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Cultural Resources Survey for the Oncor Cogdell - Clairemont 138 kV Transmission Line Project, Kent and Scurry Counties, Texas

Steve Ahr

Andrew Parkyn

Beth Reed

Tanya McDougall

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Submitted to :
Oncor Electric Delivery Company, LLC
1616 Woodall Rodgers Fwy
Dallas TX 75702

Submitted by :
AECOM
9400 Amberglen Blvd.
Austin TX 78729

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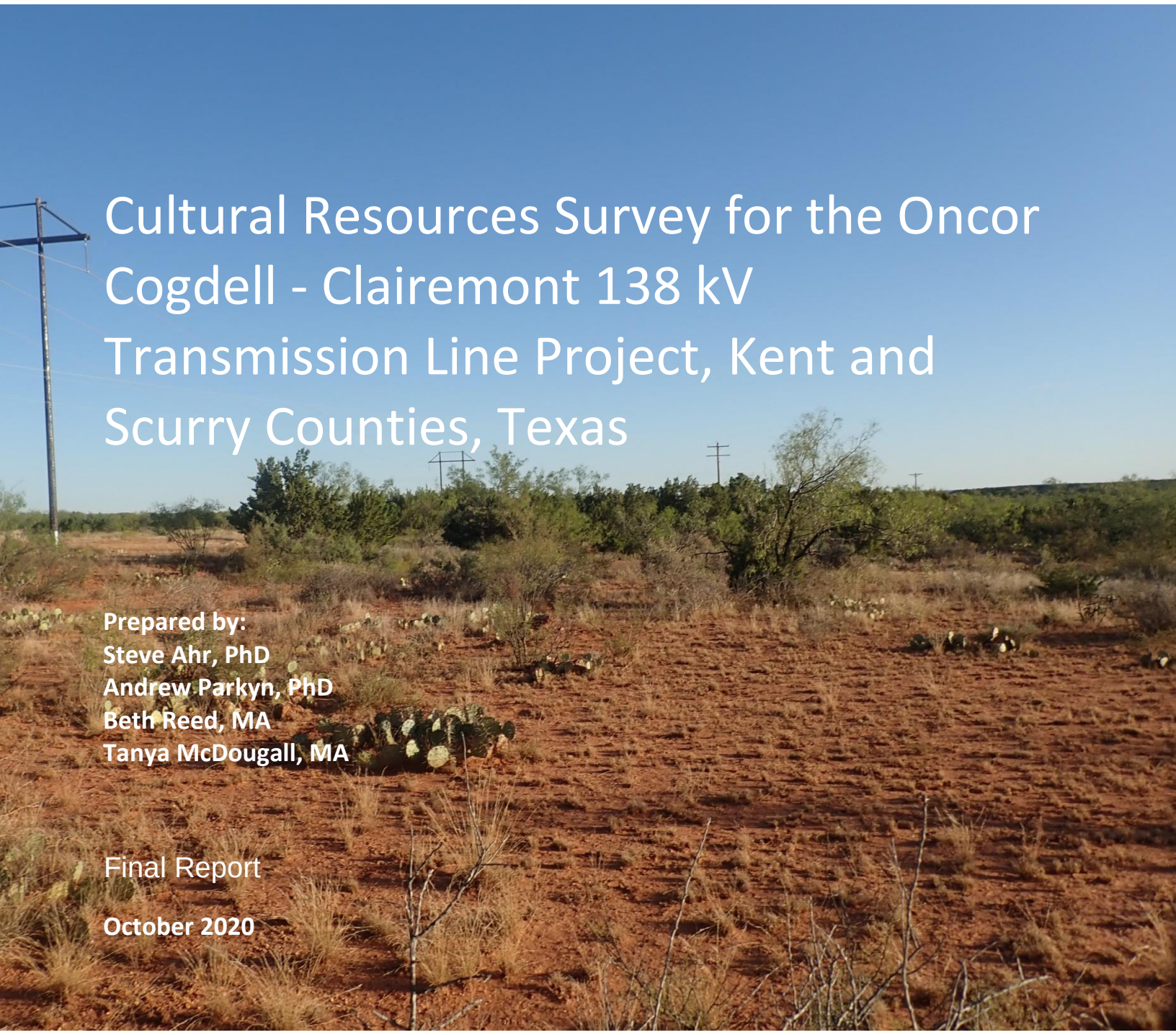

Prepared by:
Steve Ahr, PhD
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Final Report

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Cultural Resources Survey for the Oncor Cogdell - Clairemont 138 kV Transmission Line Project, Kent and Scurry Counties, Texas

Final Report

Prepared by
Steve Ahr, PhD
Andrew Parkyn, PhD
Beth Reed, MA
Tanya McDougall, MA

Principal Investigator
Steve Ahr, PhD

Prepared for
Oncor Electric Delivery Company, LLC
1616 Woodall Rodgers Freeway
Dallas, Texas 75202

AECOM Project Number
60616318

October 2020

Management Summary

Oncor Electric Delivery Company, LLC (Oncor) and Brazos Electric Power Cooperative propose to construct a new, single-circuit 138 kilovolt (kV) transmission line (Project) between the existing Oncor Cogdell substation located in Scurry County, approximately 15 miles northeast of Snyder, Texas, east of Farm-to-Market (FM) 1231, and the existing Brazos Electric Clairemont substation located in Kent County, approximately seven miles northwest of Clairemont, Texas. The proposed transmission line would be constructed with one circuit of 138 kV transmission line supported by double circuit 138 kV steel or concrete monopole structures within a 70-foot (ft) right-of-way (ROW). AECOM Technical Services, Inc. (AECOM) conducted a 100 percent pedestrian archaeological survey of the Project ROW for the portion of the Project from the Cogdell substation to the Project midpoint, which covers approximately 14.4 miles (including various potential reroutes). The survey was conducted from October 8 to 13, 2019, requiring 156 person hours in the field. The investigations reported herein were conducted in accordance with Oncor's *Generic Research Design for Archaeological Surveys of Oncor Electric Delivery Electric Transmission Line Projects in Texas* (PBS&J 2008).

The survey resulted in the identification and recording of a historic windmill and cistern site (41SC76), two prehistoric lithic scatters (41KT176 and 41KT177), and nine isolated finds (IFs 1 through 9). In addition, two flakes from one previously recorded site (41KT107) were found within the Project ROW. Based upon poor integrity contexts of these sites, the lack of any known associations with significant historic events and/or persons, and because the sites are not likely to yield information important to prehistory or history, each of these sites and the IFs are recommended as not eligible for listing in the National Register of Historic Places (NRHP). Furthermore, these sites do not merit designation as State Antiquities Landmarks (SALs).

A single historic-age ranch complex was identified 240 feet north of the Project ROW. The ranch complex with associated agricultural outbuildings was built ca. 1930. The complex contains one single-family domestic dwelling and five outbuildings of various sizes. The resource retains some aspects of integrity, but they are unremarkable examples of a common dwelling and outbuildings. The resources do not convey association with significant historical events or a significant pattern of development. The buildings do not appear to be associated with significant persons in history and lack architectural design merit. Furthermore, the resources are not likely to yield information important to history or prehistory of the area. Therefore, the ranch complex and associated outbuildings are recommended as not eligible for listing in the NRHP.

A geomorphological evaluation of the project area revealed that the Project ROW does not exhibit the pedologic and geomorphic conditions necessary for the deep burial and preservation of cultural deposits. Therefore, no geoarchaeological monitoring of transmission pole emplacement is recommended. Based on the results of the survey, the development, construction, and operation of the proposed Project should have No Effect on historic properties or SALs. It is recommended that construction can proceed without further cultural resources investigations. However, should the dimensions of the Project change, additional investigations may be required. If any unmarked prehistoric or historic human remains or burials are encountered at any point, the area of the remains is considered a cemetery under current Texas law and is protected. Section 28.03(f) of the Texas Penal Code provides that intentional damage or destruction inflicted on a human burial site is a state jail felony. If a cemetery is identified in the Project ROW, all work in the area of the discovery must cease and the THC must be notified by contacting the History Programs Division at (512) 463-5853 and the Archeology Division at (512) 463-6096. Following consultation with the THC, a treatment or avoidance plan would be developed and implemented.

No artifacts were collected during the survey. All correspondence, field records, and photographs generated during field investigations will be prepared for permanent curation at Texas Archeological Research Laboratory (TARL), Austin, Texas.

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List of Acronyms

amsl	Above mean sea level
B.P.	Before Present
BEG	Bureau of Economic Geology
CFR	Code of Federal Regulations
cm	Centimeter
DR	Deed Record
ft	Feet/foot
GLO	General Land Office
HPA	High Probability Area
HTC	Historic Texas Cemetery
kV	Kilovolt
LPA	Low Probability Area
m	Meter
MPA	Moderate Probability Area
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OTHM	Official Texas Historical Marker
ROW	Right-of-way
RTHL	Recorded Texas Historic Landmark
SAL	State Antiquities Landmark
TAC	Texas Administrative Code
TARL	Texas Archeological Research Laboratory
TASA	Texas Archeological Sites Atlas
THC	Texas Historical Commission
THSA	Texas Historic Sites Atlas
USGS	United States Geological Survey

1 Introduction

Oncor Electric Delivery Company, LLC (Oncor) and Brazos Electric Power Cooperative propose to construct a new, single-circuit 138 kilovolt (kV) transmission line (Project) between the existing Oncor Cogdell substation located in Scurry County, approximately 15 miles northeast of Snyder, Texas, east of Farm-to-Market (FM) 1231, and the existing Brazos Electric Clairemont substation located in Kent County, approximately seven miles northwest of Clairemont, Texas (**Figure 1**). The proposed transmission line would be constructed with one circuit of 138 kV transmission line supported by double circuit 138 kV steel or concrete monopole structures within a 70-foot (ft) right-of-way (ROW). The Project is located on the McKenzie Mountains, Tex. and Polar, Tex. United States Geological Survey (USGS) 7.5-minute quadrangle maps.

The typical impacts from these types of projects include mechanized clearing of vegetation within the Project ROW, and deep (but narrow) impacts from the construction of support footings. Mechanized land clearing for vegetation removal and construction of access roads typically impacts only to depths of 15-60 centimeters (cm). The impacts resulting from the construction of support footing varies in depth from 3 to 7.5 meters (m) within a 0.5 to 1.5-m diameter area for monopole structures. If the monopole is to be directly embedded, then a single hole will be augured into the ground at each structure location. Once the structure has been placed, the foundation will be filled with concrete, native material, or other approved material, to hold the structure in place. If the pole is to have an anchor bolted foundation, a hole will be augured into the ground at each structure location, an anchor bolt cage will be placed in addition to steel rebar to reinforce the foundation, and the hole will be filled with concrete. Depth and diameter of the foundation will vary depending on the design of the structure specific to that location. After foundations are in place, the structures are assembled and erected. Once a series of structures has been erected along the transmission line centerline, the conductor stringing phase can begin. Specialized equipment will be attached to properly support and protect the conductor during the pulling, tensioning, and sagging operations. Once conductors and shield wire are in place and tension and sag have been verified, conductor and shield wire hardware will be installed at each suspension point to maintain conductor position. Conductor stringing will continue until the transmission line construction is complete. All construction equipment will be removed along with all temporary culverts and previously installed environmental controls.

According to the Advisory Council on Historic Preservation regulations pertaining to the protection of historic properties (Title 36 Code of Federal Regulations [CFR] Part 800.4), Section 106 of the National Historic Preservation Act of 1966, as amended, requires federal agencies to identify and evaluate the effects of their undertaking on properties listed in, or eligible for listing in, the National Register of Historic Places (NRHP). A federal undertaking is a project, activity, or program funded in whole or in part by a federal agency, including those carried out by or on behalf of a federal agency, those carried out with federal financial assistance, and those requiring a federal permit, license, or approval. Currently, the Project is not subject to federal funding or permitting, and therefore no Section 106 review is required. Since the Project ROW is located entirely on private land, it does not fall under the purview of the Antiquities Code of Texas, which would require the Texas Historical Commission (THC) to review potential to disturb prehistoric or historic sites in the public domain.

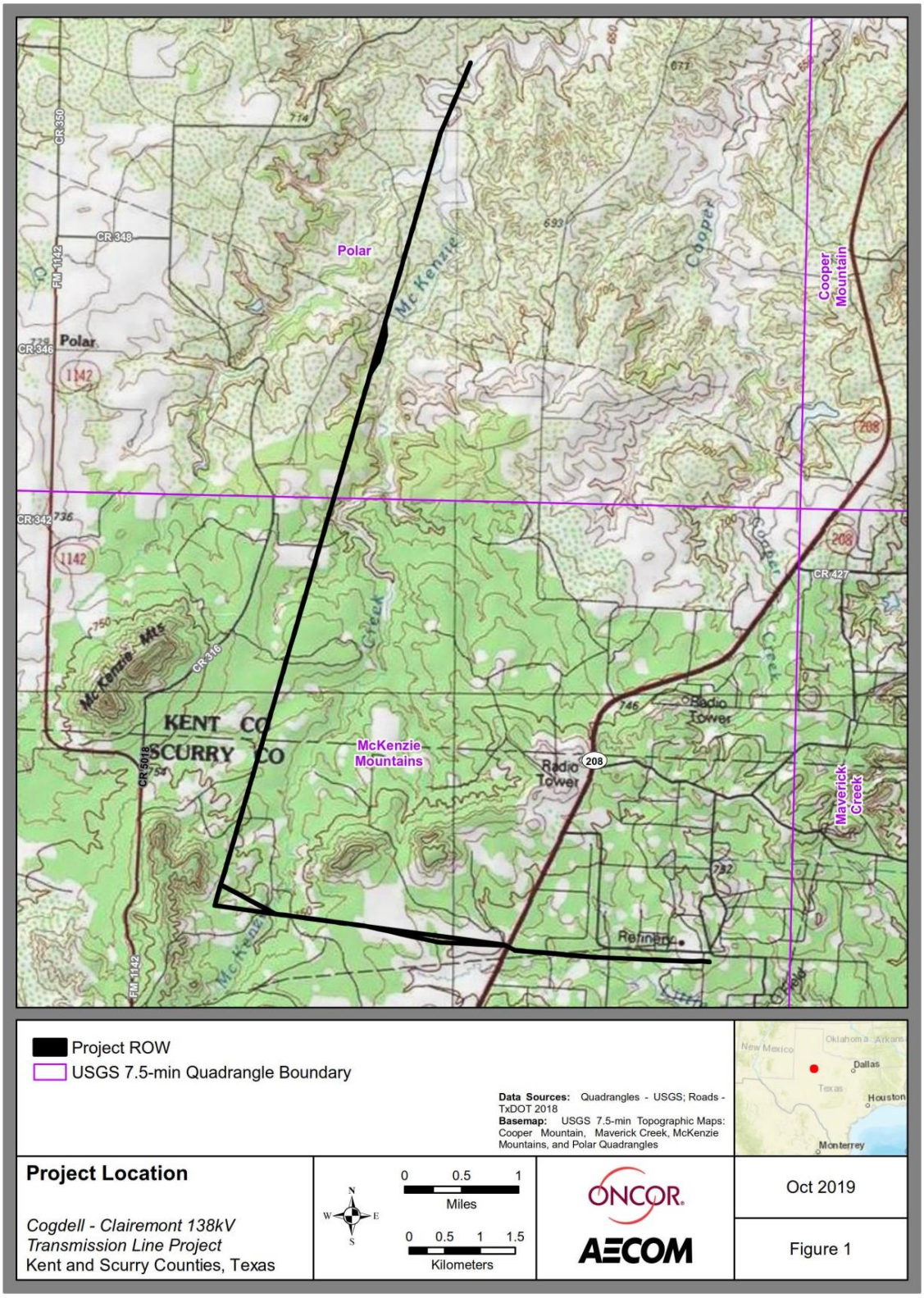

Figure 1. Location of Project in Kent and Scurry Counties, Texas

At Oncor's request, AECOM Technical Services, Inc. (AECOM) conducted a 100 percent pedestrian archaeological survey of the Project ROW for the portion of the Project from the Cogdell substation to the Project midpoint, which covers approximately 14.4 miles (including various potential reroutes). All work was carried out in conformance with the THC-approved *Generic Research Design for Archaeological Surveys of Oncor Electric Delivery Electric Transmission Line Projects in Texas* (PBS&J 2008), hereafter referred to as the Research Design. The Research Design stipulates the methods under which cultural resources within proposed transmission line ROWs will be identified and assessed for NRHP eligibility and State Antiquities Landmarks (SAL) designation, and how site-specific recommendations for additional archaeological research should be handled.

The survey was conducted from October 8 to 13, 2019, requiring 156 person hours in the field. Dr. Steve Ahr served as Principal Investigator and the survey was performed by AECOM archaeologists Dr. Andrew Parkyn, Patricia Hutchins, and Gary Hawkins. Architectural Historian Beth Reed performed deed title research for historic archaeological sites. Senior Architectural Historian, Tanya McDougall, prepared NRHP evaluations for above-ground historic resources identified during the survey.

2 Environmental Setting

2.1 Physiography

The Project lies within the North-Central Plains physiographic region of Texas (Bureau of Economic Geology [BEG] 1996). The geologic beds of the North-Central Plains generally dip to the west and are composed of limestones, shales, and sandstones. Topography of the North-Central Plains consists of low, north-south ridges and the elevation ranges from 900 to 3,000 ft above mean sea level (amsl). The Project study area elevation ranges from 1,963 to 2,837 ft amsl. The majority of the Project study area varies from rugged hills and drainage features in the central portion, to gently undulating hills and nearly level terrain to the north and south. Shale, siltstone, sandstone, gypsum, and dolomite largely comprise the northern and central portions of the study area with the southern portion dominated by shale, siltstone, and gravel. Drainage features that occur throughout the study area primarily feed into the Double Mountain Fork of the Brazos River.

2.2 Fauna and Vegetation

The Project is located within the Kansan Biotic Province (Blair 1950). The Kansan Biotic Province is unique in the relatively large number of endemic urodele amphibian species it possesses, while having a mixture of vegetation that is characteristic of other biotic provinces. Blair recognized 57 species of mammals, 16 lizard species, one land turtle species (the ornate box turtle), 36 snake species, 15 anuran species (frogs and toads), and seven urodele species, five of which are endemic within this province (Blair 1950). However, these numbers have likely changed considerably due to taxonomic revisions over the last half-century.

2.3 Geology

The majority of the Project ROW is underlain by the Upper Triassic Dockum Group, undivided (TRd) (**Figure 2**). This geologic unit consists of shale, siltstone, and gravel that is micaceous, thin bedded to massive, red, reddish brown, and dark yellow-orange. Thickness of this formation is 275 ft. The northern portion of the Project ROW also traverses the Permian-age Quartermaster Formation (Pq), which consists of interbedded shale, siltstone, sandstone, gypsum, and dolomite with beds of satinspar of various shades of red, reddish-brown, and reddish-orange. The sandstone is fine quartz that is red to reddish-orange in color. The dolomite is discontinuous and thin bedded. Thickness of this formation is 300+ ft (BEG 1993, 1994).

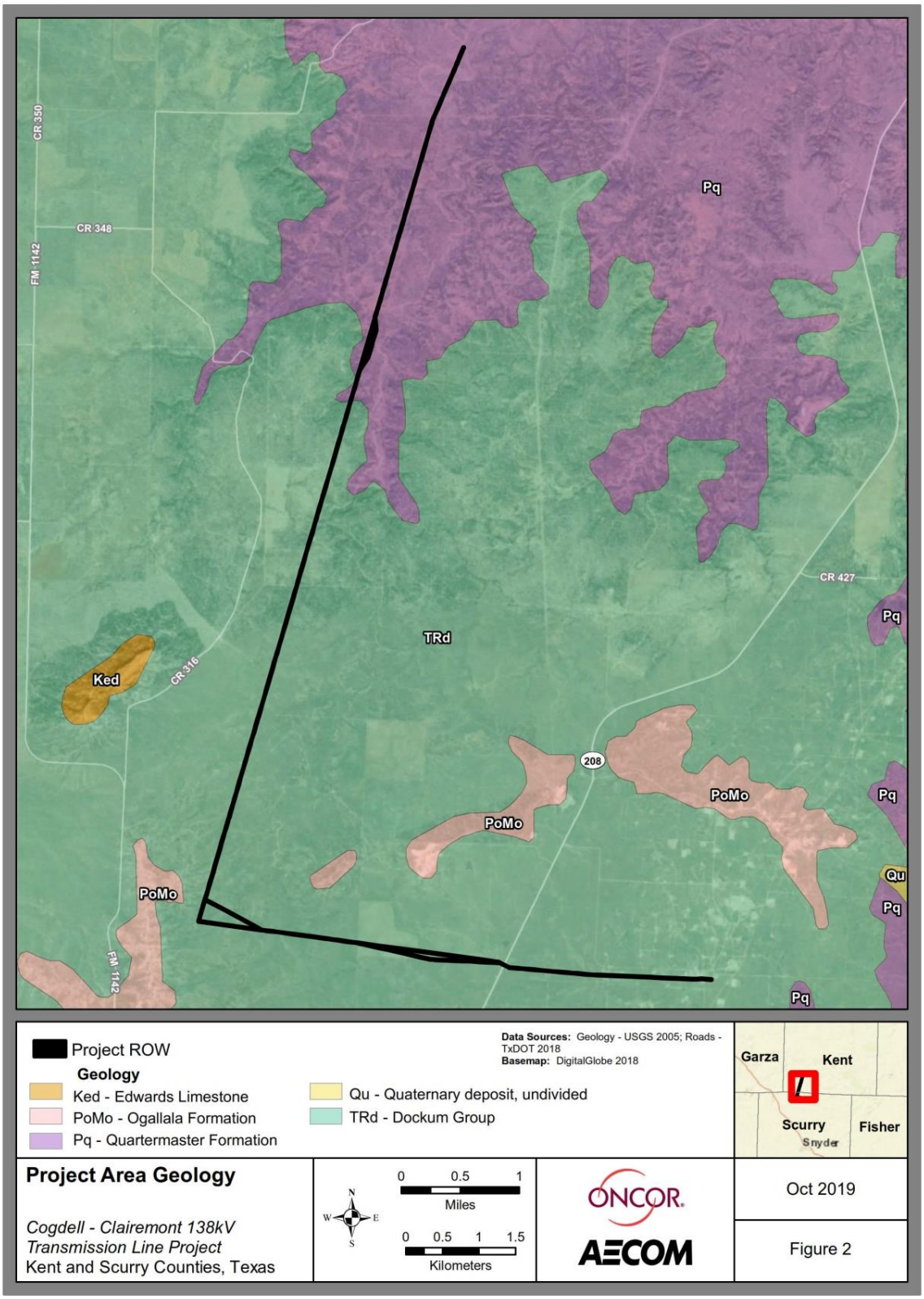

Figure 2. Geology within the Project ROW

2.4 Soils

Numerous soil mapping units are present within the Project ROW, but each of these can generally be assigned to one of three major geomorphic surfaces (**Table 1; Appendix A**). Upland soils comprise the vast majority, and covers approximately 66 percent of the Project ROW. These soils are shallow to eroded residual soils that formed in residuum weathered from non-cemented to strongly-cemented sandstone, siltstone, claystone, and shale. Common soil attributes include These soils also tend to exhibit strongly calcareous horizons that frequently contain caliche zones, as well as common quartzite rock fragments and sandstone pebbles throughout the loamy and clayey matrix (Natural Resources Conservation Service [NRCS] 2019).

Soils formed on alluvial deposits within ancient terrace settings comprise approximately 24 percent of the Project ROW (NRCS 2019). These soils are characterized as having formed in calcareous loamy alluvium on dissected alluvial plains and sloping terrace pediments. A shallow argillic horizon is often present, which is represented by a series of well-developed Bt horizons. The presence of an argillic subsurface horizon is indicative of weathering and translocation of phyllosilicate clays from upper soil horizons, to the Bt horizons in the lower soil profile. Depending on local conditions, such as mean annual precipitation and parent material, the formation of argillic horizons is time-dependent and can require tens of thousands of years for certain diagnostic pedogenic features (e.g., clay skins, strong prismatic structure, rubification, etc.) to form (Hallmark and Franzmeier 1999).

Floodplain soils make up the remaining 10 percent of the Project ROW and are characterized by moderately permeable soils that formed in Holocene-age calcareous alluvium derived from Permian redbed sediments (NRCS 2019). They are dominated by stratified silt loam, loam, sandy clay loam, and clay loam. In some cases, these soils are massive to weakly-structured. These types of soils are commonly found along narrow ephemeral streams and draws (NRCS 2019).

Table 1. Soils within the Project ROW

Symbol	Map Unit Name	Approximate Percentage	Landform	Soil Parent Material
Kent County				
BdC	Berda fine sandy loam, 3 to 5 percent slopes	2.3	Hillslopes, alluvial fans	Loamy alluvium and colluvium
Cf	Colorado and Westola soils, 0 to 1 percent slopes, frequently flooded	0.3	Floodplains	Loamy alluvium
CmB	Miles-Cobb complex, 1 to 3 percent slopes	1.8	Terraces; ridges	Loamy alluvium
CmC	Miles-Cobb complex, 3 to 5 percent slopes	4.1	Terraces; ridges	Loamy alluvium
Fr	Bippus clay loam, 0 to 1 percent slopes, occasionally flooded	2.5	Floodplains	Loamy alluvium
LaC	Latom gravelly fine sandy loam, 1 to 12 percent slopes	3.5	Ridges, hillslopes	Residuum weathered from sandstone
OcB	Sagerton clay loam, 1 to 3 percent slopes	2.7	Terraces	Loamy alluvium
QuC	Quinlan soils, sloping	0.2	Hillslopes	Residuum weathered from sandstone and siltstone
Ro	Rough broken land	1.8	Scarp slopes	Residuum weathered from limestone, sandstone, and shale
SdC	Spade fine sandy loam, 3 to 5	3.4	Ridges	Residuum weathered from

	percent slopes			sandstone
VeC	Vernon clay loam, 3 to 5 percent slopes	8.5	Hillslopes	Residuum weathered from claystone
VrC	Vernon-Badland complex, 2 to 12 percent slopes	1.4	Pediments	Residuum weathered from claystone
WhB	Wichita silt loam, 1 to 3 percent slopes	13.0	Plains	Mixed alluvium
WoC	Woodward and Quinlan loams, 3 to 12 percent slopes	0.5	Hillslopes	Residuum weathered from sandstone
Scurry County				
Co	Colorado and Spur soils, 0 to 1 percent slopes, frequently flooded	6.3	Floodplains	Loamy alluvium
La	Latom fine sandy loam, 2 to 20 percent slopes	4.3	Hillslopes, ridges	Residuum weathered from sandstone
MkB	Snyder loam, 1 to 3 percent slopes	0.5	Interfluves	Loamy alluvium
MsB	Miles-Cobb complex, 1 to 3 percent slopes	0.5	Terraces	Loamy alluvium
OcB	Sagerton clay loam, 1 to 3 percent slopes	14.8	Terraces	Loamy alluvium
OlB	Sagerton loam, 1 to 3 percent slopes	6.3	Terraces	Loamy alluvium
Pt	Dermott gravelly fine sandy loam, 3 to 20 percent slopes	0.8	Hillslopes, knolls	Residuum
SlB	Spade-Latom fine sandy loams, 1 to 3 percent slopes	3.3	Ridges, hillslopes	Residuum weathered from sandstone
SlC	Spade-Latom fine sandy loams, 2 to 5 percent slopes	1.6	Ridges on plains	Residuum weathered from sandstone
StB	Stamford clay, 1 to 3 percent slopes	1.9	Pediments	Slope alluvium over residuum
VcC	Vernon clay, ,3 to 5 percent slopes	1.4	Hillslopes	Residuum weathered from mudstone
Vp	Vernon-clay complex, 2 to 30 percent slopes	3.9	Hillslopes	Residuum weathered from claystone
WvB	Weymouth-Vernon complex, 1 to 3 percent slopes	4.7	Hillslopes	Loamy alluvium and colluvium
WvC	Weymouth-Vernon clay loams, 3 to 5 percent slopes	3.7	Hillslopes	Loamy alluvium and colluvium

Source: NRCS (2019)

2.5 Prior Disturbances

The majority of the region is generally used for farming, cattle ranching, feedlots, and oil fields. Review of aerial photographs and the subsequent field survey indicates that the area of the Project has been used primarily for ranching and by the oil and gas industry. Observable disturbances include fences, two-track roads, stock ponds, an existing transmission line immediately west of sections of the Project APE, and on-going ranching activities. Large areas of the Project APE are eroded down to exposed bedrock or gravel surfaces.

3 Cultural Background and Records Review

3.1 Cultural Background

The Project ROW is located within the Lower Plains Archaeological Region of Texas, which is the southern extension of the Southern Great Plains Region (Kenmotsu and Perttula 1993). The cultural history of the Lower Plains is divided into four main prehistoric periods and one historic period, which include the Paleoindian period (12,000 to 8000 years Before Present [B.P.]), the Archaic period (8000 to 2000 B.P.), the Late Prehistoric period (2000 to 500 B.P.), the Protohistoric period (500 to 300 B.P.), and Historic period (post-300 B.P.). Each period is defined on the basis of unique material culture assemblages observed in the archaeological record. The following sections offer a brief overview of each period.

Paleoindian Period (12,000 – 8000 B.P.)

The Paleoindian period is characterized by groups of highly mobile hunter-gatherers who hunted mega-fauna such as mammoth, bison, and horse. Evidence suggests additional diverse resources may have also been exploited, including turtle, alligator, and raccoon, as well as a wide range of plants. Site types in the Lower Plains Archaeological Region of Texas often include rockshelter sites, burned rock and ring middens, prehistoric wells, open campsites, lithic scatters, and isolated burials. The defining characteristics of Paleoindian lithic assemblages include lanceolate points with straight or concave bases, scrapers, and notched stone tools. Most of the Paleoindian period sites have been found along draws, playa margins, and as surface finds in the dune fields and uplands (Johnson and Holliday 2004). The Paleoindian period in the Lower Plains of Texas is subdivided into Early and Late periods.

The Early Paleoindian period is represented by Clovis and Folsom cultures. The Clovis culture is characterized by the use of distinctive Clovis-style projectile points that were fluted and lanceolate in shape. Clovis sites on the Lower Plains often consist of mammoth kill sites or sites containing assemblages of engraved stones, bone projectile points, stone bolas, and ochre (Collins 1995, 2002; Meltzer 1991). The use of non-local lithic resources suggests these groups were highly mobile and may have engaged in long-distance trade networks (Collins 1995; Prewitt 1981). Surface finds of Clovis points are commonly reported throughout Texas, while buried and preserved sites are rare. The Folsom culture, beginning around 11,450 B.P., was more reliant on bison hunting, which is evidenced by numerous bison kill sites. Diagnostic artifacts for this period include fluted Folsom projectile points, distinctive bifaces, and hide scrapers (Collins 1995).

During the Late Paleoindian period, the overall climate was shifting toward modern conditions, as large fauna became less abundant. Late Paleoindian populations were still highly mobile at this time. Various cultural complexes arose during this period and included Plainview, Cody, and Plano Complexes, each with its own distinctive projectile point style.

Archaic Period (8000 – 2000 B.P.)

The Archaic period is traditionally subdivided into the Early Archaic period (8000 to 6000 B.P.), Middle Archaic period (6000 to 3500 B.P.), and Late Archaic period (3500 to 2000 B.P.). Overall, an increased variety of artifacts from this period suggests there was a shift in culture and technology to aid in the exploitation of increasingly diverse resources. These changes appear to have arisen in response to climate changes that were occurring as a result of decreasing continental glaciation and increasingly warmer and drier conditions (Johnson and Holliday 2004). The mid-Holocene Altithermal, which peaked approximately 5,000 years ago, is a well-documented

warm/dry climate shift that occurred throughout the southwestern and mid-continental regions of North America (Boutton et. al 1994; Nordt et. al 1994, 2002). Hand-dug water wells found within the southern High Plains attest to the impacts of warming conditions on local hydrological and cultural systems (Meltzer 1991).

Another indication of environmental stress brought on by increasingly warm and arid conditions is the increased presence of occupation sites in more diverse environmental settings, with concomitant utilization of smaller mammals such as deer and rabbit, and diverse plant foods. The Archaic period also saw reduced mobility of hunter-gatherer populations and greater exploitation of seasonal resources. Resultant changes in lithic technologies included a shift from lanceolate-shaped points to stemmed and barbed dart points, as well as an increased use of groundstone tools for processing plants (Collins 2004). The majority of Archaic period assemblages are associated with open-air sites or rockshelter deposits (Miller and Kenmotsu 2004). The archaeological record for this period in the study area is relatively scant, suggesting it was a marginal subsistence zone compared to surrounding regions (Meltzer 1991; Meltzer and Collins 1987; Quigg et. al 1994). Some argue the region was all but abandoned during the earlier part of the Archaic period, when climate conditions were not optimal (Johnson and Holliday 2004). Only after the amelioration of hot and arid climate conditions during the Middle and Later Archaic periods did human populations return to the study area in significant numbers.

Limited information is currently available on the Early Archaic period for the region, and our current knowledge is primarily based on excavations at a small number of sites, including the Lubbock Lake Site in Texas, located approximately 150 miles northeast of the study area, and the San Jon Site in New Mexico, located nearly 200 miles north of the study area (Johnson and Holliday 2004). Both are described as bison kill/butchery locations, but diagnostic projectile points were not recovered (Johnson and Holliday 2004).

The Middle Archaic period was characterized by increasing aridity and the accumulation of eolian sediments in local draws (Johnson and Holliday 2004). Archaeological sites from this period tend to be located along intermittent drainages (Miller and Kenmotsu 2004). One such site, the Lubbock Lake Site, provides evidence of continuing bison procurement and processing during the Middle Archaic, although a more diversified spectrum of faunal species, including antelope, gopher, rabbit, turtle and wood rat, were identified, as well as a rock-covered oven, probably used for plant food processing (Johnson and Holliday 2004). A cultural response to the increasing aridity is also indicated at three sites (Blackwater Draw Locality No. 1, Mustang Springs, and Marks Beach), which yielded evidence of excavated wells (Johnson and Holliday 2004; Meltzer 1991).

The Late Archaic period is represented by corner- and side-notched projectile point types and assemblages associated with the Chalk Hollow and Lubbock Lake sites. During this period, temperatures cooled, landscapes began to stabilize, and surface water (in the form of playas and marshlands) expanded (Johnson and Holliday 2004). As with the Early and Middle Archaic periods, bison hunting and processing appear to be a major subsistence activity. Evidence for tool caches, campsites, hearths, lithic procurement and processing locations, and rock shelters, has also been noted (Johnson and Holliday 2004). Horticultural intensification, focusing on corn and bean cultigens, and perennials and weedy annuals, is also suggested in localities west and north of the study area in the western Trans-Pecos region and southeastern New Mexico (Johnson and Holliday 2004).

Late Prehistoric Period (2000 – 500 B.P.)

The Late Prehistoric period began with the introduction of the bow and arrow, corner-notched Scallorn arrow points, the appearance of coarse-tempered, cord-marked pottery, and the expansion of horticulture (Boyd 2004; Cloud and Sanchez 1994; Johnson and Holliday 2004; Kenmotsu 2001; Miller and Kenmotsu 2004; Perttula 2004). The lower reaches of draws transecting the region provided locations for horticultural pursuits, with riparian marshlands surrounded by a mesquite savannah (Johnson and Holliday 2004). Gathering activities, centered on oak, mesquite, and other plant resources, appear to have continued (Johnson and Holliday 2004).

The presence of ring middens and circular pit houses has been noted within the region during this period; however, in general, there is some continuity from Late Archaic subsistence and mobility practices (Miller and Kenmotsu 2004).

At the start of the Late Prehistoric period, this region was relatively underrepresented by hunter-gatherers when compared to the surrounding regions, largely due to less than optimal climate conditions. However, following a return to cooler and wetter climates, population densities increased, along with a rise in cultural interactions with adjacent regions. Increasingly diverse artifact assemblages are reported for the latter part of the Late Prehistoric period, including Puebloan pottery, dominated by Jornada Mogollon ceramics, and Plains-type lithic tools (Boyd 2004; Cloud and Sanchez 1994; Kenmotsu 2001; Johnson and Holliday 2004; Miller and Kenmotsu 2004). The frequencies of Jornada Mogollon ceramics in Late Prehistoric sites in the region after 1000 B.P. strongly suggests increased trading activities (Johnson and Holliday 2004).

Subsistence practices beyond the study area included agriculture and horticulture, both of which were likely influenced by regionally adjacent Puebloan and Southern Plains cultural areas. An increase in bison hunting during the latter part of the Late Prehistoric period is suggested by the archaeological presence of bison-related hunting camps, base camps, and residential and processing sites (Johnson and Holliday 2004). Accordingly, related artifact assemblages geared toward bison exploitation are found in numerous archaeological sites within this region, and across much of the state (Creel 1991; Dillehay 1974; Prewitt 1981).

Protohistoric Period (500 – 300 B.P.)

Due to the remote setting of the study area, significant contact between Native Americans and Europeans did not occur until the middle of the nineteenth century. Prior to this time, the European presence in the Southwest and the Southern Plains had been sporadic at best. While various French and Spanish contact is reported for the state of Texas, it was not until nearly the seventeenth century that European influence was seen in the region, and not until the nineteenth century that the physical presence of Europeans became commonplace on the Southern Plains. Following this period, European trade goods (i.e., glass trade and seed beads) and modern horse remains (as a subsistence item) entered the archaeological record (Johnson and Holliday 2004). While Protohistoric period sites have been found, few display stratigraphic integrity (Johnson and Holliday 2004; Perttula 2004).

Historic Period (post-300 B.P.)

Until the mid-nineteenth century, west Texas remained largely unexplored, and the dry, semiarid climate and lack of available water discouraged settlement in the area until the late 1800s (Leatherwood 2017). As settlers slowly pushed westward into this territory beginning in the mid-nineteenth century, the U.S. Army began to station troops in west Texas and established travel routes through the region. Trails west included the Chihuahua Trail, which led from Mexico to Indianola, Texas, as well as the Butterfield Overland Mail route and the Goodnight-Loving Trail.

Once the threat of attacks from Native Americans was removed, ranchers began to settle the region and raise large herds of cattle, as the demand for beef had risen following the Civil War. New cattle trails developed throughout west Texas, where large herds were driven hundreds of miles north to the mid-western railroad routes. In 1881, the Texas Pacific Railway extended its rail lines through west Texas. Between the 1870s and 1890s, approximately 8,000 miles of new railroad track were laid. The new railroads helped to connect large and small market centers throughout the state, and aided cattle ranchers in the transport of their herds to market (Campbell 2003).

Towards the end of the nineteenth century, cattle ranchers began to fence off their land and create small communities on the frontier. West Texas communities grew slowly due to poor soil conditions and the difficulty

of accessing water. People began to farm corn and cotton on the newly settled land, but ranching was still the dominant economic product of west Texas at the end of the nineteenth century. However, by the 1920s, the cattle industry began to decline as crop production increased. The trend continued over the following decade, but drought and the onset of the Great Depression in the 1930s, caused a dramatic drop in the agricultural industry. After World War II, ranching and farming in west Texas began to recover, but oil production in the region also became important and helped balance the economy (Campbell 2003).

Kent County

The boundary for what would be Kent County was demarcated in 1876 from Bexar and Young counties and named for Andrew Kent, who died at the Alamo (Hunt 2017). The county was officially organized in 1892, and Clairemont was established as the county seat, but was switched to Jayton in 1954 due to its proximity to rail service (Davis 2017a).

Early settlers to Kent County include cattleman R.L. Rhomberg who settled in 1888. The town of Clairemont was named after his niece, Claire Becker (Davis 2017b). S.M. Swensen was another early landowner and owned nearly 300,000 acres of land in the area, a portion of which is in the northeastern part of the county (Moore 2017). By 1890, the area had attracted few settlers. The population at that time included 324 residents living on approximately 48 farms and ranches. Cattle numbered approximately 4,200 head and crop farming occupied less than 500 acres total (Hunt 2017). After the county was officially established, settlement increased and in 1900, the county had 899 residents and 134 farms and ranches. Although some farming had been established, the raising of livestock dominated the economy during this time with approximately 29,600 cattle counted in the county (Hunt 2017). One of these early communities was the town of Polar, which is inside the study area in the southwest corner of Kent County, approximately four miles of the Scurry County line along RM 1142. The town is named after Polar Singletary, daughter of a Kent County Commissioner. A post office operated in Polar from 1906 to 1951. The 1940 Kent County General Highway Map shows approximately 20 residences, a commercial building, a church, and a school. The Polar Cemetery, identified on the THC Atlas (KT-C003), is situated one miles south of town, on the west side of FM 1142. The population was approximately 10 when the post office closed in 1950.

In 1909, the Stamford and Northeastern Railway built a line and stimulated immigration to the area. The railroad, however, had bypassed the county seat of Clairemont and traversed through what is now the town of Jayton in the eastern part of the county. In 1910, the population in Kent County was 2,655 and there were an estimated 326 farms. Over the following decades, the county continued to grow and between 1920 and 1930 the population increased from 3,335 to its peak of 3,851. The number of farms also increased from 412 to 588. During this period the economy became increasingly focused on crop production, including cotton, wheat, and corn, and the number of cattle decreased. However, like most of west Texas, the onset of the Great Depression was a period of economic downfall. As a result, approximately 250 farms were lost between 1930 and 1950, and by 1950, the population in Kent County had dropped to 2,249 residents (Hunt 2017).

Although the agricultural industry in Kent County never fully recovered from its decline, after World War II, oil and gas production helped to diversify the economy. In 1948, the county produced 17,044 barrels of oil. The production of oil has remained an important economic contributor to the county throughout the twentieth century with more than 448,448,000 barrels produced between 1946 and 1991. However, the county population has steadily dropped through the twentieth century and into the twenty-first century. In 1960, the population was 1,727, but by 2014, only 785 people lived in Kent County (Hunt 2017).

Scurry County

The Texas legislature established Scurry County in 1876. The land that now forms the county was formerly assigned to Bexar County. Scurry County was named for Confederate General William R. Scurry, and was attached to Mitchell County for judicial purposes until 1884, when it was officially organized. Early settlers to the county include William H. Snyder, a buffalo hunter and trader, who established a trading post in 1877, for buffalo hunters in the area. Soon after, a settlement consisting of dugouts and tents developed around the trading post, which eventually became the town of Snyder. The same year Snyder opened his trading post, Tom and Jim Nunn established the first large ranch in the area, and drove longhorns from south Texas to land along the tributaries of the Clear Fork of the Brazos River (Leffler 2017).

In 1880, Scurry County had a population of 102 residents, primarily in the vicinity of the Snyder trading post. The community of Snyder became a townsite in 1882, at which time the population was 600, and the town had two churches, two banks, a steam gin, gristmill, and two weekly newspapers, the *Scurry County Citizen* and the *Coming West* (Wiggins 2017). In 1884, Snyder was named the county seat. By 1890, the county population had increased to 1,415, and ranching developed as the economic mainstay, with nearly 23,000 cattle and 17,000 sheep reported that year. Crop production was also present, which included the cultivation of 822 acres of corn and 246 acres of wheat. By 1900, the population increased to 4,158. The number of farms in the county increased from 184 in 1890, to 586 in 1900. By this time cattle ranching reported over 43,000 cattle and about 3,000 sheep, but cotton was the county's most important crop, with more than 7,400 acres planted (Leffler 2017).

Construction began on the Roscoe, Snyder and Pacific Railway at Snyder in 1907, and in 1911 the Atchison, Topeka and Santa Fe Railway also laid tracks through the town. By 1910, Snyder had a population of 2,514 (Wiggins 2017). The arrival of the railroads encouraged the rapid expansion of crop cultivation during the first decade of the twentieth century. By 1910, there were 1,424 farms and ranches in the county, and the area's population grew to 10,924. More than 37,000 acres were planted in cotton that year, and almost 51,000 acres were planted in sorghum. At this time, there was a significant decline in the number of cattle, but poultry farming increased and became important to the local economy. With the decline in the cattle industry, the overall population declined to 9,003 and the number of farms in Scurry County dropped to 1,077, by 1920. Nevertheless, the cultivation of cotton increased to over 42,000 acres. Within five years, the success of cotton production and agriculture in general, bolstered the economy. The number of acres of cotton planted rose to more than 129,000 acres by 1929, and by 1930, there were 1,560 farms in Scurry County (Leffler 2017).

Oil was discovered in Scurry County in 1923. Although production was modest, it helped to stimulate and diversify the economy, and by 1930, the county population included 12,188 residents. However, like most of the country, economic growth in the county was hard hit by the onset of the Great Depression. This was particularly true for the agricultural industry. In 1929, nearly 198,000 acres of cropland had been cultivated, but by 1940, the number of cultivated acres fell to less than 143,000. Cotton farmers were also greatly affected by federal crop restrictions and low prices, which caused the number of acres planted to fall by more than 50 percent. In 1940, only 64,000 acres of cotton were planted (Leffler 2017).

During the 1940s, the county's economy was greatly stimulated by the discovery of new oil wells. In 1938, approximately 10,000 barrels of oil were extracted from shallow wells in the county. However, production quickly increased and by 1944, 303,000 barrels had been extracted. The boom in the oil industry, however, really began after World War II and wells in the Canyon Reef field were drilled to 6,500 ft, producing over 1,112,000 barrels of oil. Between 1948 and 1951, oil production increased and approximately 2,000 wells were drilled in the county. The oil business has remained an integral part of the local economy. Though the oil industry has fluctuated throughout the twentieth century, it has provided employment and offset rural population loss

caused by droughts and farm consolidation. By January 1, 1991, 1,825,517,000 barrels of petroleum had been taken from Scurry County lands since 1923. The county's population as of 2014 was 17,328 residents (Leffler 2017).

3.2 Records Review

In accordance with the Research Design, a records review was conducted prior to the commencement of fieldwork in order to identify previous investigations and all previously recorded cultural resources inside, or within 1,000 ft (305 m) of the Project ROW. This research included any cultural resources that are listed in, or eligible for listing in, the NRHP, or that have the potential to be designated as SALs, or have been previously recorded as cemeteries. This research was carried out by reviewing the Texas Archeological Sites Atlas (TASA), Texas Historic Sites Atlas (THSA), historic aerials, historic topographic maps, and the NRHP online database.

Review of the Texas Archaeological Sites Atlas (TASA 2019) revealed one previous cultural resources investigation has taken place within 1,000 ft (305 m) of the Project ROW. This survey includes the Brazos Electric Power Cooperative's Clairemont to Sun Transmission Line (Espey, Huston & Associates 1988). A total of 38 archaeological sites were identified during this survey, of which nine archaeological sites are present within 1,000 ft (305 m) of the Project ROW (**Table 2**). All sites contain surface scatters of prehistoric materials representing short-term activity sites including campsites, lithic procurement sites, workshops, and processing sites. Only one site also contained historic materials, which consisted of isolated pieces of alkaline glaze stoneware jug handle and neck fragment. Each of these previous sites was recommended as either Not Eligible or Not Eligible within the Clairemont to Sun Transmission Line ROW. Five previously recorded prehistoric sites are intersected by the Project ROW.

Table 2. Previously Recorded Archaeological Sites within 1,000 ft (305 m) of the Project ROW

Site	Cultural Period(s)	Site Description	Recommendation	Distance from Project ROW
41SC13	Prehistoric	Lithic scatter containing broken biface, worked pebble fragment	Recommended Not Eligible	4 m west of Project ROW
41KT99	Prehistoric	Specialized activity site with flakes	Recommended Not Eligible in ROW	89 m west of Project ROW
41KT100	Prehistoric	Specialized activity site containing flakes, core, chopper	Recommended Not Eligible	*24 m east of Project ROW
41KT101	Prehistoric	Specialized activity site with debitage	Recommended Not Eligible in ROW	8 m west of Project ROW
41KT102	Prehistoric and Historic	Prehistoric lithic procurement site with flakes, cores, burned rocks; historic isolated find of alkaline glaze stoneware jug neck and handle	Recommended Not Eligible in ROW	Within Project ROW
41KT106	Prehistoric	Lithic procurement and primary reduction site containing flakes, cores, tested cobbles, two unifaces, and sandstone mano fragment	Recommended Not Eligible in ROW	Within Project ROW
41KT107	Prehistoric	Lithic procurement and workshop site containing one biface, two unifaces, groundstone, and debitage	Recommended Not Eligible in ROW	Within Project ROW

Site	Cultural Period(s)	Site Description	Recommendation	Distance from Project ROW
41KT108	Prehistoric	Lithic workshop and campsite containing two cores, flakes, burned rock	Recommended Not Eligible in ROW	Within Project ROW
41KT109	Prehistoric	Lithic procurement and processing site containing three unifacial tools, burned rock, and debitage	Recommended Not Eligible in ROW	Within Project ROW

Source: TASA (2019)
*Likely plotted incorrectly on TASA

A records review of data from the THSA was conducted in order to locate previously recorded historic resources within 1,000 ft (305 m) of the Project ROW. Resources include properties listed in, or eligible for listing in, the NRHP, Recorded Texas Historic Landmarks (RTHLs), Historic Texas Cemeteries (HTCs), and Official Texas Historic Markers (OTHMs). Historic properties are listed in or determined eligible for listing on the NRHP. Listing in the NRHP provides national recognition of a property's historical or architectural significance and denotes that it is worthy of preservation. Buildings, sites, objects, structures, and districts are eligible for this designation if they are at least 50 years old and meet established criteria.

The designation of RTHL is awarded by the THC to buildings and structures at least 50 years old that are deemed worthy of preservation for their historical and architectural associations. Designation of RTHL is a legal designation and comes with a measure of protection and is the highest honor the state can bestow on a historic resource. The designation of HTC is also awarded by the THC to some cemeteries in recognition of the historical significance of the cemetery. An OTHM is educational in nature and does not carry legal restriction on the use of the property or site, although the THC must be notified if the marker is ever to be relocated. The records review revealed no historic properties, RTHLs, HTCs, cemeteries without designation, or OTHMs are located within 1,000 ft (305 m) of the Project ROW.

3.3 Cultural Resources Potential

Background research indicates prehistoric sites in the region include campsites and lithic procurement sites. Prehistoric sites are frequently located within river and stream valleys (close to water sources) and reduce in frequency in upland settings, on steep slopes and increasing distance from water sources. Prehistoric sites may also occur in rock shelters and in terrace deposits. Prehistoric sites in the region generally exhibit moderate to high surface visibility due to sparse ground covering vegetation. Ongoing wind erosion and extensive bioturbation from grazing and burrowing have exposed the upper surface of the regional landscape. Except for a few specific geomorphological locations, archaeological sites of all ages tend to be located on the exposed ground surface, either because of erosion or because they were never buried (Hall 2006). The majority of archaeological sites in the region will most likely be located on eroded surfaces and therefore lack integrity (Hall 2006). However, intact archaeological deposits may be encountered where depositional processes have been occurring, such as: (a) colluvial slopewash along playa margins; (b) eolian sand deposits associated with the playa margins; (c) upland playa and lake fill deposits; and (d) within and adjacent to extant and/or extinct draws and/or drainages of Late-Pleistocene to early Holocene age (Hall 2006; Johnson and Holliday 2004).

Historic archaeological sites tend to be located along old roads in upland and terrace settings rather than on active floodplains. Historic sites typically consist of aboveground structures or structural elements, but may also contain buried deposits. Historic sites generally have a greater visibility because they tend to be on the surface or only shallowly buried. Historic site types in the region include, but are not limited to, town sites, farmsteads,

ranches, cemeteries, stone walls, mills, kilns, and industrial sites (Fields et. al 1996). Historic sites are often associated with surface features, such as wells and buildings, and often contain a higher density of artifacts compared to prehistoric sites. Sites abandoned in the mid-nineteenth century are an exception to this, as they are usually not associated with structural features and are often characterized by low artifact density.

4 Methods

The objectives of the survey were to identify and inventory any cultural resources sites within the Project ROW, assess the potential of any resources for NRHP eligibility and/or SAL designation, and determine the need for additional archaeological studies, including monitoring. All work was conducted in accordance with Oncor's Generic Research Design and was performed by AECOM cultural resource professional meeting the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation.

4.1 Identification of Probability Areas

Prior to fieldwork, the Project ROW was subdivided into areas of high, moderate, and low probabilities for the presence of prehistoric archaeological sites. This evaluation was based on extant site distributions, soils, geomorphology, topography, prior disturbances, and distance from permanent and intermittent water sources.

High Probability Areas (HPAs) possess the greatest potential for containing archaeological sites. Site integrity is also presumed to be highest in the HPAs. Within the Lower Plains, HPAs contain deep soils and are in proximity to natural water sources, including interfluve summits and shoulder slopes overlooking alluvial valleys; lower slope components, such as interfluve toeslopes and alluvial and colluvial fans; areas adjacent to alluvial valleys; natural levees or levee remnants; relict alluvial terraces; rises within floodplains; upland edges adjacent to alluvial valleys and stream confluences; areas near springs; and floodplain deposits. Depositional areas offer the greatest potential for burial and preservation of prehistoric sites. While sites in these settings have the greatest research potential, they also exhibit low visibility and are usually only located through deep mechanical excavation or by observing eroding stream banks. Site preservation in these settings may also be affected from development, roadways, sand and gravel operations, and landfills. For historic sites, identification of probable site locations was determined through archival and historic research specific to the Project ROW.

Moderate Probability Areas (MPAs) may contain archaeological remains, but their presence is considered to be less likely, for reasons of distance to water, topography, slope, or soils. MPAs in this region consist of upland prairies, areas further away from natural water sources, and areas close to water sources, but with slopes greater than 20 percent. Though site visibility in MPAs tends to be higher than in HPAs, due to decreased vegetation and shallower soils, MPAs are less likely to exhibit the geologic conditions necessary for the burial and preservation of cultural materials. In MPAs, archaeological integrity is considered lower because of the greater potential for mixing of cultural components in surface and near surface contexts.

Low Probability Areas (LPAs) are areas in which cultural resources sites are unlikely to be present, or in which they would be greatly disturbed. In general, LPAs include areas characterized by steep slopes, deflated or eroded surfaces, or modern construction.

Based on background research the majority of the Project ROW was classified as MPAs, while HPAs were designated around streams and draws. Any sites in these setting are likely to be found within a deflated or otherwise disturbed context, usually as a result of blowouts and sediment reworking. As such, most sites are likely to lack the integrity that is a prerequisite for further investigation. However, it is not unprecedented that in certain localized settings intact sites may be found.

4.2 Pedestrian Survey

The pedestrian survey included a walkover of the entire Project ROW with surface examination and shovel testing in HPAs, as dictated by field conditions. Disturbed areas were documented by pedestrian walkover and visual inspection. HPAs were subjected to intensive pedestrian survey. Survey transects were no more than 30 m (98 ft) apart and distances between shovel tests did not exceed 30 m (98 ft), unless field conditions (e.g., soil depth, exposed bedrock or caliche, ground surface visibility, soil disturbances, etc.) obviated the need for shovel testing. Thus, in areas warranting shovel test excavations, the overall density of shovel tests within HPAs was not less than 1 per 30 m (98 ft) of linear ROW. This strategy was necessarily adjusted in the field at the discretion of the lead field archaeologist on the basis of extant ground conditions, particularly in areas that exhibited greater than expected surface visibility, areas which had undergone significant prior disturbances, areas of exposed bedrock, and in steeply sloping areas. For example, most of the landforms that were classified as HPAs were found to be near a draw, but exhibited stable, non-aggrading surfaces, or erosional upland geomorphic surfaces, with little or no soil cover. In such instances, no shovel tests were warranted.

Within MPAs, the Project ROW was walked and examined to verify surface conditions. Survey transects were no more than 30 m (98 ft) apart, with shovel tests placed judgmentally at the discretion of the lead field archaeologist, with no maximum distance between shovel tests. Generally, shovel tests were avoided in areas of exposed bedrock or caliche, upland areas with excellent ground surface visibility, and/or areas with steep slopes. According to the Research Design, there is minimum overall density of shovel tests within MPAs. Areas in the field that were found to be significantly disturbed (LPAs) were subjected to walkover documentation and verification, which typically included photographs and ground surface inspection.

4.3 Shovel Testing

Shovel tests were approximately 20 cm (8 inches) in diameter and were excavated in 10 cm (4 inch) levels. All shovel tests were excavated to a depth where pre-Holocene sterile substrates were encountered, if possible. In deeper soils or if the stratum was indeterminate, the shovel tests were excavated to a maximum of 80 cm (32 inches). The excavated soils from each shovel test were sifted through ¼-inch (0.64 cm) hardware mesh unless the matrix was dominated by clay. A clayey matrix was visually inspected. For each shovel test, the following information was recorded: location, depth, and soil strata. All shovel tests were backfilled upon completion. All cultural materials recovered from subsurface shovel tests were collected. Collection of surface artifacts was limited to temporally diagnostic artifacts. Isolated occurrences were noted, but no recorded as sites.

4.4 Site Recording and Assessment

Once a cultural resource site was located, site boundaries were delineated by the surficial extent of artifacts or surface features. In areas where buried deposits were suspected, shovel tests may be dug to help define the site's boundaries and depth within the Project ROW, and to provide information on potential integrity of the cultural deposits. A handheld Trimble GeoXH 6000 Global Positioning System was used to record the boundaries of any newly identified site. A site was determined to be present when at least 5 or more artifacts, with or without tools, or 4 artifacts including at least one informal tool, or 3 artifacts with at least one formal tool were present. Historic finds, including isolated farm/ranch equipment items (e.g., oil well pump jacks or a single irrigation gate) are generally not considered sites. A temporary field designation is assigned to the site, and a TexSite form is completed and submitted to the Texas Archeological Research Laboratory (TARL) for assignment of a permanent trinomial designation. All newly discovered sites were assessed to determine if they could be eligible for listing in the NRHP, and whether they meet the criteria to merit official designation as a SAL. In general, for a site to be considered eligible for the NRHP or to merit SAL designation, it must be able to contribute important information for understanding prehistory or history, and it much retain integrity.

4.5 Geoarchaeological Investigations

Although the use of backhoe trenches to investigate alluvial, colluvial, and eolian settings for potential buried archaeological sites is conducted for some linear survey projects in Texas, the Research Design recommends that no trenching be conducted in settings where transmission structures are to be constructed. Excavation of one or more backhoe trenches at a proposed structure location is considered destabilizing since undisturbed soil is necessary to support the structure foundation. To address this issue, the Research Design calls for a geoarchaeological assessment of the potential for deeply buried cultural deposits within the Project ROW in order to determine the need for monitoring during the excavation of structure foundations. The results of this assessment are presented in Chapter 5.

4.6 Curation

No artifacts were collected during the survey. All correspondence, field records, and photographs generated during field investigations will have been prepared for permanent curation at TARL, Austin, Texas.

5 Survey Results

5.1 Overview of Project Area

The archaeological investigation of the Project ROW included intensive pedestrian survey, shovel testing, revisits to nine previously recorded archaeological sites, and the identification and recording of three new archaeological sites and one historic resource. Numerous prior impacts to the Project APE were noted, including disturbances from two-track roads, gas pipelines, buildings, stock ponds, and overhead transmission lines (**Figures 3 and 4**). Other disturbances include erosion from drainage channels and terracing of agricultural fields (**Figures 5-8**).

A total of 14.4 linear miles of pedestrian survey were completed within the Project ROW, which encompassed approximately 166 acres (**Appendix B**). Pedestrian survey revealed that the Project ROW traverses a mosaic of alternating open ranchland interspersed with oil and gas fields. The topography changes from low-lying floodplain areas, rising to steep upland areas and finger ridges. Large areas of the Project ROW contain exposed gravels on eroded ground surfaces, while deeper soils were found near drainages. Ground surface visibility ranged from 30 to 80 percent, with visibility increasing in eroded upland areas.

Under these conditions, which have resulted in exposed and eroded ground conditions that offer excellent visibility, the survey was completed by intensive pedestrian walkover and ground surface inspection supplemented with the excavation of 57 shovel tests (**Appendix C**). During the survey, one newly-recorded historic site (41SC76) and two prehistoric sites (41KT176 and 41KT177) were identified and recorded within the Project ROW. Each site is described below. In addition, evidence of one previously recorded site (41KT107) was found to extend into the current Project ROW, but only two flakes were found.

Figure 3. Stock pond disturbance within the Project ROW, facing west

Figure 4. Transmission line disturbance crossing the Project ROW, facing southwest

Figure 5. Exposed terraced surface, facing east

Figure 6. Eroded drainage channel of unnamed tributary of McKenzie Creek, facing east

Figure 7. Seasonal drainage channel of unnamed tributary of McKenzie Creek, facing north

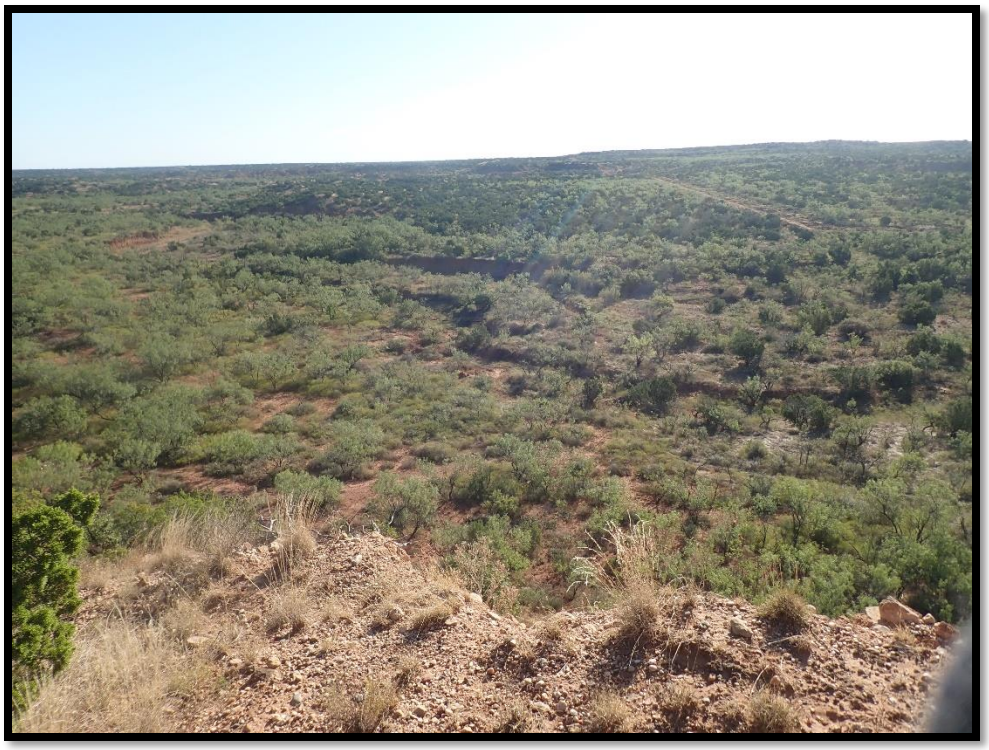

Figure 8. Overview of the McKenzie Creek Floodplain, facing east

5.2 Previously Recorded Sites

Nine previously recorded archaeological sites were located in or within 1,000 ft (305 m) of the Project ROW (see **Table 2**). All sites were recorded during the 1980s Clairemont to Sun Electric Transmission Line survey in Kent and Scurry Counties (Espey, Huston & Associates 1988), which is located immediately west of the current Project ROW.

41SC13 is mapped approximately 4 m west of the Project ROW. The prehistoric site was recorded as a small lithic scatter comprised of a broken biface and possible worked pebble identified on the edge of a small drainage. Site 41SC13 was recommended as not eligible (Espey, Huston & Associates 1988). The survey found no evidence of artifacts or features from this site within the current Project ROW.

41KT99 is mapped approximately 89 m west of the Project ROW. This prehistoric site was recorded on the eroded soil surface of a narrow upland finger ridge. Artifacts previously documented at the site included purple quartzite and secondary chert flakes. Site 41KT99 was recommended as not eligible in the ROW (Espey, Huston & Associates 1988). The survey found no evidence of artifacts or features from this site within the current Project ROW.

41KT100 is currently mapped on the TASA as being approximately 24 m east of the Project ROW. This site appears to have been plotted incorrectly on the TASA since the report for this site indicates that the site is situated on a bluff approximately 150 m west of McKenzie Creek and on the extreme eastern edge of the Clairemont to Sun Transmission Line corridor (Espey, Huston & Associates 1988). As currently plotted, however, the site on the TASA is shown to be about 50 m east of the Clairemont to Sun Transmission Line corridor. The artifact assemblage at 41KT100 was reportedly comprised of a core-chopper and four pieces of chert and quartzite debitage (Espey, Huston & Associates 1988). Site 41KT100 was recommended as not eligible (Espey, Huston & Associates 1988). The current survey in the vicinity of the site found a piece of chert shatter, designated as IF-6, within the Project ROW. No archaeological features or additional artifacts were identified.

41KT101 is mapped approximately 8 m west of the Project ROW. The site was recorded an upland location overlooking the west bank of McKenzie Creek. The previously recorded artifact assemblage comprised of a dispersed debitage scatter of chert, jasper, and quartzite debitage. Site 41KT101 was recommended as not eligible in the ROW (Espey, Huston & Associates 1988). The survey found no evidence of artifacts or features from this site within the current Project ROW.

41KT102 is mapped within one of the potential alternative alignments for the transmission line corridor (west of proposed monopole 10/3). The site was previously recorded on a broad, steep sided finger ridge overlooking McKenzie Creek. The prehistoric lithic procurement site was found to contain cores, quartzite and chert flakes, and burned rocks. A single historic artifact was identified during the original survey and comprised of the neck and handle of an alkaline glazed stoneware jug. Site 41KT102 was recommended as not eligible in the ROW (Espey, Huston & Associates 1988). The survey found no evidence of artifacts or features from this site within the current Project ROW.

41KT106 is mapped within proposed Project ROW and was previously recorded on a series of highly eroded terrace rises adjacent to McKenzie Creek. The prehistoric lithic procurement and reduction site reportedly contained multiple flakes of chert, quartzite, and siltstone, along with cores, tested cobbles, two unifaces, and a sandstone mano fragment. Site 41KT106 was recommended as not eligible in the ROW (Espey, Huston & Associates 1988). The survey found no evidence of artifacts or features from this site within the current Project ROW.

41KT107 is mapped within the Project ROW and was previously recorded on an eroded terrace adjacent to McKenzie Creek. The prehistoric lithic procurement and workshop site reportedly contained a quartzite biface, two unifaces, a mix of quartzite and chert debitage, and a possible piece of ground stone. Site 41KT107 was recommended as not eligible in the ROW (Espey, Huston & Associates 1988). The survey identified two chert flakes within the current Project ROW. No additional artifacts or features were identified.

41KT108 is mapped within the Project ROW and was previously recorded on an eroded terrace paralleling a small drainage that feeds into McKenzie Creek. The prehistoric lithic workshop and campsite reportedly contained two cores, approximately six flakes, and burned rocks. Site 41KT108 was recommended as not eligible in the ROW (Espey, Huston & Associates 1988). The survey found no evidence of artifacts or features from this site within the current Project ROW.

41KT109 is mapped within the Project ROW and was previously recorded on an eroded upland finger ridge overlooking McKenzie Creek. The prehistoric lithic procurement and processing site reportedly contained three uniface tools made of quartzite, debitage, and burned rock. Site 41KT109 was recommended as not eligible in the ROW (Espey, Huston & Associates 1988). The survey found no evidence of artifacts or features from this site within the current Project ROW.

Five previously recorded sites were mapped on the TASA as being within the current Project APE (41KT102, 41KT106, 41KT107, 41KT108, 41KT109). Based upon the current archaeological investigations, only two flakes from 41KT107 were identified. No evidence of artifacts or features from any of the other previously recorded sites was found within the current Project ROW. Given the paucity of artifacts and features from the previously recorded sites within the current Project APE, and the low integrity potential due to eroded soil surfaces and prior disturbances, all previously recorded sites mapped within the Project APE are recommended as not eligible for listing in the NRHP. Archaeological sites 41SC13, 41KT99, 41KT100, and 41KT101 are outside of the Project ROW and no evidence of the sites was observed to indicate the sites continued into the Project APE.

5.3 Newly Recorded Sites

The survey resulted in the identification of three previously unrecorded sites. These include one historic site (41SC76), which consists of a windmill and cistern, and two prehistoric low-density lithic scatters (41KT176 and 41KT177). Each site is discussed in detail below. Nine isolated finds were also documented within the Project APE.

5.3.1 41SC76

Site 41SC76 consists of two historic archaeological features, including a windmill foundation (Feature 1) and an abandoned octagonal cistern (Feature 2) (**Figures 9-15; Appendix B, Sheet 11**). Outside the Project ROW is a large circular concrete cistern operated by a solar powered pump, which is located immediately south of the windmill base, and three concrete water troughs. Within the Project ROW the site extends 165 ft (50 m) east-to-west, by 70 ft (21 m) north-to-south, and covers approximately 0.25 acres. The windmill structure is located 17 ft (5.5 m) south of the Project ROW but the large octagonal cistern straddles the southern boundary.

The site is located in the central third of the McKenzie Mountains, Tex. (3200-333) USGS 7.5 minute topographic quadrangle map and is located at an elevation of approximately 2,462 ft (750 m) amsl. Soils at the site are classified as Latom fine sandy loam, 2 to 20 percent slopes (NRCS 2019). The underlying geology is part of the Late Triassic Dockum Group undivided, often comprising of mudstones and shales and a minor sandstones component (BEG 1994). Vegetation consists of cactus, juniper, scrub vegetation, and short grasses. Ground surface visibility typically ranged from 60 to 90 percent across the site.

No artifacts were recovered during the recording of the site. Based on the excellent ground surface visibility, the historic age of the features, the type of site, and lack of surface artifacts, the site boundaries for site 41SC76 were established by the surficial extent of the archaeological features. The area to the east of the site has been leveled and a push pile containing a mix of concrete water troughs, soil, and vegetation covers an area approximately 32 ft (10 m) north-to-south by 16 ft (5 m) east-to-west. Other disturbances in the area include a series of intersecting two-track roads surrounding the site.

The windmill including the motor, tail, and sails were manufactured by Aermotor Company, Chicago U.S.A (see **Figures 14 and 15**). The Aermotor Windmill Company was established in 1888 in Chicago, Illinois and continues to manufacture windmills. However, the Aermotor Windmill Company now manufactures windmills in San Angelo, Texas (Aermotor Windmill Company 2019).

The windmill motor and blades have been removed and the site has limited research potential due to poor integrity. The metal windmill framework remains, with four supports protruding out of the ground surface. The octagonal cistern is located approximately 13 ft (4 m) northeast of the windmill foundation and measures 18 ft (5.5 m) in diameter. The concrete cistern has been abandoned in place and contains pieces of scrap metal and modern debris. Historic aerial photographs of the area show the cistern and windmill were present at least by 1966 (**Figure 16**). Topographic maps also confirm the windmill was constructed prior to 1972, as indicated on the 1972 USGS McKenzie Mountains (3200-333) 7.5 quadrangle (**Figure 17**).

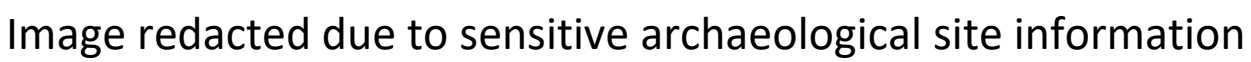

Figure 9. Site Map of 41SC76

Figure 10. Overview of site 41SC76, facing east

Figure 11. Site 41SC76 windmill structure and motor in the foreground, facing south

Figure 12. Octagonal concrete water cistern at site 41SC76, facing north

Figure 13. Site 41SC76 removed windmill and blades at the base of the windmill structure, facing northwest

Figure 14. "AERMOTOR CO. CHICAGO U.S.A" embossed onto the metal casing of the windmill motor

Figure 15. 1970 Aermotor painted on the tail of the windmill at site 41SC76

Image redacted due to sensitive archaeological site information

Figure 16. 1972 USGS McKenzie Mountains 7.5 quadrangle map with the windmill and site 41SC76 location highlighted

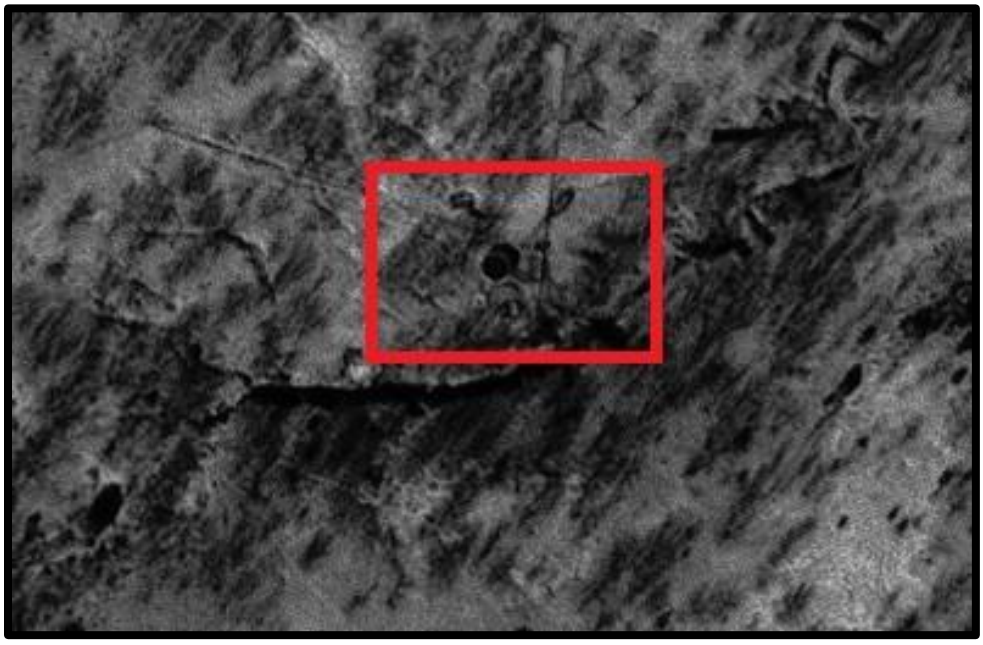

Figure 17. 1966 USGS aerial photograph of the Project area with highlighted archaeological features (octagonal cistern and windmill shadow) at site 41SC76 (USGS 2019)

Before the introduction of windmills to Texas, settlement was confined to areas where a constant water supply was available. The invention of a windmill that pumped water from beneath the ground opened new areas of the state to settlement. The first American windmill was invented by Daniel Halladay of Ellington, Connecticut. The windmill was constructed of wood and consisted of a wheel with angled slats that used centrifugal force to slow its speed in high winds, and was therefore self-regulating and operated unattended. A vane, or tailfin, attached to the wheel directed it into the wind. The wheel was mounted on a four-legged wooden tower that could be constructed over a well quickly, in one day (Welborn 2013).

In Texas, windmills were introduced on ranches beginning in the 1870s. Barbed wire was also invented during this period and ranchers began to fence surface water sources on their property, such as water holes, springs, creeks, and rivers. These water sources had been generally available to all ranchers as part of open range ranching. With the fencing of private land, ranchers were forced to drill wells and install windmills to pump water from underground for their livestock. As a result, the use of windmills spread rapidly through the state. In 1888, the back-geared, all-steel windmill design was introduced. Its galvanized wheel and tower was sturdier in harsh weather, and its gear system pumped deeper and larger-diameter wells that ran more hours per day. By 1900, the steel windmill was a common sight in Texas, and inhabitable land was no longer limited to regions with a natural water supply (Welborn 2013).

Site 41SC76 is located within Survey 655 of Block 97 of the Railroad Lands Survey in Scurry County. Archival research through the Texas General Land Office (GLO) land survey records found that the land on which this site is located was originally owned by the State of Texas. The land was considered Internal Improvement Scrip, which was a means of paying for the development of infrastructure throughout Texas. The state would grant land to private entities such as contractors, developers and investors in place of cash payment for the land. Texas passed several laws, beginning in 1854, to encourage the construction of railroads through the state. The exact provisions of these laws varied but generally the railroad was granted a specific amount of land for every mile of rail constructed. The Texas Constitution of 1876 provided for 16 sections (each section consisted of 640 acres) per mile. Railroads were required to survey an equal amount of land to be set aside for the state to use to fund the public school system which was also known as the Permanent School Fund (GLO 2019).

The original survey consisted of 640 acres and was granted by the State of Texas to the Houston and Texas Central Railway Company (H&TCC) on May 16, 1889. This land transaction is recorded in GLO records as Abstract Number 692, File Number 007008. It holds patent number 149 recorded in Patent Volume 110 issued on May 16, 1899. On March 6, 1901 the H&TCC sold the entire 640 acres parcel to Mr. J. V. Riley (DR Volume 11, p.59). Mr. Riley owned the land until his death in 1939 at which time his estate sold it to Mrs. Pearl Compton on May 8, 1939 (DR Volume 73, p. 477). Mrs. Compton sold the land to Mr. Vernon B. Cox on April 28, 1941 (DR Volume 74, p.338). Mr. Cox possessed the land until his death in 1989 at which time his estate sold the land to Mr. and Mrs. W.A. and Geraldine Hickman on May 24, 1989 (DR Volume 361, p. 486). Mrs. Hickman owned the land after her husband's death in 2002 until May 29, 2003 when she sold it to the Conn-Puckitt Partnership, owned by partners John F. Conn and Lee W. Puckitt (DR Volume 526, p. 305). The land remains in the possession of the Conn-Puckitt Partnership to the present.

Field observations revealed that the dismantling and removal of the windmill motor, blades, and tail, along with the abandonment of the octagonal concrete cistern, have compromised the integrity of the site. Based on survey observations and archival background research, site 41SC76 would not contribute new or important information that would aid in understanding the history of the area. The site and its components are not likely associated with events that have made a significant contribution to the broad patterns of our history; or are associated with the lives of significant persons in our past; or embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent significant and distinguishable entity whose components may lack individual distinction. Additionally, the site does not display any archaeological deposits that are preserved and intact, thereby

supporting the research potential or preservation interests of the site; the site does not offer the opportunity to test theories and methods of preservation, thereby contributing to new scientific knowledge; and there is not a high likelihood that vandalism and relic collecting has occurred or could occur, and official landmark designation is not needed to insure maximum legal protection, or alternatively further investigations are not needed to mitigate the effects of vandalism and relic collecting when the site cannot be protected. As such, site 41SC76 is recommended as not eligible for listing in the NRHP. Furthermore, the site does not merit designation as a SAL. No further investigations are recommended at this site.

5.3.2 41KT176

Site 41KT176 is a prehistoric surficial lithic scatter located on an upland ridge, and contains four tertiary chert flakes. No diagnostic artifacts were identified. The materials were observed on an eroded soil surface immediately east of the existing transmission line corridor and 80 ft (25 m) north of a two-track road (**Figures 18-20; Appendix B, Sheet 7**). The site is distributed over an area measuring approximately 153 ft (47 m) north-south by 70 ft (21 m) east-west, and is approximately 600 ft (182 m) north of an unnamed tributary of McKenzie Creek. The site is located along the north-central boundary of the McKenzie Mountains, Tex. (3200-333) USGS 7.5 minute topographic quadrangle map and is located at an elevation of 2,370 ft (722 m) amsl. Soils at the site are mapped as Miles Cobb complex, 3 to 5 percent slopes and are classified as fine loamy alluvium soils derived from weathered sandstone residuum (NRCS 2019). The underlying geology is part of the Late Triassic Dockum Group undivided, often comprising of mudstones and shales and a minor sandstones component (BEG 1993). Vegetation consists of mesquite, cactus, juniper, scrub vegetation, and short grasses. Ground surface visibility at the time of the survey ranged from 60 to 70 percent.

Site 41KT176 is contained entirely within the Project ROW. The extent of the site was delineated based on the distribution of observed surface artifacts and measures approximately 0.12 acres in size. The western portion of the site is disturbed by the clearance and construction of a transmission line. The type and low density of artifacts indicate the site was used as a temporary lithic reduction site.

Based on survey observations and background research, site 41KT176 would not contribute new or important information that would aid in understanding the prehistory of the area. The site and its components are not likely associated with events that have made a significant contribution to the broad patterns of our prehistory; or are associated with the lives of significant persons in our past; or embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent significant and distinguishable entity whose components may lack individual distinction. Additionally, the site does not display any archaeological deposits that are preserved and intact, thereby supporting the research potential or preservation interests of the site; the site does not offer the opportunity to test theories and methods of preservation, thereby contributing to new scientific knowledge; and there is not a high likelihood that vandalism and relic collecting has occurred or could occur, and official landmark designation is not needed to insure maximum legal protection, or alternatively further investigations are not needed to mitigate the effects of vandalism and relic collecting when the site cannot be protected. As such, site 41KT176 is recommended as not eligible for listing in the NRHP. Furthermore, the site does not merit designation as a SAL. No further investigations are recommended at this site.

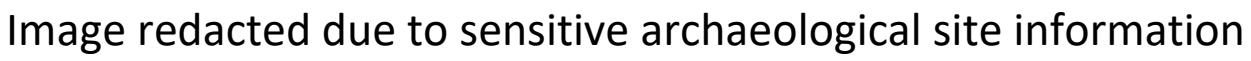

Figure 18. Site map of 41KT176

Figure 19. Site 41KT176 overview, facing south

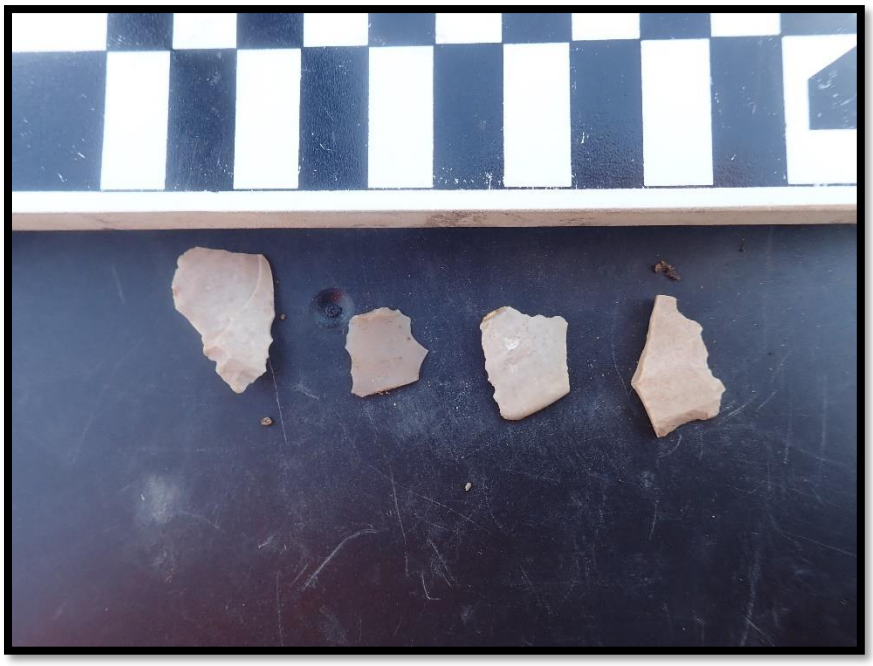

Figure 20. Four tertiary chert flakes documented at prehistoric site 41KT176

5.3.3 41KT177

Site 41KT177 is a prehistoric surficial lithic scatter located 462 ft (141 m) west of McKenzie Creek and is over looked by a prominent upland ridge containing raw lithic materials (**Figures 21 - 23; Appendix B, Sheet 4**). The site is located in the south-central third of the Polar, Tex. (3300-222) USGS 7.5 minute topographic quadrangle map and is located at an elevation of 2,225 ft (678 m) amsl. Soils at the site are mapped as Wichita silt loam, 1 to 3 percent slopes and are derived from mixed loamy alluvium parent materials (NRCS 2019). The underlying geology is part of the Permian Age (Guadalupe Series) Quartermaster Formation often comprising of shale and combinations of siltstone, sandstone, gypsum, and dolomite (BEG 1993). Vegetation consists of mesquite, cactus, juniper, and scrub vegetation. Ground surface visibility at the time of the survey ranged from 80 to 90 percent.

The site was found to contain three tertiary chert flakes, one quartzite flake, and one chert core on a highly eroded surface, which also contained numerous exposed gravels and small pebbles. No diagnostic artifacts were identified. Site 41KT177 is contained entirely within the Project ROW and measures approximately 72 ft (22 m) north-south by 52 ft (16 m) east-west. The site was delineated based on the distribution of observed surface artifacts, which encompasses approximately 0.1 acres.

Based on survey observations and background research, site 41KT177 would not contribute new or important information that would aid in understanding the history of the area. The site and its components are not likely associated with events that have made a significant contribution to the broad patterns of our prehistory; or are associated with the lives of significant persons in our past; or embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent significant and distinguishable entity whose components may lack individual distinction. Additionally, the site does not display any archaeological deposits that are preserved and intact, thereby supporting the research potential or preservation interests of the site; the site does not offer the opportunity to test theories and methods of preservation, thereby contributing to new scientific knowledge; and there is not a high likelihood that vandalism and relic collecting has occurred or could occur, and official landmark designation is not needed to insure maximum legal protection, or alternatively further investigations are not needed to mitigate the effects of vandalism and relic collecting when the site cannot be protected. As such, site 41KT177 is recommended as not eligible for listing in the NRHP. Furthermore, the site does not merit designation as a SAL. No further investigations are recommended at this site.

Image redacted due to sensitive archaeological site information

Figure 21. Site map of 41KT177

Figure 22. McKenzie Creek floodplain and overview of site 41KT177

Figure 23. Artifact assemblage from site 41KT177, including three tertiary chert flakes, a quartzite flake, and a chert core

5.4 Isolated Finds

Nine isolated finds (IFs) were documented within the Project ROW (**Table 3**). The locations of these finds are illustrated on the project maps in **Appendix B**. The IFs were designated when an identified cultural resource locality contained fewer than four non-diagnostic artifacts, or fewer than one tool and three non-diagnostic artifacts. Historic finds, including isolated farm/ranch equipment items (e.g., oil well pump jacks, or a single irrigation gate) were generally not considered sites and were classified as IFs. Due to the isolated occurrences of these cultural materials and the lack of integrity context, isolated finds do not meet NRHP eligibility requirements set forth in 36 CFR 60.4 – *Criteria for Evaluation*, nor do they merit designation as a SAL as outline in 13 TAC 26.10, *Criteria for Evaluating Archeological Sites.* No further investigations are recommended for these isolated finds.

Table 3. Isolated Finds identified within the Project ROW

Isolated Find	Material	Quantity	Date ranges/Diagnostic characteristics	Recommendation
IF-1	Ceramic brown glazed stoneware electrical insulator	1	Historic; non-diagnostic	Not eligible; no further work
IF-2	Patinated and white frosted bottle glass	2	Historic; non-diagnostic	Not eligible; no further work
IF-3	Patinated clear bottle glass	1	Historic; non-diagnostic	Not eligible; no further work
IF-4	Ceramic brown glazed stoneware electrical insulator	1	Historic; non-diagnostic	Not eligible; no further work
IF-5	Tertiary chert flake	1	Prehistoric; non-diagnostic	Not eligible; no further work
IF-6	Heat treated chert shatter located approximately 131 ft (40 m) west of site 41KT100	1	Prehistoric; non-diagnostic	Not eligible; no further work
IF-7	One pint, screw top clear glass liquor bottle “Federal Law Forbids Sale Or Reuse Of This Bottle”	1	Historic; ca. 1935 to 1970 based upon federal law warning*	Not eligible; no further work
IF-8	Chert uniface and a chert biface	2	Prehistoric; non-diagnostic	Not eligible; no further work
IF-9	Chert primary flake	1	Prehistoric; non-diagnostic	Not eligible; no further work

* GLASS BOTTLE MARKS (2019)

5.5 Historic Standing Resources

One historic standing resource was identified during the field survey. A ranch complex with auxiliary historic resources built ca. 1930 was identified approximately 240 ft (73 m) north of the project corridor, on the west side of Farm-to-Market 1231/TX208. The complex contains one single-family domestic dwelling (Resource 001a) and five outbuildings of various sizes (Resources 001b-f) (**Figure 24**). A review of historic aerial photographs (1954, 1966, and 1977) and the Scurry County Appraisal District (CAD) records was also conducted.

Figure 24. Modern Google Earth Aerial view of the Ranch Complex.

The Scurry CAD records provide a 1930 date of construction for the dwelling, detached garage, and well house. Review of the historic aerial photographs found the dwelling and several outbuildings are present as early as 1954. However, by 1966, the dwelling appears to have been modified with additions and several outbuildings were added or removed. The 1977 aerial photograph is not clear, but it does indicate buildings are still located at the complex. Review of modern aerial photographs show that in 2017, additions and modification were made to the dwelling, which attached the once detached garage to the main building. Of the five additional outbuildings also located at the complex, three were constructed 1966 or earlier (Resources 001b, 001d, and 001e) and one was constructed ca. 2008 (Resource 001f). Based on research and onsite observation, the 1930 date of construction provided by the Scurry CAD appears to be accurate for the dwelling (Resource 001a) and Resource 001c.

Resource 001a is a one-story, single-family dwelling with an irregular plan (**Figure 25**). The roof is a multi-level gable covered with asphalt shingles. What appears to be a water tank is located on the roof of a rear addition constructed ca. 2017 that connects the once detached garage, now converted to living space, to the main building. The exterior walls are clad with asbestos siding. Windows throughout the building are 1/1 vinyl sash. The front door was not visible, but an integral porch with wood post supports is located at the southeast corner

of the main building. Since its construction in 1930, the building has been modified with replacement materials (roof and siding), additions to the rear, and conversion of the garage to living space. Therefore, the resource retains integrity of location, setting, and association, but lacks integrity of design, materials, workmanship, and feeling.

Figure 25. View of Resource 001a, facing north

Resource 001b is a one-story, two bay barn with a rectangular plan (**Figure 26**). The roof is side gable and is covered with standing seam metal. The exterior walls are covered with corrugated metal. Two sets of paired 1/1 aluminum sash windows are located on the south elevation. A single-entry door is located on the east elevation. The resource has been modified with replacement materials and the window and door appear to be modern additions. Therefore, the resource retains integrity of location, setting, feeling, and association, but its integrity of design, materials, and workmanship have been compromised.

Figure 26. View of Resource 001b (Resource 001d is visible in the background), facing northwest

Resource 001c is a one-story, two bay barn with a side gable roof covered with metal (**Figure 27**). The exterior walls are covered with corrugated metal. The south elevation is open. There are no visible windows or door openings. The resource retains integrity of location, design, setting, materials, workmanship, feeling, and association.

Resources 001d-f were not photographed in the field. Aerial photographs of the buildings show that all three buildings are one-story and have gable roofs covered with metal. The integrity of these resources is undetermined.

The ranch complex containing Resources 001a-f are associated with the history of ranching in Scurry County and retain some aspects of integrity, but they are unremarkable examples of a common dwelling and outbuildings. The resources do not convey association with significant historical events or a significant pattern of development and do not qualify for NRHP eligibility under Criterion A. The resources also do not appear to be associated with significant persons in history and lack architectural design merit to qualify for NRHP eligibility under Criteria B or C. Furthermore, the resources are not likely to yield information important to history or prehistory and do not qualify for NRHP eligibility under Criterion D. Therefore, Resources 001a-f are recommended as not eligible for listing in the NRHP.

Figure 27. View of Resource 001c, facing northwest

5.6 Geoarchaeological Assessment

Investigation of geoarchaeologically-sensitive areas within the Project ROW (e.g., areas with deep archaeological burial potential) that would be affected by construction of a support structure would normally involve trenching at the proposed structure location. Although backhoe trenching is commonly used to prospect for deeply buried archaeological deposits in certain depositional settings, the Research Design recommends that such trenching should not be conducted in areas where transmission structures are to be located because trench excavations could be potentially destabilizing to the structure foundations. The Research Design therefore provides for monitoring if a transmission structure is to be constructed in areas that could contain deeply buried cultural deposits. In order to make a determination about the need for monitoring, an assessment of the geoarchaeological potential of the Project ROW was conducted. Geoarchaeological potential refers to the likelihood that the soils could contain deeply buried cultural deposits exhibiting integrity. The geoarchaeological assessment presented herein was based on information derived from the field survey, as well as previously published data on the local geomorphology, geology, soils, and cultural site patterns. Any transmission tower structures that would be placed in areas determined to exhibit geoarchaeological potential would be recommended for archaeological monitoring during foundation excavations, with the objective of monitoring the soil as it is removed (typically, by using an auger) from the foundation excavation.

Approximately 90 percent of the Project ROW traverses uplands and ancient terrace settings that are mantled by thin to eroded soils. Shovel tests within HPAs revealed most soils to be shallow to very shallow, highly calcareous (as evidenced by common carbonate nodules and filaments), and gravelly. In many instances, shovel tests were terminated due to the presence of gravelly loams overlying well-cemented (compact) petrocalcic (caliche) horizons, petrogypsic horizons, or bedrock. Such impervious strata were commonly found at depths of

less than 60 cm. In some places, deeper sandy and loamy mixed sediments were encountered, but were also found frequently overlying well-developed, ancient argillic horizons (NRCS 2019).

Soils within the Project ROW are highly calcareous and/or gypsiferous, and often exhibit coarse loamy and gravelly textures that abruptly overlying extremely compact (indurated) pre-Holocene layers of caliche (e.g., petrocalcic horizon). Petrocalcic horizons in arid environments are generally considered to be temporally-dependent diagnostic horizons that require tens of thousands of years to form via the dissolution, transport, and reprecipitation of pedogenic carbonates downward through the soil column (Gile et al. 1966). Thus, given the age of such features it is highly unlikely that cultural materials would be found *in situ* within such deposits. It is noteworthy that all recorded sites in this region, including those sites newly identified during the current survey, were found in a surface context.

Based on the foregoing observations, no areas within the Project ROW were observed that would likely exhibit the necessary pedologic and geomorphic conditions for the deep burial and preservation of cultural deposits. Therefore, no geoarchaeological monitoring of transmission pole emplacement is recommended.

6 Summary and Recommendations

AECOM conducted a cultural resources survey for the proposed Oncor Cogdell-Clairemont 138 kV Transmission Line Project, located in Kent and Scurry Counties, Texas, between October 8 to October 13, 2019. The fieldwork included the survey of approximately 14.4 miles of proposed transmission line corridor (including various potential reroutes), and covered approximately 166 acres. A 100 percent pedestrian survey was carried out and was supplemented with the excavation of 57 shovel tests. Nineteen additional locations originally planned for shovel testing could not be excavated due to their locations on eroded gravel surface, exposed bedrock surfaces or within creek/drainage channels.

Five previously recorded sites (41KT102, 41KT106, 41KT107, 41KT108, 41KT109) were mapped on the TASA as being within the current Project ROW and were recorded during the Clairemont to Sun Electric Transmission Line survey. Of these sites, the current archaeological investigations only found evidence of two flakes from 41KT107 within the Project ROW. No artifacts or features from any of the other previously recorded sites were found. Due to the paucity of artifacts and features from the previously recorded sites within the current Project APE, and the low integrity resulting from eroded soil surfaces and prior disturbances, all previously recorded sites mapped within the Project ROW are recommended as not eligible for listing in the NRHP. Furthermore, these sites do not merit designation as SALs. No further work is recommended for these sites within the Project ROW.

During the survey one previously unrecorded historic archaeological site was recorded and designated as 41SC76. Site 41SC76 consists of a partially dismantled windmill, cisterns, and water troughs. No surface artifacts were associated with the site. The features at 41SC76 have no known associations with significant historic events or a significant pattern of development in Scurry County, and do not qualify for NRHP eligibility under Criterion A. The site is not associated significant persons in history and lacks engineering design merit to qualify for NRHP eligibility under Criteria B or C. Furthermore, the site is not likely to yield information important to history or prehistory, and does not qualify for NRHP eligibility under Criterion D. Due to these factors, and the lack of integrity, site 41SC76 is recommended as not eligible for listing in the NRHP. Furthermore, the site does not merit designation as a SAL. No further work is recommended at this site.

Two previously unrecorded low-density prehistoric lithic scatters (41KT176 and 41KT177) were recorded on eroded soil surfaces during the fieldwork. Sites 41KT176 and 41KT177 have no known associations with significant events in prehistory or contribute to a significant pattern of development in Kent County, and do not qualify for NRHP eligibility under Criterion A. The sites are not associated with significant persons in prehistory and lacks engineering design merit to qualify for NRHP eligibility under Criteria B or C. Furthermore, the sites are not likely to yield information important to prehistory, and do not qualify for NRHP eligibility under Criterion D. Based on these factors, and the lack of integrity, prehistoric sites 41KT176 and 41KT177 are recommended as not eligible for listing in the NRHP. Furthermore, these sites do not merit designation as SALs. No further work is recommended at these sites.

Nine IFs were also identified during the survey. Due to the isolated occurrences of these cultural materials and the lack of integrity context, these IFs are recommended as not eligible for listing in the NRHP. No further work is recommended at these IFs.

A single historic-age ranch complex was identified 240 ft (73 m) north of the Project ROW. The ranch complex with associated agricultural outbuildings was built ca. 1930. The complex contains one single-family domestic dwelling and five outbuildings of various sizes. The resource retains some aspects of integrity, but they are unremarkable examples of a common dwelling and outbuildings. The resources do not convey association with significant historical events or a significant pattern of development. The buildings do not appear to be associated with significant persons in history and lack architectural design merit. Furthermore, the resources are not likely to yield information important to history or prehistory of the area. Therefore, the ranch complex and associated outbuildings are recommended as not eligible for listing in the NRHP.

A geomorphological evaluation of the project area revealed that the Project ROW does not exhibit the pedologic and geomorphic conditions necessary for the deep burial and preservation of cultural deposits. Therefore, no geoarchaeological monitoring of transmission pole emplacement is recommended.

Based on the results of the survey, the development, construction, and operation of the proposed Project should have No Effect on historic properties or SALs. It is recommended that construction can proceed without further cultural resources investigations. However, should the dimensions of the Project change, additional investigations may be required. If any unmarked prehistoric or historic human remains or burials are encountered at any point, the area of the remains is considered a cemetery under current Texas law and is protected. Section 28.03(f) of the Texas Penal Code provides that intentional damage or destruction inflicted on a human burial site is a state jail felony. If a cemetery is identified in the Project ROW, all work in the area of the discovery must cease and the THC must be notified by contacting the History Programs Division at (512) 463-5853 and the Archeology Division at (512) 463-6096. Following consultation with the THC, a treatment or avoidance plan would be developed and implemented.

No artifacts were collected during the survey. All correspondence, field records, and photographs generated during field investigations will be prepared for permanent curation at TARL, Austin, Texas.

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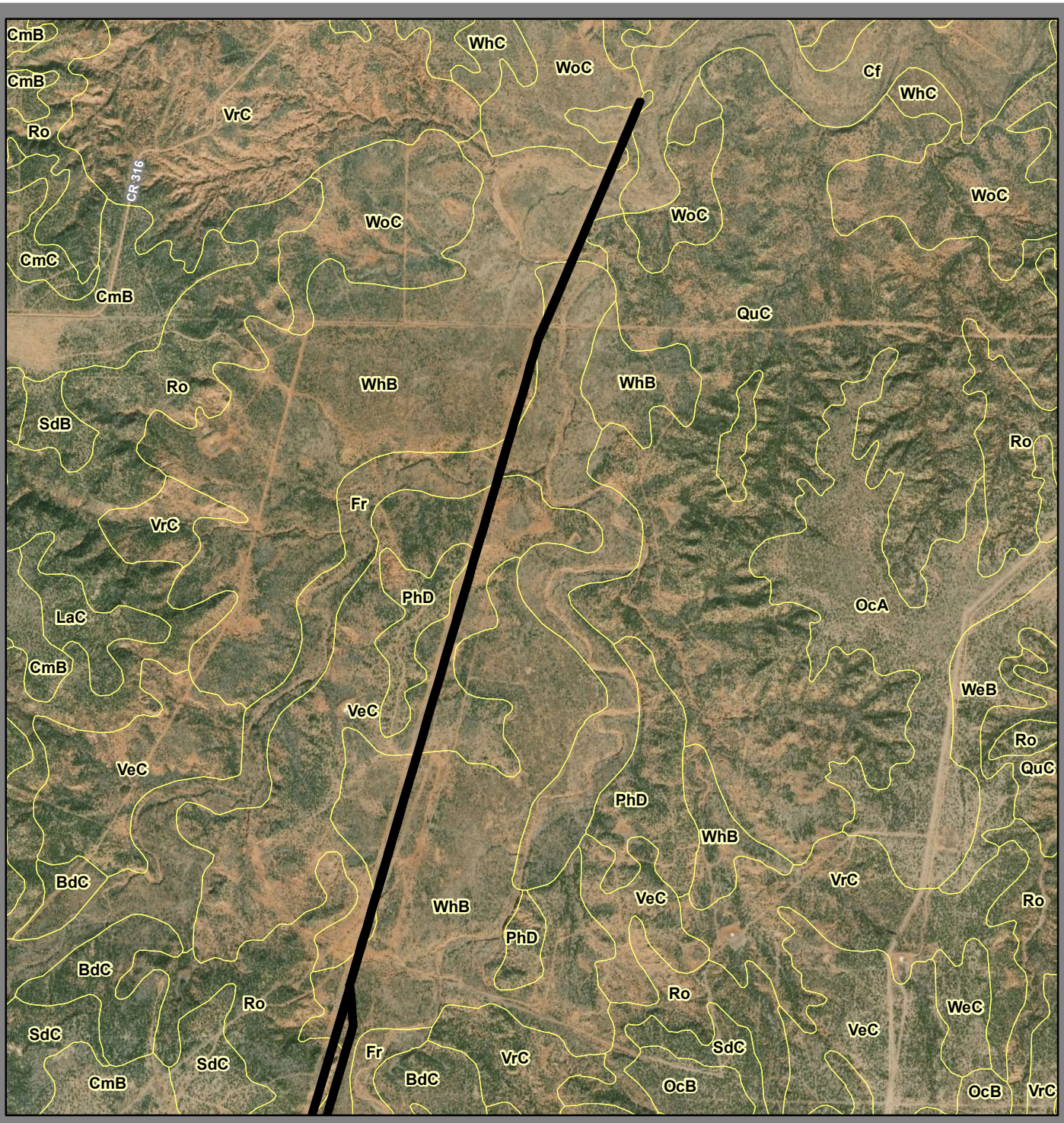
APPENDIX A

SOILS WITHIN THE PROJECT RIGHT-OF-WAY

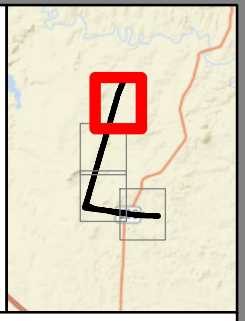


Project ROW

Soil Boundary

Data Sources: Soils - NRCS 2018; Roads - TxDOT 2018

Basemap: DigitalGlobe 2018



Soil Descriptions

Cf - Colorado and Westola soils, 0 to 1 percent slopes, frequently flooded

Fr - Bippus clay loam, warm, 0 to 1 percent slopes, occasionally flooded

PhD - Polar and Berda soils, hilly

QuC - Quinlan soils, sloping

Ro - Rough broken land

VeC - Vernon clay loam, dry, 3 to 5 percent slopes

WhB - Wichita silt loam, 1 to 3 percent slopes

WoC - Woodward and Quinlan loams, 3 to 12 percent slopes

Project Area Soils

Cogdell - Clairemont 138kV Transmission Line Project
Kent and Scurry Counties, Texas

N W E S

0 1,000 2,000
Feet

0 300 600
Meters

ONCOR

AECOM

Oct 2019

Appendix A
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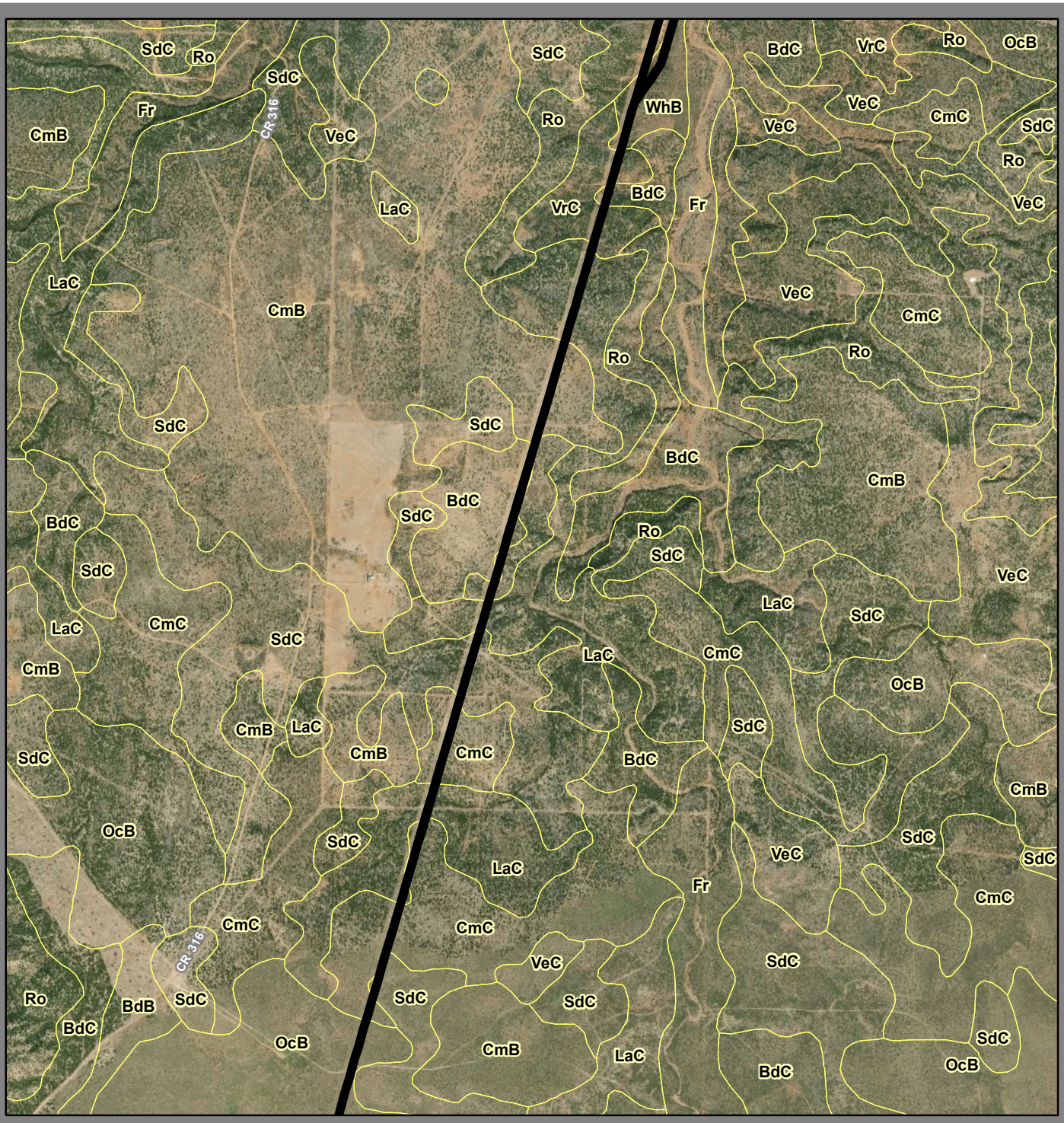
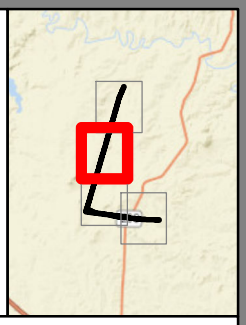


Project ROW

Soil Boundary

Data Sources: Soils - NRCS 2018; Roads - TxDOT 2018

Basemap: DigitalGlobe 2018



Soil Descriptions

BdC - Berda fine sandy loam, moist, 3 to 5 percent slopes

CmB - Miles-Cobb complex, 1 to 3 percent slopes

CmC - Miles-Cobb complex, 3 to 5 percent slopes

LaC - Latom gravelly fine sandy loam, 1 to 12 percent slopes

OcB - Sagerton clay loam, 1 to 3 percent slopes

Ro - Rough broken land

SdC - Spade fine sandy loam, 3 to 5 percent slopes

VrC - Vernon-Badland complex, dry, 2 to 12 percent slopes

WhB - Wichita silt loam, 1 to 3 percent slopes

Project Area Soils

Cogdell - Clairemont 138kV Transmission Line Project

Kent and Scurry Counties, Texas

N W E S

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Feet

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Meters

ONCOR

AECOM

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Appendix A

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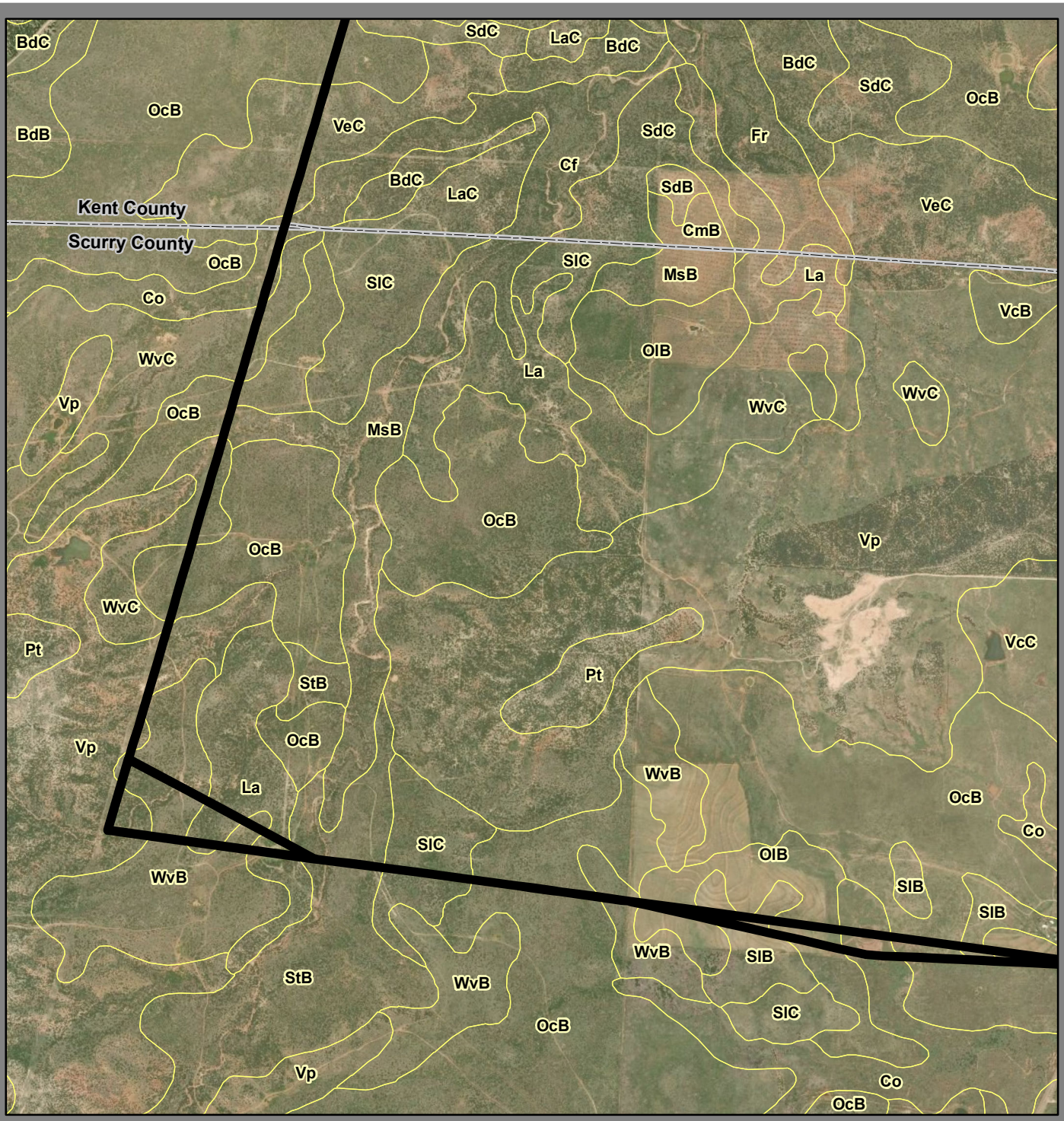


Project ROW

Soil Boundary

Data Sources: Soils - NRCS 2018; Roads - TxDOT 2018
Basemap: DigitalGlobe 2018

Soil Descriptions

Cf - Colorado and Westola soils, 0 to 1 percent slopes, frequently flooded

Co - Colorado and Spur soils, 0 to 1 percent slopes, frequently flooded

La - Latom fine sandy loam, 2 to 20 percent slopes

MsB - Miles-Cobb complex, 1 to 3 percent slopes

OcB - Sagerton clay loam, 1 to 3 percent slopes

OlB - Sagerton loam, 1 to 3 percent slopes

SlB - Spade-Latom fine sandy loams, 1 to 3 percent slopes

SlC - Spade-Latom fine sandy loams, 2 to 5 percent slopes

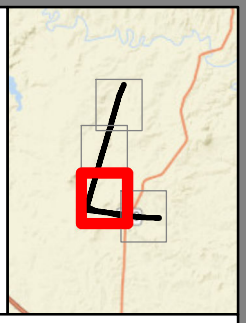
StB - Stamford clay, dry, 1 to 3 percent slopes

VeC - Vernon clay loam, dry, 3 to 5 percent slopes

Vp - Vernon-Dermott complex, 2 to 30 percent slopes

WvB - Weymouth-Vernon complex, 1 to 3 percent slopes

WvC - Weymouth-Vernon clay loams, 3 to 5 percent slopes



Project Area Soils

Cogdell - Clairemont 138kV Transmission Line Project
Kent and Scurry Counties, Texas

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Feet

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Meters

ONCOR
AECOM

Oct 2019

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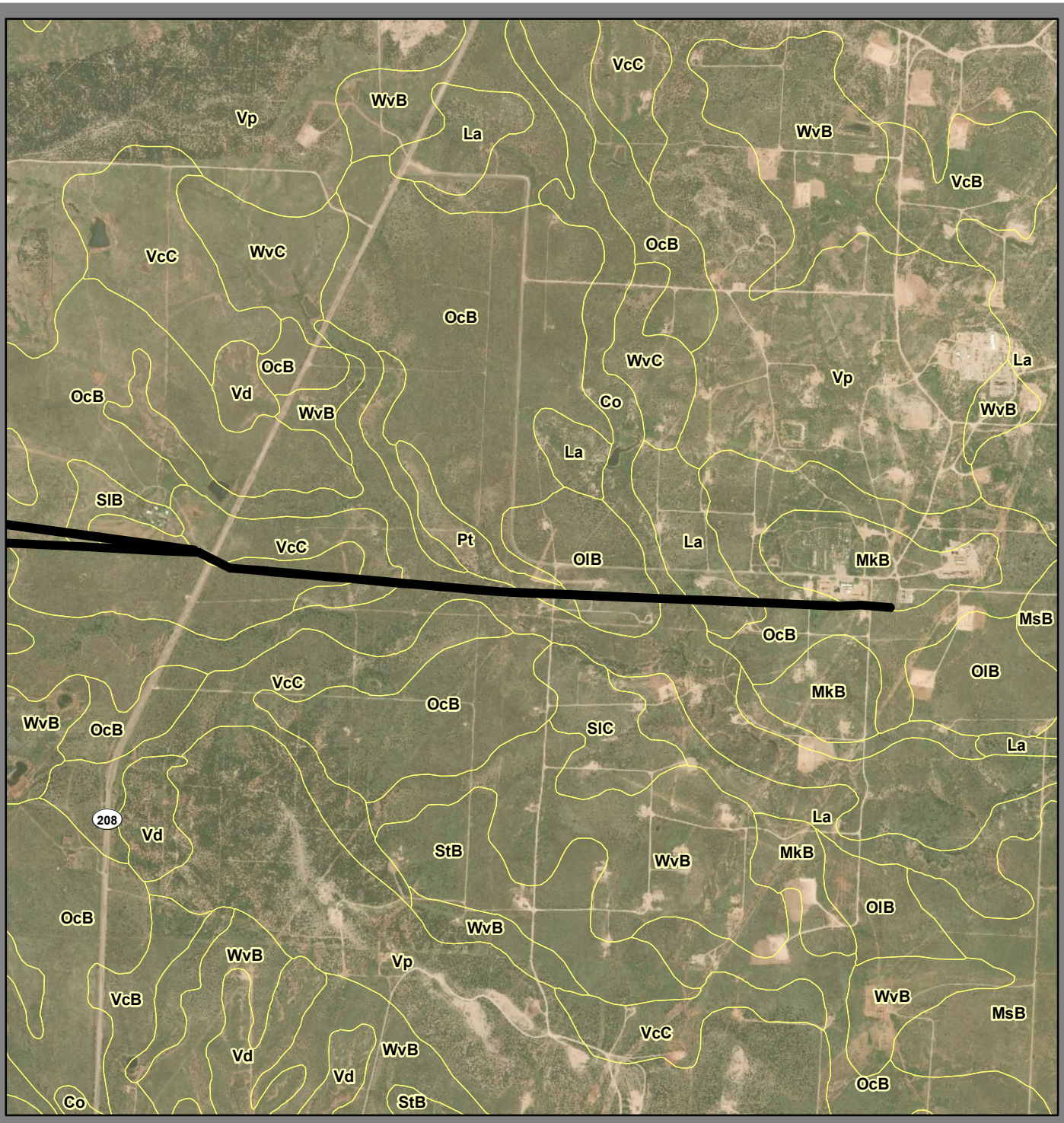


Project ROW

Soil Boundary

Data Sources: Soils - NRCS 2018; Roads - TxDOT 2018
Basemap: DigitalGlobe 2018

Soil Descriptions

Co - Colorado and Spur soils, 0 to 1 percent slopes, frequently flooded

La - Latom fine sandy loam, 2 to 20 percent slopes

MkB - Snyder loam, 1 to 3 percent slopes

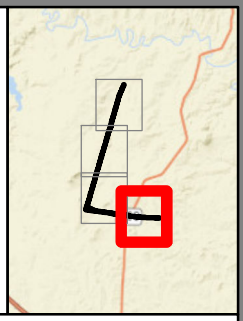
OcB - Sagerton clay loam, 1 to 3 percent slopes

OlB - Sagerton loam, 1 to 3 percent slopes

Pt - Dermott gravelly fine sandy loam, 3 to 20 percent slopes

SlB - Spade-Latom fine sandy loams, 1 to 3 percent slopes

VcC - Vernon clay, 3 to 5 percent slopes



Project Area Soils

Cogdell - Clairemont 138kV Transmission Line Project
Kent and Scurry Counties, Texas

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Feet

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Meters

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Appendix A
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APPENDIX B

ARCHAEOLOGICAL SITES AND PREVIOUS SURVEYS

Figures redacted due to sensitive archaeological site information

APPENDIX C

SHOVEL TEST LOG

APPENDIX C – SHOVEL TEST DATA

County	ST ID	Depth (cmbs)*	Munsell	Soil Color	Soil Texture	Inclusions	Termination / Comments
Scurry County	**ST1**	0-20	10YR 6/6	Brownish yellow	Clay loam	15% gravels	Terminated at bedrock
Scurry County	**ST2**	0-20	7.5YR 5/4	Brown	Clay loam	1-2% calcium carbonate, 1% gravels	Terminated at compacted soils
Scurry County	**ST3**	0-30 30-35	5YR 5/4 5YR 5/6	Reddish brown Yellowish red	Clay loam Clay	1-2% gravels 1-2% small grits,	Terminated at compacted clay and gravels
Scurry County	**ST4**	0-22 22-34 34-55	5YR 4/3 5YR 6/6 7.5YR 4/3	Reddish brown Reddish yellow Brown	Clay loam Sandy clay loam Sandy clay loam	- 1-2% calcium carbonate 2-5 % calcium carbonate,	Terminated at compacted clay and gravels
Scurry County	**ST5**	0-42	7.5YR 4/1	Dark Gray	Clay loam	-	Terminated at compacted soil
Scurry County	**ST6**	0-35 35-40	10YR 4/4 7.5YR 3/2	Dark Yellowish Brown Dark Brown	Clay loam Clay loam	1% gravels -	Terminated at compacted soils
Scurry County	**ST7**	0-25 25-45 45-65	7.5YR 4/4 7.5YR 4/2 7.5YR 4/4	Brown Brown Brown	Sandy clay loam Sandy clay loam Sandy clay	2-5% calcium carbonate 1-2% calcium carbonate -	Terminated at compacted clay and rocks
Scurry County	**ST8**	0-28	5YR 4/4	Reddish brown	Clay loam	terminated at compacted soil	Terminated at compacted soils
Scurry County	**ST9**	0-15	7.5YR 4/4	Brown	Silty clay loam	1-10% calcium carbonate	Terminated at compacted soils
Scurry County	**ST10**	0-20	5YR 4/4	Reddish brown	Clay loam	1-2% calcium carbonate	Terminated at compacted soils
Scurry County	**ST11**	0-35	7.5YR 4/4	Brown	Silty clay loam	1-2% calcium carbonate	Terminated at compacted soils

County	ST ID	Depth (cmbs)*	Munsell	Soil Color	Soil Texture	Inclusions	Termination / Comments
Scurry County	**ST12**	0-20 20-65	5YR 4/3 7.5YR 4/4	Reddish brown Brown	Silty clay Silty clay	- 2-5% calcium carbonate	Terminated at root impasse
Scurry County	**ST13**	0-29	5YR 4/4	Reddish brown	Clay loam	1-2% calcium carbonate	Terminated at compacted soils
Scurry County	**ST14**	0-50	7.5YR 4/4	Brown	Silty clay loam	1-2% calcium carbonate	Terminated at compacted soils
Scurry County	**ST15**	0-45 45-70	5YR 4/3 7.5YR 4/4	Reddish brown Brown	Sandy clay Silty Clay	- 1-2% calcium carbonate caliche pebbles	Terminated at compacted B Horizon
Scurry County	**ST16**	0-15 15-50	5YR 4/4 10YR 6/2	Reddish brown Light brownish gray	Clay loam Silty clay loam	- 1-2% calcium carbonate	Terminated at compacted B Horizon
Scurry County	**ST17**	0-40	7.5YR 4/4	Brown	Silty clay loam	1% calcium carbonate	Terminated at compacted soils
Scurry County	**ST18**	0-50	5YR 4/4	Reddish brown	Clay loam	1-2% calcium carbonate	Terminated at compacted soils
Scurry County	**ST19**	0-33 33-67	5YR 4/3 7.5YR 4/4	Reddish brown Brown	Silty clay Silty clay	- 1-2% calcium carbonate	Terminated at compacted B Horizon
Scurry County	**ST20**	0-40	7.5YR 4/4	Brown	Silty clay loam	-	Terminated at compacted soils
Scurry County	**ST21**	0-38	5YR 4/4	Reddish brown	Clay loam	1-2% calcium carbonate	Terminated at compacted soils
Scurry County	**ST22**	0-46 46-60	5YR 4/3 7.5YR 4/4	Reddish brown Brown	Silty clay loam Silty clay loam	- -	Terminated at compacted B Horizon

County	ST ID	Depth (cmbs)*	Munsell	Soil Color	Soil Texture	Inclusions	Termination / Comments
Scurry County	**ST23**	0-30	7.5YR 4/4	Brown	Silty clay loam	1-2% calcium carbonate, 2% gravel	Terminated at compacted soils
Scurry County	**ST24**	0-41	5YR 4/4	Reddish brown	Sandy clay loam	-	Terminated at compacted B Horizon
		41-53	10YR 6/2	Light brownish gray	Clay loam	1-2% calcium carbonate	
Scurry County	**ST25**	0-37	5YR 4/3	Reddish brown	Silty clay	-	Terminated at compacted B Horizon
		37-50	7.5YR 4/4	Brown	Silty clay	2-5% gravels, 1-2% pebbles	
Scurry County	**ST26**	0-25	7.5YR 3/4	Dark brown	Silty clay loam	1-2% calcium carbonate	Terminated at compacted soils
		25-35	7.5YR 2.5/2	Very dark brown	Silty clay loam	-	
Scurry County	**ST27**	0-20	7.5YR 2.5/2	Very dark brown	Silty clay loam	-	Terminated at compacted soils
		20-35	7.5YR 3/3	Dark brown	Silty clay loam		
Scurry County	**ST28**	0-15	5YR 3/4	Dark reddish brown	Silty clay loam	-	Terminated at compacted soils
		15-55	5YR 3/4	Dark reddish brown	Silty clay loam	3-5% calcium carbonate	
Scurry County	**ST29**	0-40	5YR 3/4	Dark reddish brown	Silty clay loam	10% gravels	Terminated at weathered bedrock
Scurry County	**ST30**	0-22	5YR 4/4	Reddish brown	Sandy clay loam	1-2% calcium carbonate	Terminated at compacted B Horizon
		22-50	5YR 6/4	Light reddish brown	Clay loam	1-2% calcium carbonate	

County	ST ID	Depth (cmbs)*	Munsell	Soil Color	Soil Texture	Inclusions	Termination / Comments
Scurry County	**ST31**	0-15	5YR 4/4	Reddish brown	Sandy clay loam	1% gravels	Terminated at compacted soils, on edge of drainage
Scurry County	**ST32**	0-24	5YR 5/6	Yellowish red	Sandy clay loam	1% calcium carbonate	Terminated at compacted B Horizon
		24-50	7.5YR 4/6	Strong brown	Silty clay	2-5% calcium carbonate	
Kent County	**ST33**	0-21	5YR 5/4	Reddish brown	Sandy clay loam	-	Terminated at compacted B Horizon
		21-44	5YR 4/4	Reddish brown	Clay loam	1-2% calcium carbonate	
Kent County	**ST34**	0-36	7.5YR 4/4	Brown	Silty clay loam	-	Terminated at compacted B Horizon, increasing gravels with depth
		36-68	7.5YR 5/3	Brown	Silty clay loam	1-2% calcium carbonate, 5-10% gravels	
Kent County	**ST35**	0-25	5YR 5/4	Reddish brown	Sandy clay loam	1-2% calcium carbonate	Terminated at compacted B Horizon
Scurry County	**ST36**	0-33	7.5YR 4/4	Brown	Silty clay	-	Terminated at compacted B Horizon
		33-55	7.5YR 5/3	Brown	Silty clay	1-2% calcium carbonate	
Scurry County	**ST37**	0-34	7.5YR 4/4	Brown	Silty clay	-	Terminated at compacted B Horizon
		34-55	7.5YR 5/3	Brown	Silty clay	-	
Kent County	**ST38**	0-29	7.5YR 4/6	Strong brown	Silty clay loam	-	Terminated at tap root impasse
		29-51	5YR 4/6	Yellowish red	Silty clay loam	1-2% calcium carbonate, 2-5% gravels	
		51-75	5YR 4/6	Yellowish red	Silty clay loam	1-2% gravels	
Kent County	**ST39**	0-15	5YR 5/4	Reddish brown	Sandy clay loam	-	Terminated at compacted B Horizon
		15-55	5YR 4/4	Reddish brown	Sandy clay	1-2% calcium	

County	ST ID	Depth (cmbs)*	Munsell	Soil Color	Soil Texture	Inclusions	Termination / Comments
						carbonate	
Kent County	**ST40**	0-33 33-55	5YR 5/6 5YR 5/4	Yellowish red Reddish brown	Silt loam Silt loam	2-5% gravels 10-15% gravels and pebbles	Terminated at compacted B Horizon, eroded creek terrace
Kent County	**ST41**	0-18 18-40	5YR 5/4 5YR 4/4	Reddish brown Reddish brown	Sandy clay loam Sandy clay	1-2% calcium carbonate 2-4% calcium carbonate	Terminated at compacted B Horizon and increasing caliche
Kent County	**ST42**	0-28 28-45	5YR 5/6 5YR 5/4	Yellowish red Reddish brown	Silt loam Silty clay loam	- 2-5% gravels	Terminated at compacted B Horizon increasing gravels with depth
Scurry County	**ST43**	0-10 10-35	5YR 5/4 5YR 4/4	Reddish brown Reddish brown	Sandy clay loam Sandy clay	- 1-2% caliche	Terminated at compacted B Horizon
Scurry County	**ST44**	0-10	5YR 4/4	Reddish brown	Sandy loam	40-50% gravels	Terminated at compacted gravel layer, eroded surface
Scurry County	**ST45**	0-20	5YR 5/4	Reddish brown	Sandy clay loam	3-5% caliche	Terminated at compacted soil and increasing caliche
Scurry County	**ST46**	0-28 28-45	5YR 4/6 5YR 4/3	Yellowish red Reddish brown	Silty clay loam Silty clay loam	- 1-2% calcium carbonate	Terminated at compacted B Horizon
Kent County	**ST47**	0-56 56-95	5YR 5/6 5YR 4/6	Yellowish red Yellowish red	Silt loam Silt loam	- -	Terminated at depth
Kent County	**ST48**	0-30 30-44	5YR 5/4 5YR 4/4	Reddish brown Reddish brown	Silty clay loam Sandy clay	- 1-2% caliche	Terminated at compacted soil and increasing caliche
Kent County	**ST49**	0-40 40-50	5YR 5/4 5YR 4/4	Reddish brown Reddish brown	Silty clay loam Sandy clay	- -	Terminated at compacted B Horizon

County	ST ID	Depth (cmbs)*	Munsell	Soil Color	Soil Texture	Inclusions	Termination / Comments
Kent County	**ST50**	0-44	5YR 5/4	Reddish brown	Sandy clay loam	-	Terminated at compacted B Horizon
		44-67	5YR 5/6	Yellowish red	Silty clay loam	1-2% grits and 2-5% calcium carbonate and caliche nodules	
Kent County	**ST51**	0-20	5YR 5/4	Reddish brown	Sandy clay loam	-	Terminated at compacted B Horizon
		20-45	5YR 4/4	Reddish brown	Sandy clay	1-2% calcium carbonate	
		45-55	5YR 4/4	Reddish brown	Sandy clay	3-4% caliche	
Kent County	**ST52**	0-65	5YR 5/4	Reddish brown	Sandy loam	1-2% grits and gravel	Terminated at compacted gravel layer (on inside bend of drainage channel)
		65-85	5YR 5/6	Yellowish red	Sandy loam	5-10% gravels	
Kent County	**ST53**	0-56	5YR 5/4	Reddish brown	Silt loam	1-2% gravel	Terminated at compacted gravels in B Horizon
		56-67	5YR 5/6	Yellowish red	Silty clay loam	2-5% gravels 2-5% calcium carbonate and caliche nodules	
Kent County	**ST54**	0-55	5YR 5/4	Reddish brown	Sandy clay loam	-	Terminated at compacted B Horizon
Kent County	**ST55**	0-36	5YR 5/4	Reddish brown	Silty clay loam	1% calcium carbonate	Terminated at compacted B Horizon
		36-55	5YR 4/2	Dark reddish gray	Silty clay loam	2-5% calcium carbonate, 1-2% gravels	
Kent County	**ST56**	0-35	5YR 5/4	Reddish brown	Sandy clay loam	1-2% calcium carbonate	Terminated at compacted B Horizon

County	ST ID	Depth (cmbs)*	Munsell	Soil Color	Soil Texture	Inclusions	Termination / Comments
Kent County	**ST57**	0-35 35-48	5YR 4/6 5YR 4/2	Yellowish red Dark reddish gray	Silty clay loam Silty clay loam	- 1-2% calcium carbonate	Terminated at compacted B Horizon mixed with mineralized deposits

cmbs* centimeters below surface