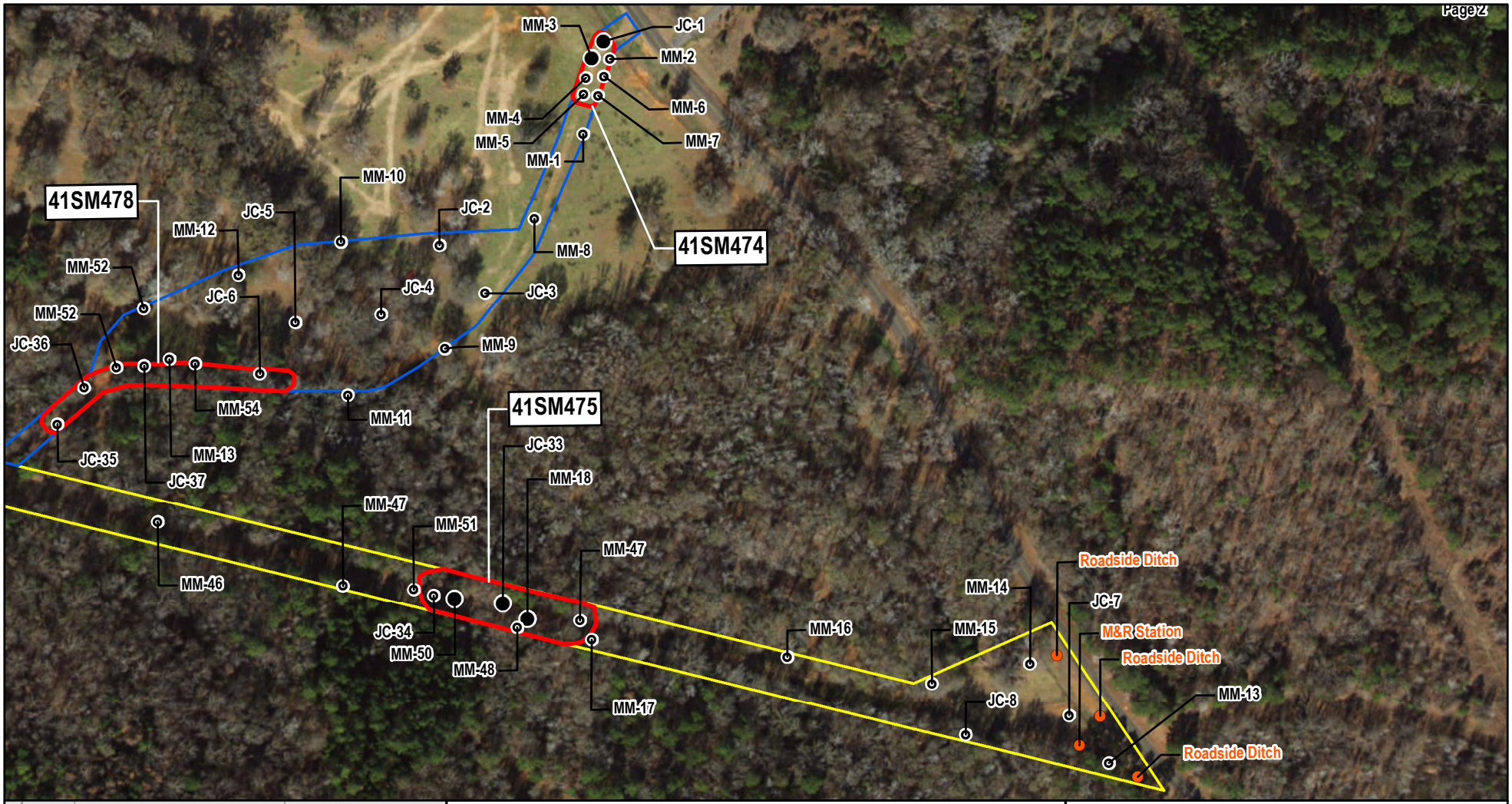
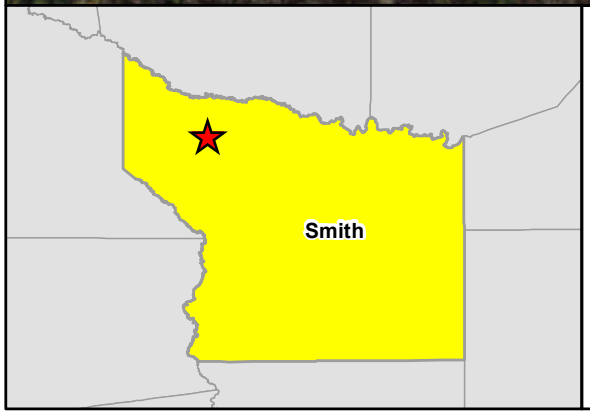
Author: PW





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DOQQ: LINDALE

	Scale: 1:3,000
NAD 83 UTM 15N m.	Date: August, 2016

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Author: PW

Negative Shovel Test
Positive Shovel Test
Disturbance
Newly Recorded Site
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0 328 Feet

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Author: PW

APPENDIX B: SITE SHOVEL TEST DATA

Appendix B - Shovel Test Data

Shovel Test Pit	Level	Depth (cmbs)	Results	Cultural Materials	Munsell Color (Moist)	Texture	Description	Reason for Termination
Site 41SM474								
JLC-01	I	0-10	Positive	4 Clear Glass Shards, 1 Amber Glass Shard, 1 Wire Nail, & 1 Button	10YR 5/3	Sand	Grassy field with creek, 10% GSV, mature oaks; 25% gravel	Soil Change
	II	10-20	Positive	3 Wire Nails, 2 Clear Glass Shards, 1 Amber Glass Shards, 4 Asphalt, 2 UID metal, & 1 Bolt	10YR 5/3	Sand	30% gravel	Soil Change
	III	20-30	Positive	Asphalt Shingle Lens at 25 cm depth	5YR 5/4	Sand	20% gravel	Soil Change
	IV	30-40	Positive	1 Clear Glass Shard, 2 Milk Glass Shards, 1 Wire Nail, 1 Wire Fragment & 1 UID Metal	5YR 5/4	Sand	20% gravel	Soil Change
	V	40-50	Positive	3 Clear Glass Shards	5YR 5/4	Sand	20% gravel	Soil Change
	VI	50-60	Negative	None	2.5YR 4/8	Sandy Clay	20% gravel	Depth
MM-02	I	0-35	Negative	None	7.5YR 4/6	Sandy Loam	100m across corridor from ST-JC-01; loose sandy loam with abundant 3/4" gravel, impermeable sandstone at 35 cm	Restrictive Layer
MM-03	I	0-10	Positive	4 White-Bodied Earthenware Sherds, 1 Stoneware Sherd, 6 Glass Shards, & 1 Nail	7.5YR 4/6	Sandy Loam	Loose Sandy Loam	Soil Change
	II	10-20	Positive	6 Colorless Glass Shards & 3 Nails	7.5YR 4/6	Sandy Loam	Abundant Gravels	Soil Change
	III	20-30	Positive	3 White-Bodied Earthenware Sherds, 5 Metal Nails, & 2 Colorless Glass Shards	7.5YR 4/6	Sandy Loam	Impermeable sandstone at 30 cm	Restrictive Layer
MM-04	I	0-15	Negative	None	7.5YR 4/6	Sandy Loam	Shallow impermeable sandstone, no cultural material	Restrictive Layer
MM-05	I	0-45	Negative	None	7.5YR 4/6	Sandy Loam	Shallow impermeable sandstone, no cultural material	Restrictive Layer
MM-06	I	0-35	Negative	None	7.5YR 4/6	Sandy Loam	Heavy gravel, sandstone inclusions, impermeable sandstone at 35 cm	Restrictive Layer
MM-07	I	0-35	Negative	None	7.5YR 4/6	Sandy Loam	Heavy gravel, sandstone inclusions, impermeable sandstone at 35 cm	Restrictive Layer
Site 41SM475								
JLC-33	I	0-35	Positive	2 Ceramic Sherds & 1 Flake at 0-10 cm	10YR 5/4	Sandy Loam	25% gravel	Soil Change
	II	35-50	Positive	1 Ceramic Sherd at 30-40 cm & 1 Point Fragment at 40-50 cm	10YR 7/6	Sandy Loam	25% gravel	Soil Change
	III	50-65	Negative	None	5YR 5/8	Sandy Clay	Saturation, gravel present	Depth
JLC-34	I	0-45	Negative	None	2.5YR 4/6	Sandy Loam	25% gravel	Soil Change
	II	45-65	Negative	None	2.5YR 4/6	Sandy Clay	Compacted soil	Depth

Appendix B - Shovel Test Data

Shovel Test Pit	Level	Depth (cmbs)	Results	Cultural Materials	Munsell Color (Moist)	Texture	Description	Reason for Termination
MM-17	I	0-45	Negative	None	10YR 7/3	Silty Loam	Mixed gravel in soil over a firm gravel surface at 45 cm	Restrictive Layer
MM-18	I	0-35	Positive	1 Lithic Tertiary Debitage at 20-30 cm & 3 Ceramic Sherds at 20-30 cm	10YR 6/2	Clay Loam	Cleared ROW with deciduous trees	Soil Change
	II	35-75	Negative	None	7.5YR 5/6	Sandy Clay Loam	No gravel or redox	Depth
MM-48	I	0-75	Negative	None	7.5YR 7/4	Sandy Loam	Access road with marginal canopy, no cultural material	Depth
MM-49	I	0-75	Negative	None	7.5YR 7/2	Sandy Loam	Access road with marginal canopy, no cultural material	Depth
MM-50	I	0-75	Positive	2 Ceramic Sherds at 10-20 cm	7.5YR 4/6	Sandy Loam	Abundant gravel, impermeable sandstone at 75 cm	Restrictive Layer
MM-51	I	0-75	Negative	None	7.5YR 4/6	Sandy Loam	Abundant gravel, impermeable sandstone at 75 cm	Restrictive Layer
Site 41SM476								
JLC-14	I	0-30	Negative	None	2.5YR 4/6	Sandy Loam	Pastureland Field with Marginal Hardwood, Zero % GSV	Soil Change
	II	30-40	Positive	1 Point Fragment	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	III	40-50	Negative	None	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	IV	50-60	Positive	1 Flake	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	V	60-70	Positive	1 Flake Fragment	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	VI	70-80	Negative	None	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	VII	80-90	Positive	1 Flake Fragment	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	VIII	90-100	Negative	None	2.5YR 4/6	Sandy Loam	Compacted soil	Depth
JLC-16	I	0-10	Negative	None	2.5YR 4/6	Sandy Loam	Pastureland Field with Marginal Hardwood, Zero % GSV	Soil Change
	II	10-20	Negative	None	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	III	20-30	Positive	1 Flake	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	IV	30-40	Positive	4 Tertiary Flakes	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	V	40-50	Positive	2 Tertiary Flakes	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	VI	50-60	Negative	None	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	VII	60-70	Positive	1 Carbon Fragment & 1 Debitage	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	VIII	70-80	Positive	1 Tertiary Flake	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	IX	80-90	Positive	1 Tertiary Flake	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	X	90-100	Negative	None	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	XI	100-110	Negative	None	2.5YR 4/6	Sandy Loam	Compacted soil	Depth

Appendix B - Shovel Test Data

Shovel Test Pit	Level	Depth (cmbs)	Results	Cultural Materials	Munsell Color (Moist)	Texture	Description	Reason for Termination
JLC-17	I	0-10	Negative	None	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	II	10-20	Negative	None	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	III	20-30	Negative	None	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	IV	30-40	Negative	None	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	V	40-50	Positive	1 Flake	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	VI	50-60	Positive	1 Ceramic Sherds	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	VII	60-70	Negative	None	2.5YR 4/6	Sandy Loam	Root obstruction	Depth
JLC-18	I	0-10	Negative	None	2.5YR 4/6	Sandy Loam	Pastureland Field with Marginal Hardwood, Zero % GSV	Soil Change
	II	10-20	Negative	None	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	III	20-30	Negative	None	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	IV	30-40	Positive	5 Flake Fragments	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	V	40-50	Negative	None	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	VI	50-60	Negative	None	2.5YR 4/6	Sandy Loam	Compacted soil	Soil Change
	VII	60-70	Positive	1 Flake Fragment	2.5YR 4/6	Sandy Loam	Compacted soil	Depth
JLC-19	I	0-120	Negative	None	2.5YR 4/6	Sandy Loam	Compacted soil, Bucket Auger 90-120 cmbs	Depth
JLC-21	I	0-80	Negative	None	2.5YR 4/6	Sandy Loam	Root obstruction	Depth
JLC-22	I	0-70	Positive	1 Flake at 10-20 cm & 50-60 cm depth	2.5YR 4/6	Sandy Loam	Compacted soil	Depth
JLC-23	I	0-60	Positive	1 Ceramic Sherd at 50-60 cm depth	2.5YR 4/6	Sandy Loam	Compacted soil	Depth
JLC-24	I	0-60	Positive	1 Point Shoulder Fragment 20-30 cm & 1 Tertiary Flake 40-50 cm depth	2.5YR 4/6	Sandy Loam	Compacted soil	Depth
JLC-25	I	0-40	Negative	None	2.5YR 4/6	Sandy Clay Loam	Compact soil, root obstruction	Root Obstruction
JLC-44	I	0-10	Positive	1 Ceramic Sherd	2.5YR 4/8	Silty Loam	Edge of ESA, Woodland Area with Heavy Leaf Litter, Low GSV, 10 % Gravels	Arbitrary Level
	II	10-20	Positive	1 Tertiary Flake	2.5YR 4/8	Silty Loam	10 % Gravels	Arbitrary Level
	III	20-30	Positive	1 Charcoal	2.5YR 4/8	Silty Loam	10 % Gravels	Soil Change
	IV	30-80	Negative	None	2.5YR 4/6	Silty Clay	Compact Soils	Depth
JLC-45	I	0-10	Negative	None	2.5YR 4/8	Silty Loam	Woodland Area, Low GSV, Few Gravels	Arbitrary Level
	II	10-20	Negative	None	2.5YR 4/8	Silty Loam	Few Gravels	Arbitrary Level
	III	20-30	Positive	3 Ceramic Sherds	2.5YR 4/8	Silty Loam	Few Gravels	Soil Change
	IV	30-80	Negative	None	2.5YR 4/6	Silty Clay	Compact Soils	Depth

Appendix B - Shovel Test Data

Shovel Test Pit	Level	Depth (cmbs)	Results	Cultural Materials	Munsell Color (Moist)	Texture	Description	Reason for Termination
JLC-54	I	0-10	Negative	None	5YR 4/6	Silty Loam	Over Terrace	Arbitrary Level
	II	10-20	Positive	4 Tertiary Flakes, 1 Ceramic Sherd	5YR 4/6	Silty Loam	Over Terrace	Arbitrary Level
	III	20-70	Negative	None	5YR 4/6	Silty Loam	Over Terrace	Depth
JLC-55	I	0-10	Negative	None	5YR 4/6	Silty Loam	Pastureland Field, Zero % GSV	Arbitrary Level
	II	10-20	Positive	1 Ceramic Sherd, 2 Tertiary Flakes	5YR 4/6	Silty Loam	Few Gravels	Arbitrary Level
	III	20-30	Positive	1 Projectile Point Fragment, 1 Ceramic Sherd, 1 Tertiary Flake	5YR 4/6	Silty Loam	Few Gravels	Arbitrary Level
	IV	30-40	Negative	None	5YR 4/6	Silty Loam	Few Gravels	Arbitrary Level
	V	40-50	Positive	1 Tertiary Flake	5YR 4/6	Silty Loam	Few Gravels	Arbitrary Level
	VI	50-80	Negative	None	5YR 4/6	Silty Loam	Few Gravels	Depth
JLC-56	I	0-10	Negative	None	5YR 4/6	Silty Loam	Pastureland Field, Zero % GSV	Arbitrary Level
	II	10-20	Negative	None	5YR 4/6	Silty Loam	Few Gravels	Arbitrary Level
	III	20-30	Positive	1 Ceramic Sherd, 2 Tertiary Flakes	5YR 4/6	Silty Loam	Few Gravels	Arbitrary Level
	IV	30-40	Positive	1 Ceramic Sherd	5YR 4/6	Silty Loam	Few Gravels	Arbitrary Level
	V	40-50	Positive	1 Tertiary Flake	5YR 4/6	Silty Loam	Few Gravels	Arbitrary Level
	VI	50-70	Negative	None	5YR 4/6	Silty Loam	Few Gravels	Depth
JLC-57	I	0-10	Negative	None	5YR 4/6	Silty Loam	Pastureland Field, Zero % GSV	Arbitrary Level
	II	10-20	Negative	None	5YR 4/6	Silty Loam	Few Gravels	Arbitrary Level
	III	20-30	Positive	2 Tertiary Flakes	5YR 4/6	Silty Loam	Few Gravels	Arbitrary Level
	IV	30-60	Negative	None	5YR 4/6	Silty Loam	Very Compact Soils below 45 cmbs	Depth
JLC-59	I	0-65	Negative	None	5YR 4/6	Silty Loam	Tall Grasses and Mosquite, Zero % GSV, Very Compact Soils	Depth
JLC-60	I	0-70	Negative	None	5YR 4/6	Silty Loam	Pastureland Field, Zero % GSV, Very Compact Soils	Depth
JLC-61	I	0-70	Negative	None	5YR 4/6	Silty Loam	Pastureland Field, Zero % GSV, Very Compact Soils	Depth
JLC-62	I	0-70	Negative	None	5YR 4/6	Silty Loam	Woodland Area, Low GSV, Few Gravels	Depth
MM-27	I	0-60	Negative	None	7.5YR 5/8	Sandy Clay Loam	Firm compacted soil, gravel from 45-60 cm	Depth
MM-28	I	0-40	Negative	None	7.5YR 5/8	Sandy Clay Loam	Firm compacted soil, gravel from 30-40 cm	Restrictive Layer
MM-29	I	0-85	Negative	None	7.5YR 5/8	Sandy Clay Loam	Weakly consolidated sandstone, firm compacted soil, impermeable sandstone at 85 cm	Depth
MM-32	I	0-85	Negative	None	7.5YR 5/8	Sandy Loam	Grass pastureland with marginal canopy; abundant gravel from 80-85 cm	Restrictive Layer
MM-34	I	0-100	Negative	None	2.5YR 4/6	Sandy Loam	Hand augured from 85-100 cm	Depth

Appendix B - Shovel Test Data

Shovel Test Pit	Level	Depth (cmbs)	Results	Cultural Materials	Munsell Color (Moist)	Texture	Description	Reason for Termination
MM-35	I	0-100	Negative	None	2.5YR 4/6	Sandy Loam	Hand augured from 75-100 cm	Depth
MM-36	I	0-100	Negative	None	2.5YR 4/6	Sandy Loam	Hand augured from 75-100 cm	Depth
MM-37	I	0-100	Positive	1 Primary Flake at 40-50 cm	2.5YR 4/6	Sandy Loam	Hand augured from 65-100 cm	Depth
MM-38	I	0-100	Negative	None	2.5YR 4/6	Sandy Loam	Hand augered from 65-100 cm; heavy gravel from 90-100 cm	Depth
MM-39	I	0-100	Negative	None	2.5YR 4/6	Sandy Loam	Hand augered from 65-100 cm; heavy gravel from 90-100 cm	Depth
MM-40	I	0-80	Positive	1 Tertiary Flake	2.5YR 4/6	Sandy Loam	Hand augered from 65-100 cm; heavy gravel from 90-100 cm	Restrictive Layer
MM-41	I	0-70	Negative	None	2.5YR 4/6	Sandy Loam	Very dense compacted clay, impermeable sandstone at 70 cm	Restrictive Layer
MM-68	I	0-30	Negative	None	5YR 4/6	Clay Loam	Compact Clay Loam Soils	Soil Change
	II	30-130	Negative	None	2.5YR 4/8	Sandy Clay	Compact Firm Sandy Clay Soils, Bucket Auger 40-130 cmbs	Depth
MM-77	I	0-45	Negative	None	5YR 4/4	Sandy Clay Loam	Compact Soils	Soil Change
	II	45-75	Negative	None	2.5YR 4/8	Sandy Clay	Firm Compact Sandy Clay Soils, Bucket Auger 50-130 cmbs	Depth
MM-79	I	0-45	Positive	10-20 cmbs: 1 Tertiary Flake, 1 Carbon (Carbon Not Collected)	5YR 4/4	Sandy Clay Loam	Pastureland Setting, Zero GSV	Soil Change
	II	45-75	Negative	None	2.5YR 4/8	Sandy Clay	Compact Soils, Bucket Auger 55-75 cmbs	Depth
MM-80	I	0-15	Negative	None	5YR 4/4	Clay Loam	Adjacent to Seasonal Drainage, Deciduous Woodland	Soil Change
	II	15-70	Negative	None	2.5YR 4/8	Sandy Clay	Compact Soils, Bucket Auger 55-70 cmbs	Depth
MM-81	I	0-70	Negative	None	5YR 4/6	Sandy Clay Loam	Pastureland Over Terrace, Loose Fine Sandy Clay Loam	Soil Change
	II	70-85	Negative	None	2.5YR 4/8	Sandy Clay	Compact Sandy Clay	Depth
MM-82	I	0-45	Positive	10-20 cmbs: 3 Ceramic Sherds, 1 Faunal Bone (Faunal Not Collected); 40-50 cmbs: 1 Ceramic Sherd, 1 Carbon Fragment (Carbon Not Collected)	5YR 4/6	Sandy Clay Loam	Pastureland Setting Over Terrace, Zero GSV	Soil Change
	II	45-130	Negative	None	2.5YR 4/8	Sandy Clay	Compact Soils, Bucket Auger 55-130 cmbs	Depth
MM-83	I	0-35	Negative	None	5YR 4/6	Sandy Clay Loam	Pastureland Setting, Zero GSV	Soil Change
	II	35-70	Negative	None	2.5YR 4/8	Sandy Clay	Compact Soils, Bucket Auger 55-70 cmbs	Depth

Appendix B - Shovel Test Data

Shovel Test Pit	Level	Depth (cmbs)	Results	Cultural Materials	Munsell Color (Moist)	Texture	Description	Reason for Termination
MM-84	I	0-15	Negative	None	5YR 4/6	Sandy Clay Loam	Marginal Woodland Area, Heavy Small Gravels 0-15 cmbs	Soil Change
	II	15-70	Negative	None	2.5YR 4/8	Sandy Clay	Compact Soils, Bucket Auger 35-70 cmbs	Depth
MM-85	I	0-25	Negative	None	5YR 4/6	Clay Loam	Marginal Woodland Area, Heavy Gravel and Large Cobbles 0-25 cmbs	Soil Change
	II	25-70	Negative	None	2.5YR 4/8	Sandy Clay	Compact Soils, Bucket Auger 35-70 cmbs	Depth
MM-88	I	0-40	Negative	None	5YR 4/4	Clay Loam	Pasturland Setting, Zero GSV	Soil Change
	II	40-70	Negative	None	2.5YR 4/8	Sandy Clay	Compact Soils, Bucket Auger 55-70 cmbs	Depth
MM-89	I	0-40	Negative	None	5YR 4/4	Clay Loam	Pasturland Setting, Zero GSV	Soil Change
	II	40-70	Negative	None	2.5YR 4/8	Sandy Clay	Compact Soils, Bucket Auger 55-70 cmbs	Depth
MM-90	I	0-40	Negative	None	5YR 4/4	Clay Loam	Pasturland Setting, Zero GSV	Soil Change
	II	40-70	Negative	None	2.5YR 4/8	Sandy Clay	Compact Soils, Bucket Auger 55-70 cmbs	Depth
MM-92	I	0-35	Positive	30-40 cmbs: 1 Tertiary Flake, 1 Ceramic Sherd	5YR 4/4	Clay Loam	Adjacent to Drainage, Woodland Area, Low GSV	Soil Change
	II	35-70	Negative	None	2.5YR 4/8	Sandy Clay	Compact Gravelly Soils, Bucket Auger 55-70 cmbs	Depth
Site 41SM477								
JLC-29	I	0-55	Negative	None	2.5YR 4/6	Sandy Loam	Compacted soil, some modern burning	Depth
JLC-30	I	0-60	Negative	None	2.5YR 4/6	Sandy Loam	Compacted soil, increasing gravel with depth	Depth
JLC-31	I	0-25	Negative	None	2.5YR 4/6	Sandy Loam	Bucket auger; compacted soil	Soil Change
	II	25-70	Negative	None	2.5YR 4/6	Sandy Clay	Compacted soil, increasing gravel with depth	Depth
JLC-32	I	0-35	Negative	None	2.5YR 4/6	Sandy Loam	Bucket auger; compacted soil	Soil Change
	II	35-70	Negative	None	2.5YR 4/6	Sandy Clay	Increasing gravel with depth	Depth
MM-31	I	0-85	Positive	1 Tertiary Chert Flake Fragment at 10-20 cm	7.5YR 5/8	Sandy Clay Loam	Heavy gravel from 20-85 cm	Depth
MM-42	I	0-70	Negative	None	2.5YR 4/6	Sandy Loam	Over prehistoric artifact scatter I-36-C, no surface material; impermeable sandstone at 70 cm	Restrictive Layer
MM-43	I	0-65	Negative	None	2.5YR 4/6	Sandy Loam	Over prehistoric artifact scatter I-36-C, no surface material; impermeable sandstone at 65 cm	Restrictive Layer

Appendix B - Shovel Test Data

Shovel Test Pit	Level	Depth (cmbs)	Results	Cultural Materials	Munsell Color (Moist)	Texture	Description	Reason for Termination
MM-44	I	0-65	Negative	None	2.5YR 4/6	Sandy Loam	End of surface scatter; no subsurface material, impermeable sandstone at 65 cm	Restrictive Layer
MM-46	I	0-65	Negative	None	2.5YR 4/6	Clay Loam	Weakly consolidated sandstone, gravel present, firm compacted soil, impermeable sandstone at 65 cm	Depth
Site 41SM478								
JLC-06	I	0-35	Negative	None	2.5YR 4/8	Sandy Clay	Highly compacted clay, 10% gravel	Depth
JLC-35	I	0-40	Negative	None	2.5YR 4/6	Sandy Clay Loam	90% GSV, adjacent to two track road	Soil Change
	II	40-50	Negative	None	2.5YR 4/6	Sandy Clay	Compacted soil, gravel present	Soil Change
	III	50	Negative	None	N/A	N/A	Root obstruction	Root Obstruction
JLC-36	I	0-55	Negative	None	2.5YR 4/6	Sandy Loam	Adjacent to two track road; gravel present	Soil Change
	II	55-65	Negative	None	5YR 5/8	Sandy Clay Loam	Compacted soil, gravel present	Depth
JLC-37	I	0-50	Negative	None	2.5YR 4/6	Sandy Loam	Bucket auger; compacted soil	Soil Change
	II	50-70	Negative	None	5YR 5/8	Sandy Clay	Compacted soil	Depth
MM-13	I	0-40	Negative	None	10YR 5/6	Sandy Loam	Impermeable sandstone at 40 cm	Restrictive layer
MM-52	I	0-85	Negative	None	2.5YR 4/6	Sandy Clay Loam	Pastureland with marginal canopy; abundant gravel from 75-85 cm, impermeable sandstone at 85 cm	Depth
MM-54	I	0-65	Negative	None	2.5YR 4/6	Sandy Clay Loam	Pastureland with marginal canopy; abundant gravel from 45-65 cm, impermeable sandstone at 65 cm	Depth

APPENDIX C: ARTIFACT INVENTORY

Appendix C – Artifact Inventory

Bag No.	Site No.	Site ST #	Level (10cm)	Depth (cmbs)	Artifact Type	Artifact Count	Specimen Description
1	41SM475	MM-18	2	10-20	Lithic	1	1 chert secondary flake, heat-treated
2	41SM475	Surface	0	0	Lithic	1	1 chert debitage
3	41SM475	Surface	0	0	Ceramic - prehistoric	3	2 grog-tempered, unslipped body sherds, 1 grog-tempered rim sherds
4	41SM475	MM-18	3	20-30	Ceramic - prehistoric	3	1 grog-tempered, unslipped body sherd, 2 sandy paste plainware body sherds
5	41SM475	JC-33	4	30-40	Ceramic - prehistoric	1	1 grog-tempered, unslipped body sherd
6	41SM475	JC-33	4	30-40	Lithic	1	1 projectile point (unknown type)
7	41SM475	Surface	0	0	Ceramic - prehistoric	1	1 sandy paste, unslipped plainware body sherd
8	41SM475	JC-33	5	40-50	Lithic	1	1 projectile point fragment (unknown type)
9	41SM475	JC-33	5	40-50	Ceramic - prehistoric	1	1 sandy paste body sherd
10	41SM475	MM-50	2	10-20	Ceramic - prehistoric	2	2 grog-tempered, unslipped body sherds
11	41SM475	JC-33	1	0-10	Lithic	1	1 chert tertiary flake
12	41SM475	JC-33	1	0-10	Ceramic - prehistoric	2	2 grog-tempered, unslipped thick-walled body sherds
13	41SM475	Surface	0	0	Lithic	2	2 ironstone or petrified wood tertiary flakes
14	41SM475	Surface	0	0	Lithic	2	1 chert secondary flake, 1 chert biface fragment
15	41SM475	Surface	0	0	Lithic	1	1 chert projectile point shoulder fragment (unknown type)
16	41SM475	Surface	0	0	Ceramic - historic	4	2 plain whiteware and 2 hand painted whiteware body sherds
17	41SM476	JC-14	7	60-70	Lithic	1	1 chert tertiary flake
18	41SM476	JC-14	9	80-90	Lithic	1	1 chert tertiary flake
19	41SM476	JC-16	3	20-30	Lithic	1	1 chert tertiary flake
20	41SM476	JC-24	5	40-50	Lithic	1	1 tertiary sandstone/mudstone flake
21	41SM476	JC-22	2	10-20	Lithic	1	1 tertiary chert flake
22	41SM476	JC-16	7	60-70	Floral	1	1 charcoal sample
23	41SM476	JC-16	8	70-80	Lithic	1	1 tertiary sandstone flake
24	41SM476	JC-16	9	80-90	Lithic	1	1 chert tertiary flake
25	41SM476	JC-18	4	30-40	Lithic	5	5 tertiary flakes- ironstone, quartzite, sandstone
26	41SM476	JC-16	5	40-50	Lithic	2	2 chert tertiary flakes
27	41SM476	JC-16	7	60-70	Lithic	1	1 debitage-possible sandstone
28	41SM476	JC-16	4	30-40	Lithic	4	4 tertiary flakes-2 chert, 1 petrified wood, and 1 ironstone/sandstone
29	41SM476	MM-37	5	40-50	Lithic	1	1 primary flake- chert river cobble
30	41SM476	JC-18	7	60-70	Lithic	1	1 petrified wood debitage-chip
31	41SM476	JC-22	6	50-60	Lithic	1	1 possible petrified wood tertiary flake

Appendix C – Artifact Inventory

Bag No.	Site No.	Site ST #	Level (10cm)	Depth (cmbs)	Artifact Type	Artifact Count	Specimen Description
32	41SM476	JC-23	6	50-60	Ceramic - prehistoric	1	1 grog-tempered, striated body sherd
33	41SM476	JC-17	5	40-50	Lithic	1	1 chert tertiary flake
34	41SM476	MM-40	5	40-50	Lithic	1	1 chert tertiary flake
35	41SM476	JC-17	6	50-60	Ceramic - prehistoric	1	1 sandy paste body sherd
36	41SM476	JC-14	4	30-40	Lithic	1	1 ironstone biface fragment (unknown type)
37	41SM476	JC-24	3	20-30	Lithic	1	1 ironstone debitage
38	41SM476	JC-14	6	50-60	Lithic	2	2 chert/sandstone tertiary flakes
49	41SM476	JC-54	2	10-20	Lithic	4	3 chert tertiary flakes and 1 possible petrified wood flake
50	41SM476	JC-54	2	10-20	Ceramic - prehistoric	1	1 sandy paste body sherd
51	41SM476	JC-57	3	20-30	Lithic	2	1 chert tertiary flake and 1 ironstone tertiary flake
52	41SM476	JC-56	4	30-40	Ceramic	1	1 grog-tempered, unslipped body sherd
53	41SM476	JC-56	3	20-30	Lithic	2	2 chert tertiary flakes
54	41SM476	JC-56	3	20-30	Ceramic - prehistoric	1	1 grog-tempered, unslipped body sherd
55	41SM476	JC-55	2	10-20	Lithic	2	1 translucent chert tertiary flake and 1 quartzite tertiary flake
56	41SM476	JC-55	2	10-20	Ceramic - prehistoric	1	1 grog-tempered, unslipped body sherd
57	41SM476	JC-56	5	40-50	Lithic	1	1 translucent chert utilized chert flake
58	41SM476	JC-45	2	10-20	Ceramic - prehistoric	3	3 grog-tempered, unslipped body sherds
59	41SM476	JC-55	3	20-30	Lithic	2	1 chert point fragment, 1 ironstone tertiary flake
60	41SM476	JC-55	3	20-30	Ceramic - prehistoric	1	1 grog-tempered, unslipped body sherd
61	41SM476	JC-55	5	40-50	Lithic	1	1 chert tertiary flake
62	41SM476	JC-44	2	10-20	Ceramic - prehistoric	1	1 grog-tempered, unslipped body sherd
63	41SM476	JC-44	2	10-20	Lithic	1	1 chert tertiary flake
64	41SM476	MM-79	2	10-20	Lithic	1	1 translucent chert tertiary flake
65	41SM476	MM-80	2	10-20	Faunal	1	1 non-human bone fragment
66	41SM476	MM-80	2	10-20	Ceramic - prehistoric	3	1 grog-tempered, unslipped body sherd and 2 grog-tempered, buff exterior body sherds
67	41SM476	JC-44	1	0-10	Ceramic - prehistoric	1	1 grog-tempered, unslipped body sherd
68	41SM476	MM-82	5	40-50	Ceramic - prehistoric	1	1 grog-tempered, unslipped body sherd
69	41SM476	MM-92	4	30-40	Ceramic - prehistoric	1	1 grog and bone-tempered, unslipped body sherd
70	41SM476	MM-92	4	30-40	Lithic	1	1 chert tertiary flake
71	41SM476	JC-44	3	20-30	Floral	1	1 charcoal sample
44	41SM477	MM-31	2	10-20	Lithic	1	1 chert secondary flake
47	41SM477	Surface	0	0	Lithic	1	1 broken biface-Edwards chert
46	41SM477	Surface	0	0	Lithic	1	1 chert bifacal blade fragment

Appendix C – Artifact Inventory

Bag No.	Site No.	Site ST #	Level (10cm)	Depth (cmbs)	Artifact Type	Artifact Count	Specimen Description
48	41SM477	Surface	0	0	Lithic	2	1 quartzite point-Dallas style, 1 chert secondary point
43	41SM477	Surface	0	0	Lithic	8	2 ironstone or petrified wood tertiary flakes, 1 chert secondary flake, 5 chert tertiary flakes
45	41SM477	Surface	0	0	Ceramic - prehistoric	6	2 grog-tempered, unslipped body sherds, 1 grog-tempered, painted and incised body sherd, 3 sandy paste plainwares
39	41SM478	Surface	0	0	Lithic	1	1 heat-treated, chert drill or knife fragment
40	41SM478	Surface	0	0	Lithic	5	3 chert tertiary flakes, 1 ironstone tertiary flake, 1 unknown material tertiary flake
41	41SM478	Surface	0	0	Glass	6	6 colorless, glass body shards
42	41SM478	Surface	0	0	Ceramic - historic	7	3 ironstone ware body sherds, 1 yellow ware body sherd, 1 annular banded rim sherd, 2 white, refined earthenware body sherds

APPENDIX D: SHPO INTERIM CLEARANCE CORRESPONDENCE

Abby Peyton

From: Bill Martin <Bill.Martin@thc.texas.gov>
Sent: Tuesday, August 09, 2016 10:58 AM
To: Abby Peyton; Kerry Nichols
Subject: RE: Index 36 Replacement - Smith County

This looks sufficient to avoid any adverse effects, but technically, since the sites haven't been determined eligible, the determination should be "No Historic Properties Affected." At any rate, as far as the THC is concerned, work may proceed as illustrated in this figure.

From: Abby Peyton [mailto:APeyton@perennialenv.com]
Sent: Tuesday, August 09, 2016 10:13 AM
To: Kerry Nichols <Kerry.Nichols@thc.texas.gov>; Bill Martin <Bill.Martin@thc.texas.gov>
Subject: Index 36 Replacement - Smith County

Kerry and Bill –

Gulf South would like to seek interim concurrence of "no adverse effect" for the proposed Index 36 Replacement Project located in Smith County. Following our meeting on July 20th, Bill Martin provided email confirmation that the proposed avoidance measures that included the use of timber mats across site areas for temporary-use travel lanes would be adequate to ensure no adverse impacts to the newly recorded sites 41SM475, 41SM476 and 41SM477. Since that meeting, Perennial has conducted additional fieldwork to provide necessary data to design a temporary travel lane that would have the least amount of impact to the site. The attached aerial overview map provides the locations of the newly recorded sites, egress travel lane along the existing Enbridge ROW, and two alternative travel lanes (Preferred and Alternative) across site 41SM476. Additionally, the northeastern portion of the HDD workspace is proposed to be matted for equipment utilization; however, the drill itself and all associated ground disturbing activities will be restricted to the light blue outlined area outside of the delineated boundary of site 41SM476. Negative shovel test data confirms that site 41SM476 does not extend into the Project workspace areas.

Given the aggressive construction schedule, Gulf South would like to request interim clearance in advance of the formal Section 106 review of the Phase I report. Perennial recommends sites 41SM475, 41SM477, and 41SM476 as having an undetermined NRHP eligibility within the Project area, however no impacts are anticipated to occur to these properties based on the avoidance provisions provided in the attached mapping exhibit.

Perennial is in the process of analyzing collected data, and will submit the full Phase I report for the Project within 2 weeks of the submittal of this request.

Thank you for your consideration.

Abby Peyton
Cultural Resources Director, MA, RPA
Perennial Environmental
(o) 512-358-0330
(c) 512-558-1111