



INDEX OF TEXAS ARCHAEOLOGY

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Volume 2018

Article 155

2018

Intensive Cultural Resources Survey Of The Proposed Hunt University 35-19 Pipeline Within Reagan County, Texas

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Intensive Cultural Resources Survey Of The Proposed Hunt University 35-19 Pipeline Within Reagan County, Texas

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INTENSIVE CULTURAL RESOURCES SURVEY
OF THE PROPOSED HUNT UNIVERSITY 35-19
PIPELINE WITHIN REAGAN COUNTY, TEXAS

TEXAS ANTIQUITIES PERMIT NO. 8467
JULY 2018

PREPARED FOR
Medallion Midstream, LLC

PREPARED BY
SWCA Environmental Consultants

Redacted

**INTENSIVE CULTURAL RESOURCES SURVEY OF THE
PROPOSED HUNT UNIVERSITY 35-19 PIPELINE WITHIN
REAGAN COUNTY, TEXAS**

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SWCA Project No. 50811

Texas Antiquities Permit No. 8467

SWCA Cultural Resources Report No. 18-430

July 13, 2018

ABSTRACT

On behalf of Medallion Midstream, LLC. (Medallion) SWCA Environmental Consultants (SWCA) conducted an intensive cultural resources survey of the proposed Hunt University 35-19 Pipeline which crosses property owned by University of Texas Lands (University Lands) in Reagan County, Texas. The proposed project will be constructed within Medallion's easement, totaling approximately 2.40 miles (3.86 kilometers [km]) in Reagan County; however, only 2.36 miles (3.80 km) of the project will be on University Lands. Because portions of the proposed undertaking will occur on land owned by University Lands, a political subdivision of the state, the work was performed in compliance with the Antiquities Code of Texas (ACT) under Texas Antiquities Permit No. 8467. All investigations were conducted in accordance with Texas Historical Commission (THC) and Council of Texas Archeologists standards.

The investigations consisted of a background literature and records review and an intensive cultural resources survey. The work was performed to identify cultural resources within the project area and provide recommendations regarding their significance and management. As part of the background literature and records review, SWCA investigated a 1-mile (1.6-km) radius of the currently proposed project area. The background literature review determined that two previous cultural resources surveys are known to have been conducted within portions of the proposed project area; however, no archaeological sites have been recorded within the project area. Three additional cultural resources surveys, and no known archaeological sites are located within a 1-mile (1.6-km) radius of the project area. The historic map review did not identify any potentially historic-age structures within or immediately adjacent to (within 350 feet [107 meters] of) the current project area; however, a potential historic ranch complex was identified approximately 0.85 mile (1.37 km) east of the southern terminus of the proposed project area.

SWCA archaeologists surveyed the entire 2.40-mile-long (3.86-km-long) project area using intensive shovel test excavations and examination of available exposures. The survey encountered vegetation typical of the Semiarid Edwards Plateau ecoregion, generally consisting of arid-land scrub brush and short grasses, underlain by calcareous soil with a shallow limestone bedrock.

SWCA conducted pedestrian survey, augmented with shovel testing, along the entire length of the 2.40-mile (3.86-km) project area, within a 100-foot (30.5-meter) wide corridor. The THC's survey standards require a minimum of 16 shovel tests per mile, per 100 feet of corridor width with thorough documentation of all exceptions (e.g., disturbance, slope, and impervious surfaces). Based on these standards, the project area required 39 shovel tests. SWCA excavated a total of 44 shovel tests within the project area, exceeding the THC's required survey standards. No cultural materials were identified on the ground surface or within any of the shovel tests excavated within the project area.

In accordance with the ACT, SWCA made a reasonable and good faith effort to identify cultural resources within the project area. No archaeological sites were identified that meet the criteria for designation as a State Antiquities Landmark, per 13 Texas Administrative Code 26.12; therefore, SWCA recommends that no additional cultural resources investigations should be warranted within the project area, as currently defined.

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INTRODUCTION

On behalf of Medallion Midstream, LLC, (Medallion) SWCA Environmental Consultants (SWCA) conducted an intensive cultural resources survey of the proposed 2.40-mile-long (3.86-kilometer [km]) Hunt University Pipeline, in Reagan County, Texas (Figure 1). It is SWCA's understanding that the project includes the installation of a 6-inch (15.2-centimeter [cm]) diameter crude oil pipeline within a new 100-foot-wide (30.5-meter [m]-wide) right-of-way (ROW) (Figure 2). Because the proposed project will occur on land owned by on University of Texas Lands (University Lands), a political subdivision of the state, the work was performed in compliance with the Antiquities Code of Texas (ACT).

Investigations consisted of a cultural resources background review and an intensive pedestrian archaeological survey with shovel testing of the project area. The purpose of the work was to locate and identify prehistoric and historic cultural resources within the project area, establish vertical and horizontal site boundaries as appropriate with regard to the project area, and evaluate the significance and eligibility of any site recorded within the property for designation as a State Antiquities Landmark (SAL). Archaeological investigations were performed to comply with the ACT under Texas Antiquities Permit No. 8467. All investigations were conducted in accordance with Texas Historical Commission (THC) and Council of Texas Archeologists (CTA) standards.

Project Personnel

Christina Nielsen, M.A., served as Principal Investigator and Micah Chambers served as Project Manager for the duration of the project, overseeing overall logistics and organization, managing reporting, and agency consultation. The survey was completed by Field Director Miles Martin, B.A., and Archaeologist Jay King, M.A., on June 21, 2018, under Texas Antiquities Permit No. 8467. Miles Martin and Chris Shelton, M.A., authored the report, Jayme Fontenot produced all field and report maps for the project, and Lauri Logan provided technical editing and document preparation.

Project Description

The approximately 2.40-mile-long (3.86-km-long) project alignment appears on the *Garrison Draw, Texas* (3101-242) U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map. The proposed pipeline corridor would extend from the Medallion-owned Dixon Talley facility to the Medallion-owned University 35-19 facility, approximately 6.2 miles (10 km) northwest of Best, Reagan County, Texas (see Figure 2). The proposed pipeline will be installed at a minimum depth of 60 inches (152.4 cm below the ground surface [cmbs]). The installation will be conducted through a double ditching method, in which the top foot of soil is removed and retained so that the topsoil can be replaced at the top of the backfilled trench. All construction will take place within the 100-foot-wide (30.5-m-wide) ROW.

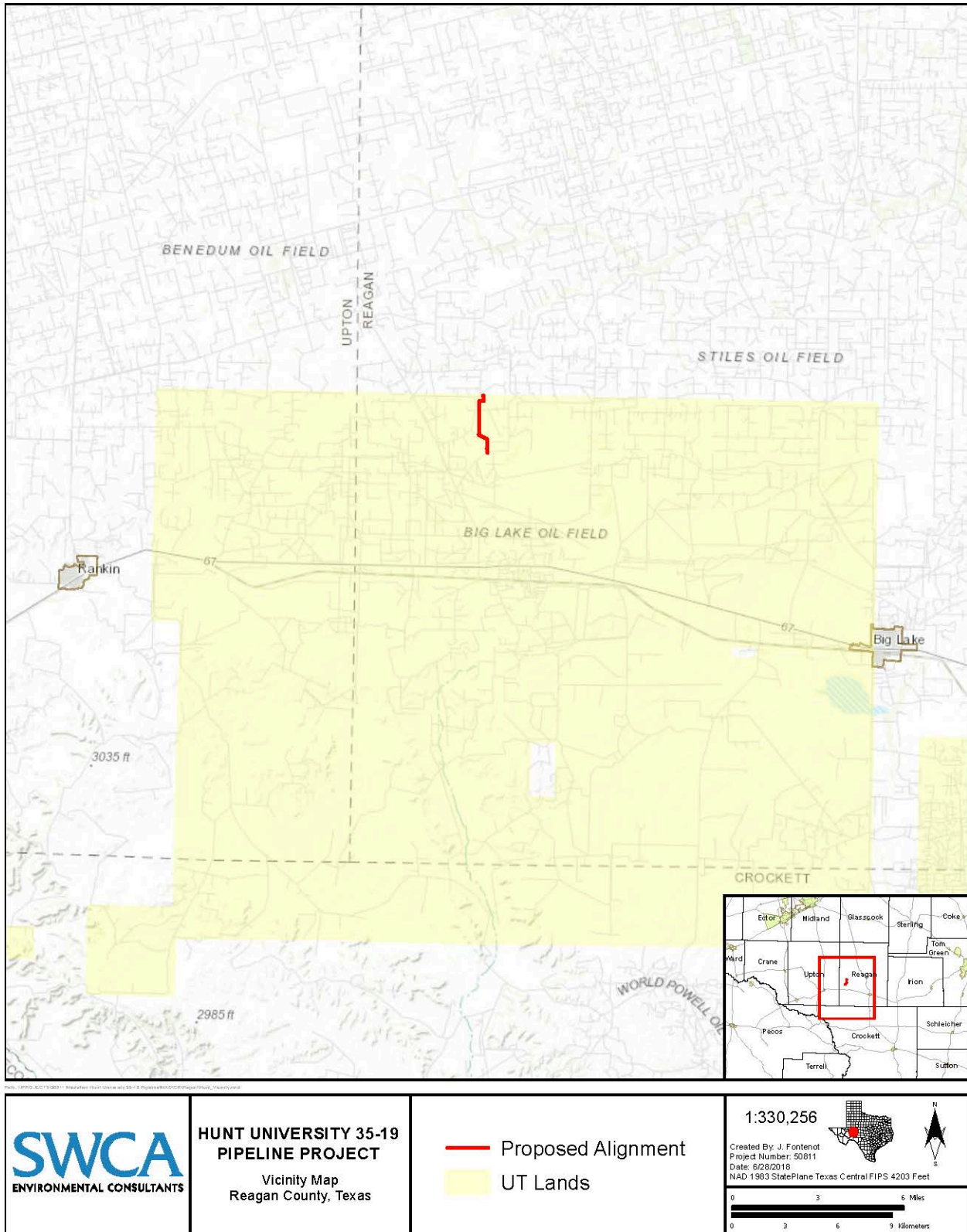
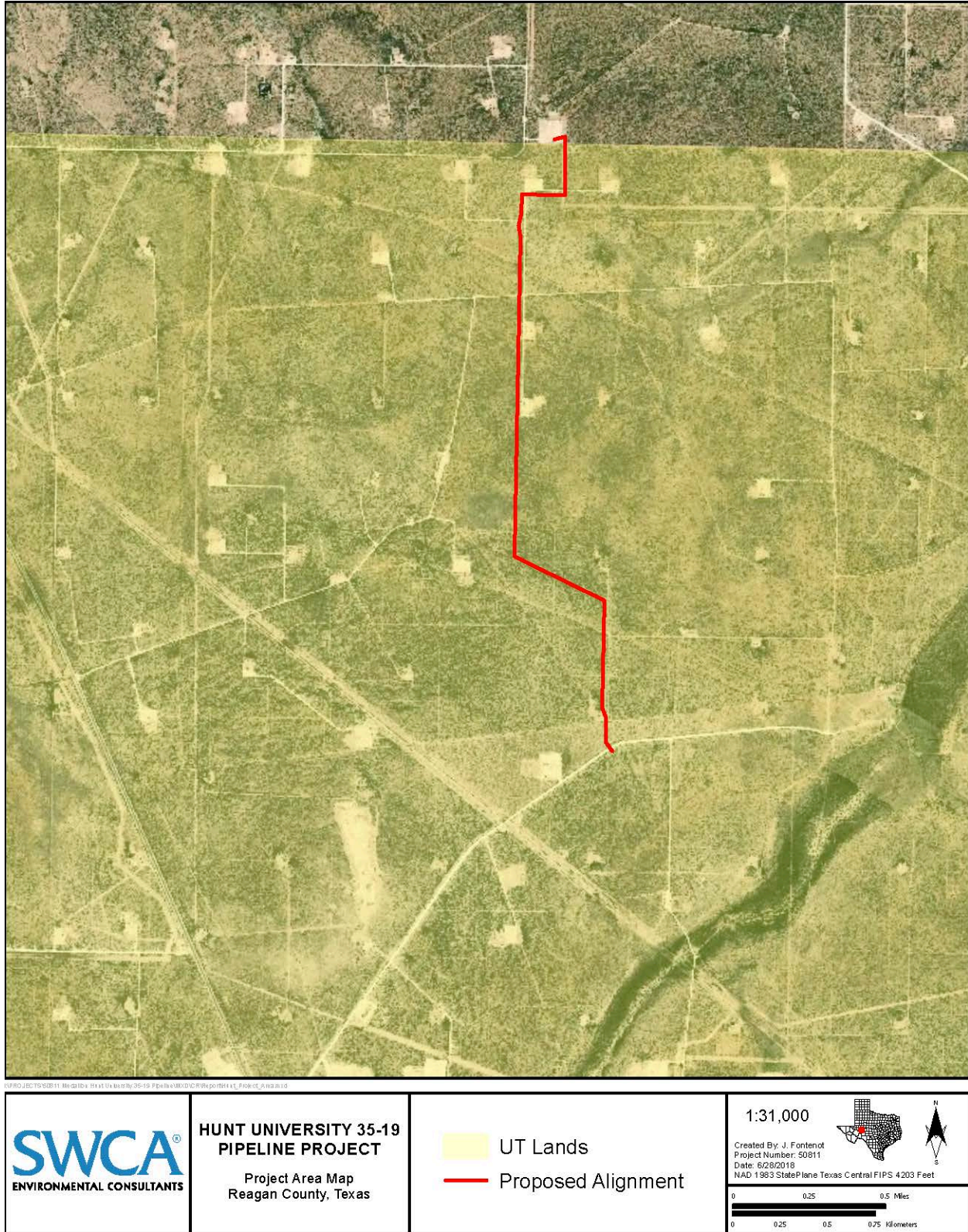


Figure 1. Project location map.



ENVIRONMENTAL SETTING

The project area is located within the Semiarid Edwards Plateau ecoregion (Griffith et al. 2004). The area is commonly characterized as having arid-land shrubs, such as lotebush (*Ziziphus obtusifolia*), lechuguilla (*Agave lechuguilla*), sotol (*Dasyliirion wheeleri*), and redberry juniper (*Juniperus coahuilensis*). Short grasses, such as buffalograss (*Bouteloua dactyloides*) and tobosa (*Pleuraphis mutica*), are common in the west, with the occasional presence of honey mesquite (*Prosopis glandulosa*) and ashe juniper (*Juniperus ashei*) (Figure 3) (Griffith et al. 2004).



Figure 3. Typical vegetation within the project area, view south.

Geology

The underlying geology throughout the project area consists of Quaternary-age deposits. These deposits consist of sand, silt, clay, and gravel indurated with caliche. Typical depths of the deposits are very shallow to very deep and are characterized as having moderate to moderately slow permeability and having no zone of water saturation within a depth of 72 inches (183 cm) (Barnes 1992).

Soils

Only two soils series are mapped within the proposed project area; the Conger series and the Reagan series. The Conger series consists of very shallow, well-drained, moderately permeable soils above and below the petrocalcic horizon. These soils formed in calcareous loamy eolian deposits over alluvium derived from limestone (Natural Resources Conservation Service [NRCS] 2018). Conger soils are nearly level and are observed on plains and plateaus, with slopes ranging from 0 to 3 percent. The Reagan series consists of very deep, well-drained, moderately to moderately slow permeable soils formed in calcareous soil that formed in alluvium and/or eolian deposits derived from limestone. Reagan soils are nearly level and observed on plains and plateaus, with slopes ranging from 0 to 1 percent (NRCS 2018).

METHODS

Background Review

SWCA performed a cultural resources records review to determine if the proposed project area has been previously surveyed for cultural resources or if any archaeological sites have been recorded within or adjacent to the project area. To conduct this review, an SWCA archaeologist reviewed portions of the *Garrison Draw, Texas* (3101-242) USGS 7.5-minute topographic quadrangle map on the THC Texas Archeological Sites Atlas (Atlas). This source provided information on the nature and location of previously conducted archaeological surveys, previously recorded cultural resource sites, locations of National Register of Historic Places (NRHP) properties, sites designated as SALs, Official Texas Historical Markers, Registered Texas Historic Landmarks, cemeteries, and local neighborhood surveys. The review examined aerial photographs, Bureau of Economic Geology Maps, and the NRCS Web Soil Survey. SWCA also examined the Texas Department of Transportation Historic Overlay to identify the presence of potentially historic-age structures (Foster et al. 2006).

Field Methods

SWCA conducted an intensive archaeological field survey of the proposed project area. The survey was of sufficient intensity to determine the nature, extent, and, if possible, significance of any cultural resources located within the proposed project area. The THC's minimum survey standards require 16 shovel tests per mile, per 100 feet of corridor width, with thorough documentation of all exceptions (e.g., disturbance, slope, and impervious surfaces). Based on these standards, the project area required 39 shovel tests; SWCA excavated a total of 44 shovel tests, exceeding the THC's minimum standard.

The cultural resources survey included SWCA archaeologists examining the project area through both pedestrian and subsurface investigations. The pedestrian survey consisted of walking the project area in systematic transects, and the subsurface explorations consisted of shovel tests placed in areas that had the potential for buried cultural deposits. Specifically, the shovel tests were judgmentally placed in areas of low ground surface visibility and or high site probability, such as prominent landforms or adjacent to drainages.

Subsurface investigations involved shovel tests that were approximately 30 cm in diameter and excavated in arbitrary 20-cm levels to 100 cm unless soil characteristics or bedrock precluded reaching that depth. SWCA archaeologists screened the matrix from each shovel test through ¼-inch mesh and plotted the location of each excavation using a hand-held global positioning system (GPS) receiver. Each shovel test was recorded on a standardized form to document the excavations. Archaeologists also examined all available erosional exposures and drainage cutbanks for the presence of cultural materials. During the survey of the project area, the archaeological crew photographed the environment and disturbances.

If encountered, all archaeological sites located within the proposed project area would have been explored as much as possible with consideration to land access constraints to make recommendations for proper resource management (i.e., avoidance, non-avoidance, or further work). Additional shovel tests would have been excavated as appropriate based on field conditions in accordance with THC standards at all sites to define horizontal and vertical boundaries. SWCA would have completed appropriate State of Texas Archaeological Site Data Forms for each site discovered during the investigations. A detailed plan map of each site would have been produced and locations mapped with a Trimble GPS unit and plotted on USGS 7.5-minute topographic maps and relevant project maps. SWCA conducted a non-collection survey. If discovered, artifacts would have been documented through notes and photographs in the field and then left in place. All records, files, notes, forms, and photographs generated during fieldwork will be

curated at the Center for Archaeological Research at The University of Texas-San Antonio, as per the requirements of the antiquities permit.

RESULTS

Background Review

SWCA conducted a review of records available on the Atlas online database to determine the presence/absence of known prehistoric and historic cultural resources, as well as previously investigated cultural resources project areas within a 1-mile (1.6-km) radius of the project area. The background literature review determined that two cultural resources surveys are known to have been conducted within portions of the proposed project area; however, no archaeological sites have been recorded within the project area (Figure 4). Three additional cultural resources surveys are located within a 1-mile (1.6-km) radius of the project area; however, no known archaeological sites were recorded within 1-mile (1.6-km) of the project area (see Figure 4).

In 2012, TAS Inc. conducted a cultural resources reconnaissance survey in support of a Dawson Geophysical seismic survey project. The survey covered a very large area, and included several west Texas counties; however, no cultural resources were recorded within a 1-mile (1.6-km) radius of the current project area (THC 2018). In 2014, TAS Inc. conducted a cultural resources survey in support of a Dawson Geophysical UL Reagan NW 3D project. Approximately 23,350 acres of University Texas lands northwest of Big Lake, Texas, was surveyed during these investigations; the survey areas intersect with the current project area in five locations north of Jackson Lane Road. At least 30 cultural resources sites were recorded during the survey; however, none are located within a 1-mile (1.6-km) radius of the current project area (THC 2018).

On October 1, 2011, TRC conducted a cultural resources survey in support of the Lone Star Natural Gas Liquids Pipeline project. The previous survey intersects Jackson Lane Road approximately 0.4 mile (650 m) west of the current proposed project area and generally trends from the northwest to the southeast; no cultural resource sites were recorded during the survey (THC 2018). On November 1, 2011, TAS, Inc. conducted a cultural resources survey in support of the Sandhills Pipeline project. The previous survey also intersects Jackson Lane Road approximately 0.4 mile (650 m) west of the current project area and generally trends from the northwest to the southeast. Only one site was recorded during the survey; however, it is not located within a 1-mile (1.6-km) radius of the current project area (THC 2018). On June 1, 2017, TAS, Inc. conducted a cultural resources survey in support of the Sequitur Texon SWD/GG project. The survey began approximately 0.56 mile (900 m) east of the southern terminus of the proposed project area and extended 2.3 miles (3.7 km) to the east. No cultural resources were recorded during the survey (THC 2018).

Historic Map Review

Examination of the 1954 *San Angelo*, Texas 1:250,000-scale topographic map revealed the presence of a potential historic ranch complex approximately 0.85 mile (1.37 km) east of the southern terminus of the proposed project area along Jackson Lane Road (see Figure 4) (Foster et al. 2006; USGS 2018). The 1970 Garrison Draw 1:24,000-scale topographic map depicts six structures in this location (USGS 2018). Current aeriels reveal that approximately 11 structures are present in this area, however, some appear to have been constructed after 1970. Examination of other historic topographic maps did not reveal any additional potentially historic structures near the current proposed project area (USGS 2018).

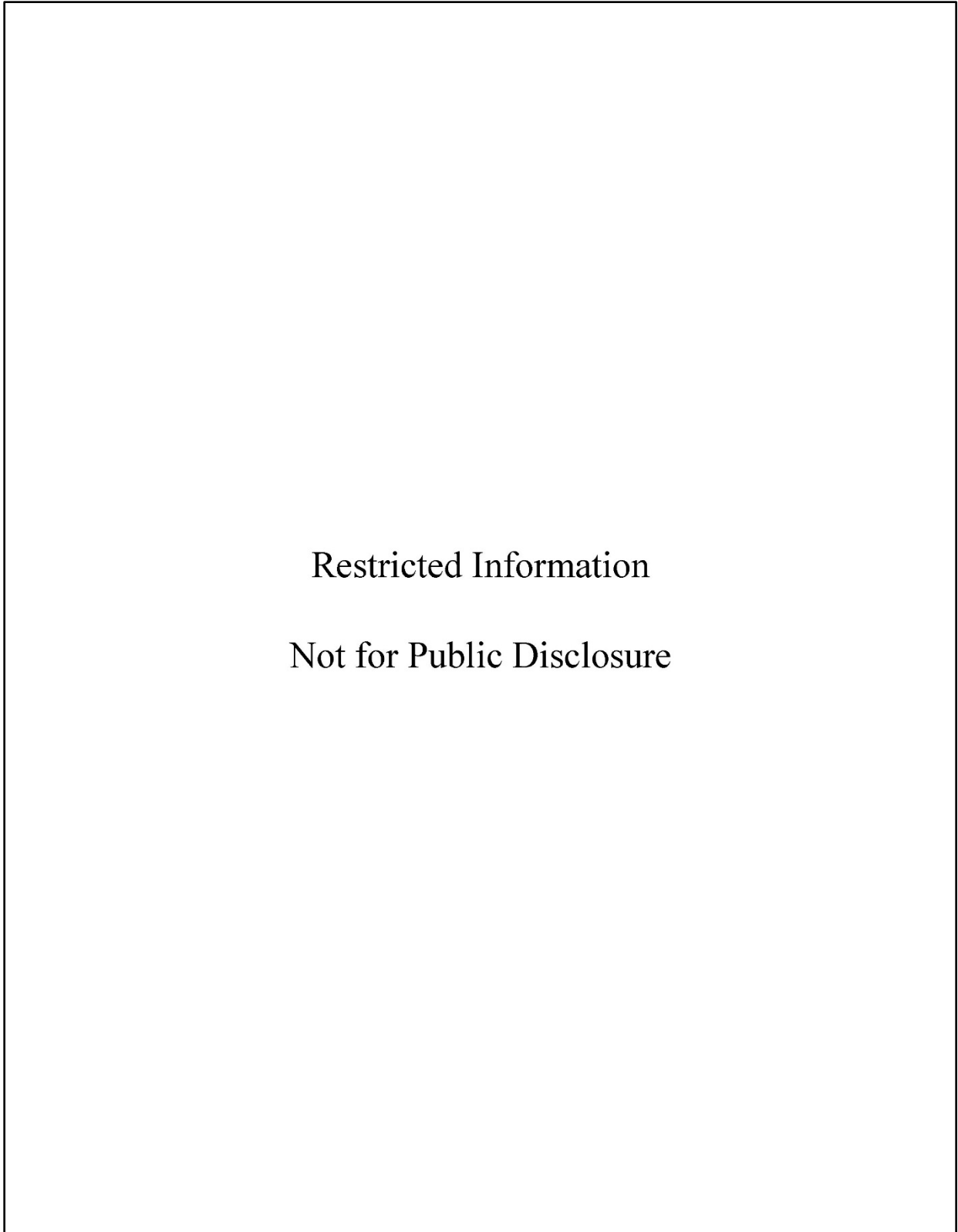


Figure 4. Background review results.

Field Survey

On June 21, 2018, SWCA archaeologists conducted an intensive archaeological survey of the proposed Hunt University Pipeline alignment in Reagan County, Texas. A team of two archaeologists conducted an intensive pedestrian survey augmented with shovel tests of the entire 2.40-mile-long (3.86-km) project area (Appendix A). The pedestrian survey consisted of walking the project area in systematic transects, and the subsurface explorations consisted of shovel tests excavated in areas that had the potential for buried cultural deposits and in areas that had not been previously surveyed.

The project area contains typical arid Edwards Plateau vegetation such as arid-land scrub brush and short grasses (see Figure 3). Ground surface visibility averaged 70 to 100 percent throughout the entire project area, due to the sparse vegetation cover. Typical disturbances observed within the project area include construction of existing well pads, access roads, and existing pipeline corridors (Figure 5). In addition, the southernmost approximately 0.06 mile (94.5 m) of the proposed project area, located south of Jackson Lane, was not surveyed due to ongoing construction of the Medallion-owned University 35-19 facility (Figure 6).

The subsurface investigations consisted of 44 shovel test excavations conducted within the project area in areas which had not been previously surveyed (see Appendix A). One additional shovel test (MM06) was attempted at the northern terminus of the project area, however, the shovel test was ultimately not excavated due to prevalent disturbances from the aforementioned Medallion-owned University 35-19 facility construction.



Figure 5. Existing pipeline corridor adjacent to project area, view west.



Figure 6. Medallion facility at the southern terminus of the project area, view south.

The excavated shovel tests typically revealed two strata within the soil profile (Appendix B). Stratum I consisted of a 20- to 30-cm-thick layer of brown (7.5YR 4/3 or 10YR 5/2) sandy clay loam or silty clay loam with varying amounts of calcium carbonate inclusions. Stratum II extended from the termination of stratum I and typically consisted of brown (7.5YR 5/4) or reddish yellow (7.5YR 6/6) sandy clay loam, sandy clay, or silty clay. Depths of shovel tests were typically terminated due to bedrock or compact soil between 40 and 60 cmbs. No cultural materials were identified on the ground surface or within any of the shovel tests excavated within the proposed project area.

SUMMARY AND RECOMMENDATIONS

At the request of Medallion, SWCA conducted an intensive cultural resources survey of the proposed 2.40-mile-long (3.86-km) Hunt University Pipeline, in southwestern Reagan County, Texas. Because portions of the proposed project will occur on land owned by University Lands, a political subdivision of the state, the work was performed in compliance with the ACT under Texas Antiquities Permit No. 8467. All investigations were conducted in accordance with THC and CTA standards.

Investigations consisted of a cultural resources background review of the project area and an intensive pedestrian archaeological survey with shovel testing of the undisturbed and previously unsurveyed portions of the project area. The purpose of the work was to locate and identify prehistoric and historic cultural resources within the project area, establish vertical and horizontal site boundaries as appropriate with regard to the project area, and evaluate the significance and eligibility of any site recorded within the property for designation as an SAL.

The background literature review determined that two cultural resources surveys are known to have been conducted within portions of the proposed project area; however, no archaeological sites have been

recorded within the project area. Three additional cultural resources surveys are located within a 1-mile (1.6-km) radius of the project area; however, no known archaeological sites were recorded within this radius. The historic map review did not identify any potentially historic-age structures within or immediately adjacent to (within 350 feet [107 m] of) the current project area; however, a potential historic ranch complex was identified approximately 0.85 mile (1.37 km) east of the southern terminus of the proposed project area.

Pedestrian survey, augmented with shovel testing, was conducted in previously unsurveyed portions along the length of the 2.40-mile-long (3.86-km) project area. Based on THC survey standards, the project area required 39 shovel tests. SWCA excavated a total of 44 shovel tests within the project area, exceeding the minimum requirements according to the THC survey standards. No cultural materials were identified on the ground surface or within any of the shovel tests excavated within the project area.

In accordance with the ACT, SWCA made a reasonable and good faith effort to identify cultural resources within the proposed project area. No archaeological sites were identified that meet the criteria for designation as an SAL, per 13 Texas Administrative Code 26.12; therefore, SWCA recommends that no additional cultural resources investigations should be warranted within the project area, as currently defined.

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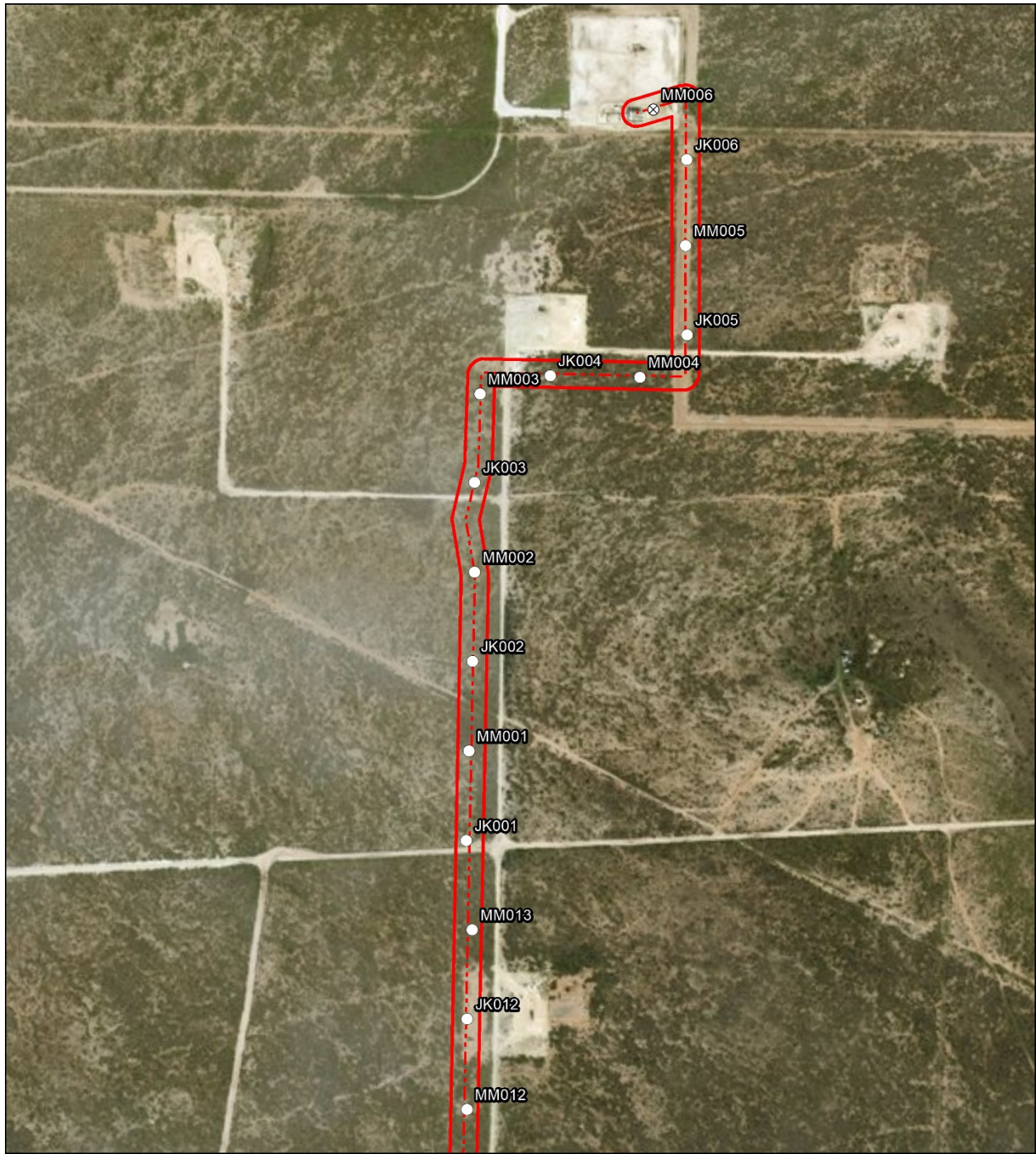
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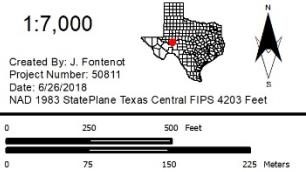
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APPENDIX A
Survey Results Maps

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 <p>SWCA ENVIRONMENTAL CONSULTANTS</p>	<p>HUNT UNIVERSITY 35-19 PIPELINE PROJECT</p> <p>Cultural Resources Results Map Reagan County, Texas</p> <p>Page 1 of 3</p>	<ul style="list-style-type: none"> ○ Negative Shovel Test ⊗ Not Excavated - - - Proposed Alignment ▭ 100-ft Survey Corridor 	<p>1:7,000</p> <p>Created By: J. Fontenot Project Number: 50811 Date: 9/28/2018 NAD 1983 StatePlane Texas Central FIPS 4203 Feet</p> 
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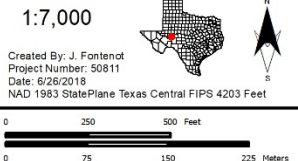


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	<p>HUNT UNIVERSITY 35-19 PIPELINE PROJECT</p> <p>Cultural Resources Results Map Reagan County, Texas</p> <p>Page 2 of 3</p>	<ul style="list-style-type: none"> ○ Negative Shovel Test ⊗ Not Excavated - - - Proposed Alignment ▭ 100-ft Survey Corridor 	<p>1:7,000</p>  <p>Created By: J. Fontenot Project Number: 50811 Date: 6/26/2018 NAD 1983 StatePlane Texas Central FIPS 4203 Feet</p> 
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 <p>SWCA ENVIRONMENTAL CONSULTANTS</p>	<p>HUNT UNIVERSITY 35-19 PIPELINE PROJECT</p> <p>Cultural Resources Results Map Reagan County, Texas</p> <p>Page 3 of 3</p>	<ul style="list-style-type: none"> ○ Negative Shovel Test ⊗ Not Excavated - - - Proposed Alignment ▭ 100-ft Survey Corridor 	<p>1:7,000</p> <p>Created By: J. Fontenot Project Number: 50811 Date: 6/26/2018 NAD 1983 StatePlane Texas Central FIPS 4203 Feet</p> 
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APPENDIX B

Shovel Test Data

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Intensive Cultural Resources Survey of the Proposed Hunt University 35-19 Pipeline within Reagan County, Texas

Shovel Test #	Level	Depth	Munsell Value	Munsell Color	Soil Texture	Inclusions	Comments/ Reason for Termination
JK001	1	0-10	7.5YR 7/3	pink	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	10-40	7.5YR 5/4	brown	Sandy Clay Loam	None	
	3	40-50	7.5YR 6/4	light brown	Sandy Clay Loam	5-10% Calcium Carbonate	
JK002	1	0-20	7.5YR 7/3	pink	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	20-50	7.5YR 5/4	brown	Sandy Clay Loam	None	
	3	50-60	7.5YR 6/4	light brown	Sandy Clay Loam	5-10% Calcium Carbonate	
JK003	1	0-30	7.5YR 7/3	pink	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	30-40	7.5YR 5/4	brown	Sandy Clay Loam	1-5% Calcium Carbonate	
JK004	1	0-20	7.5YR 7/3	pink	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	20-30	7.5YR 5/4	brown	Sandy Clay Loam	1-5% Calcium Carbonate	
JK005	1	0-30	7.5YR 7/3	pink	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	30-40	7.5YR 5/4	brown	Sandy Clay Loam	1-5% Calcium Carbonate	
JK006	1	0-20	7.5YR 4/3	brown	Sandy Clay Loam	None	No cultural material encountered. Terminated at basal clay.
	2	20-30	7.5YR 5/6	strong brown	Sandy Clay Loam	1-5% Calcium Carbonate	
JK007	1	0-30	7.5YR 4/3	brown	Sandy Clay Loam	None	No cultural material encountered. Terminated at basal clay.
	2	30-40	7.5YR 5/6	strong brown	Sandy Clay Loam	1-5% Calcium Carbonate	
JK008	1	0-30	7.5YR 4/3	brown	Sandy Clay Loam	None	No cultural material encountered. Terminated at basal clay.
	2	30-40	7.5YR 5/6	strong brown	Sandy Clay Loam	1-5% Calcium Carbonate	
JK009	1	0-30	7.5YR 7/3	pink	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	30-40	7.5YR 6/3	light brown	Sandy Clay Loam	5-10% Calcium Carbonate	
JK010	1	0-30	7.5YR 4/3	brown	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	30-40	7.5YR 5/4	brown	Sandy Clay Loam	5-10% Calcium Carbonate	
JK011	1	0-30	7.5YR 4/3	brown	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	30-40	7.5YR 5/4	brown	Sandy Clay Loam	5-10% Calcium Carbonate	
JK012	1	0-20	7.5YR 4/3	brown	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	20-30	7.5YR 5/4	brown	Sandy Clay Loam	5-10% Calcium Carbonate	
JK013	1	0-30	7.5YR 4/3	brown	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	30-40	7.5YR 5/4	brown	Sandy Clay Loam	5-10% Calcium Carbonate	
JK014	1	0-30	7.5YR 4/3	brown	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	30-50	7.5YR 5/4	brown	Sandy Clay Loam	5-10% Calcium Carbonate	

Intensive Cultural Resources Survey of the Proposed Hunt University 35-19 Pipeline within Reagan County, Texas

Shovel Test #	Level	Depth	Munsell Value	Munsell Color	Soil Texture	Inclusions	Comments/ Reason for Termination
JK015	1	0-30	7.5YR 4/3	brown	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	30-40	7.5YR 5/4	brown	Sandy Clay Loam	5-10% Calcium Carbonate	
JK016	1	0-30	7.5YR 7/3	pink	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	30-40	7.5YR 6/6	reddish yellow	Sandy Clay Loam	1-5% Calcium Carbonate	
JK017	1	0-30	7.5YR 7/3	pink	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	30-40	7.5YR 6/6	reddish yellow	Sandy Clay Loam	1-5% Calcium Carbonate	
JK018	1	0-20	7.5YR 4/3	brown	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	20-30	7.5YR 5/4	brown	Sandy Clay Loam	5-10% Calcium Carbonate	
JK019	1	0-30	7.5YR 7/3	pink	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	30-40	7.5YR 6/6	reddish yellow	Sandy Clay Loam	1-5% Calcium Carbonate	
JK020	1	0-30	7.5YR 4/3	brown	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	30-40	7.5YR 5/4	brown	Sandy Clay Loam	None	
JK021	1	0-30	7.5YR 4/3	brown	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	30-40	7.5YR 5/4	brown	Sandy Clay Loam	None	
JK022	1	0-30	7.5YR 4/3	brown	Sandy Loam	None	No cultural material encountered. Terminated at basal clay.
	2	30-40	7.5YR 5/4	brown	Sandy Clay Loam	None	
MM001	1	0-30	10YR 5/2	grayish brown	Silty Clay Loam	None	No cultural material encountered. Terminated at compact soil.
	2	30-50	7.5YR 5/4	brown	Silty Clay Loam	None	
MM002	1	0-20	10YR 5/2	grayish brown	Silty Clay Loam	None	No cultural material encountered. Terminated at compact soil.
	2	20-40	7.5YR 5/4	brown	Silty Clay Loam	None	
MM003	1	0-30	10YR 5/2	grayish brown	Silty Clay Loam	1-5% Gravels	No cultural material encountered. Terminated at compact soil.
	2	30-50	7.5YR 5/4	brown	Silty Clay Loam	None	
MM004	1	0-30	10YR 5/2	grayish brown	Silty Clay Loam	1-5% Gravels	No cultural material encountered. Terminated at compact soil.
	2	30-50	7.5YR 5/4	brown	Silty Clay Loam	None	
MM005	1	0-20	10YR 5/2	grayish brown	Silty Clay Loam	None	No cultural material encountered. Terminated at compact soil.
	2	20-50	7.5YR 5/4	brown	Silty Clay Loam	None	
MM006	Could not be excavated due to existing well pad						
MM007	1	0-20	10YR 5/2	grayish brown	Silty Clay Loam	None	No cultural material encountered. Terminated at compact soil.
	2	20-35	7.5YR 5/4	brown	Silty Clay Loam	1-5% Calcium Carbonate, Gravels	

Intensive Cultural Resources Survey of the Proposed Hunt University 35-19 Pipeline within Reagan County, Texas

Shovel Test #	Level	Depth	Munsell Value	Munsell Color	Soil Texture	Inclusions	Comments/ Reason for Termination
MM008	1	0-30	10YR 5/2	grayish brown	Silty Clay Loam	1-5% Calcium Carbonate, Gravels	No cultural material encountered. Terminated at bedrock.
MM009	1	0-30	10YR 5/2	grayish brown	Silty Clay Loam	1-5% Calcium Carbonate, Gravels	No cultural material encountered. Terminated at bedrock.
MM010	1	0-20	10YR 5/2	grayish brown	Silty Clay Loam	None	No cultural material encountered. Terminated at bedrock.
	2	20-35	7.5YR 5/4	brown	Silty Clay Loam	5-10% Calcium Carbonate	
MM011	1	0-20	10YR 5/2	grayish brown	Silty Clay	5-10% Calcium Carbonate, Gravels	No cultural material encountered. Terminated at compact soil.
	2	20-45	7.5YR 5/4	brown	Silty Clay	None	
MM012	1	0-20	10YR 5/2	grayish brown	Silty Clay	5-10% Calcium Carbonate, Gravels	No cultural material encountered. Terminated at compact soil.
	2	20-45	7.5YR 5/4	brown	Silty Clay	None	
MM013	1	0-35	10YR 5/2	grayish brown	Silty Clay	None	No cultural material encountered. Terminated at compact soil.
	2	35-50	7.5YR 5/4	brown	Silty Clay	None	
MM014	1	0-35	10YR 5/2	grayish brown	Silty Clay	None	No cultural material encountered. Terminated at compact soil.
	2	35-50	7.5YR 5/4	brown	Silty Clay	None	
MM015	1	0-35	10YR 5/2	grayish brown	Silty Clay	5-10% Calcium Carbonate, Gravels	No cultural material encountered. Terminated at compact soil.
	2	35-50	7.5YR 5/4	brown	Silty Clay	5-10% Calcium Carbonate, Gravels	
MM016	1	0-35	10YR 5/2	grayish brown	Silty Clay	5-10% Calcium Carbonate, Gravels	No cultural material encountered. Terminated at compact soil.
	2	35-50	7.5YR 5/4	brown	Silty Clay	5-10% Calcium Carbonate, Gravels	
MM017	1	0-20	10YR 6/2	light brownish gray	Silty Clay	1-5% Calcium Carbonate, Gravels	No cultural material encountered. Terminated at compact soil.
	2	20-40	7.5YR 4/4	brown	Silty Clay	1-5% Calcium Carbonate, Gravels	
MM018	1	0-20	10YR 6/2	light brownish gray	Silty Clay	1-5% Calcium Carbonate, Gravels	No cultural material encountered. Terminated at compact soil.
	2	20-40	7.5YR 4/4	brown	Silty Clay	1-5% Calcium Carbonate, Gravels	
MM019	1	0-30	10YR 6/2	light brownish gray	Silty Clay Loam	None	No cultural material encountered. Terminated at compact soil.
	2	20-35	7.5YR 4/3	brown	Silty Clay Loam	1-5% Calcium Carbonate, Gravels	
MM020	1	0-20	10YR 5/2	grayish brown	Silty Clay Loam	None	No cultural material encountered. Terminated at bedrock.
	2	20-35	7.5YR 5/4	brown	Silty Clay Loam	5-10% Calcium Carbonate	
MM021	1	0-30	10YR 6/2	light brownish gray	Silt Loam	1-5% Calcium Carbonate	No cultural material encountered. Terminated at compact soil.
	2	30-40	7.5YR 4/3	brown	Silty Clay Loam	1-5% Calcium Carbonate, Gravels	

Intensive Cultural Resources Survey of the Proposed Hunt University 35-19 Pipeline within Reagan County, Texas

Shovel Test #	Level	Depth	Munsell Value	Munsell Color	Soil Texture	Inclusions	Comments/ Reason for Termination
MM022	1	0-20	10YR 6/2	light brownish gray	Silty Clay Loam	1-5% Calcium Carbonate	No cultural material encountered. Terminated at compact soil.
	2	20-40	7.5YR 4/3	brown	Silty Clay	None	
MM023	1	0-20	10YR 6/2	light brownish gray	Silty Clay Loam	1-5% Calcium Carbonate	No cultural material encountered. Terminated at compact soil.
	2	20-40	7.5YR 4/3	brown	Silty Clay	None	