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Final Cultural Resources Report For The Salt Creek Midstream, LLC Proposed Bunker Hill (North Trunk) Pipeline On University Of Texas Lands In Winkler County, Texas

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FINAL CULTURAL RESOURCES REPORT FOR THE SALT CREEK MIDSTREAM, LLC PROPOSED BUNKER HILL (NORTH TRUNK) PIPELINE ON UNIVERSITY OF TEXAS LANDS IN WINKLER COUNTY, TEXAS

Texas Antiquities Code Permit No. 8408

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ABSTRACT

Enercon Services, Inc. (ENERCON), in support of Salt Creek Midstream, LLC, conducted a cultural resources investigation for the proposed Bunker Hill (North Trunk) Pipeline. The entire proposed pipeline is approximately 29.68 miles (47.77 km) in length and located in Ward and Winkler counties, Texas and Lea County, New Mexico near the towns of Wink, Texas and Kermit, Texas. This report encompasses only the portion of the proposed Bunker Hill (North Trunk) Pipeline in Winkler County, Texas on University of Texas lands. The University of Texas is a political subdivision of the State of Texas. The portion of the Bunker Hill (North Trunk) Pipeline on University of Texas lands is approximately 9.38 miles (15.10 km) in length. The University of Texas Lands portion of the APE is depicted on the United States Geological Survey (USGS) Wink South, Tex. (1968, Photorevised 1981) and Wink North, Tex. (1970), 7.5 Minute Quadrangle maps. The construction corridor consists of a 50 feet (15 m) wide permanent pipeline right-of-way (ROW) and an additional 50 feet (15 m) wide temporary workspace corridor. The cultural resources survey corridor of the area-of-potential-effect (APE) on University of Texas Lands consists of the 9.38 mi (15.10 km) by 100 feet (30 m) corridor, totaling 113.74 acres (46.03 hectares).

The cultural resources intensive field survey and report are intended to assist in adhering to the 1969 Texas Antiquities Code (TAC) and the intensive field survey of the University of Texas Lands was completed under TAC Permit No. 8408.

The cultural resources survey on University of Texas Lands was conducted April 9-11, 2018 by ENERCON archaeologists Cody Kiker and Steven Sykes. Fieldwork consisted of intensive pedestrian survey utilizing transects not spaced greater than 15 meters apart. The entire project was supervised by Michael Margolis, an ENERCON archaeologist who meets the U.S. Secretary of the Interior's Professional Qualification Standards for archeology as set forth in 36 CFR 61. Fieldwork was conducted in accordance with the Texas Historical Commission (THC) Archeological Survey Standards for Texas.

The cultural resources survey of the proposed Bunker Hill (North Trunk) Pipeline on University of Texas Lands resulted in the recording of two sites, 41WK131 and 41WK133. Site 41WK131 consists of a dilapidated corral or livestock pen with loading chutes. No evidence of intact deposits, features, cultural lenses, or additional cultural materials were observed at the site. Due to the lack of information potential, 41WK131 is not recommended as eligible for listing on the National Register of Historic Places (NRHP), and no further work is recommended at the location of 41WK131. Salt Creek Midstream, LLC procedures dictate that all standing structures be avoided, thus 41WK131 was avoided during construction. Site 41WK133 consists of a small scatter of early to mid-20th century domestic trash including metal, ceramics, and glass. No evidence of intact deposits, features, cultural lenses, or additional cultural materials were observed at the site. Due to the lack of information potential, 41WK133 is not recommended as eligible for listing on the NRHP, and no further work is recommended at the location of 41WK133.

The cultural resources survey did not result in the observation of any additional historic or prehistoric artifacts, features, cultural lenses, or sites on University of Texas Lands. Therefore, it is recommended that the project will have no effect on any historic property that may qualify for inclusion in the NRHP on University of Texas Lands. No further cultural resources investigations are recommended prior to construction of the proposed Bunker Hill (North Trunk) Pipeline on University of Texas Lands. If cultural material, including sites, features, or artifacts that are 50 years old or older are encountered within the ROW during construction of this project, work in the area must cease and the regional THC Archeologist must be notified immediately.

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Introduction

Enercon Services, Inc. (ENERCON), in support of Salt Creek Midstream, LLC, conducted a cultural resources investigation for the proposed Bunker Hill (North Trunk) Pipeline. The entire proposed pipeline is approximately 29.68 miles (47.77 km) in length and located in Ward and Winkler counties, Texas and Lea County, New Mexico near the towns of Wink, Texas and Kermit, Texas (Figure 1). This report encompasses only the portion of the proposed Bunker Hill (North Trunk) Pipeline in Winkler County, Texas on University of Texas lands. The University of Texas is a political subdivision of the State of Texas. The portion of the Bunker Hill (North Trunk) Pipeline on University of Texas lands is approximately 9.38 miles (15.10 km) in length. The University of Texas Lands portion of the APE is depicted on the United States Geological Survey (USGS) Wink South, Tex. (1968, Photorevised 1981) and Wink North, Tex. (1970), 7.5 Minute Quadrangle maps. The construction corridor consists of a 50 feet (15 m) wide permanent pipeline right-of-way (ROW) and an additional 50 feet (15 m) wide temporary workspace corridor. The cultural resources survey corridor area-of-potential-effect (APE) on University of Texas Lands consists of the 9.38 mi (15.10 km) by 100 feet (30 m) corridor, totaling 113.74 acres (46.03 hectares) (Figures 2.1 to 2.4).

Construction of the Bunker Hill (North Trunk) Pipeline will involve the mechanized clearing of vegetation within the APE and open-cut trenching where the pipeline will be buried. Clearing of vegetation is typically done with bulldozers. The trenches are typically at least four to six feet (1.2 to 1.8 m) deep and three to four feet (0.9 to 1.2 m) wide and dug by excavators. State, County, and private roads, including lease roads, are typically bored under by horizonal directional drilling. Additional impacts within the APE include foot traffic and general vehicle traffic from everything from light-duty pickup trucks to heavy mechanized equipment. Once construction is complete and the pipeline is operational, all trenches and pits will be backfilled, and all construction equipment will be removed.

The cultural resources intensive field survey and report are intended to assist in adhering to the 1969 Texas Antiquities Code (TAC) and the intensive field survey of the University of Texas Lands was completed under TAC Permit No. 8408. No artifacts were collected during the survey. Pursuant to 13 TAC 26.17, notes, records, photographs, and photograph logs generated during the intensive field survey have been prepared for permanent curation at the Texas Archeological Research Laboratory (TARL) in Austin, Texas.

The cultural resources survey on University of Texas Lands was conducted April 9-11, 2018 by ENERCON archaeologists Cody Kiker and Steven Sykes. Fieldwork consisted of intensive pedestrian survey utilizing transects not spaced greater than 15 meters apart. The entire project was supervised by Michael Margolis, an ENERCON archaeologist who meets the U.S. Secretary of the Interior's Professional Qualification Standards for archeology as set forth in 36 CFR 61. Fieldwork was conducted in accordance with the Texas Historical Commission (THC) Archeological Survey Standards for Texas.

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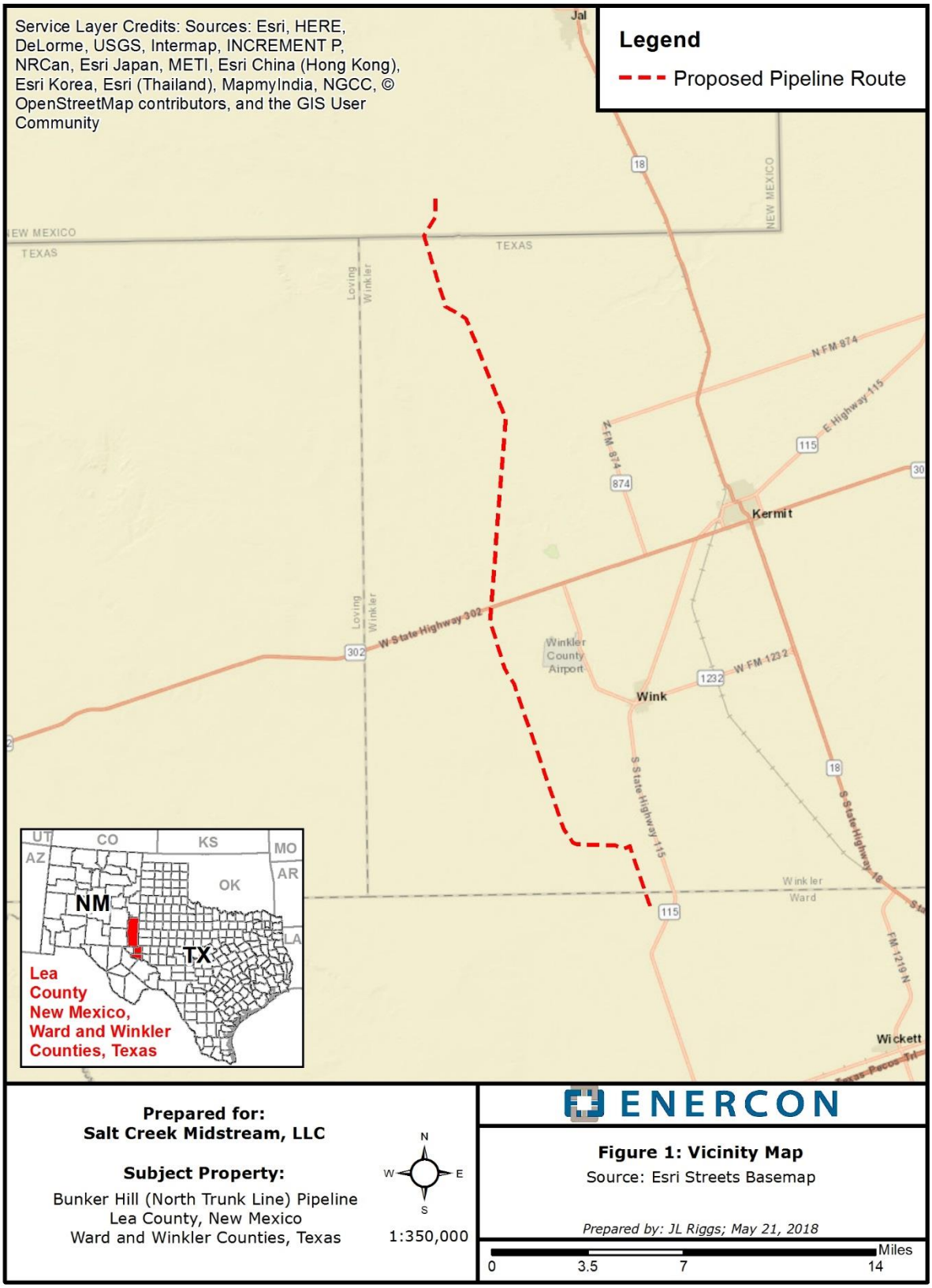
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Legend
Proposed Pipeline Route
Jal
NEW MEXICO
TEXAS
Loving
Winkler
N FM 874
E Highway 115
Kermit
W State Highway 302
Winkler County Airport
W FM 1232
Wink
S State Highway 115
S State Highway 18
Winkler
Ward
FM 1219 N
Wickett
UT
CO
KS
MO
AZ
AR
OK
NM
TX
LA
Lea County New Mexico, Ward and Winkler Counties, Texas
Prepared for:
Salt Creek Midstream, LLC
Subject Property:
Bunker Hill (North Trunk Line) Pipeline
Lea County, New Mexico
Ward and Winkler Counties, Texas
N
W
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S
1:350,000
ENERCON
Figure 1: Vicinity Map
Source: Esri Streets Basemap
Prepared by: JL Riggs; May 21, 2018
Miles
0
3.5
7
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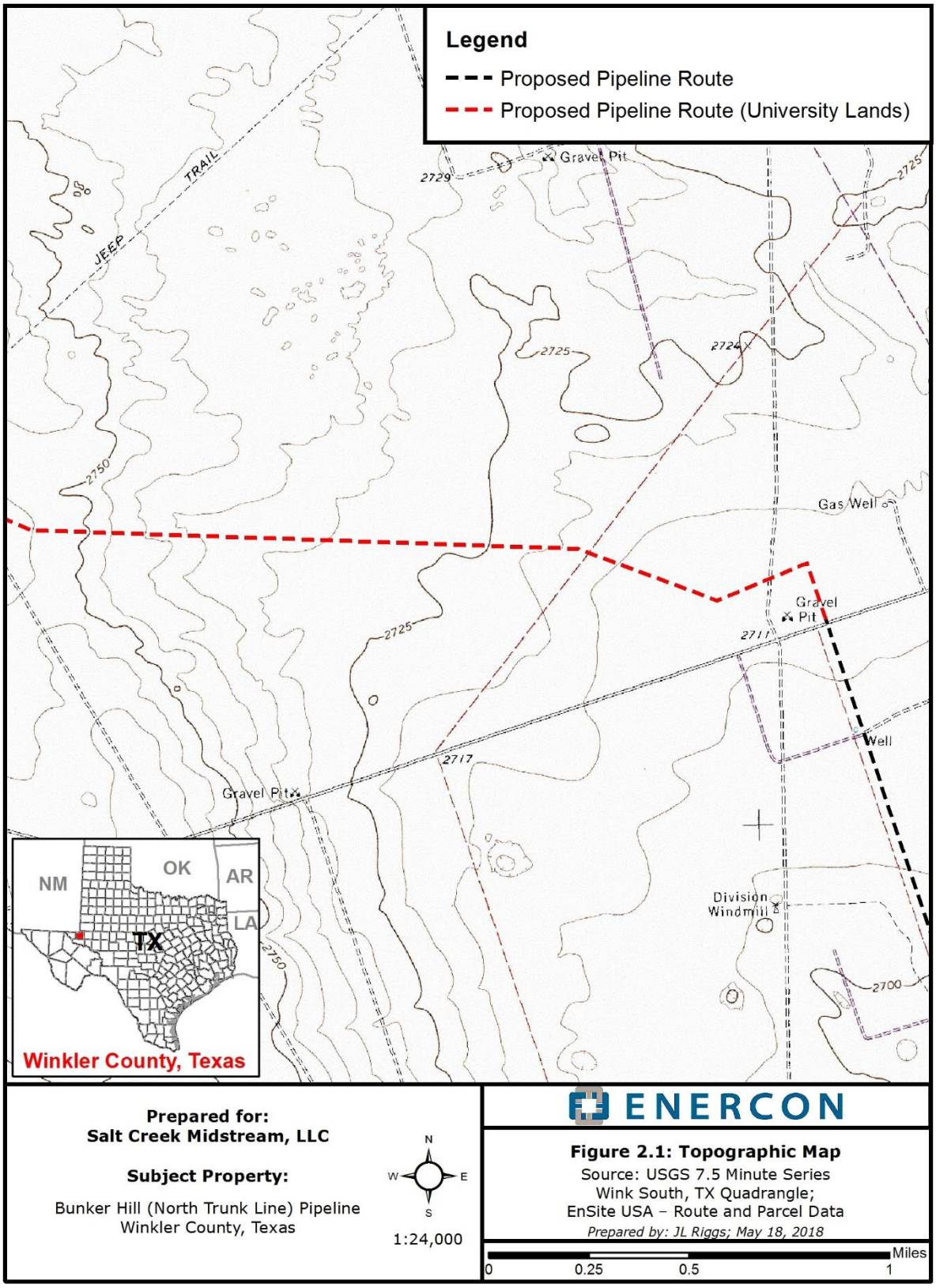
Legend
Proposed Pipeline Route
Proposed Pipeline Route (University Lands)
JEEP TRAIL
Gravel Pit
2729
2725
2724
2750
Gas Well
Gravel Pit
2711
2717
Well
Gravel Pit
Division Windmill
2700
NM
OK
AR
LA
TX
Winkler County, Texas
Prepared for:
Salt Creek Midstream, LLC
Subject Property:
Bunker Hill (North Trunk Line) Pipeline
Winkler County, Texas
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ENERCON
Figure 2.1: Topographic Map
Source: USGS 7.5 Minute Series
Wink South, TX Quadrangle;
EnSite USA – Route and Parcel Data
Prepared by: JL Riggs; May 18, 2018
Miles
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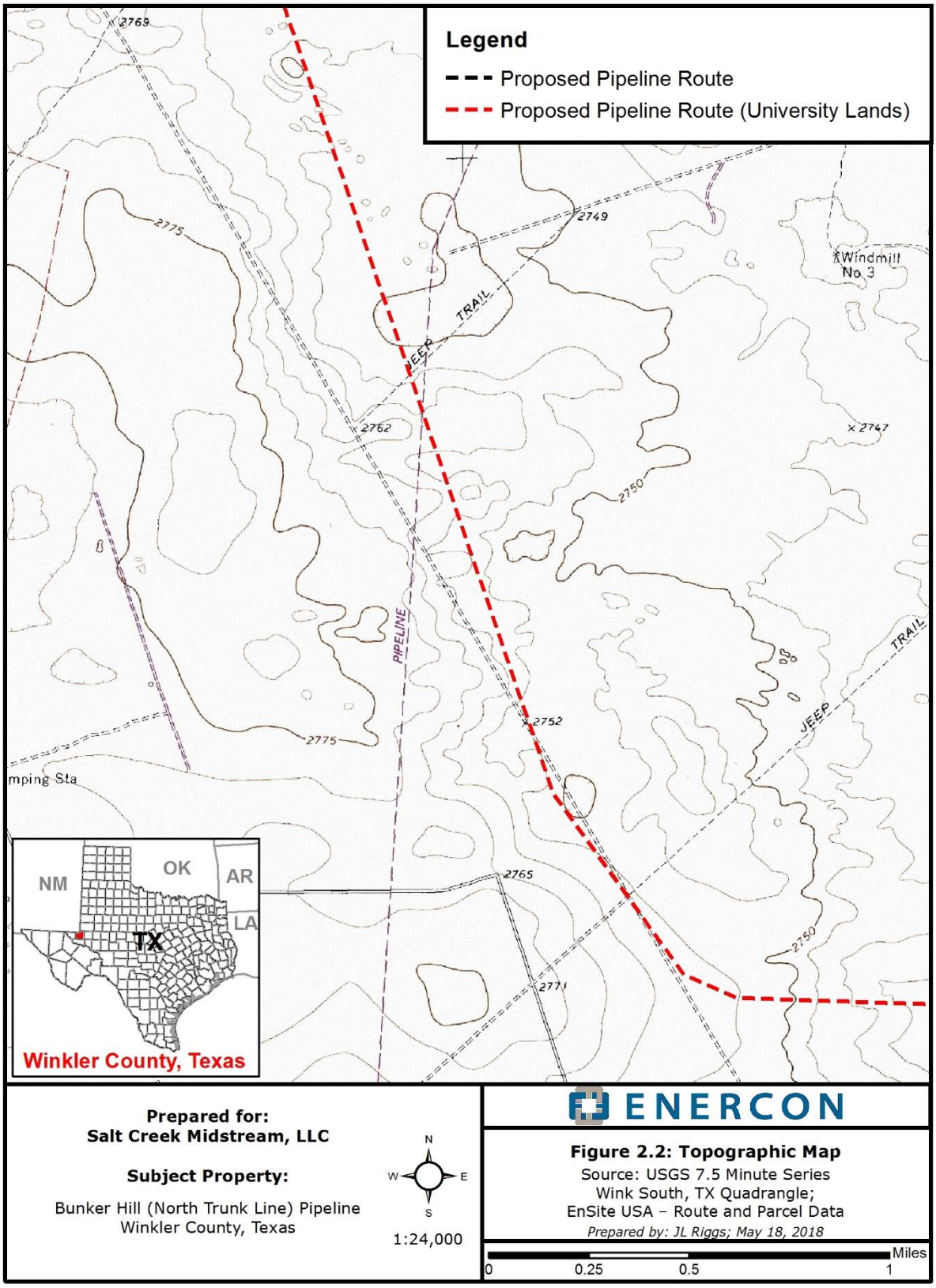
Legend
Proposed Pipeline Route
Proposed Pipeline Route (University Lands)
2769
2775
2749
Windmill No. 3
TRAIL
JEEP
2762
2747
2750
PIPELINE
2752
2775
mping Sta
2765
2771
NM
OK
AR
LA
TX
Winkler County, Texas
Prepared for:
Salt Creek Midstream, LLC
Subject Property:
Bunker Hill (North Trunk Line) Pipeline
Winkler County, Texas
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1:24,000
ENERCON
Figure 2.2: Topographic Map
Source: USGS 7.5 Minute Series
Wink South, TX Quadrangle;
EnSite USA – Route and Parcel Data
Prepared by: JL Riggs; May 18, 2018
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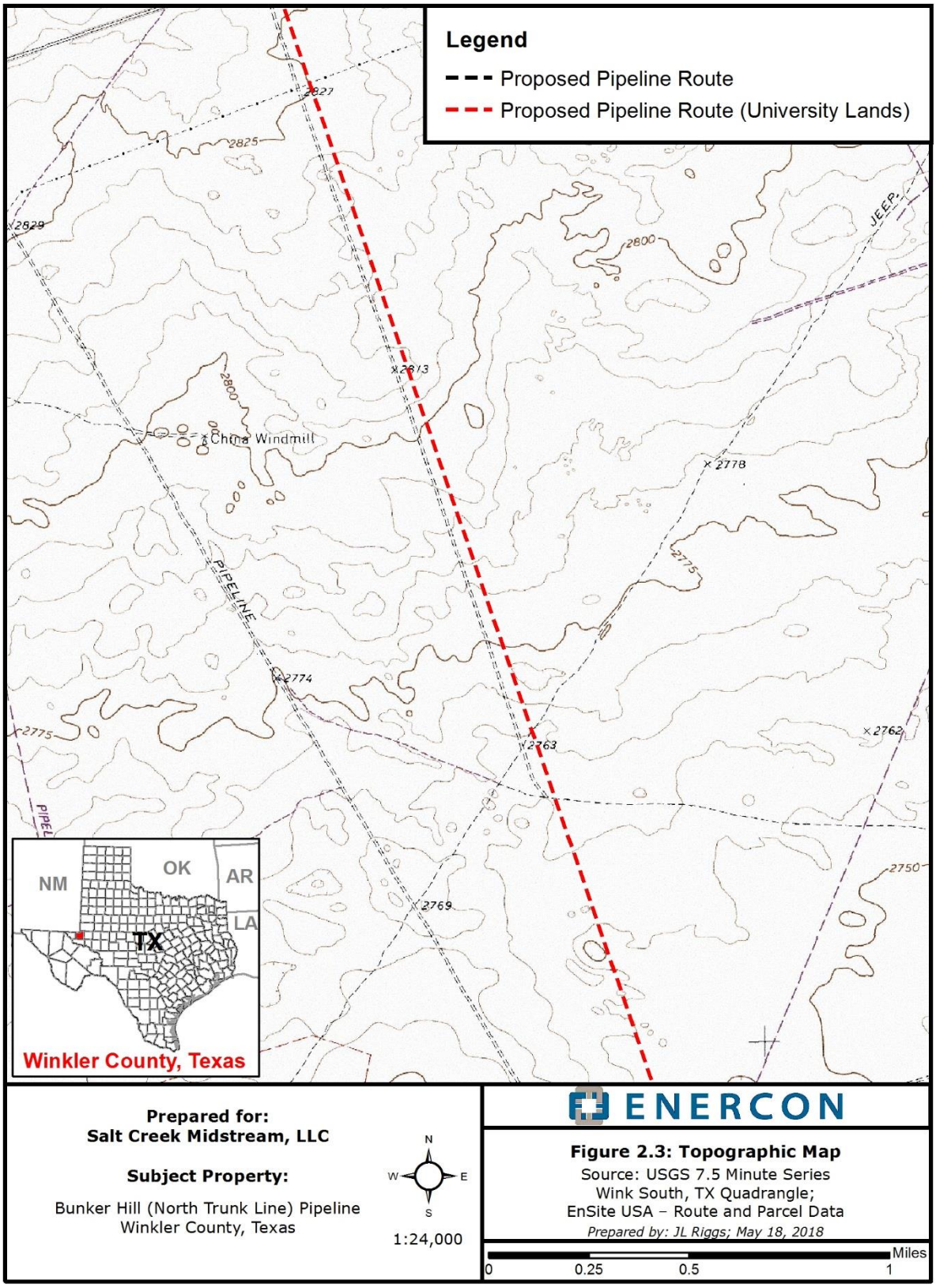
Legend
Proposed Pipeline Route
Proposed Pipeline Route (University Lands)
China Windmill
PIPELINE
JEEP
2827
2825
2829
2800
2813
2778
2775
2774
2763
2762
2769
2750
NM
OK
AR
LA
TX
Winkler County, Texas
Prepared for:
Salt Creek Midstream, LLC
Subject Property:
Bunker Hill (North Trunk Line) Pipeline
Winkler County, Texas
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ENERCON
Figure 2.3: Topographic Map
Source: USGS 7.5 Minute Series
Wink South, TX Quadrangle;
EnSite USA – Route and Parcel Data
Prepared by: JL Riggs; May 18, 2018
Miles
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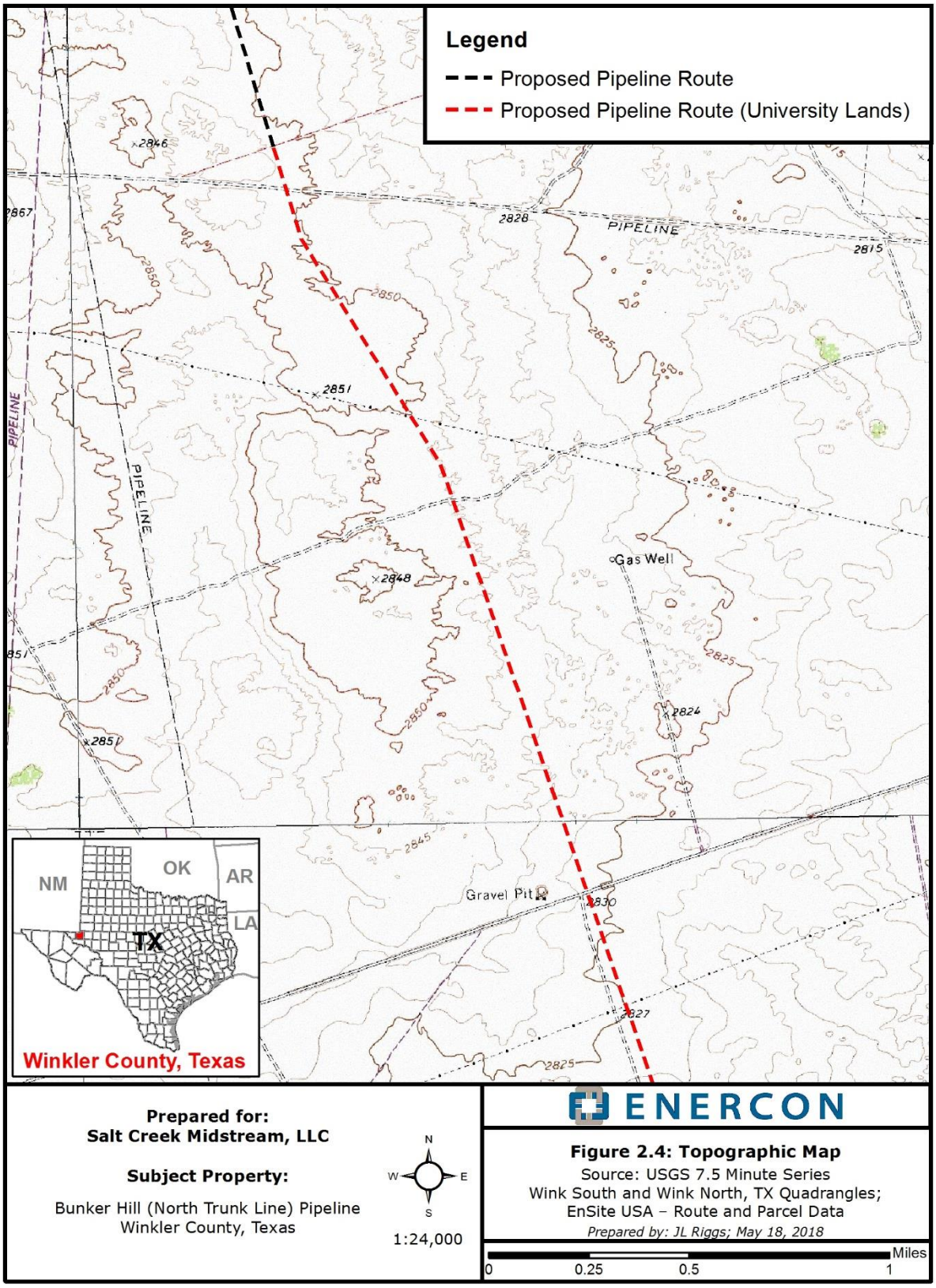
Legend
Proposed Pipeline Route
Proposed Pipeline Route (University Lands)
PIPELINE
PIPELINE
PIPELINE
Gas Well
Gravel Pit
NM
OK
AR
LA
TX
Winkler County, Texas
Prepared for:
Salt Creek Midstream, LLC
Subject Property:
Bunker Hill (North Trunk Line) Pipeline
Winkler County, Texas
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1:24,000
ENERCON
Figure 2.4: Topographic Map
Source: USGS 7.5 Minute Series
Wink South and Wink North, TX Quadrangles;
EnSite USA – Route and Parcel Data
Prepared by: JL Riggs; May 18, 2018
Miles
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0.5
1

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ENVIRONMENTAL BACKGROUND

The study area is situated within the Chihuahuan Basin and Playas biotic province of the Chihuahuan Deserts ecoregion (Griffith et al. 2007). The Chihuahuan Basins and Playas are part of the larger Chihuahuan Deserts which extend from the Madrean Archipelago of Arizona in the west to the Edwards Plateau of central Texas. The boundaries of this area are defined by an arid climate with some of the lowest precipitation rates in Texas, which support desert shrub vegetation dominated by creosote bush and honey mesquite on the alkaline or gypsiferous soils (Griffith et al. 2007). The elevation of the Chihuahuan Basins and Playas range from 1,200 to 4,500 feet above mean sea level (amsl) with local relief varying from 25 to 500 feet (Griffith et al. 2007:10). The major drainages of the approximately 12,625 square mile ecoregion are the Pecos River which carries runoff from the Sangre de Cristo Mountains in northern New Mexico and the Rio Grande which carries runoff from the San Juan Mountains in southern Colorado (Griffith et al. 2007:8-9). Otherwise, the ecoregion is primarily internally drained, resulting in alkaline soils, but an efficient recharge rate of local aquifers.

The presence of the quality groundwater did not go unnoticed by settlers and early 20th century inhabitants who made use of the abundant ground water with irrigation well with flow rates between several hundred to 2000 gallons per minute (Griffith et al. 2007:9). The primary crops on these irrigated agricultural fields have included cotton, pecans, alfalfa, tomatoes, onions, chili peppers, and the famous melons, particularly cantaloupe from Reeves County (Griffith el al. 2007; Geiser 2010). The ranching and irrigation based agricultural practices developed from the late 19th to 20th century in the region have altered the native environment. In the El Paso area and to the west, aquifer drawdown has led to over a 100 foot decline in ground water levels from those recorded at the turn of the 20th century and salt build up in soils has led to the abandonment of many Pecos River Valley agricultural fields which were previously productive farmlands in the 1900s (Griffith et al. 2007:9). Early settlers and observers described the river as generally 4 to 15 feet deep and up to 100 feet wide with a fast current and fordable in only a few places (Griffith et al. 2007:9; Hayter 2010). The agricultural and industrial uses of the Pecos River in New Mexico and Texas have drastically reduced water levels, transforming the Pecos into a gentle, slow river with a shallow, narrow channel. As an example, the early history of settlement in the region of modern Pecos, Texas was related to the encampments of cowboys in the region due to the safe ford for cattle across the mighty Pecos River to the east of the modern town site (Hayter 2010). The historic to modern grazing practices have also altered the environment in the region. The former grasslands which supported cattle have been reduced by overgrazing to dessert shrub lands mostly suitable for only sheep and goats (Griffith et al. 2007:8).

The arid climate of the APE results in relatively sparse vegetation and excellent ground surface visibility. The dominant creosote bush is an example of the resilient regional flora which can tolerate the diurnal temperature range, low moisture conditions, and high evapotranspiration rates of the region. Additional ecotones include the high saline environments of the playas where saltbush and alkali sacaton may be found along the margins of these dry saltpans and playas (Griffith et al. 2007:8). Honey mesquite, yucca, and mixed grasses are found intermittently in the region.

The APE on University of Texas Lands ranges in elevation from approximately 2,710 feet to 2,855 feet (826 to 870 meters) above mean sea level (Figures 2.1–2.4). The lowest point within the APE is at the southern edge of the University of Texas Lands adjacent to Little Joe Road (Figure 2.1). The highest point within the APE is at the northern edge of the University of Texas Lands west of the Winkler County Airport (Figure 2.4). Surface waters within the APE drain into Monument Draw to the east of the APE. Monument Draw, which has water only intermittently or seasonally, flows generally southeast and feeds into the Pecos River approximately 12 miles (19.3 km) southeast of Pyote, Texas. The Pecos River continues southeast for approximately 150 miles (241 km) before feeding into the Rio Grande west of Comstock, Texas.

The soils encountered within the APE on University of Texas Lands are presented alphabetically in Table 1. The majority of soils are derived from eolian deposits with smaller areas of alluvial deposits. Due to aridity, salinity, high alkalinity, and shallow depth to bedrock, none of the soils are considered prime farmland (United States Department of Agriculture [USDA] 2018). Additionally, abundant exposed caliche, relatively shallow soils, and the generally degrading topography of the area largely preclude the potential for deeply buried cultural deposits.

Table 1. Soils within the study area by Arability, Parent Material, and Depth to Restrictive Feature

Soil Unit	Arability	Parent Material	Depth to Restrictive Feature
Kinco–Blakeney complex soils, nearly level	Not prime farmland	**Kinco** = Calcareous loamy alluvium and/or calcareous loamy eolian deposits **Blakeney** = Calcareous loamy eolian deposits over indurated	**Kinco** = > 80 inches (203 cm) **Blakeney** = 7 to 20 inches (18 to 51 cm)
Pyote fine sand, gently undulating	Not prime farmland	Sandy alluvium and/or sandy eolian deposits	> 80 inches (203 cm)
Sharvana fine sandy loam, nearly level	Not prime farmland	Calcareous, loamy eolian deposits from the Blackwater Draw Formation of Pleistocene Age	7 to 20 inches (18 to 51 cm)
Wickett–Pyote complex soils, gently undulating	Not prime farmland	**Wickett** = Loamy eolian deposits and/or sandy eolian deposits **Pyote** = Sandy eolian deposits and/or loamy eolian deposits	**Wickett** = 20 to 40 inches (51 to 102 cm) **Pyote** = > 80 inches (203 cm)
Wickett–Sharvana complex soils, gently undulating	Not prime farmland	**Wickett** = Loamy eolian deposits and/or sandy eolian deposits **Sharvana** = Calcareous, loamy eolian deposits from the Blackwater Draw Formation of Pleistocene Age	**Wickett** = 20 to 40 inches (51 to 102 cm) **Sharvana** = 7 to 20 inches (18 to 51 cm)

Data compiled from USDA (2018)

In general, the climate of Winkler County includes long, hot summers followed by relatively short, mild winters. January is the coldest month with daytime highs near 69° Fahrenheit (°F) and lows near 28°F. July is the hottest month, with daytime highs near 96°F and nighttime lows near 70°F. Annual precipitation averages 12.4 inches (31.5 cm), most of which occurs from April through September. Thunderstorms occur on an average of 37 days per year, and most occur in May. Annual snowfall averages 3.4 inches (8.6 cm), but generally staying on the ground only a day. The average growing season is 219 days (Rives 1999).

ARCHEOLOGICAL BACKGROUND

Based on the archeological record, people have inhabited the region for the last 12,000 years. The archeological chronology has commonly been broken into five temporal periods. The dates assigned to those periods differ between authors but generally include the Paleoindian Period (ca. 10,000 to 6,000 B.C.), Archaic Period (ca. 6,000 B.C. to A.D. 500), Late Prehistoric Period (ca. A.D. 500 to 1500), Protohistoric Period (ca. A.D. 1500 to 1700), and Historic Period (ca. A.D. 1700 to 1950) (adapted from Boyd 2004, Perttula 2004, and Raily 2016:54). A summary of the culture history of the region is presented below. For additional information on the cultural history of the region and a more detailed review, the reader is directed to the works by Railey (2013, 2016) and Turner, Hester, and McReynolds (2011).

Paleoindian Period

Evidence for prehistoric occupation of the area is relatively scarce in the Paleoindian Period (ca. 10,000 to 6,000 B.C.). It probable that earlier sites have been lost to erosion due to the geological context of the area (Boyd 1997:7). Paleoindian sites are more common and more reliably dated on the eastern Edwards Plateau and southern High Plains, although sites and isolated artifacts have been recorded. Although there is growing evidence for human presence in the Americas, Clovis is the first well-defined cultural horizon in the region. The remains of large herbivores are found in association with Clovis artifacts but there is more recent research supporting the procurement of smaller animals and plants during this time. The Clovis projectile points are lanceolate in shape and have fluted bases. Subsequent Paleoindian projectile points include Folsom and Plainview (Turner, Hester, and McReynolds 2011:45). These projectile points were typically hafted to spears, which were often thrown with the aid of atlatls. The Shifting Sands site, a Winkler County Folsom occupation site which has produced evidence beyond the isolated points, represents research into the Paleoindian tradition in close proximity to the project vicinity (Hofman 1990).

Archaic Period

With the extinction of megafauna, the Archaic Period (ca. 6,000 B.C. to A.D. 500) is generally defined by broader subsistence practices and an increase in intensity of resource exploitation. The climate transitioned from the dryer Altithermal in the Early Archaic through the Late Holocene Wet Period to the relatively dry in the Late Archaic Medieval Period (Railey 2016:59-83). Additionally, temperatures appear to have increased which resulted in changes to the biotic community and the subsequent subsistence strategies of the Archaic Period populations of the region. Fire cracked rock and oxidized rock is relatively common during this period and likely results from hearths and ovens. Although resource exploitation is inferred to be more intense, subsistence appears to be focused on seasonal mobility tied in part to bison hunting (Boyd 1997). Campsites and rock shelters have been identified from this period, mostly from the Late Archaic. Projectile points are normally barbed spear or dart points, and plant-processing tools increase through time (Johnson and Holliday 2004). There is an increase in the number of recorded sites in the region attributed to the Late Archaic in terms of both diagnostic points and radiocarbon dates (Railey 2016:75, 86). The overall inference is an increase in the population of the region during the Late Archaic (Railey 2016:75).

Late Prehistoric Period

The Late Prehistoric or Ceramic Period (ca. A.D. 500 to 1500) is marked by the presence of ceramics and smaller projectile points indicating the switch from atlatl and spear to the bow and arrow (Johnson and Holliday 2004). This period is also known as the Formative Period in the nearby western Trans-Pecos because of the area's inclusion within the Jornada Mogollon culture of the greater Southwest archeological region (Railey 2016: 9). Due to further drying of the climate, bison appear to become scarcer in this region. Trading is inferred to have occurred with Southwestern groups including the Jornada Mogollon (Boyd

1997). Brownware pottery was imported from the Puebloans and habitation structures from this period include pit houses. Campsites were still likely used during parts of the year and would be representative of seasonal mobility. Subsistence practices in the Southern High Plains of the Texas Panhandle to the northeast included the introduction of maize by A.D. 1000 (Drass 2008), and maize has been found in caves to the west in the Guadalupe Mountains, and to the south on the Marfa Plain (Railey 2016:99-101, 132). However, the region continued to be dominated by mobile hunter-gatherers (Railey 2016:132), and regional subsistence in Winkler and Ward counties does not include evidence of cultivated resources (Railey 2016: 99-101, 132). In the latter part of the period, prestige goods like Olivella shell beads, turquoise, non-local pottery, and obsidian become more common.

Protohistoric Period

The Protohistoric Period (ca. A.D. 1500 to 1700) begins with direct and indirect European influences in the region. This period is also known as the Post-Formative Period in the nearby western Trans-Pecos and New Mexico (Railey 2016:134-140). European settlement did not begin to seriously disrupt aboriginal habitation until after A.D. 1700. European diseases, probably introduced by explorers and early traders, did have impacts as early as A.D. 1528. At least 30 epidemics were recorded among Texas tribes between A.D. 1528 and 1890 (Ewers 1974). Further to the west in the project region the Railey defines this era as the Post-Formative Native Americans (After A.D. 1450). There is widespread abandonment of the villages and associated lifestyle on the southern High Plains, the Jornada Mogollon and even the Casa Grandes Region (Railey 2016:134). There is limited evidence of sites dating to the Post Formative Period in the study region and in Southeast New Mexico (Railey 2016:137). With the abandonment of the village lifeway, the nomadic bison hunters either did not leave a record that is temporally recognizable via radiocarbon dating, or material culture that can only be attributed to this era. Railey refers to this as a 'low archaeological visibility" problem for sites from the Post-Formative Period (2016:140). Whether populations totally abandoned the region remains unclear.

Historic Period (A.D. 1700 to 1950)

Spanish explorers began expeditions in the Gulf of Mexico beginning in the early 1500s followed by Catholic missionaries accompanied by Spanish soldiers. The Spanish, while teaching locals Christianity and farming, attempted to make loyal Spanish citizens. The first missions were established in Mexico, but were later built in California, Arizona, New Mexico, and Texas (Campbell 2003:36-38). The French, partially to stem the advance of the Spanish, wanted to increase their fur trading territory and gain control of the Mississippi River valley. By 1682, LaSalle, a Frenchman, launched an expedition down the Mississippi River that claimed all of the lands drained by the river for France followed by a colonization effort to settle the mouth of the Mississippi River. Subsequent to the French incursion into the region, the Spanish increased the rate of establishing settlements in Texas (Campbell 2003:41-45, 48).

The Spanish mission system did not expand during the eighteenth century. Native American attacks and a lack of colonists contributed to the decline of Spanish settlement in Texas. In 1762, the Spanish acquired Louisiana from the French, which slowed the need to settle east Texas. In 1800, Spain ceded Louisiana to France, who then sold it to the United States. From 1800 to the 1820s, the population of Texas decreased as a result of the effects of the Mexican Revolution. In 1821, Mexico finally became an independent nation, separate from Spain. This newly independent country encouraged Anglo-American settlement within Texas; this effort was led by Stephen F. Austin. Austin came to an agreement with the Mexican government in which he would bring settlers to Texas and, in return, he would be rewarded with land and money. By 1830, ten thousand Anglo-Americans, mostly from the American southeast, had settled in Texas (Campbell 2003:105-110).

Texas operated as an independent nation for 10 years (1836 to 1846) and during this time, the Mexican government never truly recognized its independence. In 1846, Texas was annexed by the United States and it was now up to the U.S. government to settle the border dispute with Mexico. The Mexicans claimed the international border as the Nueces River, while the U.S. claimed the Rio Grande as the demarcation line. After two years of skirmishes and an attack on Mexico City, the United States succeeded in its efforts; with the treaty of Guadalupe Hidalgo. Mexico recognized the Rio Grande as the border and ceded the entire southwest to the Pacific Ocean to the U.S. (McComb 1989:57).

At the time of annexation by the United States, west Texas was relatively unexplored territory, home to various Native American groups. Settlers began slowly pushing into this territory in the mid-nineteenth century. In 1848, the U.S. Army stationed troops in west Texas and created travel routes through this new territory, which would become corridors for pioneers traveling to California. These included the Chihuahua Trail, which led from Mexico to Indianola, Texas, and Horsehead Crossing and Castle Gap in Crane County, all of which were utilized as trade networks during the prehistoric period as well as forming part of a historic transportation corridor linking Mexico, the U.S. and Canada. Castle Gap functioned as a primary route for the U.S. Cavalry, California Forty-niners, cattle drives, stagecoaches, and wagon trains.

During the Civil War, Texas was a large contributor to the Confederacy, but differed significantly from other southern states. Texas was a frontier state, with a diversified population of Mexicans, Anglo-Americans, and Native Americans. The state also had a large European immigrant population, many of whom were small farmers. Two-thirds of the farmers in the state were non-slave holding, which meant that the agricultural economy was maintained following the Civil War. In addition, cattle ranches were a large industry, resulting in economic diversity. Thus, Texas was not as negatively impacted economically as other southern states during post-Civil War Reconstruction (Campbell 2003:209, 213).

The Native American groups of Texas saw the defeat of the Confederacy and the weakening of Texas as a chance to regain lands they had lost. During this period, the Comanche and Apache occupied the areas of west Texas. In response to this increase of Native American attacks, the United States sent troops to reoccupy several forts. By 1874, a major campaign was initiated in Texas that took away Native Americans' horses, destroyed their villages, and forced them to return to their reservations. The consolidation of Native Americans on reservations allowed Anglo-Americans to settle permanently in west Texas (Campbell 2003:291, 295).

Following these campaigns, the military sent troops to conduct detailed expeditions of the former Native American lands. By 1876, several of the counties northeast of the project area were surveyed by parties from Fort Concho. Ranchers moved into these areas and began raising large herds of cattle, as the demand for beef had risen after 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 and Pacific Railway extended their rail lines through west Texas; up to this point, rail transportation was only available in east Texas. Between the 1870s and 1890s, 8,000 miles of railway track were laid, connecting the entire state. The new railroads significantly reduced the time and distance it took the cattle industry to transport their herds to market (Campbell 2003:297, 306).

The expansion of the railroad connected the rural communities of west Texas with the booming cities to the east. Towards the end of the nineteenth century, cattle ranchers began to fence off their herds and create small communities on the frontier. In 1895, a law was passed that broke up these larger ranches, allowing farmers to purchase smaller tracts of land. This led to the end of open-range ranching and attracted additional settlers. West Texas communities generally 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 activity of west Texas at the end of the nineteenth century.

Winkler County is located on the east side of the Pecos River Valley in west Texas and is comprised of 840 square miles of primarily flat to gently rolling lands (Smith 2010a). Winkler County is bordered by Andrews County to the northeast, Ector County to the east, Ward County to the south, Loving County to the west, and Lea County, New Mexico to the northwest. The Texas and Pacific Railway was constructed through the area in 1881, crossing Ward County from east to west several miles south of modern Winkler County, giving the general region transportation options, which resulted in regional development in the surrounding counties. The dense grasslands with good water options drew a few settlers practicing open range ranching to the area; and Winkler County was established from Tom Green County in 1887 and by 1890, eleven men and seven women were reported as the population of the county (Smith 2010a). The subsequent census of 1900 reported 12 ranches with 11,982 head of cattle and 60 persons inhabiting Winkler County. The Public School lands rush of the early 1900s brought additional settlers to all of West Texas and resulted in population increases across the formerly sparsely settled region, and the nominally organized Winkler County experienced an increase as well to 412 residents in the 1910 Census (Smith 2010a). The county was also formerly organized on April 5, 1910 with the town of Kermit as the county seat (Smith 2010a). The census of 1910 counted 128 farms, with a total acreage reported at only 230 acres in small corn and hay operations, 10,000 head of cattle, and almost 4,000 sheep (Smith 2010a). In contrast, to the southwest of the Pecos River, 25 miles away in irrigated areas of Reeves County, the 1900 census reported 63 farms totaling 900,000 acres of farmland and 51,000 head of cattle (Smith 2010b). Intermittent droughts affected the region, as noted above, and by 1920, only 81 residents remained in the county on 27 farms (Smith 2010a).

The discovery of oil in the county in 1926 altered the county economy and led to a large increase in the population. The Hendrick Field was initially discovered by random drilling on July 16, 1926, and by September 1927, was producing an average of 10,580 barrels of oil a day from 19 wells operated by six different drilling companies (Smith 2010c). The Hendrick Field oil boom created the town of Wink, located just over seven miles southwest of Kermit, and led to the rise of several other short-lived boomtowns in the region (Smith 2010a). The boom increased the population of the county from the 81 residents noted above in 1920, to 6,784 enumerated in the 1930 census (Smith 2010a). To the contrary, the number of farms reported in 1930 decreased to 25, operated by 14 owners and 11 tenants, but the number of cattle remained steady at 11,000 head (Smith 2010a). Through 1960 the oil and gas industry continued to dominate the economy of the county, but ranching remained steady and the population grew to 10,064 residents in 1950, and a peak of 13,652 residents in 1960 (Smith 2010a). In 2010, the estimated population of the county was 7,110, with a July 1, 2016 estimate of 7,893, and the current July 1, 2017 estimate of 7,574 (United States Census Bureau 2019). The dominant industry of the county is oil and gas development, followed by cattle ranching.

METHODOLOGY

The cultural resources intensive field survey followed the THC's *Archeological Survey Standards for Texas*. The project area was surveyed by using parallel pedestrian transects spaced no more than 50 feet (15 m) apart. The entire 100 foot (30 m) wide survey corridor within the proposed Bunker Hill (North Trunk) Pipeline APE on University of Texas lands was subjected to pedestrian survey for cultural resources.

Shovel testing density within the survey followed minimum standards outlined by the THC and the Council of Texas Archeologists' practices and procedures, which call for 16 shovel tests per mile is settings which have the potential for buried deposits. Shovel testing was not required in areas with slopes greater than 20 percent or which did not exhibit potential for buried deposits. Shovel test pits are also not excavated in areas with standing water or in areas in which underground utilities are present.

Shovel tests generally measure 30 cm in diameter and are excavated by digging to bedrock, a stratigraphic deposit (e.g. subsoil) that was determined to be below Holocene aged deposits, or to 80-100 cm (dependent on soil matrix consistency and hardness). All shovel test pit fill was passed through ¼ inch mesh screen or gone through by hand if the soil would not pass through the screen. Shovel test pits were excavated in arbitrary 10 cm levels unless stratigraphic changes were observed.

The cultural resources intensive field survey of the 100 foot (30 m) wide survey corridor exceeded the minimum standards outlined by the THC and the Council of Texas Archeologists' practices and procedures (13 TAC 26.5 and 26.20).

BACKGROUND RESEARCH

Prior to the intensive field survey, an address-restricted records search was conducted online at the Texas Archeological Sites Atlas (the Atlas) to locate previously recorded archeological sites, archeological surveys, NHRP properties, and State Antiquities Landmarks (SALs). This research was conducted to determine if any known resources could be affected, as well as the types of resources in the area, and the probability of encountering the resources during fieldwork. A site file check was conducted by Michael Margolis, an ENERCON archeologist who meet the U.S. Secretary of the Interior's Professional Qualification Standards for archeology as set forth in 36 CFR 61. No previously recorded cultural resource sites are located within the proposed APE on University of Texas Lands or within one mile of the APE. No previously recorded cultural resource site will be impacted by construction of the proposed Bunker Hill (North Trunk) Pipeline on University of Texas Lands.

The overall background research of the region suggests that the APE on University of Texas Lands is located within a larger area where climatic conditions, burrowing rodents, and the effects of ranching and oil and gas exploration have each affected the cultural landscape leading to two types of general settings. Wind erosion and extensive bioturbation from rodent burrowing, and sheep and cattle grazing have exposed the upper surface of the landscape within the Chihuahuan Basins and Playas. With the exception of a few geomorphological locations, archeological sites of all ages may be located on the exposed ground surface and/or were never buried (Hall 2006:2-7). The majority of archeological sites are located on eroded surfaces and therefore lack vertical integrity and stratigraphy (Hall 2006:2-15). While intact archeological deposits may be encountered where depositional processes, such as (a) colluvial; (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 2006:2-7, 2-11; Johnson and Holliday 2004:285, 290, 294). The APE on University of Texas Lands is located within the areas of eroded and exposed surfaces, and sites would be expected to be resting on the surface, or ephemerally exposed by shifting sand dunes.

RESULTS

The cultural resources intensive field survey of the Bunker Hill (North Trunk) Pipeline on University of Texas Lands was conducted April 9-11, 2018 by ENERCON archaeologists Cody Kiker and Steven Sykes. The entire project was conducted under the authority of TAC Permit No. 8408 and supervised by Michael Margolis, an ENERCON archaeologist who meets the U.S. Secretary of the Interior's Professional Qualification Standards for archeology as set forth in 36 CFR 61. The APE on University of Texas Lands consists of the 9.38 mi (15.10 km) by 100 feet (30 m) corridor, totaling 113.74 acres (46.03 hectares).

The weather was cool and dry in the morning, becoming hot and drier in the afternoon, with clear, sunny skies and light winds out of the east/northeast. Terrain within the APE was generally flat, gradually sloping up to the north/northwest, and with scattered small, low sand dunes. Vegetation within the University of Texas Lands was dominated by creosote, honey mesquite, sand sage, and acacia, with mixed grasses and narrow leaf yucca. Average ground surface visibility was above 80 percent (Figures 3 to 8).

The cultural resources survey of the proposed Bunker Hill (North Trunk) Pipeline on University of Texas Lands resulted in the recording of two sites, 41WK131 and 41WK133. Site 41WK131 consists of a dilapidated corral or livestock pen with loading chutes (Figures 9 to 12). The corral is L-shaped and measures approximately 100 feet (30 m) northwest to southeast by 100 feet (30 m) northeast to southwest, with the cattle chutes at each north corner. Aerial photographs from 1954 do not depict any standing structures in the vicinity of 41WK131, however, the corral or livestock pen is depicted on aerial photographs from 1967 (HistoricAerials.com 2020a, 2020b) (Figure 13). The corral is constructed with cut juniper, posts of recycled pine power poles, dimensional lumber, and horse fencing (woven wire with small spacing) secured with wire nails. No well, windmill, cistern, or water tank was observed in the area. No artifacts were observed within or around the corral except nails, lumber, and fence scraps. The corral is adjacent, on the northwest side, to a similarly oriented modern livestock pen. The pen is constructed of t-posts and barbed wire and measures approximately 170 feet (52 m) northwest to southeast by 130 feet (40 m) northeast to southwest. Ground surface visibility in the area was over 80 percent. No shovel tests were excavated at the site due to the exposed caliche on the surface and the high ground surface visibility. No artifacts were observed within or around the modern pen except an intact aqua glass "Coca-Cola" bottle with painted lettering, manufactured in Dayton, Ohio. No evidence of subsurface cultural deposits, cultural lenses, or additional cultural materials were observed at the site.

Site 41WK133 consists of a small, surficial scatter of early to mid-20th century domestic trash including glass, ceramics, and metal within an approximately 20-foot (6 m) by 20-foot (6 m) area (Figures 14 to 17). Artifacts observed include an intact brown glass "H Clay Glover Co. / Glover's Imperial Medicine" bottle with a Whitall Tatum & Company maker's mark. Whitall Tatum & Company utilized the specific maker's mark, a "W" over a "T," both inside an inverted triangle, from 1924 until the company was purchased by Armstrong Cork Company in 1938. The trash scatter also included four clear bottle glass fragments exhibiting hydration, two milk glass canning lids, three whiteware ceramic sherds, three white stoneware/crockery ceramic sherds, and a metal band or strap. Ground surface visibility in the area was over 80 percent. No shovel tests were excavated at the site due to the exposed caliche on the surface and excellent ground surface visibility. No evidence of subsurface cultural deposits, features, cultural lenses, or additional cultural materials were observed at the site.

The cultural resources survey for the proposed Bunker Hill (North Trunk) Pipeline did not result in the observation of any additional cultural material including prehistoric or historic artifacts, features, cultural lenses, or sites over 50 years of age within the APE on University of Texas lands.

Figure 3. General overview of the APE, facing north/northwest from Little Joe Road.

Figure 4. General overview of the APE, facing north/northwest from where the proposed pipeline bends away from an existing pipeline.

Figure 5. General overview of the APE, facing south/southeast from a lease road approximately 2.85 miles south of County Road 201.

Figure 6. General overview of the APE, facing north/northwest from a lease road approximately 2.85 miles south of County Road 201.

Figure 7. General overview of the APE, facing south/southeast from County Road 201.

Figure 8. General overview of the APE, facing north/northwest from County Road 201.

Figure 9. Dilapidated corral/pen at Site 41WK131, facing north.

Figure 10. Dilapidated corral/pen at Site 41WK131, facing northeast.

Figure 11. First cattle chute at north end of dilapidated corral/pen at Site 41WK131, facing south.

Figure 12. Second cattle chute at north end of dilapidated corral/pen at Site 41WK131, facing southeast.

Figure 13 Redacted

Figure 13. caption redacted.

Figure 14. "H Clay Glover's Imperial Medicine" bottle recorded at site 41WK133.

Figure 15. Clear glass bottle fragments recorded at site 41WK133.

Figure 16. Whiteware ceramics and stoneware/crockery sherds recorded at site 41WK133.

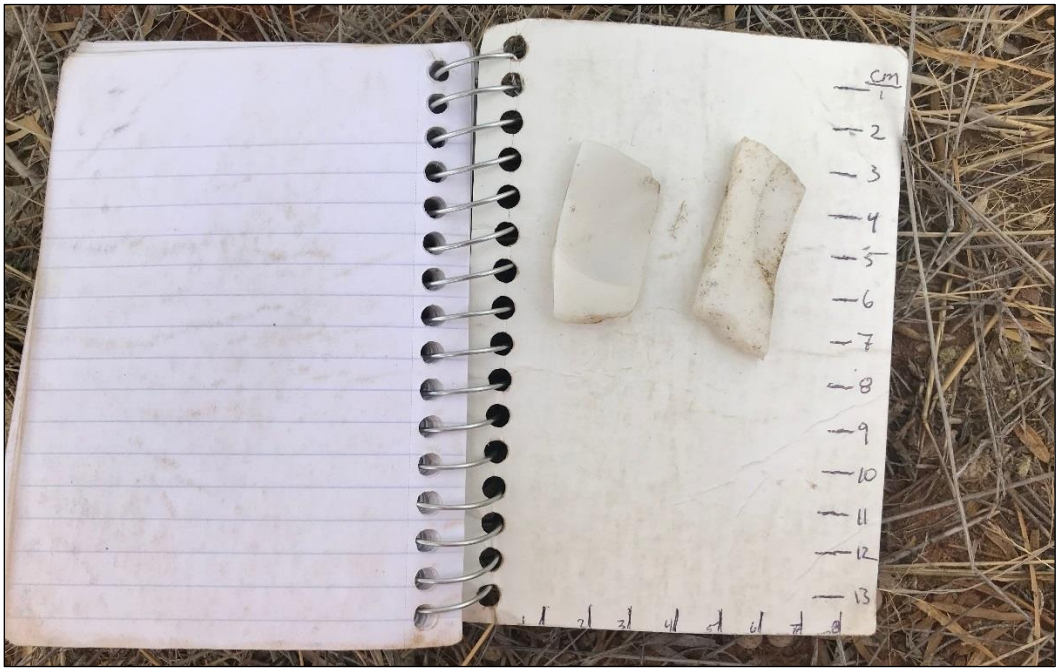

Figure 17. Milk glass canning jar lids recorded at site 41WK133.

RECOMMENDATIONS

ENERCON, in support of Salt Creek Midstream, LLC, conducted a cultural resources investigation for the proposed Bunker Hill (North Trunk) Pipeline. The entire proposed pipeline is approximately 29.68 miles (47.77 km) in length and located in Ward and Winkler counties, Texas and Lea County, New Mexico near the towns of Wink, Texas and Kermit, Texas. This report encompasses only the portion of the proposed Bunker Hill (North Trunk) Pipeline in Winkler County, Texas on University of Texas Lands, which is approximately 9.38 miles (15.10 km) in length. The construction corridor consists of a 50 feet (15 m) wide permanent pipeline ROW and an additional 50 feet (15 m) wide temporary workspace corridor. The cultural resources survey corridor APE on University of Texas Lands consists of the 9.38 mi (15.10 km) by 100 feet (30 m) corridor, totaling 113.74 acres (46.03 hectares).

The cultural resources intensive field survey and report are intended to assist in adhering to the 1969 Texas Antiquities Code (TAC) and the intensive field survey of the University of Texas Lands was completed under TAC Permit No. 8408.

The cultural resources survey on University of Texas Lands was conducted April 9-11, 2018 by ENERCON archaeologists Cody Kiker and Steven Sykes. Fieldwork consisted of intensive pedestrian survey utilizing transects not spaced greater than 15 meters apart. The entire project was supervised by Michael Margolis, an ENERCON archaeologist who meets the U.S. Secretary of the Interior's Professional Qualification Standards for archeology as set forth in 36 CFR 61. Fieldwork was conducted in accordance with the THC Archeological Survey Standards for Texas.

The cultural resources survey of the proposed Bunker Hill (North Trunk) Pipeline on University of Texas Lands resulted in the recording of two sites, 41WK131 and 41WK133. Site 41WK131 consists of a dilapidated corral or livestock pen with loading chutes. No evidence intact deposits, features, cultural lenses, or additional cultural materials were observed at the site. Due to the lack of information potential, 41WK131 is not recommended as eligible for listing on the NRHP, and no further work is recommended at the location of 41WK131. Salt Creek Midstream, LLC procedures dictate that all standing structures be avoided, thus 41WK131 was avoided during construction. Site 41WK133 consists of a small scatter of early to mid-20th century domestic trash including metal, ceramics, and glass. No evidence intact deposits, features, cultural lenses, or additional cultural materials were observed at the site. Due to the lack of information potential, 41WK133 is not recommended as eligible for listing on the NRHP, and no further work is recommended at the location of 41WK133.

The cultural resources survey did not result in finding any additional historic or prehistoric artifacts, features, cultural lenses, or sites within the APE on University of Texas Lands. Therefore, it is recommended that construction of the proposed Bunker Hill (North Trunk) Pipeline on University of Texas lands will have no effect on any historic property that may qualify for inclusion in the NRHP. No further cultural resources investigations are recommended prior to construction of the proposed Bunker Hill (North Trunk) Pipeline on University of Texas lands. If cultural material, including sites, features, or artifacts that are 50 years old or older are encountered within the ROW during construction of the Bunker Hill (North Trunk) Pipeline, work in the area must cease and the regional THC Archeologist must be notified immediately.

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