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Megan Koszarek

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By: Megan Koszarek and Kristin Morgan

Principal Investigator: Megan Koszarek

Texas Antiquities Permit Number: 7792

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**Megan Koszarek**
**Kristin Morgan**


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**Principal Investigator**
**Megan Koszarek**


**Prepared For:**

**North Texas Municipal Water District**
**PO Box 2408**
**Wylie, TX 75098**

**Prepared By:**


**17111 Preston Road, Suite 300**
**Dallas, TX 75248**



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# Management Summary

The North Texas Municipal Water District (NTMWD) contracted HDR Engineering, Inc. (HDR) to conduct an intensive archaeological survey prior to the installation of the proposed North McKinney Pipeline in McKinney, Collin County, Texas. The pipeline will consist of 23,918 linear feet (ft) of pipeline, with a diameter measuring between 72 inches (in) and 84 in, along an approximately 4.53-mile (mi) long easement corridor. Of this total, approximately 3.28 mi have been previously surveyed by Geo-Marine, Inc. in 2009 (Tiné 2009). Thus, the current cultural resources investigation conducted by HDR will cover the remaining 1.25 mi of pipeline easement. The survey corridor comprises the 40-ft permanent easement with an additional 60 ft temporary construction easement, totaling 100ft. The total Area of Potential Effects (APE) is 660,000 square ft (15.2 acres), and construction impacts are projected at depths of 12 to 20 ft.

HDR completed an intensive archaeological survey of the 1.25 mi APE on April 4, 2017. During the course of the survey notifications, one landowner instructed the HDR crew to avoid entry to a portion of an agricultural field containing young crops. In total, 15 shovel tests were excavated within the remainder of the APE. The survey crew included principal investigator Megan Koszarek and project archaeologist Ben Fullerton, and a total of 16 person hours were invested in the field survey. This work was conducted under Texas Antiquities Permit Number 7792.

In accordance with 13 *Texas Administrative Code* [TAC] 26, no further archaeological investigations are recommended. As a result of the present survey, it is recommended that the proposed installation of approximately 1.25 mi of pipeline will not have any effect on archaeological resources in the project APE, and construction may proceed. In the event that any archaeological deposits are encountered during construction, work should cease, and the Texas Historical Commission (THC) should be notified.

All records and materials generated by this project will be permanently curated at the Center for Archaeological Studies (CAS) at Texas State University in San Marcos, Texas.

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## Tables

## Abbreviations and Acronyms

| | |
|---|---|
| APE | Area of Potential Effects |
| Atlas | Texas Archeological Sites Atlas |
| bs | Below Surface |
| CAS | Center for Archaeological Studies |
| CFR | Code of Federal Regulations |
| cm | Centimeter(s) |
| cmbs | Centimeters Below Surface |
| ft | Foot/Feet |
| GPS | Global Positioning System |
| HDR | HDR Engineering, Inc. |
| in | Inch/Inches |
| km | Kilometer(s) |
| m | Meter(s) |
| mi | Mile(s) |
| m.n. | Marker Number |
| NRHP | National Register of Historic Places |
| NRCS | Natural Resources Conservation Service |
| NTMWD | North Texas Municipal Water District |
| OTHM | Official Texas Historical Marker |
| POW | Prisoner of War |
| SAL | State Antiquities Landmark |
| TAC | Texas Administrative Code |
| TARL | Texas Archeological Research Laboratory |
| THC | Texas Historical Commission |
| WWII | World War II |

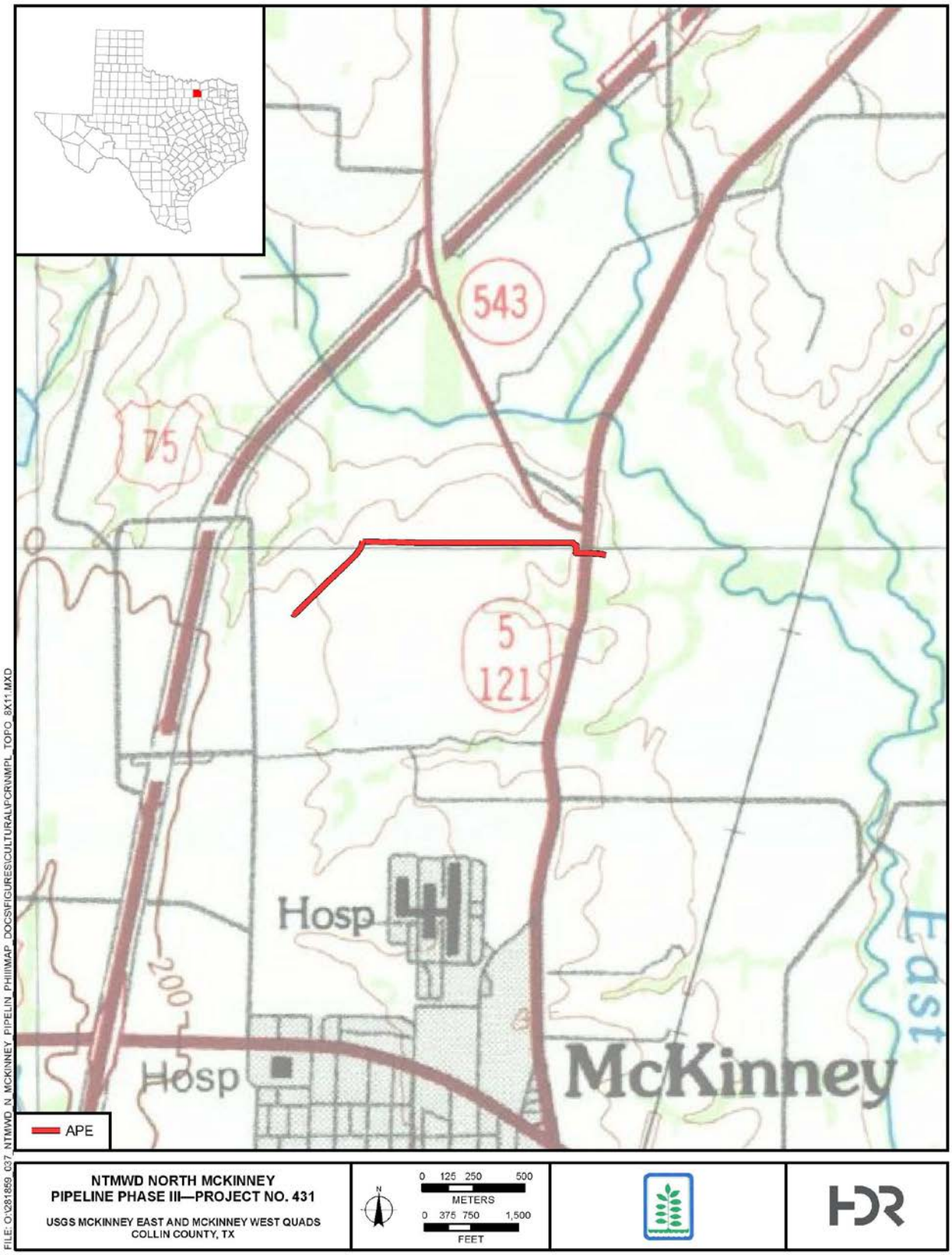
# 1 Introduction

The NTMWD proposes to install the North McKinney Pipeline in the City of McKinney, Collin County, Texas. The project consists of an approximately 4.53-mi long pipeline, measuring between 84 in and 72 in in diameter. A majority of the project area—approximately 3.28 mi—was previously surveyed by Geo-Marine, Inc. in 2009 (Tiné 2009). As a result, HDR contracted with the NTMWD to conduct an intensive archaeological survey of the remaining 1.25 mi of the pipeline within a 100-ft survey corridor (Figure 1-1).

As an entity of the State of Texas, the NTMWD is required under the Antiquities Code of Texas to provide a cultural assessment of the APE. Principal investigator Megan Koszarek and project archaeologist Ben Fullerton conducted the archaeological investigation on April 4, 2017, under Texas Antiquities Permit Number 7792. The purpose of the archaeological investigation is to determine the presence/absence of archaeological resources and to evaluate identified resources for their eligibility for inclusion in the National Register of Historic Places (NRHP) or as a designated State Antiquities Landmark (SAL) under the Antiquities Code of Texas (13 TAC 26.12).

All records and materials generated by this project will be permanently curated at the CAS at Texas State University in San Marcos, Texas.

**Figure 1-1. Topographic Map of the APE.**



# 2 Background

## 2.1 Geology and Soils

The underlying geology within the project area consists of the Austin Chalk Formation of Late Cretaceous age (Bureau of Economic Geology 1992). According to data from the Natural Resources Conservation Service (NRCS), the APE contains seven soil map units: Austin silty clay, 1 to 3 percent slopes; Austin silty clay, 5 to 8 percent slopes, eroded; Houston Black clay, 1 to 3 percent slopes; Houston Black clay, 0 to 1 percent slopes; Lewisville silty clay, 3 to 5 percent slopes, eroded; Altoga silty clay, 5 to 8 percent slopes, eroded; and Tinn clay, 0 to 1 percent slopes, frequently flooded (Soil Survey Staff 2016). The soil descriptions over the majority of the project area indicate that sterile subsoil (Bk horizons and Bkss horizons) or bedrock is typically encountered prior to maximum shovel test depth (80 centimeters below surface [cmbs]).

## 2.2 Cultural History

Current conceptions of the prehistoric cultural chronology of Northcentral Texas (especially for the upper Trinity River Basin) are largely based on four major reports by Peter and McGregor (1988), Prikryl (1987, 1990), and Yates and Ferring (1986) (Table 2-1).

**Table 2-1. General Cultural Chronology for the Southern High Plains.**

After Perter and McGregor [1988], Prikryl [1987, 1990], and Yates and Ferring (1986)

| Period | Age (B.C. / A.D.) |
|---|---|
| Paleoindian | 9500–7000 B.C. |
| Archaic | 7000 B.C.–A.D. 700 |
| Late Prehistoric | A.D. 700–1600 |
| Protohistoric | A.D. 1600–1800 |

### 2.2.1 Paleoindian Period

Point types found in Northcentral Texas that are associated with the early to late part of the Paleoindian period include Clovis, Folsom, Dalton, Plainview, San Patrice, and Scottsbluff. Based on a sample of projectile points from surface sites, Prikryl (1990) has concluded that among the most common Paleoindian point types in this area are Plainview and Dalton. Ferring and Yates (1997) suggest that these types date to about 10,000 to 9,500 years ago, based on cross-dating with other regions. The suggested age for these types may correspond with the onset of early Holocene alluviation in the local river valleys, including the Trinity and Sabine. The majority of the recorded Paleoindian sites cluster in the upper Trinity drainage, where the most intensive archaeological investigations have taken place, though often these sites consist of no more than one or two projectile points. The generally low density of Paleoindian artifacts and sites and the tendency for projectile points to be made from nonlocal lithics have led investigators to characterize these populations as highly mobile, with low regional densities (Lynott 1981:100–101).

### 2.2.2 Archaic Period

For Northcentral Texas, the Archaic is tentatively dated between ca. 7000 B.C. and A.D. 700, with segments of approximately 2,500 years often considered as early, middle, and late divisions of the period (Prikryl 1993:199). Thus, the Early Archaic has been dated from 7000 to 4000 B.C., the Middle Archaic from 4000 to 2000 B.C., and the Late Archaic from 2000 B.C. to A.D. 700. Relatively recent overviews that cover the Archaic period in this portion of Texas include Hofman (1989), Prikryl (1990), and Story (1985, 1990). Diagnostic artifacts for the period are similar to those of adjacent regions, although developing a sound chronological sequence of diagnostic tool types has proven difficult because many of the investigations have focused on surface manifestations. Prikryl (1990) suggests Early Archaic projectile points include early split stemmed varieties and possibly Angostura while Middle Archaic points include basal-notched forms such as Andice, Bell, and Calf Creek along with Bulverde, Carrollton, Dawson, and Wells. Late Archaic point types reportedly include Castroville, Dallas, Edgewood, Elam, Ellis, Gary, Godley, Marshall, Palmillas, Trinity, and Yarbrough (Prikryl 1990). At one time, the Carrollton and Elam foci were used to define the Middle and Late Archaic, respectively (Crook and Harris 1952, 1954). Reevaluation of the type-site artifacts, however, showed that the materials were so mixed that perpetuation of these foci provided little interpretive value (Hofman et al. 1989; Prikryl 1990). Some of this mixing and the generally low numbers of Early and Middle Archaic sites may be due to extensive erosion of mid-Holocene deposits, as has been documented for the Brazos River drainage west of the Dallas area in Young, Stephens, and Throckmorton counties (Ensor et al. 1992).

### 2.2.3 Late Prehistoric Period

The Late Prehistoric period (ca. A.D. 700–1600) is marked by the initial appearance of arrow points. The A.D. 700 date for the start of this period is based upon dated contexts for similar material in the Brazos River drainage to the west. Group aggregation and large-scale manipulation of subsistence resources, as represented by the Wylie pits and the human burials they contain, may indicate societal changes that continued through the Late Prehistoric period. Habitation structures indicating increased sedentism, at least in certain places and at certain times, have been found in some Late Prehistoric sites along with cultigens, such as corn, and arrow points and ceramic artifacts indicating important technological changes. Also, there may be evidence (e.g., the distinction between burials placed inside and outside Wylie pits) of differential mortuary practices that could reflect a shift toward hierarchical social structure, although this evidence is nowhere near as strong as that for the Caddo area of northeast Texas. Both Lynott (1977) and Prikryl (1990) have proposed that the Late Prehistoric period be divided into an early and late phase, with the early phase reflecting a continuation of the foraging subsistence system of the preceding Late Archaic period and the late phase reflecting Southern Plains influences. Evidence of horticulture and bison procurement also appears in sites of this period (Harris and Harris 1970; Morris and Morris 1970).

### 2.2.4 Protohistoric

The cultural divergences between Northcentral and Northeast Texas that began in the Archaic period continued into the Protohistoric and Historic periods. Various sociological factors, not the least of which was the colonization of New Mexico by the Spanish,

caused drastic changes in the cultural makeup of Northcentral Texas, as groups from elsewhere migrated into the area and existing groups were forced to adapt to their presence. Meanwhile, Caddoan groups continued to dominate the Northeastern portion of the state, although significant changes were occurring there also.

### 2.2.5 Historic European and Euro-American Cultural Period (1841–Present)

The Project is located at the northern edge of McKinney in Collin County on parcels that were patented c. 1845–1860. Since that time, the area has been primarily associated with agricultural use.

Anglo-American settlement in Collin County began in the early nineteenth century, catalyzed by the withdrawal of the area's earlier residents, the Caddo, in the mid-1850s, and by the establishment of Peters Colony, a North Texas empresario grant made in 1841 by the Republic of Texas. Empresarios, including William S. Peters, were contracted to bring settlers from outside of Texas to live on and cultivate 320 and 640-acre parcels. Peters and his associates, headquartered in Louisville, Kentucky, set out to recruit 600 families to move to north-central Texas in the late 1830s and early 1840s (Texas General Land Office 2015). Peters Colony experienced only limited success, due to conflicting land claims and internal power struggles within the colony's investor group (Wade 2010). By 1846, when Collin County was established, the population numbered 150 (Minor 2010). The county was named to honor Collin McKinney, an early settler of the area and signer of the Texas Declaration of Independence.

The first known settlers in the McKinney area were Joseph Brice Wilmeth and his family, and their settlement came to be known as Wilmeth. The Wilmeths arrived in Texas in October 1845 and originally staked a claim near Grand Prairie. However, troubles with local tribes pushed them back to their eventual homestead site located on the east side of SH 5 just south of what is now Wilmeth Road. This location is about 2.5 miles north of what would become the original town of McKinney. Many of the earliest residents of the area settled in the small community of Wilmeth (Eckel 2011). J.B. Wilmeth helped establish the First Christian Church of McKinney, and he was the founder and one of the teachers at the original Wilmeth School (Hall 1952). He also brought some of the first slaves to Collin County to assist in harvesting his wheat and barley crops (Eckel 2011).

The townsite of McKinney was established in 1849 on 120 acres donated by William Davis, and it was officially incorporated ten years later. Due to its central location, McKinney had already replaced Buckner as the county seat in 1848. Since that time, McKinney has served as a principal commercial and population center for the county (Minor 2010). Prior to the arrival of the railroads, settlers in the area of McKinney were primarily farmers producing wheat and corn (Minor 2010). Farming was limited, however, primarily due to lack of transportation options to deliver crops to larger markets. When the Houston and Texas Central Railway reached McKinney and Plano in 1872, Collin County experienced a boom in population and economic growth. Farmers now had a viable means to transport crops, and the number of potential markets for their crops expanded. Trains also brought more advanced, mechanized equipment to local farmers (Minor 2010). The Missouri, Kansas and Texas and the Gulf, Colorado and Santa Fe rail lines arrived within the next ten years, further stimulating growth.

In 1870, a total of 903 farms were operating in the county, and that number had increased to 6,001 by 1920 (Minor 2010). The connection to national and international markets also led local farmers to produce the southern staple, cotton, as it was highly marketable and now easily transportable (Kilgore 2009:32). By 1910, McKinney was home to approximately 5,000 residents as well as two flour mills, five cotton gins, two ice factories, two daily and four weekly newspapers, and three banks (Kilgore 2009:33). The arrival of the boll weevil in the first decade of the twentieth century forced local farmers to concentrate less upon cotton production (Kilgore 2009:59). Nonetheless, in 1910, prominent citizens of McKinney incorporated the Texas Cotton Mill Company and opened a mill, one of the only mills west of the Mississippi River that manufactured color-print cloth (Kilgore 2009:69). The mill transitioned to producing denim and was purchased by the C.R. Miller Manufacturing Company in 1925, but remained an important part of McKinney's local economy until it closed in 1967 (Kilgore 2009:229). As it did throughout the country, the Great Depression severely restricted agricultural development and economic growth in McKinney and Collin County.

Collin County's agricultural economy rebounded in the post-World War II years. Farmers were aided by the establishment of the Collin County Soil Conservation District, which installed flood-prevention measures, and the Texas Research Foundation, which applied technological advances to agricultural practices. Resultant crop production attested to the success of the programs, including the county's main cash crop, wheat, which increased from approximately 350,000 bushels in 1949 to more than 1.2 million bushels in 1959 (Minor 2010). Advances in farming practices, however, also led to the decrease in the number of farms operating in the county. Mechanization of farming processes translated to fewer, larger farms, and they were no longer necessarily run by family owners. Not as many people were required to work on this type of farm, so the Collin County population dropped accordingly—from 47,190 in 1940 to 41,247 in 1960 (Historical Census Browser 2004). The population of McKinney, on the other hand, grew slowly but steadily throughout the mid-century period from 8,555 in 1940 to 13,763 in 1960 (Texas Almanac 2017).

Collin County diversified its economy beyond its agricultural base in the late twentieth century, with the introduction of manufacturing and light industry in the 1970s (Minor 2010). The increasing suburban sprawl of Dallas also altered the balance of population and commercial activity, and in 1970, McKinney's population was for the first time exceeded by another Collin County city, Plano (Minor 2010). Plano grew rapidly in the late twentieth century, and by the start of the twenty-first century, suburban growth had similar effects on McKinney. In 1990, McKinney's population exceeded 20,000 but by 2015, its population had increased more than 600 percent to reach 155,000 (Texas Almanac 2017). Today, McKinney is home to more than 2,000 businesses, but it is primarily a suburban commuter center for other parts of the Dallas metropolitan area (Minor 2010).

## Project Location

The project area transects three land grants. John R. Jones was granted Abstract 497, 104 acres, and issued Patent 682 in 1860. Fala Dunn was granted Abstract 284 for 320 acres, and his heirs were issued Patent 82 in 1860. John Hart was granted Abstract 423, 320 acres, and issued Patent 300 in 1845 (Texas General Land Office 2017).

The area surrounding the Project remained predominantly in agricultural use through the twentieth century, Oak Hollow Golf Course, on the south side of Wilmeth Road, was built in 1943 and expanded in 1995. Some commercial and light industry has developed along Wilmeth Road c. 2000, and residential development began c. 2001 and 2004.

# 3 Methods

## 3.1 Previous Investigations near the APE

Prior to the initiation of fieldwork, HDR conducted a review of the THC's Archeological Sites Atlas (Atlas) to identify any previous cultural resources surveys, archaeological sites, Official Texas Historical Markers (OTHMs), Recorded Texas Historic Landmarks, cemeteries, NRHP listed properties or districts, or previous structure inventories within one mile (1.6 kilometer [km]) of the APE.

A total of 11 cultural resources surveys have been conducted within one mile of the APE (Table 3-1). As previously discussed, the eastern 3.28 mi of the project were surveyed in 2009 by Geo-Marine, Inc. under Texas Antiquities Permit Number 5230 (ID 85000016185) and documented in the survey report, *Cultural Resources investigations for the McKinney Eastside Extension Parallel Interceptor Wastewater Pipeline, McKinney, Collin County, Texas—Collin County* (Tiné 2009). A second survey parallels the APE (ID 8400000843) that was conducted in 1999 for the "CITY OF IRVI", according to the Atlas. No additional information is available concerning this survey via the Atlas.

**Table 3-1. Previous Cultural Resources Surveys within One Mile of the APE.**

| Survey ID | Agency | Report Title | Contractor | Year | Comments |
|---|---|---|---|---|---|
| 8500016185 | NTMWD | Cultural Resources investigations for the McKinney Eastside Extension Parallel Interceptor Wastewater Pipeline, McKinney, Collin County, Texas—Collin County | Geo-Marine, Inc. | 2009 | TAC # 5230; survey of the eastern 3.28 mi of the project |
| 8500014039 | USACE | An Archaeological Survey of the Proposed Melissa/Anna Interceptor Sewer Pipeline, Collin County — Collin County | AR Consultants, Inc. | 2007 | TAC # 4288 |
| 8500013129 | TxDOT | TxDOT Letter Report | TRC | 2003 | — |
| 8500012780 | TxDOT | TxDOT Letter Report | TRC | 2003 | — |
| 8500011244 | TxDOT / FHA | — | Blanton and Associates | 2005 | TAC # 3144 |
| 8500020539 | City of McKinney | Archaeological Survey of Proposed FM 543 Road Construction City of McKinney Collin County, Texas — Collin County | Integrated Environmental Solutions | 2012 | TAC # 5993 |
| 8500012242 | NRCS | — | NRCS | 2005 | — |

**Table 3-1. Previous Cultural Resources Surveys within One Mile of the APE.**

| Survey ID | Agency | Report Title | Contractor | Year | Comments |
|---|---|---|---|---|---|
| 8500015491 | City of McKinney | Intensive Pedestrian Survey for the Proposed Bloomdale Road Extension and Mechanical Scraping Outside the McLarry Cemetery, McKinney, Collin County, Texas — Collin County | Geo-Marine, Inc. | 2008 | TAC # 4977 |
| 8400000843 | "CITY OF IRVI" | — | — | 1999 | Parallels APE |
| 8500080008 | City of McKinney | — | AR Consultants, Inc. | 2016 | TAC # 7845 |
| 8500000090 | TPWD | — | — | 1998 | — |

Furthermore, three archaeological sites have been recorded within the search radius (Table 3-2). These sites are located between 0.1 and 0.95 mile from the APE. The first site, 41COL278, is a historic site located 0.1 mi north of the APE. The site was determined not eligible for inclusion in the NRHP in 2016, but no information beyond the eligibility determination was available via the Atlas database. The second site, 41COL181, is the Wilmeth-McKinney home site located approximately 0.65 mi south of the APE. The site consists of the unoccupied house, a root cellar, and other associated small buildings that date to 1846–1848. Artifacts observed at the site include small fragments of glass, pottery, dishware, and metal. The site is surrounded by farmland, and the property is commemorated by OTHM number 6219 ("Site of Wilmeth-McKinney Homestead" Table 3-3). According to the OTHM, the land was settled by Joseph Brice (J. B.) Wilmeth and Nancy Ferguson in 1846. The home was built soon after and eventually hosted McKinney's First Christian Church in 1848. Between 1848 and 1887, a free school was held within the home as well. The Wilmeth-McKinney Home remained in the family after the death of J. B. and Nancy and was occupied by their daughter, Martha, and her husband Daniel McKinney until 1906. Martha and Daniel's son John Brice and his wife Annie then occupied the home until their deaths in 1968.

The final site, 41COL183, is a World War II (WWII) Prisoner of War (POW) camp located approximately 0.95 mi south of the APE. The site consisted of six barracks, a mess hall, and a day room surrounded by a wire fence. Artifacts observed include window glass fragments and a fragment of white dishware. A single feature, a square post hole, was observed within the site. The site record states that the site needs to be fully recorded with some artifact collection. The site is considered to be potentially eligible for inclusion in the NRHP.

**Table 3-2. Previously Recorded Archaeological Sites Located within One Mile of the APE.**

| Identifier | Affiliation | Features/Function | NRHP Eligibility | Comments / Recommendations |
|---|---|---|---|---|
| 41COL278 | Historic | — | Not eligible | No site information provided via Atlas |
| 41COL181 | Historic | Wilmeth-McKinney Home (ca. 1848) | Unknown | OTHM 6219 |
| 41COL183 | Historic | WWII POW camp | Has potential | Site needs to be recorded |

Three OTHMs have been erected within one mile of the APE (Table 3-3). Marker number (m.n.) 6182 was erected for the McLarry Cemetery (discussed below), m.n. 6219 commemorates the Wilmeth-McKinney Homestead (see site 41COL181 above), and m.n. 6178 is the McKinney OTHM. This marker was erected for the City of McKinney, founded in 1845 by Collin McKinney.

**Table 3-3. Official Texas Historic Markers Located within One Mile of the APE.**

| Marker Number | Marker Title | Location | Year Erected | Comments |
|---|---|---|---|---|
| 6182 | McLarry Cemetery | On McLarry Road about 2 miles north of McKinney off IH-75 | 1981 | COL-C050; Marker misplotted in the Atlas |
| 6219 | Site of Wilmeth-McKinney Homestead | On SH 5 (1300 block) about 1 1/2 mile north of the intersection of SH 5 and US 380, McKinney | 1993 | Home documented by site 41COL181 |
| 6178 | McKinney | On SH 5, about 1 mile north of intersection of SH 5 and US 380, McKinney | 1963 | — |

The Atlas review indicated that the McLarry Cemetery (COL-C050) is located within the one-mile search radius of the APE. The cemetery is also commemorated by OTHM number 6182, though the Atlas shows the marker misplotted 0.8 mi northwest, behind the Collin County Animal Services building. The cemetery was created in 1851 with the burial of John R. Jones' infant son. By 1870, the McLarry family donated the land for public burial for the Wilmeth settlement. The cemetery is currently used by the descendants of the Wilmeth community pioneers.

**Figure 3-1. Aerial Photographic Map Showing Cultural Resources and Previous Surveys within One Mile of the APE.**

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## 3.2 Survey Methods

HDR conducted an intensive archaeological survey with shovel testing of the approximately 1.25 mi long APE, 100 ft in width, comprising 15.2 acres. The survey was conducted by two archaeologists on April 4, 2017. The APE was systematically shovel tested within the 100 ft survey corridor according to THC survey standards for linear projects with corridors less than or equal to 100 ft (30 meters [m]) wide, requiring 16 shovel tests per mile. The APE is 1.25 mi in length, therefore, required a total of 20 shovel tests. A segment of the APE, approximately 0.3 mi long, crossed an active corn field where the landowner requested that no digging occur. In addition, due to the prevalence of buried utilities in the APE, archaeologists were only able to dig 15 shovel tests within the APE. Digital photographs were used to document the survey conditions, disturbances, and any cultural features observed, and photograph details were recorded on standardized forms.

Each shovel test was approximately 30 centimeters (cm) (12 in) in diameter and was excavated in 20 cm (8 in) arbitrary levels to a depth of 80 cm below surface (bs) (32 inbs) or until sterile subsoil was encountered or bedrock was encountered. The soil removed was screened through 0.635-cm (0.25-in) mesh screen, and soil descriptions followed the guidelines and terminology established by the National Soil Survey Center (Schoeneberger et al. 2002). Soil colors were recorded using a Munsell Soil Color Chart. All excavated shovel tests were recorded on shovel test forms that noted depth, soil matrix descriptions, and cultural materials recovered.

Digital photographs were used to document the survey conditions, disturbances, and any cultural features observed; and details of each photograph were recorded on standardized forms.

### Site Designation

The THC differentiates between archaeological sites and isolated finds. Sites are evaluated and recommended eligible or ineligible for inclusion in the NRHP. Isolated finds are ineligible for inclusion in the NRHP as they do not meet the requirements to be designated as a site. The HDR standards for defining archaeological sites and isolated finds involves the cultural affiliation and number of artifacts present within an area of pre-determined size. A prehistoric site designation is applied when five or more prehistoric artifacts are present within a 20 m² area. A historic site designation is applied when 10 or more artifacts of two or more artifacts classes are present within a 20 m² area. Isolated finds are defined as the presence of four prehistoric artifacts or less, fewer than 10 historic artifacts, or historic artifacts from only one artifact class within a 20 m² area. Site boundaries are defined by the presence of surficial materials and by shovel tests yielding cultural materials. Where possible, all radial shovel tests are excavated at 10 m intervals until two sterile units are encountered in all cardinal directions. As part of the identification and documentation of sites, sites are recorded on a State of Texas Archeological Data Site Form. This form records a variety of data including location, setting, artifactual materials recovered, and other information. All sites are sketch-mapped, recorded using a Global Positioning System (GPS) unit, and photo-documented. Once completed, the form is submitted to the Texas Archeological Research Laboratory (TARL) for official trinomial designation. All records and materials

generated by this project will be permanently curated at the Center for Archaeological Studies at Texas State University in San Marcos, Texas.

# 4 Results

On the morning of April 4, 2017, archaeologists Megan Koszarek and Ben Fullerton began the intensive archaeological survey of the NTMWD North McKinney Pipeline Phase III—Project No. 431 APE (Figure 4-1 through Figure 4-3). The survey commenced at the western extent of the 1.25 mi APE and progressed eastward. The westernmost portion of the APE parallels Shawnee Drive with half of the corridor covered by the road right-of-way (ROW) and the other half in a field of mature winter wheat (Figure 4-4). After confirming the disturbance and buried utilities within the road ROW, shovel tests were placed within the agricultural field. A total of five shovel tests were excavated along this segment of the APE.

**Figure 4-1. Aerial Photographic Map Showing the Survey Results, Page 1 of 3.**

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**Figure 4-2. Aerial Photographic Map Showing the Survey Results, Page 2 of 3.**

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**Figure 4-3. Aerial Photographic Map Showing the Survey Results, Page 3 of 3.**

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**Figure 4-4. Overview of the Western End of the APE Showing the Cleared Road ROW and Mature Winter Wheat, Facing Northeast.**

After approximately 0.3 mi along Shawnee Drive, the APE turns east across Shawnee Drive and continues eastward approximately 0.65 mi through agricultural land (Figure 4-5). The first field was fallow at the time of the survey, and three shovel tests were excavated. Continuing to the east, the surveyors encountered an active agricultural field containing young corn crops (Figure 4-6). Prior to entry, the landowner was contacted and specified that no access was permitted within this active field. As a result, the field was avoided and shovel testing resumed to the east in areas where no buried utilities were marked. The APE then turns south, following existing utility corridors and then eastward to cross North McDonald Street (SH 5).

**Figure 4-5. Overview of APE East of Shawnee Drive, Facing East.**

**Figure 4-6. Overview of APE Showing Active Corn Field, Facing East.**

The pipeline corridor continued eastward after crossing SH 5 for approximately 0.24 mi before turning to the southeast, paralleling the existing McKinney Eastside Extension Parallel Interceptor Wastewater Pipeline surveyed by Geo-Marine, Inc. (Figure 4-7). Five shovel tests were excavated east of SH 5.

**Figure 4-7. Overview of APE East of SH 5, Facing East Toward the Existing McKinney Eastside Extension Parallel Interceptor Wastewater Pipeline.**

In total, 15 shovel tests were excavated within the NTMWD North McKinney Pipeline project APE. The most common shovel test profile encountered within the APE consisted of 0 to 35 cmbs black (10YR 2/1) clay underlain from 35 to 45 cmbs by dark grayish brown (10YR 4/2) clay with many calcium carbonate masses and few concretions (Figure 4-8). No cultural materials were encountered during the course of the intensive archaeological survey of the APE.

**Figure 4-8. Shovel Test 2 Profile, Facing Down.**

# 5 Summary and Recommendations

## 5.1 National Register Eligibility

### 5.1.1 Criteria for Evaluation of Eligibility

As part of this review process, cultural resources investigations are undertaken with the purpose of identifying resources that are listed in, or eligible for listing in, the NRHP. The assessment of significance of cultural resources is based on federal guidelines and regulations. Any cultural resource that is listed in or eligible for inclusion in the NRHP is known as a "historic property," and the term "eligible for inclusion in the NRHP" includes both properties formally determined as such by the Secretary of the Interior and all other properties that meet NRHP-listing criteria. The criteria for evaluating properties for inclusion in the NRHP (36 *Code of Federal Regulations* [CFR] 60.4 [a–d]) are codified under the authority of the National Historic Preservation Act of 1966, as amended, and the Advisory Council on Historic Preservation has set forth guidelines to use in determining site eligibility. Subsequent to the identification of relevant historical themes and related research questions, these four criteria for eligibility are applied:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, material, workmanship, feeling, and association and

A. that are *associated with events* that have made a significant contribution to the broad patterns of our history; or

B. that are *associated with the lives of persons* significant in our past; or

C. that *embody the distinctive characteristics* of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. that have *yielded, or may be likely to yield, information important in prehistory or history*. Note that the application of Criterion D presupposes that the information imparted by the site is significant in history or prehistory [36 CFR 60.4, emphasis added].

The physical characteristics and historic significance of the overall property are examined when conducting NRHP evaluations. Although a property in its entirety may be considered eligible based on Criteria A, B, C, and/or D, specific data are also required for individual components therein based on date, function, history, physical characteristics, and other information. Resources that do not relate in a significant way to the overall property may contribute if they independently meet the NRHP criteria.

For a historic resource, district, or landscape to be determined eligible for the NRHP, it must retain enough of its historic integrity to convey its significance. For the NRHP, there are seven aspects of integrity:

1. Location
2. Design

3. Setting
4. Materials
5. Workmanship
6. Feeling
7. Association

Occasionally, certain resources fall into categories in which they must be evaluated further using one or more of the following Criterion Considerations. If a resource identified during the reconnaissance-level survey falls into one of these categories, the following Criterion Considerations will be applied in conjunction with one or more of the four NRHP criteria:

A. A religious property deriving primary significance from architectural or artistic distinction or historical importance, or

B. A building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event, or

C. A birthplace or grave of a historical figure of outstanding importance if there is no other appropriate site or building directly associated with his or her productive life, or

D. A cemetery that derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events, or

E. A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived, or

F. A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own historical significance, or

G. A property achieving significance within the past 50 years if it is of exceptional importance (36 CFR 60.4).

The scientific value of archaeological sites is assessed under Criterion D. With regard specifically to this criterion, the goal of prehistoric archaeological research and management is to fill gaps in the knowledge about specific research domains. Scientific importance is driven, in part, by the research paradigms of the time and in part by the amount of information available about a particular research topic in a specific geographic area. The most robust forms of scientific importance should honor diverse and occasionally competing schools of research interests and their attendant approaches. In order to fulfill Criterion D, a site must possess certain attributes (e.g., intact buried cultural strata with functionally and temporally diagnostic materials, datable cultural features) such that further intensive research at the site could be expected to add additional information to relevant research questions.

The research domains are addressed through testing and excavation programs. Over time, data required for addressing specific questions are collected, analyzed, and compiled. Eventually, the potential importance, or significance, of sites that contain only the types of data already collected may diminish. This suggests the identification criteria

of important historic properties are tied to both a specific geographic area reflecting a cultural adaptation or cultural region and a state of accumulated knowledge about a research domain topic. The criteria and priorities of important sites are apt to shift as accepted research paradigms change or as data accumulations approach redundancy. Archaeological sites that retain contextual integrity and contain artifacts and features capable of contributing information toward addressing relevant research issues are significant and should therefore be considered eligible for inclusion in the NRHP.

### 5.1.2 State Antiquities Landmark

At the state level, archaeological sites may be considered significant and be recognized or designated as a SAL, provided that at least one of the following conditions is met:

1. The archaeological site is situated on lands owned or controlled by the State of Texas or one of its political subdivisions; or
2. The archaeological site is situated on private land which has been specifically designated as an SAL and fits at least one of the following criteria:
    A. Preservation of materials must be sufficient to allow application of standard archaeological techniques to advantage;
    B. The majority of artifacts are in place so that a significant portion of the site's original characteristics can be defined through investigation;
    C. The site has the potential to contribute to cumulative cultural history by the addition of new information;
    D. The site offers evidence of unique or rare attributes; and/or
    E. The site offers a unique and rare opportunity to test techniques, theories, or methods of preservation, thereby contributing to scientific knowledge [Texas Natural Resources Code 1977; Title 9, Chapter 191, Texas Antiquities Committee, Section 191.094 and Chapter 41.7, Antiquities Code of Texas].

Buildings, structures, cultural landscapes, and non-archaeological sites, objects, and districts may be designated as an SAL, provided that the following conditions are met:

1. The property fits within at least one of the following criteria:
    A. The property is associated with events that have made a significant contribution to the broad patterns of our history, including importance to a particular cultural or ethnic group;
    B. The property is associated with the lives of persons significant in our past;
    C. The property embodies the distinctive characteristics of a type, period, or method of construction, represents the work of a master, possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction;
    D. The property has yielded, or may be likely to yield, information important in Texas culture or history;
2. The property retains integrity at the time of the nomination, as determined by the executive director of the commission; and

3. For buildings and structures only, the property must be listed in the NRHP, either individually, or as a contributing property within a historic district. Contributing status may be determined by the Keeper of the National Register or the executive director of the commission.

## 5.2 Conclusion and Recommendation Summary

HDR completed an intensive archaeological survey of the 1.25 mi APE on April 4, 2017. During the course of the survey notifications, one landowner instructed the HDR crew to avoid entry to a portion of an agricultural field containing young crops. In total, 15 shovel tests were excavated within the remainder of the APE. No archaeological materials were found during the course of the survey. In accordance with 13 TAC 26.12, no further cultural resources investigations are recommended for the presently-defined APE, and the proposed NTMWD McKinney Pipeline project may proceed. However, in the event that any archaeological deposits are encountered during construction, work should cease, and the THC should be notified.

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