



INDEX OF TEXAS ARCHAEOLOGY

Open Access Gray Literature from the Lone Star State

Volume 2018

Article 146

2018

Archeological Survey Of An Antiquities Conservation Grant Easement In Service Of The Pipeline, Reeves County, Texas

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Archeological Survey Of An Antiquities Conservation Grant Easement In Service Of The Pipeline, Reeves County, Texas

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ARCHEOLOGICAL SURVEY OF AN
ANTIQUITIES CONSERVATION GRANT
EASEMENT IN SERVICE OF THE
KIMMERIDGE ENERGY PIPELINE,
REEVES COUNTY, TEXAS



Texas Antiquities Code Permit No 8382

Principal Investigator:

Jon J. Dowling

April 2018

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ARCHEOLOGICAL SURVEY OF AN ANTIQUITIES
CONSERVATION GRANT EASEMENT IN SERVICE OF THE
KIMMERIDGE ENERGY PIPELINE, REEVES COUNTY, TEXAS

By

Jon J. Dowling

Prepared for

KMF WATER, LLC

Texas Antiquities Code Permit No.8382

Jon J. Dowling, Principal Investigator

April 2018

ABSTRACT

Between April 3 and 4, 2018, Blanton & Associates, Inc. (B&A), on behalf of KMF Water LLC, at the request of Kimmeridge Energy, conducted an archeological survey within a portion of an Antiquities Conservation Grant Easement (ACGE) located within the Nicolls Tract in service of the Kimmeridge Energy Pipeline in Reeves County, Texas. A 100-percent visual inspection of the 0.62-acre project area was conducted, complemented by eight shovel tests and two creek-bank scrapings. No significant deposits eligible for inclusion in the National Register of Historic Places (NRHP) and/or designation as a State Antiquities Landmark (SAL) were encountered within the project area. An archeological site was recorded southwest of the project area, consisting of a prehistoric lithic scatter on the ground surface (41RV134). The site is situated outside of the proposed undertaking and does not exhibit research potential. Based on these findings, B&A recommends that development within the project area be allowed to proceed as planned without additional investigations with regards to cultural resources. No significant cultural materials were encountered or collected during this investigation. Curation of records generated in connection with this survey occurred at the University of Texas San Antonio's (UTSA) Center for Archaeological Research (CAR).

Table of Contents

ABSTRACT..... i
INTRODUCTION 1
ENVIRONMENTAL SETTING 5
 Geology..... 5
 Soils..... 5
CULTURAL BACKGROUND AND PREVIOUS INVESTIGATIONS 7
 Paleoindian Period 7
 Archaic Period..... 7
 Late Prehistoric Period..... 8
 Historic Period 8
 Previous Archaeological Investigations 9
METHODOLOGY 10
RESULTS OF INVESTIGATIONS 11
 Site 41RV134..... 14
SUMMARY AND RECOMMENDATIONS..... 19
REFERENCES CITED..... 20

Figures

Figure 1. Project location on county map 2
Figure 2. Project location on U.S.G.S. topographic map base..... 3
Figure 3. Project location on aerial imagery 4
Figure 4. Project area overview, east 6
Figure 5. Survey results on aerial imagery 12
Figure 6. Project area overview, west 13
Figure 7. Incline Draw, north..... 13
Figure 8. Creek-bank scraping along west bank, west..... 14
Figure 9. Site 41RV134 on aerial imagery 16
Figure 10. Site 41RV134 overview, south..... 17
Figure 11. Artifact sample at 41RV134..... 17
Figure 12. Feature 1 identified at 41RV134 18

Appendix

Appendix A Summary of shovel test results

INTRODUCTION

KMF Water, LLC., a subsidiary of Kimmeridge Energy, is proposing pipeline development within an Antiquities Conservation Grant Easement (ACGE) in northwest Reeves County, Texas. A water pipeline is proposed to cross a portion of an ACGE to pump pressurized water to various localities for hydraulic fracturing associated with the Kimmeridge Energy Pipeline. A project location map on a county and topographic map base is included as **Figures 1 and 2**.

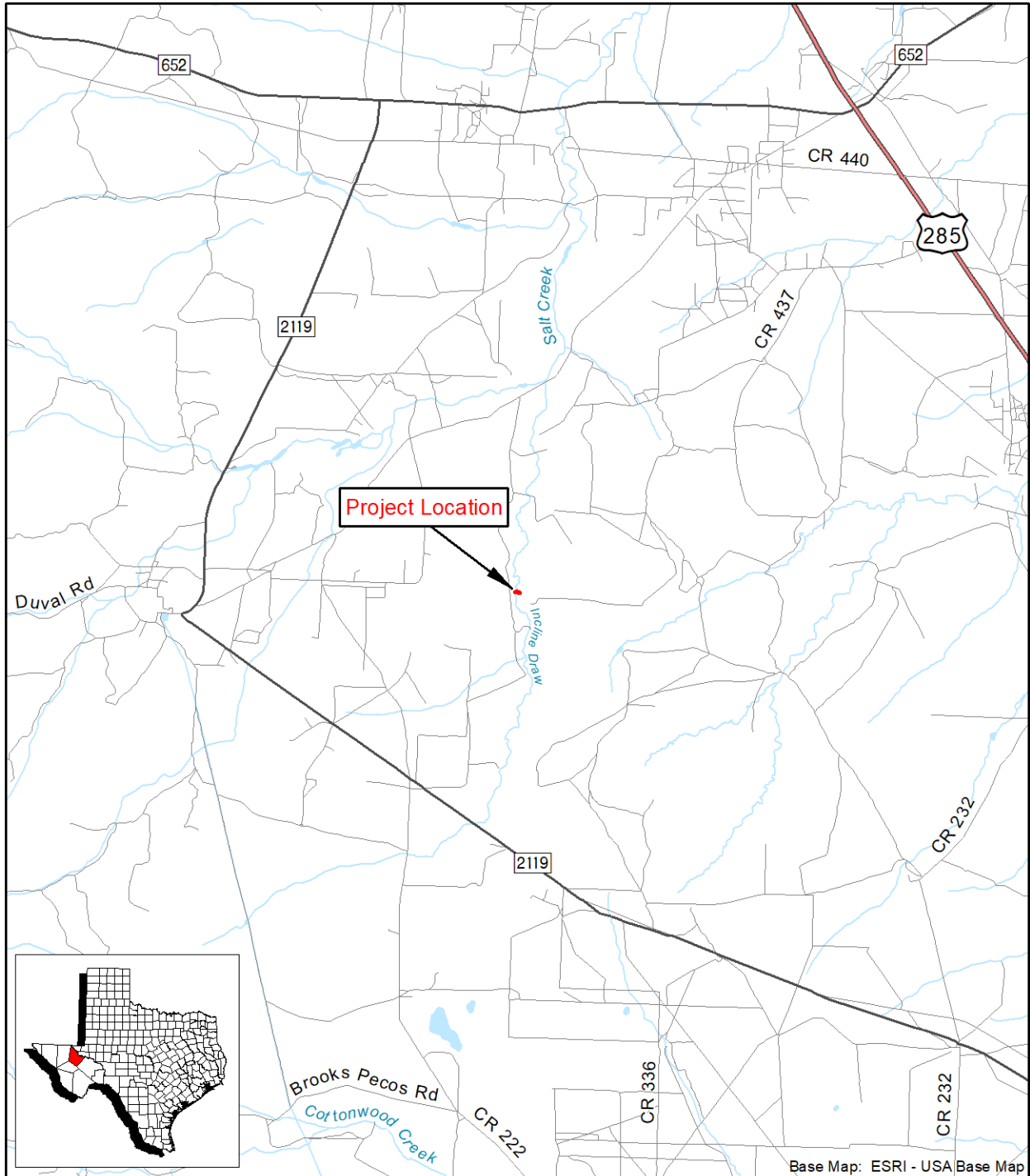
The General Land Office (GLO) established an ACGE along Incline Draw (200 feet from each bank) within the Nicolls Tract as a cost-effective way to protect the land while keeping it in private ownership. As a result, the project area falls under the custodianship of the THC. Therefore, this portion of the proposed water pipeline is subject to compliance with the Texas Antiquities Code (9 TNRC 191) and associated state regulations (13 TAC 26).

The proposed project would consist of a 10-inch diameter waterline extending east/west through mostly private property. The project area rests within the western portion of the privately-owned Nicolls Tract. The project area for archeological resources is defined as the portion of the proposed water pipeline (including the 30-foot-wide work easement) that would cross the ACGE (**Figure 3**). The ACGE extends 200 feet from each bank of Incline Draw, which combined with the 30-foot-wide work easement establishes the project area at 0.62 acre (see **Figure 3**). The maximum depth of impacts will be no more than 36 inches.

Blanton & Associates, Inc. (B&A), on behalf of KMF Water, LLC, was contracted to perform an archeological survey in advance of the proposed development across the ACGE. The purpose of the survey was to locate archeological sites and evaluate the significance and eligibility of each identified site identified in the project area for inclusion in the National Register of Historic Places (NRHP) and/or designation as a State Antiquities Landmark (SAL) in compliance with the Texas Antiquities Code (9 TNRC 191) and associated state regulations (13 TAC 26).

The 100-percent visual inspection of the project area was conducted, complemented by eight shovel tests and two creek-bank scrapings. No cultural deposits eligible for inclusion in the National Register of Historic Places (NRHP) and/or designation as a State Antiquities Landmark (SAL) were encountered within the project area. An archeological site was recorded southwest of the project area, consisting of a prehistoric lithic scatter on the ground surface (41RV134). The site is situated outside of the proposed undertaking and does not exhibit research potential.

Field investigations were designed to comply with appropriate archeological field methods as defined in the Department of the Interior's Standards and Guidelines (National Park Service (NPS) 1983), the Guidelines of the Council of Texas Archeologists (CTA) (1987), and the survey standards developed by the Texas Historical Commission (THC) in conjunction with the Council of Texas Archeologists (THC n.d.). Survey investigations were conducted under Texas Antiquities Permit No. 8382 issued to Principal Investigator Jon J. Dowling who carried out all fieldwork.



Base Map: ESRI - USA Base Map

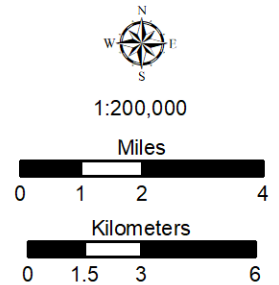
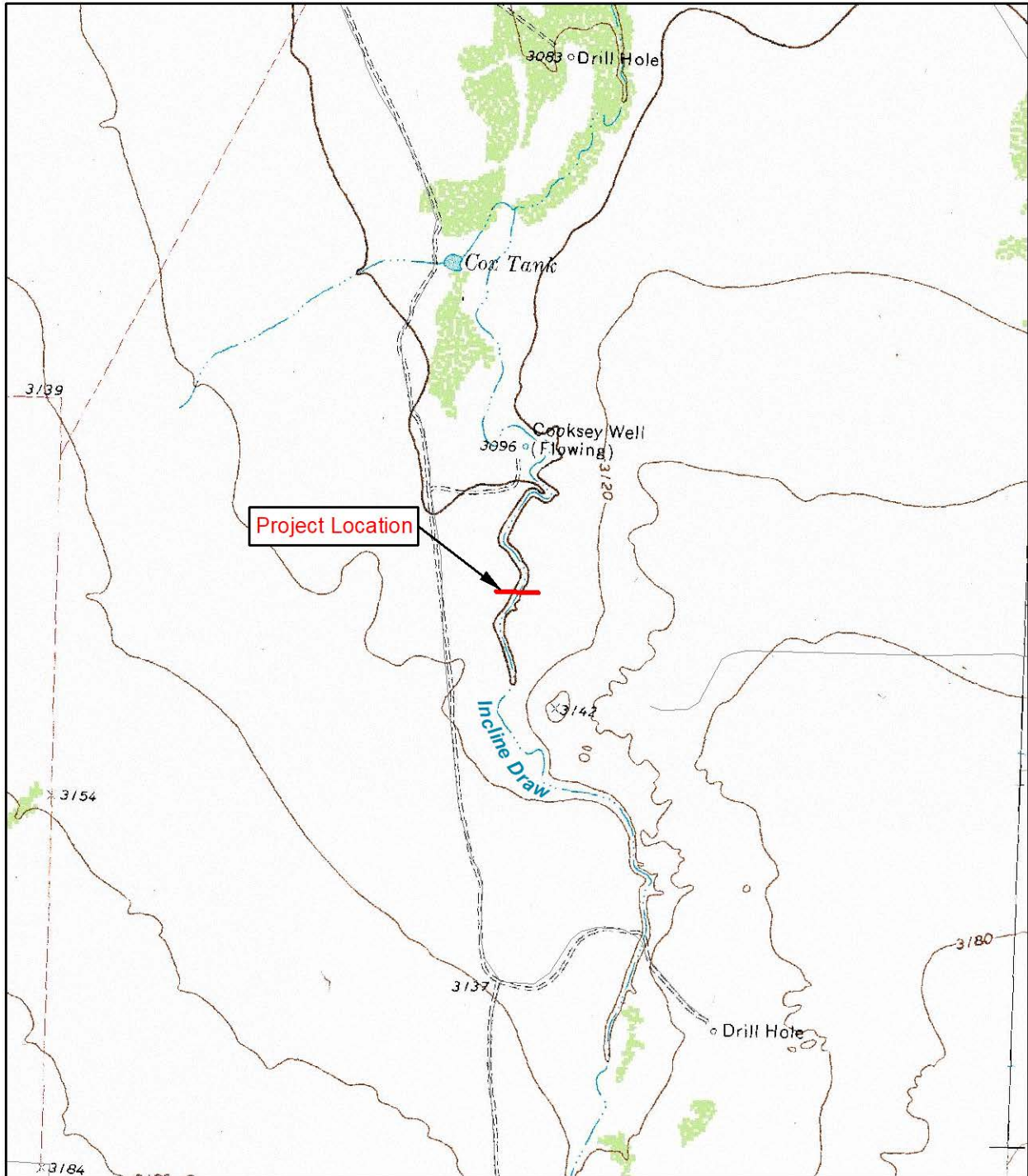


Figure 1
Project Location on County Map
ACGE Survey Along
Kimmeridge Pipeline
Reeves County, Texas

— Project Area

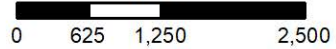


Base Map: 7.5' USGS Topographic Map Reeves County Mosaic;
 ESRI-USA Base Map

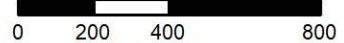


1:20,000

Feet



Meters






Project Area

Figure 2
 Project Location
 U.S.G.S. Topographic Map Base
 ACGE Survey Along
 Kimmeridge Pipeline
 Reeves County, Texas



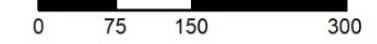
Figure 3
Project Location on Aerial Imagery
ACGE Survey Along Kimmeridge Pipeline
Reeves County, Texas

-  Pipeline
-  30-foot Buffer
-  Antiquities Conservation Grant and Easement (ACGE)

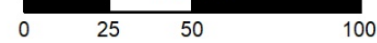


1:2,250

Feet



Meters



Base Map: ESRI, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ENVIRONMENTAL SETTING

The project area rests within northwest Reeves County, exhibiting flat and undulating terrain. This area is situated in the Trans-Pecos Ecological Region of Texas (Bureau of Economic Geology [BEG] 1996). The landscape is mostly covered by a broad gently-sloping plain topped by outwash material from the mountains. Barren flats and eolian dunes are common. Visibility along the project area is comparable to the majority of the terrain in the county where previously recorded archeological sites have been documented. The project area extends perpendicular to Incline Draw, a tributary of Salt Creek in the north. The ground surface was highly eroded. Outwash material was prevalent on the ground surface which exhibited 95% visibility (**Figure 4**). Vegetation consisted mostly of mesquite, Big Bend cholla, creosote bush, jimmy-weed, tarbush, Spanish Dagger, and oreja de perro which can be seen in **Figure 4**.

GEOLOGY

The project area rests within the Dewey Lake Red beds, and is flanked by alluvium to the west and older alluvial deposits in the east (BEG 1992). The Dewey Lake Red beds predate prehistoric human occupation, and typically exhibit siltstone, sandstone, and clay deposits. However, the alluvium to the west are Holocene-age (contemporaneous with prehistoric human occupation) and typically consist of terrace deposits along streams exhibiting sand, silt, and clay. Additionally, the older alluvial deposits immediately to the east can contain Pleistocene-age deposits. Alluvium and colluvium in these deposits can be composed of chert, quartzite, and limestone, which would be attractive to prehistoric populations.

SOILS

The soil association within the project area consists of Hodgins soils, frequently flooded (Web Soil Survey 2018). They are well drained, and consist of a fine-silty alluvium derived from sedimentary rock. A typical profile of Hodgins soils can extend deep, and their geomorphology tends to occur along alluvial flats or toe-slopes within basin landscapes.



Figure 4. Project area overview, east

CULTURAL BACKGROUND AND PREVIOUS INVESTIGATIONS

The project area is situated within the Trans-Pecos archaeological region. Reeves County's position in the Trans-Pecos can be characterized by flat and undulating terrain resembling barren flats and small eolian dunes in the north, as well as by its numerous natural rock shelters formed in tall limestone canyons and cliffs in the south. Raw lithic outcrops and isolated micro-environments near artesian springs are common. Offering protection from the elements, rockshelters in this region were consistently attractive to hunter-gatherers, and from an archaeological standpoint, they create ideal conditions for the preservation of burned rock middens, organic materials, burials, and petroglyphic and pictographic rock art (Young 1981; Young 1982). However, many environments in the northern portion of Reeves County, exhibit flat and barren landscapes where intense erosion is not conducive to the preservation of archeological deposits. At the time this document was generated, less than 133 archeological sites had been recorded in Reeves County consisting mostly of surficial lithic scatters in contexts similar to the project area.

The first people to occupy Reeves County were probably focused around the rock shelters at the edge of the Barrilla Hills with campsites near Phantom Lake, San Solomon Spring, and Toyah Creek (Smith 2018). Three major intervals or periods are identified in the Prehistoric stage: the Paleoindian, the Archaic, and the Late Prehistoric. Once a culture chronology for this region of Texas has been summarized, a brief overview of archeological work in proximity to the project area will be provided.

PALEOINDIAN PERIOD

The arrival of humans in the New World occurred during the Paleoindian period, which dates from 11,500 to 8800 Before Present (BP) (Collins 1995). As the Pleistocene ended, diagnostic Paleoindian materials in the form of Clovis, Folsom, and Plainview projectile points began to enter the archeological record. These points were lanceolate-shaped and fluted for hafting to wooden spears. Using the launching momentum from atlatls (spearthrowers), large game such as mammoth, mastodons, bison, camel, and horse were frequently taken (Black 1989). In addition to megafauna, Paleoindian groups likely harvested less daunting prey including antelope, turtle, frogs, etc. Stylistic changes in projectile point technology occurred during this later portion of the period, eventually shifting to Dalton, Scottsbluff, and Golondrina traditions. Environmental studies suggest that Late Pleistocene climates in Texas were wetter and cooler (Mauldin and Nickels 2001; Toomey et al. 1993), gradually shifting to drier and warmer conditions during the Early Holocene (Bousman 1998). The end of the Pleistocene was likely arid to semiarid, and prickly pear and agave populations were high (Bousman et al. 1990:94, 98). As megafauna gradually died off during the shift to warmer climates, subsistence patterns shifted toward smaller game and plant foraging. Intact Paleoindian occupations in the Trans-Pecos region are somewhat rare and consist mostly of kill sites found near rockshelters (Turpin 1995), or isolated projectile points within multicomponent scatters (Seebach 2001).

ARCHAIC PERIOD

The Archaic Period exhibits a shift from more mobile hunting strategies to a heavier reliance on a broader spectrum of local plants and animals (Miller and Kenmotsu 2004) and broadly dates to 7000-800 BP. Rockshelters are more intensively utilized during the Archaic, thus leading to an increase in rock art. The

Late Archaic in the Trans-Pecos is the best understood sequence, and suggests that a population increase took place with a heavier reliance on specialized food processing earth ovens (Miller and Kenmotsu 2004). Common site types of this period include large-scale burned rock middens, and are exposed on mesa tops overlooking canyons and water sources. Mallouf (1985: Figure 14) has summarized chronologies unique to the Trans-Pecos, and it was refined further into 10 prehistoric periods and a phase by Turpin (1995). Some overlap in projectile point technologies is shared between the Trans Pecos and Central Texas. Hester places the Early Archaic in neighboring Central Texas between 7950 and 4450 BP based on Early Corner Notched and Early Basal Notched projectile points (1995:436–438). Collins' dating of the Early Archaic period to 8800–6000 BP is founded on unstemmed point types (1995:383). Middle Archaic materials date from about 6000 to 4000 BP, (Collins 1995:383). The last subperiod of the Archaic falls between 4000 and 800 BP (Collins 1995:384).

LATE PREHISTORIC PERIOD

The commonly held date for the beginning of this interval is 800 BP, with a hallmark transition to the bow and arrow (Hester 1981:122). This technology enabled prehistoric hunters to harvest prey from greater distances with a lesser need for brushless, wide open spaces required for atlatl maneuverability. The use of arrows is indicated by smaller sized, triangular projectile points. Another turning point in the Late Prehistoric period is the first substantial presence of pottery. Trans-Pecos sites dating to the Late Prehistoric suggest a continued reliance on rockshelters, but also show up in the form of tipi rings, cairn burials, and pit houses built along water source terraces. Perdiz arrow points, groundstone implements, beveled bifacial knives, end-notched sinker stones, and ornamental beads add more diversity to the archaeological record during this interval.

HISTORIC PERIOD

Since the late AD 1500s, Europeans entered Central Texas only sporadically, and did not settle there until around AD 1700 (Webb 1952). The first exposure to European contact comes with the arrival of Alva Nuñez Cabeza de Vaca and the remaining survivors of the Narvaez expedition in 1528. Between 1528 and the late 1600s, Spanish excursions into the Texas territory were limited, but Spanish records described a number of Native American tribes like the Coahuiltecan. They were described as family units of hunter gatherers that resided near streams and springs, whose camps were revisited on a seasonal basis (Campbell 1983:349-351). By the mid-1700s, the Comanche had begun entering the Pecos from the north, following the buffalo migrations. Efficiency on horseback allowed them to displace numerous native groups and control trade and prime hunting grounds. In 1821, Spain lost several continental territories when it recognized the independence of Mexico. Anglo settlement in Texas soon followed in the 1830s when Stephen F. Austin's colonists were allotted impresario contracts by the newly formed Mexican government. After the fight for Texas Independence, independent Republic of Texas prospered for ten years, eventually joining the United States in 1845. Mescalero Indians learned how to cultivate corn along the fertile landscapes of Toyah Creek. However, the threat of other Native American groups was still present, particularly along the feared Comanche Trail which crossed the Pecos from Horsehead Crossing to Comanche Springs. In order to safeguard travelers from Indian attack and to protect the San Antonio-El Paso Mail route in 1859, the United States Army outpost Fort Stockton was established (Smith 2018).

Ranching dominated the local economy for decades. By 1881 the Texas and Pacific Railway built tracks through Reeves County which contributed greatly to the region's economy. The county was eventually named after Confederate colonel George R. Reeves. After the hardships of the Great Depression, petroleum and natural gas production, coupled with popular tourist attractions in the region, enabled the region's economy to recover.

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

A search of the Atlas on March 8, 2018 revealed that no archeological sites, NRHP properties, SALs, Official Texas Historical Markers, Recorded Texas Historic Landmarks, or cemeteries are situated within the project area or within a 1 km (0.6 mile) buffer thereof, and the nearest previously recorded cultural resources are 9 km away (Atlas 2018). The nearest archeological survey to the project area was a transmission line survey 6.8 km to the southwest conducted in 2017. The dearth of previously recorded archeological sites in Reeves County is more a reflection of the lack of development within public land than an indication of a lack of archeological deposits in general. However, with aggrandizing oil and gas development in the Permian Basin, archeological discoveries will likely increase. Prehistoric rock art at 41CU14 13 km to the west, coupled with rock middens at 41CU629 15 km to the west, and SAL 41RV14 14 km to the north, indicate that significant prehistoric occupation did occur around the project area. USGS 7.5-minute topographical quadrangle maps (1976) and aerial photographs (1997) were examined for indications of potential historical archeological sites within the project area (NETR 2018). These sources indicated no historical structures, which might indicate the presence of HHPAs, within the project area.

METHODOLOGY

The entire project area was subject to a walk-over examination where the ground surface was investigated for cultural material and ideal locations for subsurface investigations. Additionally, the banks of Incline Draw were examined and shovel scrape exposures were carried out to examine the areas potential for deeper deposits.

Shovel tests typically measured 30 centimeters (cm) in diameter and ranged in depth from X to X centimeters below surface (cmbs). Shovel tests were excavated in 10-cm increments when possible and all soil was screened through ¼-inch hardware cloth. Cultural materials were quantified, photographed, and placed back in their original location. Shovel tests were back-filled, and the affected areas were returned to their previous contours as much as possible. Excavations were plotted with sub-meter accurate, hand-held global positioning system (GPS) receivers.

For the purposes of this survey, an archeological site had to contain a certain number of cultural materials or features older than 50 years within a given area. The definition of a site is: (1) five or more surface artifacts within a 15-m radius (ca. 706.9 m²), or (2) a single cultural feature, such as a hearth or burned rock midden, observed on the surface or exposed during shovel testing, or (3) a positive shovel test containing at least five total artifacts, or (4) two positive shovel tests located within 30 m of each other. Solitary artifacts not found in association with other artifacts or features would be considered isolated finds.

Field forms generated during this investigation were completed with pencil on acid-free paper, and GPS coordinates were captured for all shovel test excavations to ensure adequate coverage of the project area. Archeological sites discovered during fieldwork were recorded with Texas Archeological Site Data Form information and then submitted electronically to Texas Archeological Research Laboratory (TARL) via the TEXSITE recording system. Site documentation involved the recording of extent of cultural deposits, a description of cultural materials noted within the site, and an overview of the site's environmental setting. All field investigations were thoroughly photo-documented. No artifacts were collected during this archeological survey. Curation of records generated in connection with this survey occurred at the University of Texas San Antonio's (UTSA) Center for Archaeological Research (CAR).

RESULTS OF INVESTIGATIONS

Survey work consisted of a visual inspection of the entire ACGE project area accompanied by the excavation of eight shovel tests (**Figure 5**). Four shovel tests were excavated on each side of Incline Draw, which demonstrated highly eroded and sterile deposition. A description of the examination of the landscape within the project area and subsurface investigation results will follow.

The initial visual inspection of the landscape revealed relatively flat terrain consisting of mostly barren, sandy flats and some small dunes on both sides of Incline Draw. Both the sandy flats and the bed of Incline Draw showed signs of cattle grazing as well as natural erosion. Outwash material was prevalent on the highly eroded flats which exhibited 95% visibility (**Figure 6**). None of the outwash gravels on the landscape were culturally modified and no features were encountered during the surface examination. The banks of Incline Draw were closely examined for some indication that buried deposits may be present (**Figure 7**). No cultural materials were identified during the surface examination of the project area.

In an effort to determine why the GLO established the landscape along Incline Draw as an ACGE, B&A's investigation proceeded along Incline Draw approximately 100 meters north and south of the locality designated for pipeline development. No prehistoric or historic materials were observed within or adjacent to the tributary. The project area only consisted of only a 0.62 acre locality in the northern portion of the 10-acre Nicolls Tract. It is unknown if any cultural deposits rest in the southernmost portion of the tract.

Eight shovel tests were excavated within the project area (see **Figure 5**). Depths ranged from 50 to 70 cmbs, revealing pale-brown fine silty-sand overlying brown basal clay. Shovel test results are summarized in the **Appendix A**. No subsurface artifacts were exposed during shovel testing. Additionally, two creek-bank scrapings were carried out on each bank of Incline Draw within the project area. The scrapings revealed fairly homogenous sandy clay (**Figure 8**) and no cultural material or potential for buried occupation surfaces was identified. The surface examination of the landscape coupled with eight negative shovel tests and two creek-bank scrapings indicated that no archeological sites or isolates were situated within the project area.

Figure 5. Survey results on aerial imagery

Not for public view – contains sensitive site information



Figure 6. Project area overview, west



Figure 7. Incline Draw, north



Figure 8. Creek-bank scraping along west bank, west

SITE 41RV134

B&A documented a lithic scatter southwest of the ACGE area while confirming no significant deposits rested immediately outside of the project area (**Figure 9**). The site boundaries were defined by its surficial expression of artifacts, which extended 1.34 acres (approximately 130 x 60 meters). The site is located approximately 106 meters west of Incline Draw within the privately-owned Nicolls Tract. The ground surface was highly eroded and outwash material was abundant. Surface visibility was 95% (**Figure 10**). Observed cultural material included 3 mano fragments, 3 stage I bifaces, FCR, and lithic debitage (**Figure 11**). Debitage material included chert, quartzite, and rhyolite. Only expedient tools, consisting of Stage I bifaces and a possible core-tool, were observed. Three mano fragments exhibited distinctive polished surfaces. The presence of ground stone materials may indicate a Late Prehistoric occupation.

Only one feature was observed during the surface examination. Feature 1 consisted of a small disarticulated burned rock concentration associated with ground stone and lithic debitage. It extended roughly 110 x 70 cm (**Figure 12**). No diagnostics or datable materials were encountered. Based on shovel testing conducted along Incline Draw, the site is unlikely to have a buried component. The prevalence of outwash material, the eroded nature of the landscape, and the disarticulation of Feature 1 suggests that high energy deposition is not uncommon and cultural materials may have been observed in a secondary context.

Impacts to the site include erosion and cattle grazing. All-terrain vehicle trails extended through the landscape as well, suggesting that vehicular and pedestrian traffic in the past may have contributed to possible artifact collecting. Since 41RV134 rested outside of the project area, it was not shovel tested or

formally evaluated for SAL or NRHP eligibility, but it was still documented and photographed for good measure since it was situated in the vicinity of the project area. The site rests within the 20-acre Cardinal Tract, which is situated immediately west of the Nicolls Tract. The entire site rest south of the proposed waterline. It is unlikely to be impacted by development. Overall, the site's research potential is likely low.

Figure 9. Site 41RV134 on aerial imagery

Not for public view – contains sensitive site information



Figure 10. Site 41RV134 overview, south



Figure 11. Artifact sample at 41RV134



Figure 12. Feature 1 identified at 41RV134

SUMMARY AND RECOMMENDATIONS

B&A, on behalf of KMF Water LLC, at the request of Kimmeridge Energy, completed archeological survey work within a portion of an ACGE located within the Nicolls Tract in service of the Kimmeridge Energy Pipeline in Reeves County, Texas in April of 2018. A 100-percent visual inspection of the entire 0.62-acre project area was conducted, complemented by eight shovel tests and two creek-bank scrapings. No cultural deposits eligible for inclusion in the NRHP and/or designation as a SAL were encountered within the project area. An archeological site was recorded southwest of the project area, consisting of a prehistoric lithic scatter on the ground surface (41RV134). The site is situated outside of the proposed undertaking and does not exhibit research potential. Based on these findings, B&A recommends that development within the project area be allowed to proceed as planned without additional investigations with regards to cultural resources. No significant cultural materials were encountered or collected during this investigation, and curation of all records generated in connection with this survey occurred at UTSA's CAR.

If it is determined that the limits of the project area expand further into the ACGE beyond the current project area boundaries, then additional archeological investigations may be necessary in those areas. In the event that previously unidentified cultural materials are discovered during construction within the ACGE, work in the immediate area of discovery would cease and B&A and the THC will be contacted.

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APPENDIX A
SHOVEL TEST DESCRIPTIONS

Shovel Test Descriptions

Shovel Test	Depth (cmbs)*	Soil Description	Cultural Material	Site	Notes
1	0 to 15	Pale-brown sand	None	None	Eroded
	15 to 60	Brown sandy clay	None	None	Sterile sandy clay
2	0 to 12	Pale-brown sand	None	None	Eroded
	12 to 61	Brown sandy clay	None	None	Sterile sandy clay
3	0 to 14	Pale-brown sand	None	None	Eroded
	14 to 65	Brown sandy clay	None	None	Sterile sandy clay
4	0 to 13	Pale-brown sand	None	None	Eroded
	13 to 66	Brown sandy clay	None	None	Sterile sandy clay
5	0 to 8	Pale-brown sand	None	None	Eroded
	8 to 50	Brown sandy clay	None	None	Sterile sandy clay
6	0 to 10	Pale-brown sand	None	None	Eroded
	10 to 50	Brown sandy clay	None	None	Sterile sandy clay
7	0 to 11	Pale-brown sand	None	None	Eroded
	11 to 60	Brown sandy clay	None	None	Sterile sandy clay
8	0 to 10	Pale-brown sand	None	None	Eroded
	10 to 70	Brown sandy clay	None	None	Sterile sandy clay