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Jon J. Dowling

Rachel Feit

Daniel J. Rose

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Prepared for

Texas Department of Transportation

Dallas District

Texas Antiquities Permit No : 5660

CSJs : 2250-02-013, 2250-02-014

May 2015

AmaTerra Environmental, Inc.

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by

AmaTerra Environmental, Inc,

Austin, Texas

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4009 Banister Lane, Suite 300
Austin, Texas 78704

Project No. 107-004

Cover photograph: Project area.

Management Summary

This report documents the results of an archeological survey conducted on behalf of the Texas Department of Transportation, Dallas District, for proposed construction of a new segment of Loop 288 that would extend from IH 35E north of Denton to IH 35E at Vintage Boulevard south of Denton (CSJs 2250-02-013 and 2250-02-014). The road project involves construction of new location roadway for a distance of approximately eight miles. Archeological work was performed to comply with Section 106 of the National Historic Preservation Act and the Antiquities Code of Texas, under Texas Antiquities Permit 5660. AmaTerra Environmental, Inc. (AmaTerra) personnel conducted an intensive archeological survey of the project area from June 11 to June 17, 2010, to identify possible cultural resources within the Area of Potential Effect (APE). The project area was subject to 100 percent pedestrian survey wherever access to public and private properties was available. Survey included visual inspection of the landscape, 152 shovel test excavations, and excavation of eight backhoe trenches. No archeological sites were identified within the APE, and no artifacts were collected as this was a non-collection survey. Jon J. Dowling served as Project Archeologist and Rachel Feit acted as Principal Investigator. Approximately 224 person-hours were invested in the field investigation. No archeological resources were identified that meet eligibility requirements for designation as a State Archeological Landmark according to 13 Texas Administrative Code 26, or for listing in the National Register of Historic Places under 36 CFR 60.4. Additional work in connection with the proposed undertaking is not recommended. AmaTerra recommends that the proposed project should proceed to completion.

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Chapter 1

Introduction

In June 2010, AmaTerra Environmental, Inc. (AmaTerra) carried out archeological survey work within a proposed new segment of Loop 288 in Denton County, Texas, on behalf of the Texas Department of Transportation (TxDOT), Dallas District (CSJs 2250-02-013 and 2250-02-014). The project will involve construction of primarily new location roadway from the existing Loop 288 and IH 35E intersection, north of Denton, to the Vintage Boulevard and IH 35E intersection, south of Denton (Figures 1 and 2). The project is located on the Sanger and Denton West 1:24,000 topographic quadrangles.

The total new roadway segment extends for approximately eight miles within an average 420-foot (ft)-wide corridor, and encompasses approximately 388 total acres. The Area of Potential Effect (APE) for the archeological survey is the footprint of the proposed new roadway facility (388 acres) to the maximum depth of impact. The majority of the new roadway corridor would be built largely at grade, and impacts are anticipated to be less than three feet in depth. However, at drainage and creek locations, the depth of impact for the proposed bridge abutments would be greater than 10 ft. There are currently no project plans or profiles available from TxDOT. This investigation was designed to comply with National Environmental Policy Act, the Antiquities Code of Texas, and Section 106 of the National Historic Preservation Act. All work conformed to 36 CFR Part 800, and 13 Texas Antiquities Code (TAC) 26, which outline the regulations for implementing Section 106 and the Antiquities Code of Texas.

AmaTerra's work involved intensive pedestrian survey, shovel testing at regular intervals, and backhoe trenching to locate possible archeological deposits resting within the APE. The purpose of the survey was to identify archeological resources that could be affected by the proposed roadway project, and to establish vertical and horizontal boundaries if such resources were found. Prior to fieldwork, archeologists prepared a detailed background summarizing the archeological sites, soils, geology, and historic resources of the APE. Based on this background review, the APE was divided into high- and low- potential areas for archeological sites. Areas of high potential were centered around Dry Hickory Creek, South Hickory Creek, various smaller drainages, and near locations of structures depicted on the 1936 Denton County Highway map. Areas of low probability for archeological resources were identified in upland areas that had previously been farmed. Due to stable soils and agricultural use, these latter areas have limited potential for intact archeological resources and almost no potential for buried archeological resources. Survey involved regular shovel testing and backhoe trenching in the high-potential areas and simple visual inspection of the low-potential areas. This report summarizes the results of archeological investigations.

Survey was carried out between June 11 and 17, 2010 with approximately 224 person-hours expended. Areas subject to archeological survey encompassed both public and private land. Archeologists excavated 152 shovel tests and eight backhoe trenches in high-potential areas where right-of-entry (ROE) was available. ROE was available for 70 percent of the total project

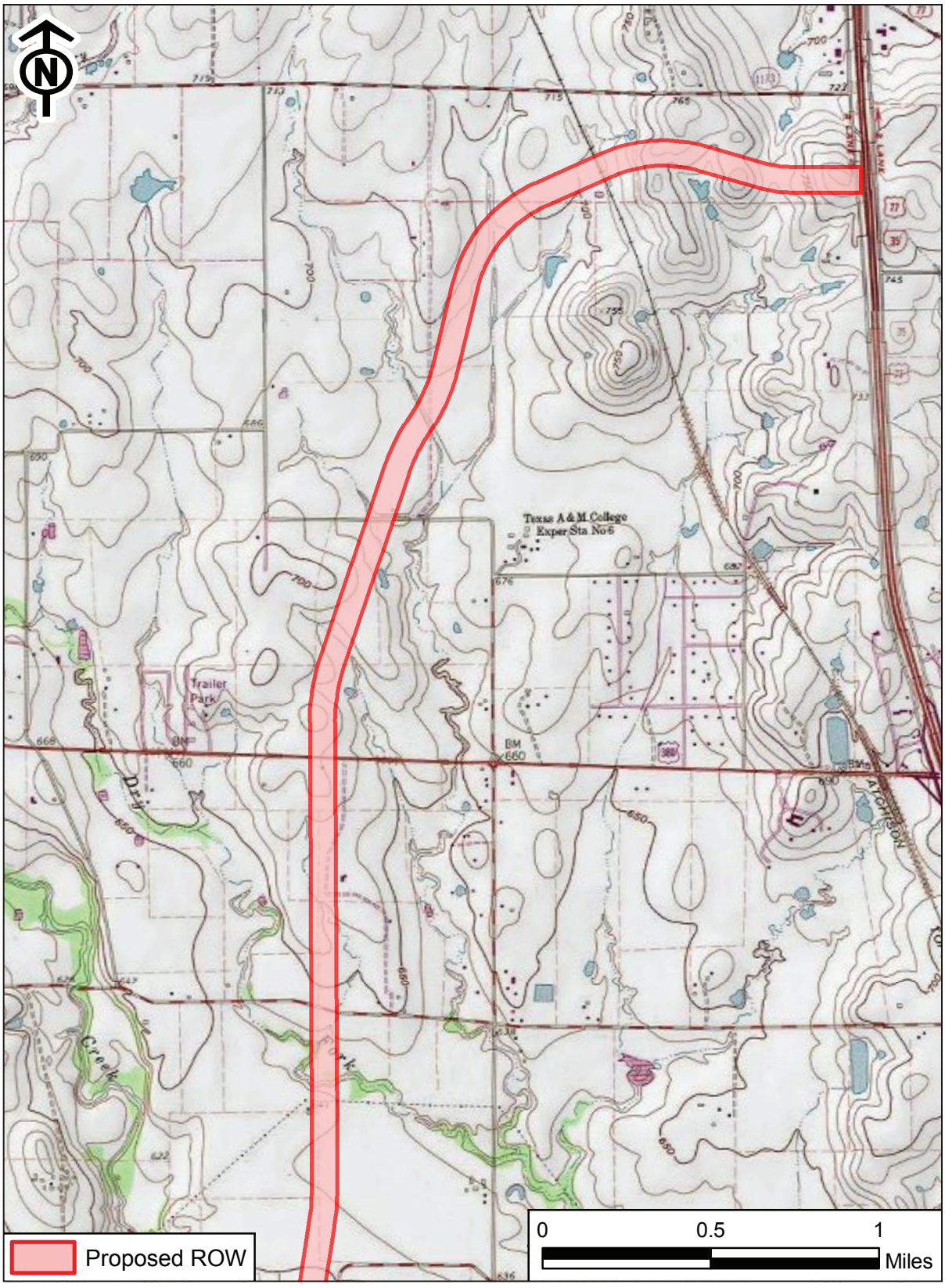

Figure 1. Northern portion of the project area (sheet 1).

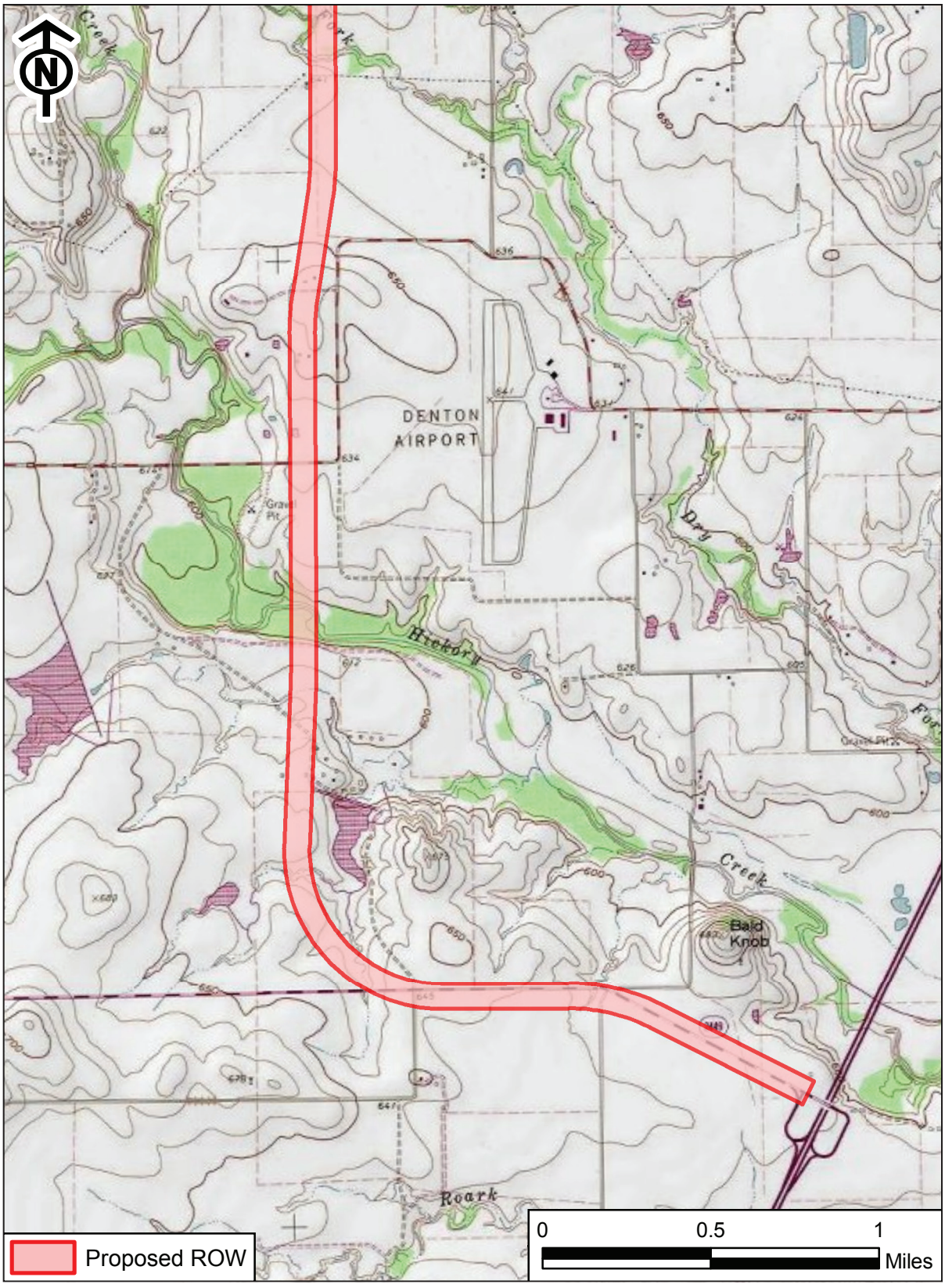

Figure 2. Southern portion of the project area (sheet 2).

area and for about 70 percent of the high-potential areas. Localities where ROE was denied were visually inspected from existing rights-of-way (ROW) adjacent to the new roadway or from parcels where access was available. Shovel tests generally revealed dense clays and clay loams over cobbles and gravels, except at South Hickory Creek, where deep alluvial sediments were present. No archeological sites were identified within the project area, and no artifacts were collected as this was a non-collection survey. All project records will be permanently housed at AmaTerra offices in Austin, Texas.

Jon J. Dowling served as Project Archeologist and Rachel Feit acted as Principal Investigator. Field crew consisted of Jessica Colvin, Courtney Mackay, and Dan Rose. Joel Butler generated the graphics depicted herein, and Maggie McClain formatted the content of this report.

This report is divided into four chapters. The project setting, cultural overview, and previous archeology are discussed in Chapter 2. Chapter 3 reviews the survey methodology that was incorporated and the findings of this investigation. Chapter 4 presents the summary and recommendations.

Chapter 2

Background Information

Site Setting

The project setting falls within Cross Timbers environmental region. The Cross Timbers region was named for the dense forests encountered by early settlers that formed a barrier to the open plains and prairies to the east and west. Vegetation is oak-hickory forest and oak-hickory-pine forest. Forest cover consists of post, live, and blackjack oaks, and pignut and mockernut hickories. Grasses consist of big and little bluestems, indiangrass, and sunflower.

The geological architecture of the project area consists of Cretaceous deposits of sandstone, clay shale, and calcareous marl associated with the Woodbine and Grayson Marl formations. However, a wide band of Holocene alluvium and colluvium is present along South Hickory Creek and the Dry Fork of Hickory Creek. Alluvium is typically found along Hickory Creek, while colluvium is typically present along the Dry Fork of Hickory Creek (Bureau of Economic Geology 1992). In this area, surface soils belong to the Frio-Ovan complex, characterized by deep clayey soils along bottomlands (Ford and Pauls 1980). Sanger-Somervell complex soils dominate the upland prairies in the project area. These are well-drained, moderately deep loamy clays.

Culture Chronology

This section provides a condensed summary of the sparse archeological data collected in the north-central portion of Texas. To date, archeological investigations in the north-central section of Texas have not been as extensive as adjacent regions (i.e., Central Texas, West Central Texas, North East Texas, and Deep East Texas; see Perttula 2004:7), and better understood regions will be referenced when relevant. The following chronology will rely heavily on cultural manifestations discussed in several sources including Brownlow (2001), Ferring and Yates (1997, 1998), Perttula (2004), Prikryl (1990), and Thoms (1994).

Paleoindian

The arrival of humans in the New World occurred during the Paleoindian period, which dates to 11,500–8800 BP (Collins 1995); however, new data are always being recovered that launch fresh waves of debate concerning the peopling of the Americas. The Paleoindian period in this region of Texas clearly dates prior to 8500 BP (Prikryl 1990). As the Pleistocene ended, diagnostic Paleoindian materials in the form of Clovis, Folsom, Dalton, Scottsbluff, Golondrina, and Plainview projectile points entered the archeological record. One of the oldest confirmed Clovis sites in North America is arguably the Aubrey Clovis Site (41DN479) in Denton County, Texas, with a carbon date assay of 11,550 BP (Ferring 2001). This site yielded lithic material that can be sourced to distant locations and was used to manufacture a wide variety

of tools (blade tools, flake tools, end scrapers, and gravers). Also recorded in the northern portion of Texas are notable Clovis sites, including the Sam Kaufman site in Red River County, Texas, and a smaller site in Lamar County, Texas. This site yielded a single Clovis point, a single Folsom point, and three Dalton points (Story 1990:180). The Roy Young site (41LR36), also in Lamar County, yielded a single Clovis point, and in Grayson County, a single Clovis point was found. Many of these projectile points are in private collections, and further testing was not conducted (Story 1990:180). However, some Paleoindian sites, like 41RR18 in Red River County, demonstrated Paleoindian hearth features 1.8 meters (m) below ground surface (Kenmotsu and Perttula 1993:73).

Typically, Paleoindian points were lanceolate-shaped and fluted for hafting to wooden spears. Using the launching momentum from atlatls (spear-throwers), 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. While widespread in geographic range, these types occurred in high densities in the High Plains and Central Texas (Meltzer and Bever 1995). Environmental studies suggest that Late Pleistocene climates 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). As megafauna gradually died off during the shift to warmer climates, subsistence patterns shifted toward smaller game and plant foraging.

Archaic

The Archaic period, broadly divided into the Early, Middle, and Late Archaic subperiods, signifies a more intensive reliance on local floral and faunal resources with an increase in the number of projectile point styles (Collins 1995). The archeological record demonstrates a heavier reliance on food processing, a wider variety of site functions, and more localized geographic distributions of artifacts.

Early Archaic

According to Prikryl (1990), the Early Archaic spans the period of 8500–6000 BP. Prikryl (1990) suggests a lack of regional differences in adaptive patterns during this time. Subsistence data for this region of Texas during the Early Archaic is somewhat scarce (Ferring and Yates 1997:6). Around 8000 BP, projectile point styles transitioned from unstemmed to stemmed varieties such as the Martindale and Uvalde (Black 1989). As the extinction of megafauna herds took hold, a subsistence shift towards deer, fish, and plants became necessary.

Middle Archaic

Many Early and Middle Archaic sites rest within North-Central and Northeast Texas, but separation of the components has proven problematic. Diagnostic points from this period in the north-central portion of Texas include Dawson, Wells, Carrolton, Morrill, and Basal Notched

forms (Prikryl 1990). The R. W. Watts Site Number 2 (41CP14) in Camp County exhibited dense midden deposits and burned rock features dating to the Middle and Late Archaic, with possible earlier components (McKay et al. 2003:14). The Wild Bull site in Henderson County (41HE61) also contained Middle and Late Archaic lithic assemblages and a burned rock feature (McKay et al. 2003:14). The Calvert Site (41DN102) in the Trinity Valley of Denton County has a significant Middle Archaic component. Data from this site suggest a drier Middle Holocene landscape, more mobile populations, and subsistence economies based on smaller game such as deer (Ferring and Yates 1997:30).

Late Archaic

Prikryl places the Late Archaic period from 3500 to 1250 BP, and observes at least three increases in site frequency relative to the Middle Archaic period (1990). Late Archaic points include Ellis, Ensor, Palmillas, Yarbrough, Kent, and Gary points. Cultural adaptations and regional differentiation appears more saliently in many sites, suggesting possible increases in population saturation (Sabo and Early 1990:54). The frequency of open campsites appears to increase, but the scales of sites tend to be smaller. Smaller game such as deer continue to be exploited along with plants, the latter of which is indicated by an increase in lithic tools associated with plant processing activities (Brownlow et al. 1999). At the end of the Late Archaic, when xeric environmental conditions shifted to mesic conditions, a trend that characterizes North Texas as well, thermal features to process succulents became rare (Greaves 2003:15). Late Archaic sites at Joe Pool Lake (Peter and McGregor 1988) and at Lake Ray Roberts (Ferring and Yates 1997; Prikryl and Yates 1987) in Dallas County, Texas suggest that deer and small animals were the primary Late Archaic food resources. The Sister Grove Creek Site in Collin County, Texas, exhibited changes in projectile point technology, burned rock features, and large refuse pits (Lynot 1975). Similar pits also observed in North Texas may suggest ritual feasting, indicating a possible sociopolitical transition during this time (Bruseth and Martin 1987). A nearby Late Archaic site from the Early Ceramic period, which coincides with the Woodland phase, is situated in Hopkins County, Texas (the Hurricane Hill site, 41HP106). Simple ceramics and smaller dart points are typical of the Woodland phase (Greaves 2003).

Late Prehistoric

There exists some degree of overlap between diagnostic tools that are considered Late Archaic and Late Prehistoric, but the commonly held date for the beginning of this interval is 1200 BP. The Late Prehistoric in North Central Texas is divided into two phases: Late Prehistoric I (1250–750 BP) and Late Prehistoric II (750–250 BP) (Prikryl 1990). A hallmark transition for Late Prehistoric I is the introduction of the bow and arrow, which enabled prehistoric hunters to harvest prey from greater distances with a lesser need for brushless, wide open spaces required for atlatl maneuverability in hunting. The use of arrows in the north-central portion of Texas is indicated by smaller-sized projectile points such as the Alba, Catahoula, and Scallorn types (Prikryl 1990:58). Late Prehistoric II exhibits a steady increase in populations. Other technological traits include the diagnostic Perdiz point, alternately beveled bifaces, and specialized processing kits as an adaptation to flourishing bison populations (Ricklis 1992). There is also evidence of early horticulture as Woodland sites continue to grow in the Low

Plains area and Caddo communities thrive in East Texas (Perttula 1995). The transition from the Late Archaic Woodland to the Caddoan is evidenced by significant changes in technology and subsistence. Distinctive ceramic vessels and decorative styles, burial practices, mound architecture, and agriculture subsistence are seen in the subdivisions of the Caddo era. Caddo lithic tool kits consisted primarily of arrow points, drills, utilized flakes, and celt fragments (Story 1990). Ceramics are more widely used during this period, and typically consist of fine-ware red-slipped ceramics, particularly along the Red River (Perttula 1995). Over a dozen Formative to Middle Caddoan sites have been recorded within Red River and Lamar Counties (Kenmotsu and Perttula 1993:125–129). Evidence from the Harrell Site (41YN1), southwest of Denton County, suggests that interaction between Toyah and Caddo groups took place in North-Central Texas (Ferring and Yates 1997).

Historic Period

Europeans entered Texas starting around AD 1528, but visited only sporadically, and did not settle there until around AD 1700 (Webb 1952). In response to the continuous threat of Apache and Comanche raiders, as well as the French incursion into East Texas, the Spanish erected a series of missions and presidios in Texas during the eighteenth century. After Mexican revolution ended in 1821, the newly independent Mexican government began granting impresario contracts to allow more prominent Anglo settlement to facilitate development. During the Republic of Texas period following the Texas Revolution of 1836, the colonization effort continued. The area around present-day Denton was a part of the Peter's colony, founded in 1841. Following Texas' annexation to the United States, Denton County was carved out of Fannin County in 1846, and named after John B. Denton, a lawyer and military captain from Tennessee who was killed in the battle of Village Creek in 1941 (Hoole 2010). In 1848, Frenchman Étienne Cabet started a "utopian" socialist community, the Icarian Colony, in the southwestern portion of the county; the community failed in less than a year and the site was abandoned (Davidson 2010).

The town of Denton was settled in 1857. However, the town was not established with an official charter until after the American Civil War in 1866. Despite the large numbers of troops that Texas committed to the American Civil War, the Confederate State of Texas was only involved in five engagements with the Union army. In 1881, the Texas and Pacific Railway from Sherman to Fort Worth, and the Missouri, Kansas and Texas Railway from Denton to Dallas were completed, providing Denton railway access. Denton soon grew as an agricultural trade center with flour mills, cottonseed oil mills, and small cottage industries, like blacksmith and pottery shops.

The town of Krum in western Denton County claimed to be the third-largest inland grain market in the world in 1900, after shipping over half a million bushels of wheat that year (Hilliard 2010). Texas Normal College (University of North Texas) opened in 1890, followed in 1903 by Girls' Industrial College (Texas Woman's University). These two universities contributed to the economic growth and cultural expansion of Denton in the early twentieth century (Odom 2010a).

Denton Field was located 2.5 miles northeast of town and served as a training center for civilian pilots until WWII, when the focus was changed to training military pilots (Minor 2010). The establishment of Dallas-Fort Worth Airport and the construction of Interstate 35 in the 1950s lead to a rapid influx of people to the Denton area. The rural population of Denton County diminished greatly in the second half of the twentieth century as most of its residents moved into cities and abandoned agricultural life (Odom 2010b).

Archeological Background

According to the THC's Texas Archeological Site Atlas files, three archeological sites are within one kilometer of the project area; none of them overlap with the proposed roadway project, and hence, would not be impacted. The sites are summarized in Table 1.

In addition to above-mentioned archeological investigations, eight surveys have taken place within or near the project area. The surveys were linear in nature and overlap the Loop 288 undertaking in limited areas only.

Table 1. Sites within One Kilometer of the Project Area.

Site	Distance from APE	Site Type	Site Description	NRHP Eligibility & Recommendations	Source
41DN545	1 km (0.62 mi)	prehistoric	Open campsite with basin-shaped hearth buried 5.4 m below ground surface; charcoal also noted	Unknown; testing recommended	Todd 2006a
41DN547	~850 m (0.52 mi)	prehistoric	Buried prehistoric shell lens (ca. 3.5 below ground surface) observed in cut bank along Hickory Creek	Unknown; testing recommended	Todd 2006b
41DN541	500 m (0.31 mi)	historic	Farmstead consisting of two wood frame and floored structures. One is a barn. Concrete slab is also present. Possible early twentieth century.	Unknown; no recommendation made	Pemberton and Perry 2006

Chapter 3

Methods and Results of Investigations

Survey Methods

Prior to fieldwork, archeologists prepared a detailed background summarizing the archeological sites, soils, geology, and historic resources of the APE. Based on this background review, a probability model was prepared whereby the APE was compartmentalized into high- and low-potential areas for archeological deposits. Areas of high potential were centered around Dry Hickory Creek, South Hickory Creek, various smaller drainages, and localities where structures were depicted on the 1936 Denton County Highway map. Previously farmed upland areas or areas that were observably disturbed from recent road, utility, or residential development were identified as areas of low probability for archeological resources. Low-probability areas were considered to have limited potential for intact archeological resources and almost no potential for buried archeological resources, based on ancient stable upland soils. Sites in these low-potential areas would be shallowly buried, or on the surface. The field investigations involved shovel testing and backhoe trenching in the high-potential areas and intensive visual inspection of the ground surface within low-potential areas, wherever ROE was available.

Figure 3. Cattle stock pond in the project area.

Figure 4. Heavily cultivated landscape in the project area.

In instances where ROE was granted, investigators performed a 100 percent pedestrian walkover survey, where the ground surface was examined for cultural material and features. Indications of

Figure 5. Visible erosion on ground surface.

ground disturbances were thoroughly photographed. When possible, in both high- and low-probability areas where ROE was denied, landscapes were assessed from multiple viewing angles from vantage points including existing ROWs, fencelines, public roads, elevated public landscapes, etc.

Shovel testing and backhoe trenching occurred in all high-probability areas that were accessible and undisturbed. Shovel tests measured 30 centimeters (cm) in diameter and extended to a maximum depth of 80 cm below surface (cmbs) within undisturbed portions of landscape. The shovel tests were excavated in 10-cm increments and all soil was screened through a ¼-inch hardware cloth. Relevant information for all shovel tests was recorded on a standardized form. This archeological investigation was a non-collection survey.

Backhoe trenches were placed along Dry Fork of Hickory Creek and at South Hickory Creek, in areas thought to have potential for deeply buried deposits. A representative sample of each soil zone was screened from each backhoe trench. Scaled profiles of soil and sediment zones observed in the backhoe trench were generated. All mechanical trenching complied with Occupational Safety & Health Administration standards. These regulations, set by the United States Department of Labor, require the placement of safety slopes or benches to prevent wall collapse in trenches greater than five feet in depth, when persons are working in them.

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; 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.

Project area-specific information was recorded on standardized forms and GPS coordinates were captured for all excavations during the course of this project.

Results of Field Investigations

The project area's setting is mainly rural, with land use devoted to farming, residential occupation, and underground pipeline delivery systems. Evidence of new infrastructure devoted to mineral extraction was evident on a number of parcels surveyed. Additional development related to the Denton Airfield was observed along the eastern edge of the project area. Other disturbances

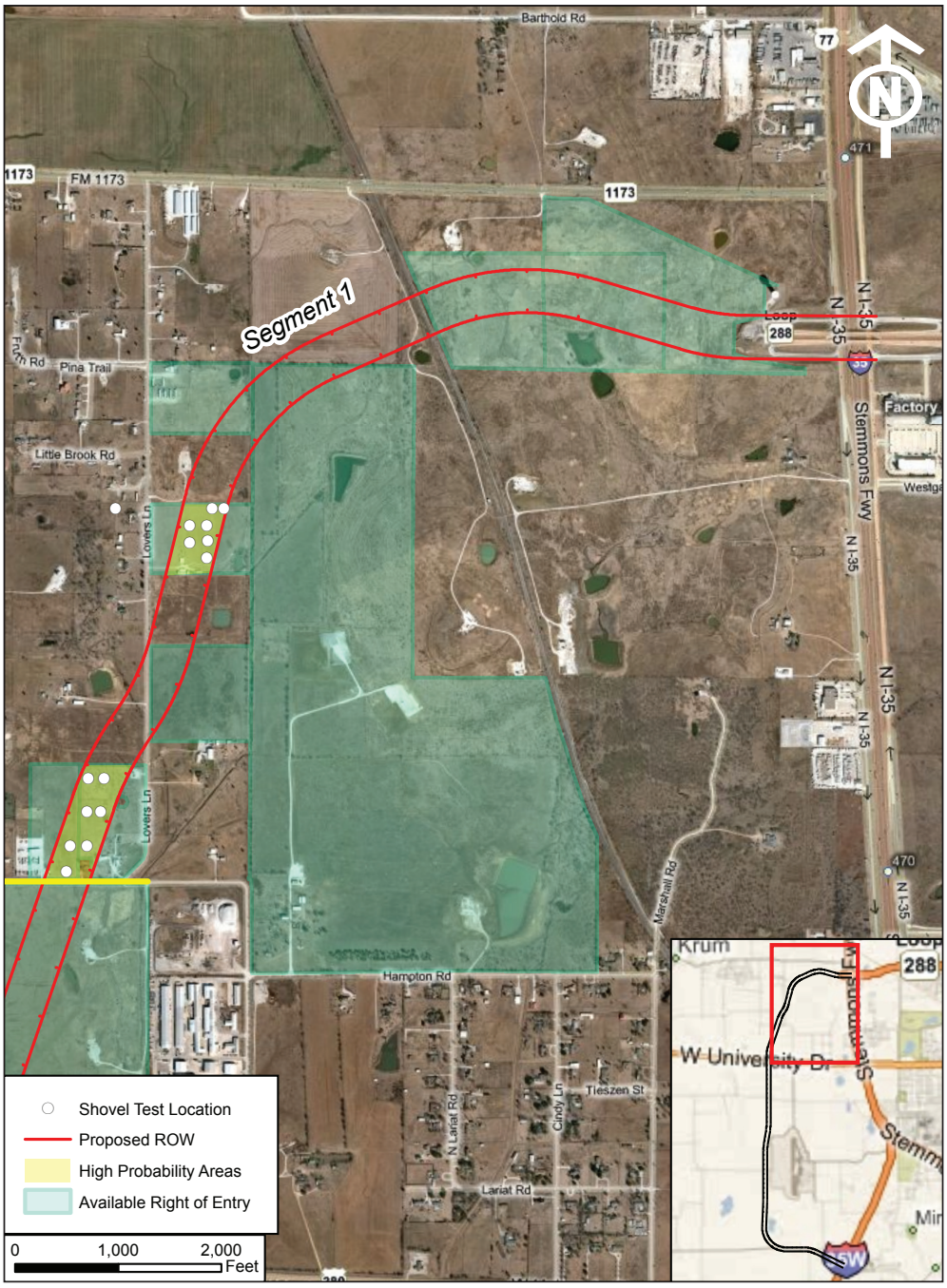

Figure 6. Project details of Segment 1.

included landscape affected by livestock grazing and stock ponds (Figure 3), heavily cultivated landscapes (Figure 4), or erosion (Figure 5). Ground surface visibility ranged between 5 percent and 50 percent, in undeveloped portions of the project area.

ROE was available for approximately 70 percent of the project area. In total, 152 shovel tests were excavated during this project, all of which were negative for archeological material. Shovel tests were placed within high-probability localities where investigators had ROE. The

Figure 7. Surveyed grazing pastures.

Figure 8. Active wheat field west of the railroad.

distribution of shovel test excavations within the APE provided consistent spatial coverage throughout high-probability areas within the APE; however, numerous portions of the APE exhibited subsurface indications of previous disturbances. Most notably, the segment of the proposed Loop 288 corridor between W. University Dr. and Old State Hwy 24 contains an underground gas pipeline that has disturbed over 2,200 ft of the proposed roadway corridor. The landscape surrounding the underground gas pipeline has been subject to intensive mechanical excavation to accommodate the subsurface delivery system. Large-scale excavation in this locale is evidenced by the disturbed soils on the ground surface and by various depressions and eroded soil fissures overlying the pipeline where underground cavities of backfill have collapsed. The pipeline corridor was not subject to shovel testing since the soils were clearly disturbed and a working, high-profile underground utility was present.

Shovel test excavations revealed loams and clays. The shovel tests terminated at 80 cmbs, except in localities where bedrock rested at shallow depths. Sixteen shovel tests exhibited signs of previous disturbances related to agricultural production or livestock grazing. All shovel tests were completely absent of cultural material.

Exposures in the ground surface of the APE were examined whenever possible, as were natural subsurface gravel deposits present within cut-banks and backhoe trenches. No raw lithic materials were identified within the APE that would be attractive to prehistoric hunter-gatherers. Surface materials consisted primarily of hematite and very small quartzite surface gravels. Though there are known sources of nearby raw lithic materials, such as the upland gravel deposits along Denton Creek and the Elm Fork of the Trinity River (Moir et al. 1988:23), or the conglomerate quarries near Graham, Texas (Turner and Hester 1999:19), the Loop 288 project area does not exhibit knappable materials needed by prehistoric occupants, which may partially account for the lack of archeological materials within intact portions of the project area.

Segment 1: From IH 35 to Masch Branch Road West of Lovers Lane (Figure 6)

Much of the low-probability areas are currently in use for livestock grazing and agricultural production. Grazing areas were walked and visually inspected and found to have no surface expression of cultural material (Figure 7). At the northern terminus of the project, much of the proposed APE was considered to have low probability for cultural resources. Investigators walked the APE between IH 35 and Lovers Lane and observed landscape utilized for livestock grazing and agricultural production. Landscape features included stock tanks and water control ditches within a rolling topography. This segment of the APE is also bisected by a railroad that overlies a significant gravel berm (Figure 8). The landscape containing the wheat field was observed to be intensively cultivated. Due to lack of ROE in the northern third of the project area, the parcel containing the wheat field was visually inspected from existing roads and found to be thoroughly disturbed from plowing, negating the possibility of intact archeological deposits resting in this locality. Two other small parcels could not be intrusively investigated due to lack of ROE, but were examined from public land. These areas have also

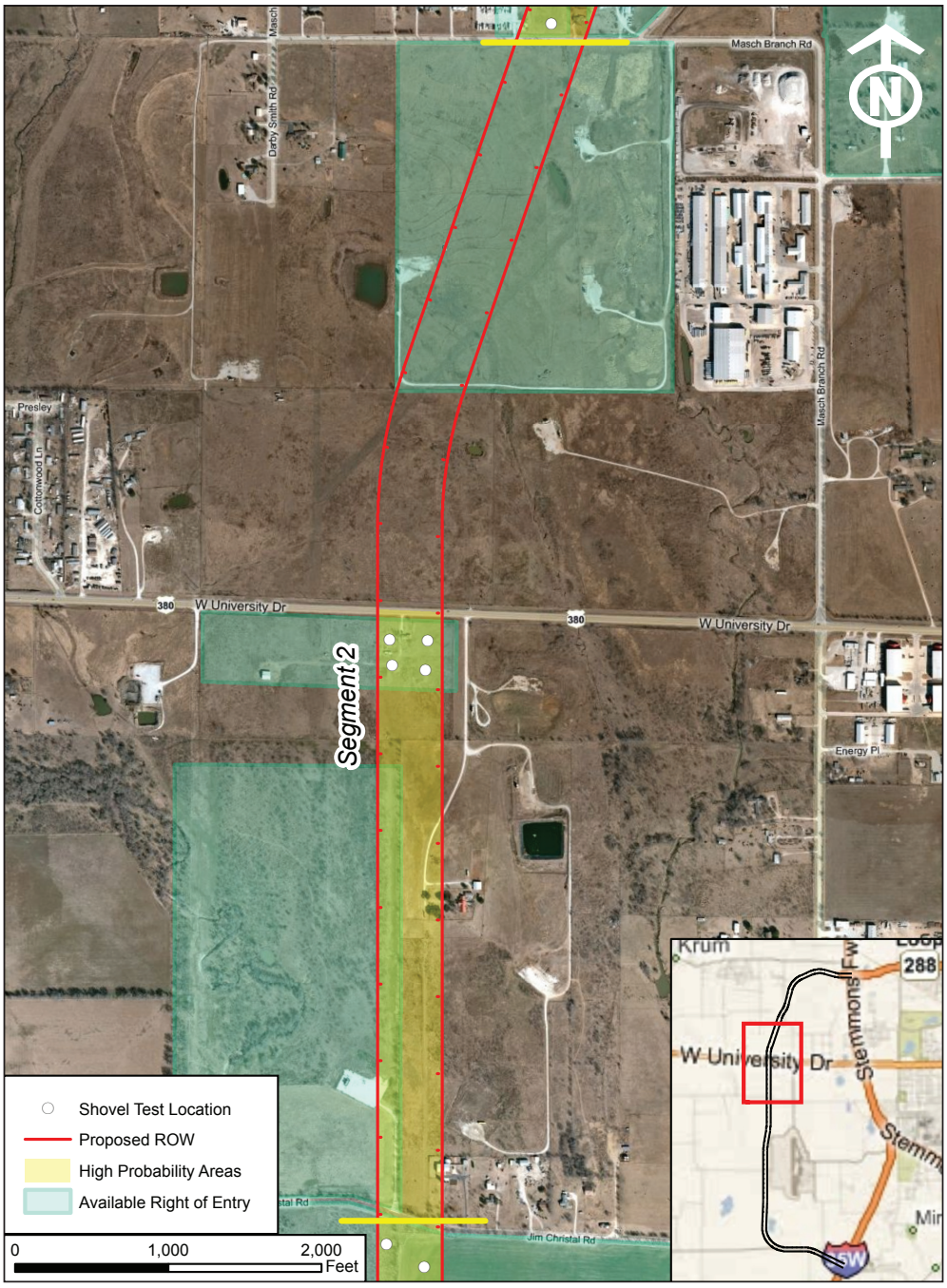

Figure 9. Project details of Segment 2.

been subject to recent cultivation, in addition to large-lot residential development. Topography in areas immediately west of the railroad was characterized by flat upland terrain with low probability for cultural resources.

A high-probability area was investigated along the east side of Lovers Lane near Little Brook Road in the northern half of the project area. A structure was depicted in this general vicinity on 1936 Denton County Highway map, and consequently, this was considered to have a high

Figure 10. Cleared vegetation overlying the pipeline corridor.

probability for historic-period archeological materials. Survey of this area consisted of eight shovel tests, none of which contained any archeological material. The current residence on this property post-dates 1970, as do all ancillary structures. The area around the house within the APE has been recently farmed, though currently it is not under cultivation.

A second high-probability area was investigated just north of Masch Branch Road. This was another locale where a structure was depicted on the 1936 Denton County Highway map. Survey of this area revealed a cluster of 1950s-era ranch houses, recent barns, sheds, and a manufactured house surrounded by previously farmed fields now used for stock grazing and horse pastures. It also serves as an informal junkyard for inoperable automobiles.

Figure 11. Devon Energy Production facility.

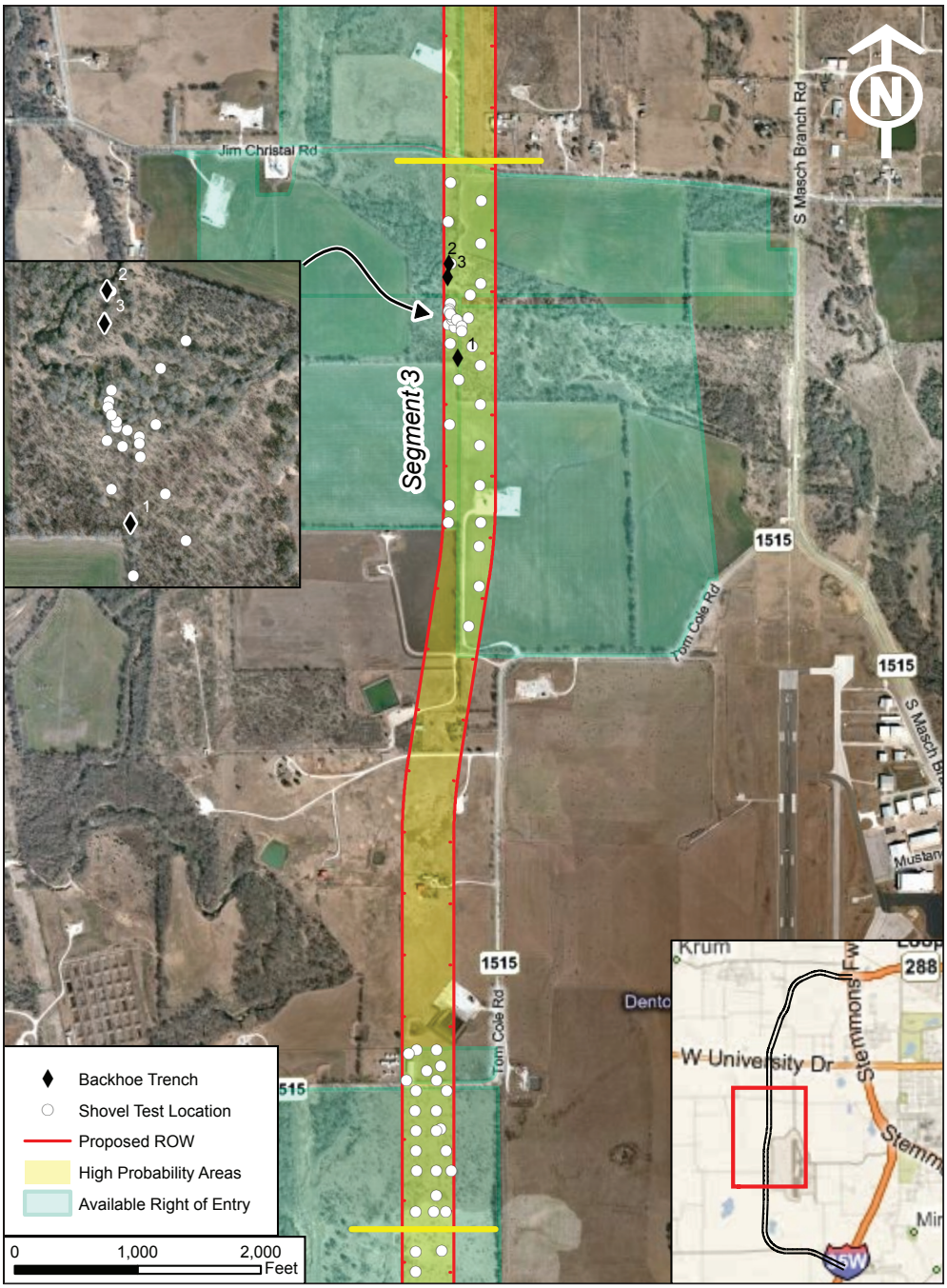

Figure 12. Project details of Segment 3.

Investigators placed seven shovel tests around this area and found no archeological material, nor was any observed on the surface.

Figure 13. 1970s-era stock water trough.

Figure 14. Grooved iron rebar within water trough.

Segment 2: From Masch Branch Road to Jim Cristal Road (Figure 9)

The northern portion of this section of new ROW is not near any large water source and was determined to have low potential for buried archeological deposits. This portion, between Masch Branch and US 380, is currently being used for livestock grazing and contains a residence associated with several pastures; pea gravels are exposed on the surface. The property was determined to have some probability for archeological resources based on its proximity to the Hickory Creek drainage area, and based on the presence of nearby structures on the 1936 Denton County Highway map. Four shovel tests were excavated on the property immediately south of US 380; however, shovel tests were halted at shallow depths when a sandy, red gravel lens was exposed under the grass, which had grown over a possible horse track or covered pasture.

South of the above-mentioned property, between US 380 and Jim Cristal Road, a high-probability area was observed to contain a large gas pipeline delivery system. ROE was only available for the western third of this segment, which is precisely where the pipeline rests. The pipeline easement width measures nearly 150 ft and extends for a distance of over 2,200 ft. The landscape surrounding the underground gas pipeline has been subject to intensive mechanical excavation to accommodate the subsurface delivery system. Large-scale excavation in this locale is evidenced by the disturbed soils on the ground surface, and by various depressions and eroded soil fissures overlying the pipeline where underground cavities of backfill have collapsed. Vegetation overlying the pipeline corridor still consists of medium to high grasses,

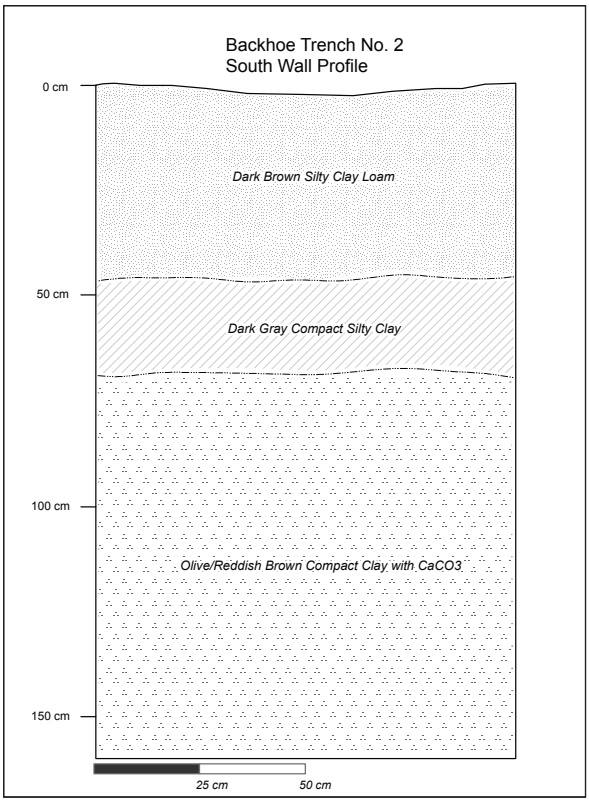

Figure 15. BHT 2 soil profile.

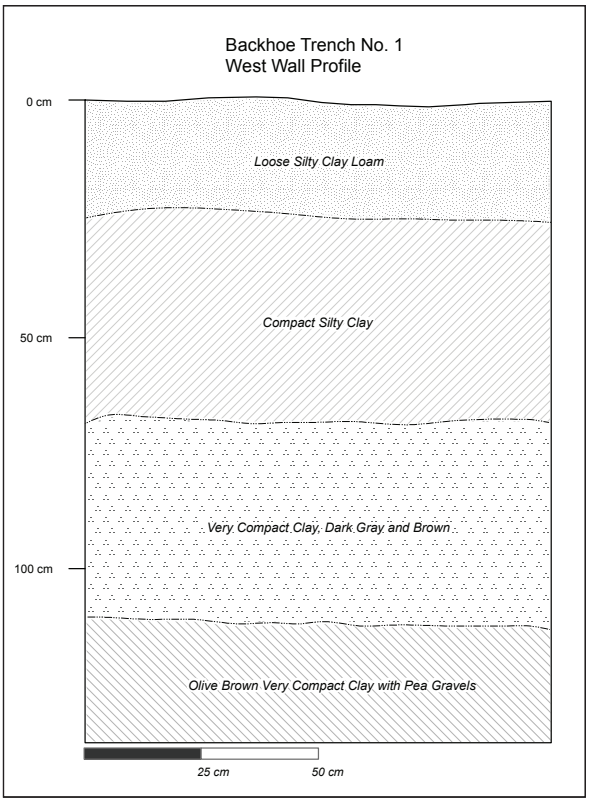

Figure 16. BHT 1 soil profile.

but no trees. The corridor is obviously well-maintained by the pipeline company (Figure 10). The pipeline corridor was not subject to shovel testing since the soils were clearly disturbed and a working underground utility was present. The underground delivery system links to the Devon Energy Production facility (Figure 11). The grounds on which this structure stands, and its associated access roads, also rest within the APE, directly within the portion where ROE is granted.

Segment 3: From Jim Cristal Road to Just North of South Hickory Creek (Figure 12)

The geologic architecture of the area between the Dry Fork of Hickory Creek and South Hickory Creek is characterized mainly by Holocene alluvial deposits associated with the major drainages. Therefore, areas around these drainages were considered to have high potential for archeological deposits. Investigators had access to all but one property in this segment. Areas with ROE were intensively investigated via shovel testing and backhoe trenching to negative results. To increase the chances of locating any prehistoric materials, sixteen shovel tests were excavated where the ROW crossed the Dry Fork of Hickory Creek, but still no artifacts were encountered. However, during pedestrian survey along this segment of the Dry Fork of Hickory Creek, a 1970s-era stock water trough (Figure 13) with modern iron reinforcement was observed along a bend in the creek within the APE. It measured 10 x 20 ft, and contained

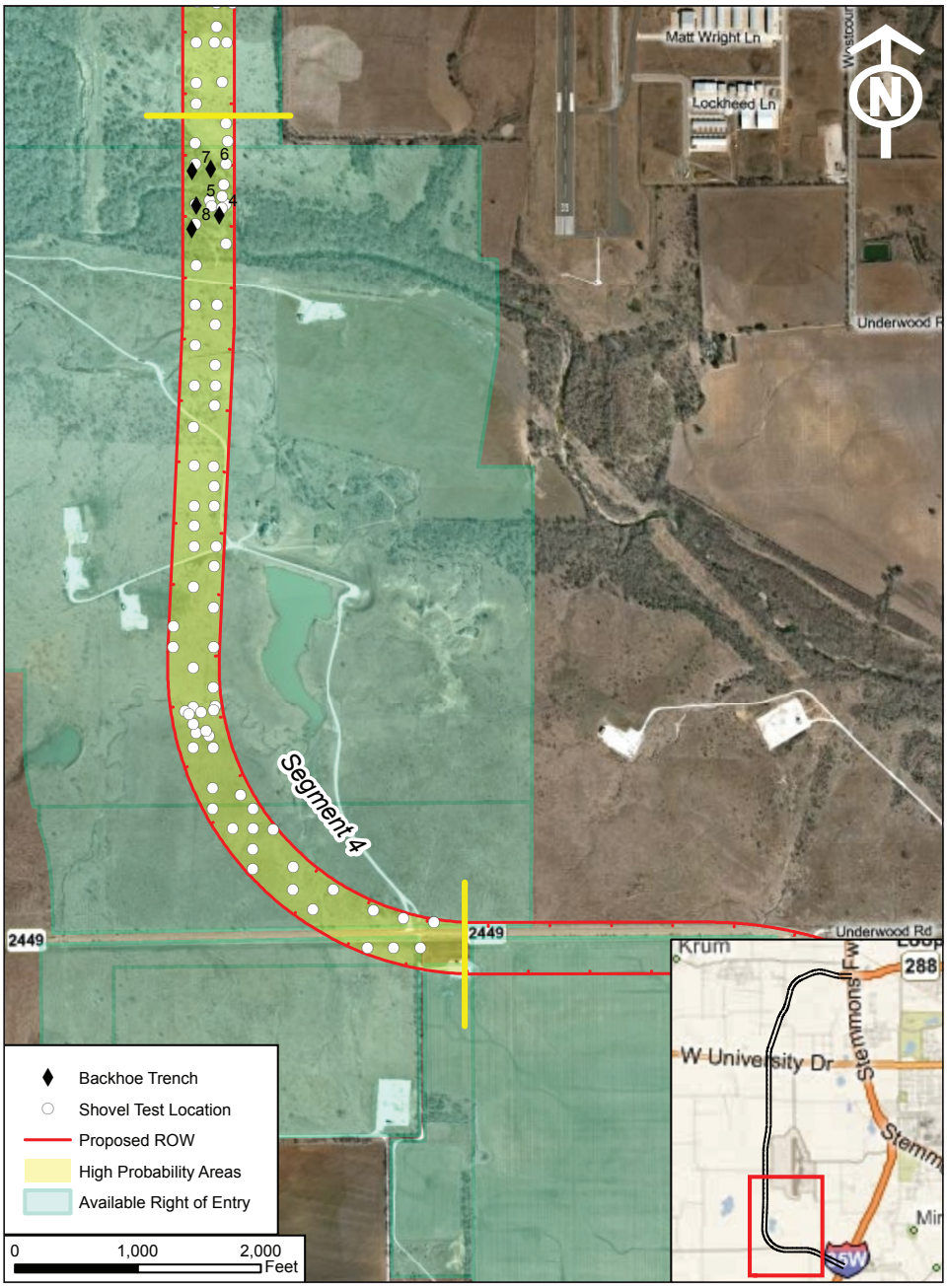

Figure 17. Project details of Segment 4.

grooved iron rebar (Figure 14). The stock trough was not historic in age, and was not associated with any standing structures, nor were any artifact scatters observed around it.

The area located immediately west of Tom Cole Road (FM 1515), could not be investigated through pedestrian survey or subsurface excavations due to a lack of ROE. Observation from Tom Cole Road noted the presence of several large oil-well pads around the APE, as well as a 1930s-era bungalow farmhouse with more recent barns and outbuildings. The house is currently inhabited and as a result of this, the potential for historic-period archeological deposits

Figure 18. South Hickory Creek.

associated with it is low. During a building assessment survey, this structure was recommended to be ineligible for listing on the National Register of Historic Places, as it did not meet Criteria A, B, or C requirements.

Backhoe trenching was conducted along the Dry Fork of Hickory Creek in accessible areas. Two backhoe trenches (BHT 2 and BHT 3) were placed on the north side of the creek. These revealed approximately 50 cm of dark brown, silty alluvium over very compact, lighter brown silty clay. The lowest soil zone, appearing at approximately 70–100 cmbs, was characterized by mottled olive brown, very compact, sticky clay with calcium carbonate nodules (Figure 15). BHTs 2 and 3 terminated at depths of 1.6 and 1.25 mbs respectively, when ancient pre-cultural clays had been reached.

One trench was placed along the south side of the creek approximately 300 ft from the channel. Investigators were unable to get any closer due to very dense vegetation consisting of strong standing trees surrounded by a thick understory. BHT 1 was therefore placed as close as possible to the creek. This trench revelaed an upper root zone of humic, dark brown to black silty clay (0–22 cmbs) over increasingly hard clays, ranging from almost black to olive brown in color (Figure 16). As with BHTs 2 and 3 on the north side of the creek, the lowest soil zone (110–135 cmbs) exhibited mottled olive brown and brown clay mixed with calcium carbonate nodules that archeologists interpreted as pre-cultural. BHT 1 was terminated at a depth of 1.35 mbs. No cultural material was observed in any of the trenches or in associated samples of screened soils.

Segment 4: From North of South Hickory Creek to FM 2449 (Figure 17)

This segment straddles South Hickory Creek, an active watershed characterized by recent Holocene alluvium, and was considered to have a high potential for buried archeological resources, particularly along the creek. Investigators had access to 100 percent of this portion of the project area and were able to conduct shovel tests at regular intervals throughout the segment. None of them contained any cultural material. However, one isolated stoneware sherd was observed on the surface approximately one-half mile south of South Hickory Creek. This sherd was non-diagnostic.

This segment consists of rolling topography broken by the South Hickory Creek drainage basin. The landscape outside the South Hickory Creek is generally characterized by rangeland and farmland covered with medium grasses punctuated by clusters of riparian vegetation

growing along fence lines and drainages. Well pads, pipelines and a nearby electrical transmission line corridor have significantly altered the character of the once agrarian landscape in this area. Shovel tests within the rolling upland topography revealed brown very compact silty clay loam to a depth of more than 80 cmbs in most places.

A modern trash pile consisting of corrugated aluminum paneling and lumber was encountered north of a stock pond approximately 2,000 ft north of FM 2449 during pedestrian survey. This debris pile was likely a barn or shed that had collapsed, and it appeared as if subsequent construction waste materials were placed there. It was intensively examined and found to only contain modern materials. This portion of Segment 4, located just north of FM 2449, was heavily eroded due to disturbance from cattle grazing and water control channels within the rangeland. Nonetheless, investigators intensively shovel tested this area and found and no evidence of archeological material.

Visual inspection of the banks along South Hickory Creek initially suggested that the floodplains flanking it would have very high potential for archeological material. Shovel testing and backhoe trenching in this area confirmed that intact soils are present, particularly on the south side of the creek. Within the proposed APE, South Hickory forms a wide, horseshoe-shaped meander that is actively cutting into the northern bank. The south side of the creek is rapidly aggrading with alluvium (Figure 18). Inside the meander, the landscape is characterized by an expansive, flat lowland floodplain with mature hardwood vegetation growing throughout. This meander was thought to be the perfect environment for burying and preserving archeological material.

Figure 19. BHT 4 excavation.

Figure 20. BHT 6 excavation.

Investigators placed five backhoe trenches around South Hickory Creek: two on the north and three on the south side of the channel within the floodplain meander. Each of the three trenches (BHTs 4, 5, and 8) revealed similar profiles characterized by a series of dark brown to brown silt loams to a depth of nearly two meters. These overlay loose silty sand at various depths. BHT 4 was excavated to a depth of 2.7 m (Figure 19), BHT 5 was excavated to a depth of 2.5 m, and BHT 8 was excavated to a depth of 2.2 m. Overall, each of the three trenches on the south side of South Hickory Creek demonstrated weakly developed soils in an alluvial environment suitable for the preservation of archeological sites, though no interpretable archeological material was observed.

Figure 21. Project details of Segment 5.

Scattered mussel shell and small chunks of charcoal were noted in BHT 4 at a depth of 2.2–2.5 m. However, no other materials were observed and nothing appeared to be definitively cultural. Mussel shell was also noted in BHT 8 at a depth of 1.3–1.6 mbs. The shells observed were whole and appeared to be completely unmodified. No charcoal or other cultural material was observed in soil that was screened from this depth, and investigators believe that this zone is a natural accumulation of shell.

Investigators placed two trenches on the north side of South Hickory Creek. Unlike the south side of the creek, the north side exhibited a more stable alluvial terrace, characterized by moderate pedogenic development. The creek banks on the north side slope steeply away from the channel for a distance of at least 50 ft, and then continue climbing at a gentler slope, flattening out about 300 ft away from the channel. The banks are densely vegetated with vines, brush, and understory vegetation, and thus finding a suitable trenching location was a bit of a challenge.

BHT 7, placed approximately 100 ft from the creek channel, exhibited a thin layer of dark brown, humic silty clay loam (0–20 cmbs) over very compact brown silty clay to about 80 cmbs. Below this, soil was characterized by very compact, lighter brown silty clay with abundant calcium carbonate flecks and nodules. No cultural material was observed in this trench and it was terminated at what investigators believed is an ancient soil.

BHT 6, placed approximately 250 ft from the channel on a gentle slope below the highest terrace overlooking South Hickory Creek, revealed just 20 cm of brown silty loam before encountering very large limestone rocks, some measuring more than half a meter in diameter. As these were removed with the backhoe, more were encountered, and it was clear that these were part of the bedrock architecture. Small limestone cobbles and exposures of rock were visible on the surface at this location. No cultural material was found in BHT 6 before it was terminated at a depth of 30 cmbs (Figure 20). Based on the trenching, investigators judged that north side of Hickory Creek has limited potential for buried intact archeological resources.

Segment 5: From FM 2449 to the Vintage Boulevard (Figure 21)

The southern portion of the proposed corridor, between IH 35W and John Paine Road, crosses through farm and rangeland that is currently or recently cultivated. It was not subject to shovel testing due to a combination of factors: low probability for intact buried archeological materials and lack of ROE. ROE was available to half of this segment, but the property was fully cultivated with a harvest-ready crop of wheat at the time of investigations, and the tenant did not want anyone to walk over it and disturb it. Nonetheless, AmaTerra personnel walked the existing ROW along FM2449 to the project terminus, which provided an adequate vantage point to observe the condition of the APE with respect to archeological resources. No cultural material was observed in surface exposures within the APE and no evidence of potential archeological sites (historic and prehistoric) was noted. Given the upland setting of this segment, there is almost no potential for buried archeological material. Additionally, agricultural activity along this portion of the APE would impact the integrity of any archeological deposits.

Chapter 4

Conclusions and Recommendations

High-probability areas within the APE where ROE was granted were intensively investigated via pedestrian survey, shovel testing, and backhoe trenching, particularly along the two localities where the APE crossed major drainages. In total, archeologists excavated 152 shovel tests and eight backhoe trenches in the high-probability areas. None of them contained any archeological material, and only one artifact, an isolated, non-diagnostic stoneware sherd, was observed on the surface of the entire APE. Low-probability areas where ROE was granted were subject to 100 percent pedestrian survey, in which the entire ground surface was visually inspected and examined for any sign of cultural material. In general, ground surface visibility varied between 5 and 50 percent. Localities where ROE was denied were examined from various vantage points within public ROWs and other properties where ROE was available, and found to exhibit overtly disturbed landscapes as a result of agriculture, gas extraction, and/or residential development. These localities, as stated before, are highly unlikely to contain intact deposits based on previous disturbances in upland areas. Moreover, based on the lack of archeological materials in intensively investigated, high-probability locations, it is exceedingly unlikely that there are any buried archeological resources in unsurveyed portions of the Loop 288 APE.

As a result of these findings, AmaTerra recommends that no further archeological work is required prior to the construction of the proposed new Loop 288 segment in Denton County, Texas. No archeological sites were observed to rest within the APE. Since no cultural resources were identified that meet eligibility requirements for designation as a State Archeological Landmark according to 13 TAC 26, and 13 CFR 800 Section 106, additional archeological work in connection with the proposed undertaking is not recommended. AmaTerra recommends that construction to the proposed Loop 288 roadway segment proceed to completion.

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