



# INDEX OF TEXAS ARCHAEOLOGY

*Open Access Gray Literature from the Lone Star State*

---

Volume 2018

Article 150

---

2018

## **Intensive Archaeological Survey of the RM 1431 Balcones Canyonlands National Wildlife Refuge Entrance Improvements Project**

Melanie Johnson

Clayton Tinsley

Follow this and additional works at: <https://scholarworks.sfasu.edu/ita>



Part of the [American Material Culture Commons](#), [Archaeological Anthropology Commons](#), [Environmental Studies Commons](#), [Other American Studies Commons](#), [Other Arts and Humanities Commons](#), [Other History of Art, Architecture, and Archaeology Commons](#), and the [United States History Commons](#)

[Tell us](#) how this article helped you.

---

This Article is brought to you for free and open access by the Center for Regional Heritage Research at SFA ScholarWorks. It has been accepted for inclusion in Index of Texas Archaeology: Open Access Gray Literature from the Lone Star State by an authorized editor of SFA ScholarWorks. For more information, please contact [cdsscholarworks@sfasu.edu](mailto:cdsscholarworks@sfasu.edu).

---

## Intensive Archaeological Survey of the RM 1431 Balcones Canyonlands National Wildlife Refuge Entrance Improvements Project

Creative Commons License



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/)



# Intensive Archaeological Survey of the RM 1431 Balcones Canyonlands National Wildlife Refuge Entrance Improvements Project

**Travis County, Texas**

**April 2018**

By: Melanie Johnson

Principal Investigator: Clayton Tinsley

Texas Antiquities Permit Number: 8355





**Intensive Archaeological Survey of the RM 1431 Balcones  
Canyonlands National Wildlife Refuge Entrance Improvements Project**

**Travis County, Texas**

**By  
Melanie Johnson**

**Principal Investigator  
Clayton Tinsley**

**Prepared For:**



**Federal Highway Administration –  
Central Federal Lands Highway Division**

**Prepared By:**



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

**April 2018**



*This page intentionally left blank*

## Management Summary

The Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD) has contracted HDR Engineering, Inc. (HDR) to conduct an intensive archaeological survey of the project area for the proposed improvements to the entrance to the Balcones Canyonlands National Wildlife Refuge located on Ranch-to-Market (RM) Road 1431 in Travis County, Texas (Figure 1-1). The survey was initiated due to the inadvertent discovery of a possible burned rock midden site within the project area during vegetation clearing. Upon consultation with the FHWA CFLHD and the Texas Historical Commission (THC), HDR was granted a permit for the archaeological survey of the project area and further investigation into the possible midden site.

The project improvements include the construction of left-hand and right-hand turn lanes to enter the refuge, widening of the existing roadway to accommodate the turn lanes, installation of striping and signage, and construction of 3-foot-wide shoulders and roadside ditches. Because the project is funded by a federal agency and is located on land owned by the Texas Department of Transportation, the proposed improvements are required to be in compliance with Section 404 as per 33 Code of Federal Regulations (CFR) 325, Appendix C and 36 CFR 800, as well as Chapter 191 of the Texas Natural Resources Code, also known as the Antiquities Code of Texas (13 TAC 26.12).

The Area of Potential Effects (APE) for this project is approximately 0.4 mile (0.64 kilometer [km]) long and 6.3 acres (2.5 hectares) in area along RM 1431.

The purpose of the archaeological investigation is to determine the presence/absence of archaeological resources within the APE 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). The work was conducted under Texas Antiquities Permit Number 8355. The survey was led by principal investigator Clayton Tinsley and project archaeologist Melanie Johnson on March 1–2, 2018, and resulted in a total of 24 person-hours.

During the archaeological survey of the APE, a total of five shovel tests and one 1 × 1 meter (m) unit were excavated. One archaeological site was identified, site 41TV2553. Site 41TV2553 consists of an Archaic burned rock midden approximately 0.03 acres in area on top of a ridge overlooking Cow Creek to the south.

Based on the results of the archaeological survey and phone consultation with the THC on March 5, 2018, the site is recommended eligible for inclusion in the NRHP under Criterion D. Because of its integrity and size, site 41TV2553 has the potential to add to our knowledge about life in central Texas during the Archaic period. This site is also recommended for consideration as an SAL. HDR recommends avoidance of site 41TV2553 during construction of the proposed roadway improvements, if changes to the original project design allow. In addition, HDR recommends cultural resources monitoring during construction near the western border of the site.

*This page intentionally left blank*



## Contents

|   |    |
|---|----|
| Management Summary.....                           | i  |
| Acronyms and Abbreviations .....                  | v  |
| 1 Introduction.....                               | vi |
| 2 Background .....                                | 3  |
| 2.1 Geology and Soils .....                       | 3  |
| 2.2 Cultural History.....                         | 3  |
| 2.2.1 Paleoindian (10,000–6800 BC) .....          | 3  |
| 2.2.2 Archaic (6800 BC–AD 750) .....              | 4  |
| 2.2.3 Late Prehistoric (AD 750–1540).....         | 4  |
| 2.2.4 Historic Period (AD 1540–1970) .....        | 5  |
| 3 Methods.....                                    | 7  |
| 3.1 Previous Investigations near the APE.....     | 7  |
| 3.2 Survey Methods .....                          | 11 |
| 3.2.1 Site Designations .....                     | 11 |
| 4 Results.....                                    | 12 |
| 4.1 Site 41TV2553.....                            | 12 |
| 5 Summary and Recommendations .....               | 28 |
| 5.1 National Register Eligibility.....            | 28 |
| 5.1.1 Criteria for Evaluation of Eligibility..... | 28 |
| 5.1.2 State Antiquities Landmark .....            | 30 |
| 5.2 Conclusion and Recommendation Summary.....    | 31 |
| 6 References .....                                | 32 |

### Appendix A: Monitoring Report

## Figures

|   |      |
|---|------|
| Figure 1-1. Topographic Map of the Area of Potential Effects.....   | 2    |
| Figure 3-1. Previously Recorded Cultural Resources and Surveys within 1 Mile of the APE. ....               | 9    |
| Figure 4-1. Overview of Archaeological Survey Results.....  | 15   |
| Figure 4-2. Overview of Disturbed APE due to Construction, Western end of APE, Facing East.....             | 17   |
| Figure 4-3. Overview of Disturbed APE due to Construction, Eastern end of APE, Facing West.....             | 17   |
| Figure 4-4. 41TV2553 Site Map. ....   | 18   |
| Figure 4-5. View of Landform at Site 41TV2553 Location, Facing Northwest. ....                              | 19   |
| Figure 4-6. View of Landform at Site 41TV2553 Location, Facing West. ....                                   | 19   |
| Figure 4-7. View of Ridge Cut Showing Extent of Midden marked by Flagged Nails, Facing North. ....          | 20   |
| Figure 4-8. Representative View of Shovel Tests within Site 41TV2553 (Shovel Test 2). ....                  | 20   |
| Figure 4-9. Profile of Midden, Facing North. ....   | 21   |
| Figure 4-10. Unit 1 Profile, North Wall. ....   | 23   |
| Figure 4-11. Profile of Unit 1, Level 2 (45 cmbs), Facing North.....  | 24   |
| Figure 4-12. Profile of Unit 1, Level 3 (85 cmbs), Facing North.....  | 25   |
| Figure 4-13. Profile of Unit 1, Level 4 (105 cmbs), Facing North.....                                       | 26   |
| Figure 4-14. Possible Refugio or Pandora Point (Unit 1; 100 cmbs). ....                                     | 26   |
| Figure 4-15. Reverse Side of Possible Refugio/Pandora Point (Unit 1; 100 cmbs). ....                        | 27   |
| Figure A-1. General Project Location.....   | A-5  |
| Figure A-2. Location of Site 41TV2553 within the APE .....  | A-7  |
| Figure A-3. Area Monitored for Cultural Resources During Soil Removal.....                                  | A-9  |
| Figure A-4. Exposed Face of Site 41TV2553 before Overburden Deposition.....                                 | A-11 |
| Figure A-5. Slope after Overburden Deposition.....  | A-11 |
| Figure A-6. Soil Removal near Site 41TV2553 .....   | A-12 |
| Figure A-7. Finished Cut in Hill with Flagged Nail Showing Western Border of Site 41TV2553 .....            | A-12 |
| Figure A-8. Finished Cut in Hill with Flagged Wooden Stake Showing Approximate Center of Site 41TV2553..... | A-13 |
| Figure A-9. Soil Profile of Cut in Hill.....  | A-13 |

## Tables

|   |    |
|---|----|
| Table 2-1. General Cultural Chronology for Central Texas. ....                            | 3  |
| Table 4-1. Prehistoric Artifacts Discovered at Site 41TV2553 During Shovel Testing. ....  | 12 |
| Table 4-2. Chipped Stone Distribution at Site 41TV2553 During Shovel Testing. ....        | 13 |
| Table 4-3. Prehistoric Artifacts Discovered at Site 41TV2553 During Unit Excavation. .... | 14 |
| Table 4-4. Chipped Stone Distribution at Site 41TV2553 During Unit Excavation. ....       | 14 |

## Acronyms and Abbreviations

|                   |  |
|-------------------|--|
| APE               | Area of Potential Effects              |
| CaCO <sub>3</sub> | calcium carbonate                      |
| CFR               | Code of Federal Regulations            |
| cm                | centimeters                            |
| cmbs              | centimeters below surface              |
| FCR               | fire-cracked rock                      |
| ft                | feet                                   |
| GPS               | Global Positioning System              |
| km                | kilometer                              |
| m                 | meter                                  |
| m <sup>2</sup>    | meters squared                         |
| NRCS              | Natural Resources Conservation Service |
| NRHP              | National Register of Historic Places   |
| RM                | Ranch-to-Market Road                   |
| SAL               | State Antiquities Landmark             |
| TAC               | Antiquities Code of Texas              |
| THC               | Texas Historical Commission            |
| USGS              | United States Geological Survey        |

*This page intentionally left blank*

# 1 Introduction

The Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD) has contracted HDR Engineering, Inc. (HDR) to conduct an intensive archaeological survey of the project area for the proposed improvements to the entrance to the Balcones Canyonlands National Wildlife Refuge located on Ranch-to-Market (RM) Road 1431 in Travis County, Texas (Figure 1-1). The survey was initiated due to the inadvertent discovery of a possible burned rock midden site within the project area during vegetation clearing. Upon consultation with the FHWA CFLHD and the Texas Historical Commission (THC), HDR was granted a permit for the archaeological survey of the project area and further investigation into the possible midden site.

The project improvements include the construction of left-hand and right-hand turn lanes to enter the refuge, widening of the existing roadway to accommodate the turn lanes, installation of striping and signage, and construction of 3-foot-wide shoulders and roadside ditches. Because the project is funded by a federal agency and is located on land owned by the Texas Department of Transportation, the proposed improvements are required to be in compliance with Section 404 as per 33 Code of Federal Regulations (CFR) 325, Appendix C, and 36 CFR 800, as well as Chapter 191 of the Texas Natural Resources Code, also known as the Antiquities Code of Texas (13 TAC 26.12).

The Area of Potential Effects (APE) for this project is approximately 0.4 mile (0.64 kilometer [km]) long and 6.3 acres (2.5 hectares) in area along RM 1431.

The purpose of the archaeological investigation is to determine the presence/absence of archaeological resources within the APE 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). The work was conducted under Texas Antiquities Permit Number 8355. The survey was led by principal investigator Clayton Tinsley and project archaeologist Melanie Johnson on March 1–2, 2018, and resulted in a total of 24 person-hours.

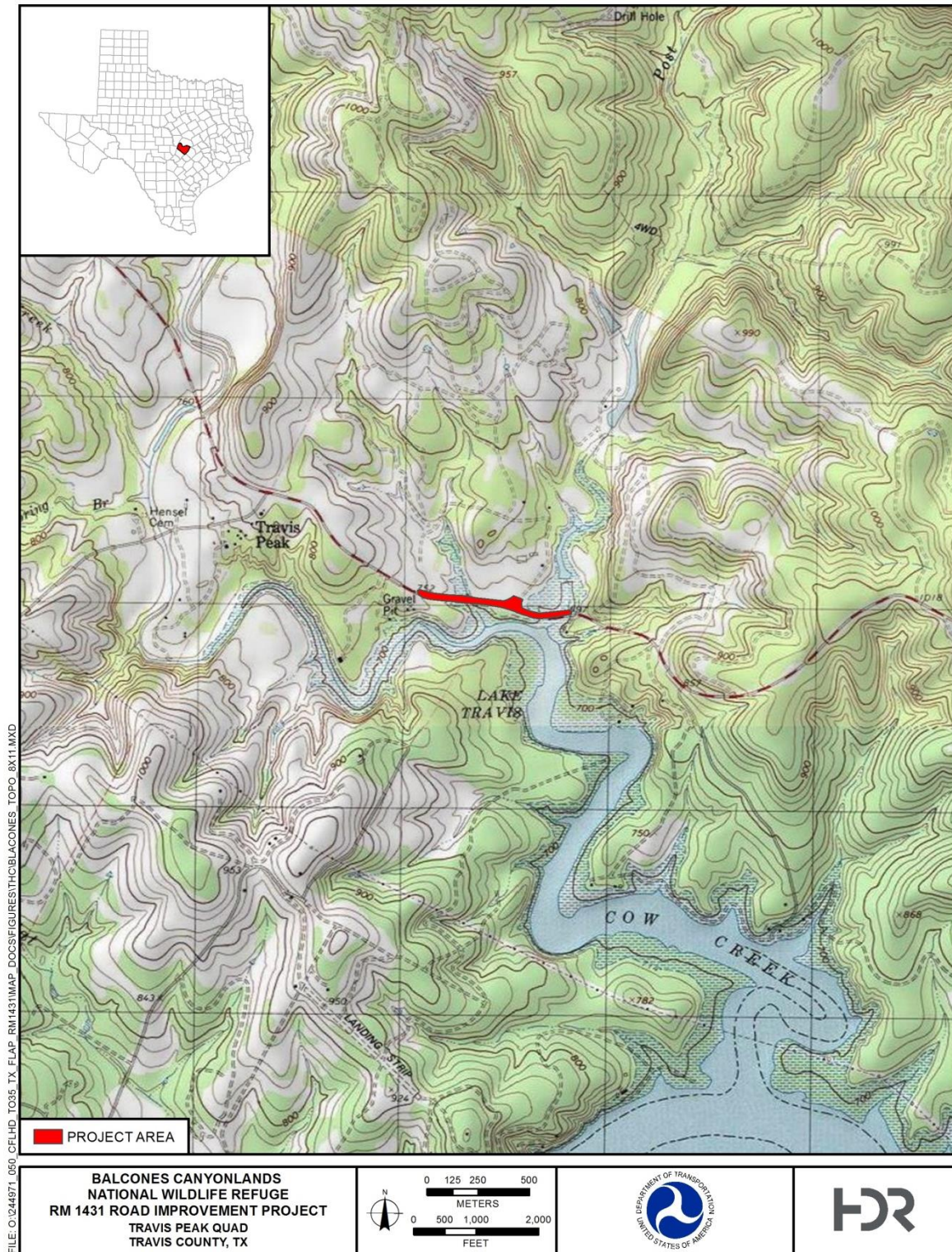
The survey resulted in the identification of one archaeological site, 41TV2553. Site 41TV2553 consists of a burned rock midden that is approximately 0.03 acres in area, but most likely extends north, beyond the current APE and into the Balcones Canyonlands National Wildlife Refuge.

This report contains geologic and cultural background information for the region, the survey methods employed, the results of the archaeological survey, and recommendations based on the results.

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.



Figure 1-1. Topographic Map of the Area of Potential Effects.





## 2 Background

### 2.1 Geology and Soils

The underlying geology within the project area consists of Hensell Sand of Cretaceous age (USGS 2018). According to data from the Natural Resources Conservation Service (NRCS), the project area contains two soil map units: Brackett-Rock outcrop complex, 1 to 12 percent slopes, and Volente silty clay loam, 1 to 8 percent slopes (NRCS 2018). The Brackett series consists of shallow loamy soils with limestone bedrock appearing around 36 centimeters (cm) below surface (NRCS 2018). The Volente series consists of deep silty clay loam soils that formed in calcareous clayey sediments (NRCS 2018). Cow Creek runs to the south of the APE, and Post Oak Creek cuts through the eastern end of the APE.

### 2.2 Cultural History

Several current regional chronologies (Black 1989; Collins 1995; Johnson and Goode 1994) are utilized in the following discussion of Central Texas prehistory. The regional chronology is divided into four basic periods: Paleoindian, Archaic, Late Prehistoric, and Historic (Table 2-1).

**Table 2-1. General Cultural Chronology for Central Texas.**

| Period   | Age (BC/AD)        |
|--|--------------------|
| Paleoindian  | ca. 10,000–6800 BC |
| Archaic  | 6800 BC–AD 750     |
| Late Prehistoric   | AD 750–1540        |
| Historic   | AD 1540–1970       |
| (After Black [1989], Collins [1995], and Johnson and Goode [1994]) |                    |

#### 2.2.1 Paleoindian (10,000–6800 BC)

Human occupation in Central Texas is generally agreed to have begun during the terminal Pleistocene. This initial Paleoindian cultural period is dated to approximately 10,000–6800 B.C. (Black 1989; Collins 1995; Johnson and Goode 1994). In Central Texas, the Paleoindian period is divided into Early (10,000–8900 BC) and Late (8900–6800 BC) subperiods. The Early Paleoindian period is characterized by fluted Clovis projectile points along with prismatic blade manufacture. Subsistence during this subperiod appears to have been diverse and consisted of both megafauna (e.g., mammoth and extinct large bison) and smaller taxa such as badger, alligator, and moles (Collins et al. 1989). Prominent sites in the region with Early Paleoindian components include the Kincaid Rockshelter, Wilson-Leonard, and Gault sites. The Late Paleoindian continues with a mixed hunting-gathering tradition and is characterized by the Folsom and Plainview point types (Collins 1998). Burned rock features made their first appearance in Central Texas during the Late Paleoindian period (Masson and Collins 1995). Sites of note in the region with Late Paleoindian components include Wilson-Leonard, Golondrina-Barber, and St. Mary’s Hall.



## 2.2.2 Archaic (6800 BC–AD 750)

Johnson and Goode's (1994) formulation of the Central Texas Archaic makes use of three subdivisions: Early Archaic (6800–4000 BC), Middle Archaic (4000–2000 BC), and Late Archaic (2000 BC–AD 750) based on point typologies.

### Early Archaic (6800–4000 BC)

The Early Archaic in Central Texas is most known for its large burned rock midden sites that commonly constitute multiple tons of fire-cracked rock (FCR). Although burned rock middens are first noted in the Late Paleoindian period for Central Texas, they became a prominent site type by the Early Archaic. The Early Archaic is generally defined by three projectile point style intervals: Angostura, Early Split-stem, and Martindale-Uvalde (Johnson and Goode 1994). In addition to burned rock middens, site types include open campsites (Loeve, Wilson-Leonard, and Richard-Beene) and caves (Hall's Cave). Subsistence evidence for the Early Archaic is varied, with deer, small animal, fish, and plant bulb being common taxa. Pollen and fluvial geological evidence suggest that environmental conditions during the period fluctuated between mesic (moderate moisture) and xeric (dry) (Collins 2004).

### Middle Archaic (4000–2000 BC)

Bell/Andice/Calf Creek, Taylor, and Nolan/Travis constitute the three projectile point styles indicative of the Middle Archaic period (Johnson and Goode 1994). The Bell/Andice/Calf Creek point technology along with environmental data suggesting mesic conditions are seen by Collins (1995) as evidence for a focus on bison hunting. However, by the latter portion of the Middle Archaic, environmental conditions appear to have shifted again to being more xeric. The xeric conditions of the Middle Archaic have been correlated with an increase in burned rock midden deposits, and this association is believed to have been due to a greater reliance upon tuberous plants such as stool iris (Johnson and Goode 1994).

### Late Archaic (2000 BC–AD 750)

According to Johnson and Goode (1994), the Late Archaic for Central Texas can be subdivided into (in ascending chronological order) six style intervals: Bulverde, Pedernales/Kinney, Lange/Marshall/Williams, Marcos/Montell/Castroville, Ensor/Frio/Fairland and Darl. The Late Archaic in Central Texas began with xeric conditions and progressively became more mesic. Burned rock midden deposits continue to be a significant part of many site assemblages and actually peak in density during the Pedernales/Kinney interval (Collins 2004). Dart points, corner-tanged knives, and cylindrical stone pipes are associated with Late Archaic site assemblages from Central Texas. A mixed hunting-gathering economy of large and small animals as well as various reliable plants of the region (e.g., stool iris and pecan) became well developed by the end of the Late Archaic and continued largely unchanged into the early Late Prehistoric.

## 2.2.3 Late Prehistoric (AD 750–1540)

The Late Prehistoric period of the region is divided into Early (Austin interval) and Late (Toyah interval) subperiods (Collins 2004; Johnson and Goode 1994). The evolution to the Late Prehistoric period in Central Texas is signaled by the introduction of bow and



arrow technology that occurs during the Austin interval. Although the arrow point made its debut in the Late Prehistoric, it is initially under-represented when compared to dart points. The later Toyah interval of the Late Prehistoric is characterized by the dominance of the arrow point, specifically the Perdiz type. The constellation of Perdiz arrow points, locally manufactured ceramics, end scrapers, and prismatic blades is seen as an indication of a focus on large game animals (e.g., bison, deer, and antelope). Researchers currently disagree on whether this artifact assemblage represents a techno-complex (Ricklis 1994) or an actual cultural group (Johnson and Goode 1994).

#### 2.2.4 Historic Period (AD 1540–1970)

The Historic period began with the arrival of the first Europeans in the area: Coronado's 1540–1542 expedition to the Plains of Cibola (Castañeda 1554[1904]). Coronado's chroniclers and those of later Spanish expeditions report that the region was occupied by Apache (Apache) people. Based on Spanish descriptions of the Apache lifeways—with limited sedentism and a seasonal round of bison hunting and foraging—it seems that the Garza and Toyah archaeological complexes may represent early Apache occupations (Boyd 1997). In an alternative interpretation that has not yet gained traction in the Texas archaeological community, Garza and other Late Prehistoric and Protohistoric assemblages have also been linked to the Wichita (Baugh and Perkins 2008; Roberts and Bradford 1997).

If Garza and/or Toyah indeed represent early Apache occupations, the Apache were the primary native group in the area until the early to mid-eighteenth century, when nomadic Comanche hunters arrived from the Great Basin and plains northwest of Texas (Lipscomb 2008). Various Anglo, French, and Spanish traders maintained commercial relationships with the Apache and Comanche, but locations and timing of these interactions are debated; for instance, sites of the Spanish traders known as *comancheros* have not been securely identified because “no one is sure what they should look like” (Freeman and Boyd 1997:82). Shoshonean-speaking Comanche continued their presence in Central Texas until the end of the nineteenth century.

The project area is located between the cities of Marble Falls and Austin in Travis County. Travis County lies on the eastern edge of the Edwards Plateau and is divided by the Balcones Escarpment. Land to the west of the escarpment is more arid than land to the east. The Colorado River runs through the county from northwest to southeast and is the major drainage for the area.

The land which is now Bastrop and Travis counties was granted to Stephen F. Austin by the Mexican government in 1827, and the first settlers began moving to the area in the 1830s (Smyrl 2016). Austin was chosen as the capitol of the Republic of Texas and as the seat of Travis county in 1840 (Smyrl 2016). Most of Travis County's growth occurred in 1840–1850, though most people lived in small communities outside of Austin (Smyrl 2016). During this time, corn, cattle, and sheep were the primary products of Travis County (Smyrl 2016). An attempt was made to encourage development of the area with the establishment of the Austin Railroad Association in 1852; however, their work was interrupted by the Civil War (Smyrl 2016). The county struggled during the Civil War and Reconstruction period which caused a general retardation of growth lasting until 1880 when the economy began to recover (Smyrl 2016).

In 1880, the census reported a population of 27,028 people and 1,912 farms in Travis County (Smyrl 2016). About half of these farms focused on growing corn, cotton, wheat, and oats, while the other half raised livestock (Smyrl 2016). Travis County's economic recovery was aided heavily by the completion of several railroad tracks to Austin including the Houston and Texas Central Railway track to Austin in 1871; the International and Great Northern Railroad from Rockdale to Austin in 1876 and from Austin to Laredo in 1881; the Austin and Northwestern Railroad track between Austin and Burnet in 1882; and the Missouri, Kansas, and Texas track in 1904 (Smyrl 2016).

During the Great Depression, the county benefited from several New Deal programs. These projects include paving streets and building bridges, sewers, parks, and a series of dams on the Colorado River to power Austin's water and electrical systems (Smyrl 2016). These dams resulted in the forming of Lake Austin, Lake Travis, Lake Buchanan, Lake Lyndon B. Johnson, Inks Lake, and Lake Marble Falls (Smyrl 2016). Travis County also benefited from the establishment of several military bases including Camp Mabry, the Texas National Guard facility, and the Del Valle Army Air Base, later re-named the Bergstrom Army Air Field (Smyrl 2016).

The establishment of several high-technology industries including Sematech and Round Rock's Dell Computer company in the 1990s through the twenty-first century brought a large number of people to the county (Smyrl 2016). The 2014 U.S. census recorded a total of 1,151,145 people in Travis County (Smyrl 2016).

## 3 Methods

### 3.1 Previous Investigations near the APE

A review of the THC's Archeological Sites Atlas (Atlas) indicates that one cultural resource survey has been conducted, and that two previously recorded archaeological sites and one historic cemetery are located within 1 mile (1.6 km) of the APE (Figure 3-1). No Official Texas Historical Markers, Texas Historic Landmarks, or NRHP-listed/eligible historic properties were identified within the 1-mile buffer.

The cultural resource survey (Object ID: 11368) located within the 1-mile search area was conducted by Hicks and Company for the U.S. Fish and Wildlife Service (USFWS) in 2006 approximately 270 ft north of the current project area. The project surveyed the parking lot adjacent to USFWS headquarters. No cultural resources were identified during the survey.

Two previously recorded archaeological sites are located within one mile of the APE. Site 41TV112 was recorded in 1962 during a surface survey. Finds included one flint flake on exposed limestone located approximately 0.16 mile south of the project area. The second site (41TV253) had two loci recorded in 1938. The locus that is closest to the project area consists of a scattered burned-rock midden and is located approximately 380 ft to the south of the APE. The other locus consists of an open campsite and is located approximately 0.5 mile to the south of the APE. Four manos and 12 flint projectile points were observed in site 41TV253, but the Atlas record does not specify at which locus these artifacts were discovered. The NRHP eligibility status of sites 41TV112 and 41TV253 is unknown.

Furthermore, the Atlas search revealed one historic cemetery, Hansel Cemetery (TV-C083; Hensel Cemetery in some topographic maps), is located within private property 0.9 mile west of the APE. The cemetery was surveyed in 2005 and was recorded to contain approximately ten marked graves. The cemetery is enclosed by a cast/wrought iron fence and contains gravestones from the 1890s to 1902.

*This page intentionally left blank*

**Figure 3-1. Previously Recorded Cultural Resources and Surveys within 1 Mile of the APE.**

CONFIDENTIAL INFORMATION



*This page intentionally left blank*

## 3.2 Survey Methods

HDR conducted an intensive archaeological survey within the APE consisting of pedestrian walkover and shovel testing. The majority of the APE had undergone disturbance due to active construction, so the survey focused on the burned rock midden which had been exposed during vegetation clearing in advance of proposed improvements. Shovel tests were placed at 5 m intervals along two transects on top of the burned rock midden in order to access the north-south limits. A profile of the midden was exposed along the upper edge of the road cut in order to access the west-east limits. In addition, a 1 × 1 m test unit was placed within the densest part of the midden, along the road cut.

The 1 × 1 m unit was hand excavated in cultural levels using shovels and pick-axes to the base of cultural deposits. A sample of the soil removed from the 1 × 1 m test unit was screened through 0.125-inch (0.3175-cm) mesh. The remaining soil from the unit and from the shovel tests was screened through 0.25-inch (0.635-cm) mesh screen. Soil descriptions followed the guidelines and terminology established by the National Soil Survey Center (Schoeneberger et al. 2002) and soil colors were recorded using a Munsell Soil Color Chart. All excavated shovel tests and units were recorded on forms that note depth, soil matrix descriptions, and cultural materials recovered. All cultural materials were collected for laboratory analysis.

Digital photographs were used to document the survey conditions, disturbances, and any cultural features observed. Details of each photograph were recorded on standardized forms. All shovel test locations were recorded using a sub-meter Global Positioning System (GPS) unit.

### 3.2.1 Site Designations

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 m<sup>2</sup> area. A historic site designation is applied when 10 or more artifacts of two or more artifacts classes are present within a 20 m<sup>2</sup> 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 m<sup>2</sup> area.

Site boundaries are defined by the presence of surficial materials and by shovel tests that yield cultural materials. 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 sub-meter GPS unit, and photo-documented. Once completed, the form is submitted to the Texas Archeological Research Laboratory 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 March 1–2, 2018, an intensive archaeological survey was conducted of the APE, which is approximately 0.4 mile (0.64 km) long and 6.3 acres (2.5 hectares) in area, along RM 1431 (Figure 4-1). The majority of the APE was disturbed due to both past and current construction activities or had a slope greater than 20 percent (Figure 4-2 and Figure 4-3). Due to this, the burned rock midden (site 41TV2553) was investigated since it was the only portion of the APE that was undisturbed by current construction activities.

### 4.1 Site 41TV2553

One site was identified during the survey (Figure 4-4). Site 41TV2553 is located on a ridge which overlooks Cow Creek to the south and is adjacent to a spring-fed creek on the east which drains into Cow Creek. Vegetation within the site includes grass, one mature pecan tree, and occasional green briar vines. Ground surface visibility within the site is 10–20 percent.

The ridge on which site 41TV2553 is located had been cut by previous road construction activities revealing the profile of the burned rock midden (Figure 4-5 and Figure 4-6). This ridge face was cleaned in order to establish the west-east limits of the site (Figure 4-7). Site 41TV2553 is approximately 17 m (55.8 ft) long west-east (Figure 4-9). A total of five shovel tests were excavated in order to establish the north-south limits of the site. The typical soil profile for shovel tests included 0–50 cm dark brown (7.5YR 3/4) clay loam over dark brown (7.5YR 3/4) loam to a depth of 50–70 cm (Figure 4-8). Shovel testing resulted in the discovery of 22 lithic flakes and 50 FCR fragments (Table 4-1 and

Table 4-2). Shovel tests revealed that the midden extends to the edge of—and most likely beyond—the APE. However, the current investigations were contained within the APE, so the full extent of the site remains unknown at this time. The current extent of the site is recorded at 17 m (55.8 ft) long and 5 m (16 ft) wide to the edge of the APE for a total of approximately 0.03 acres (0.01 hectares).

**Table 4-1. Prehistoric Artifacts Discovered at Site 41TV2553 During Shovel Testing.**

| Artifact Category       | Number of Artifacts | Percentage of Site Assemblage |
|-------------------------|---------------------|-------------------------------|
| <i>Lithics</i>          |                     |                               |
| Chipped Stone Debitage  | 22                  | 30.6%                         |
| Bifaces                 | —                   | %                             |
| Informal Tools          | —                   | %                             |
| Projectile Points       | —                   | %                             |
| Cores                   | —                   | %                             |
| Tested Cobbles          | —                   | %                             |
| Ground Stones           | —                   | %                             |
| Fire-Cracked Rock (FCR) | 50                  | 69.4%                         |
| <i>Ecofacts</i>         |                     |                               |



|              |           |             |
|--------------|-----------|-------------|
| Mussel Shell | —         | —           |
| Animal Bone  | —         | —           |
| Charcoal     | —         | —           |
| <b>TOTAL</b> | <b>72</b> | <b>100%</b> |

**Table 4-2. Chipped Stone Distribution at Site 41TV2553 During Shovel Testing.**

| Flake Type   | Number    | Percentage  |
|--------------|-----------|-------------|
| Primary      | 3         | 13.6%       |
| Secondary    | 1         | 4.5%        |
| Tertiary     | 18        | 81.8%       |
| Shatter      | —         | %           |
| <b>TOTAL</b> | <b>22</b> | <b>100%</b> |

One 1 × 1 m test unit was excavated in order to determine the vertical limits of the site. This unit was placed approximately 3 m (9.8 ft) east of the large pecan tree at the thickest portion of the midden along the ridge cut. This unit was hand excavated by cultural levels. The excavation revealed three temporal occupations of the site (Figure 4-10). The first occupation consisted of a burned rock layer approximately 25–55 cm below surface (cmbs) (Figure 4-11). This level (Level 2) contained approximately 400 pieces of FCR, 3 pieces chipped stone, 41 lithic flakes (mostly tertiary), and 11 pieces of mussel shell (Table 4-3 and Table 4-4). Level 2 also contained approximately 70 snail shells (*Rabdotus*). The soil in this level consisted of very dark gray (7.5YR 3/1) clay loam. The base of this cultural level was signaled by a soil change and a lining of flat stones.

Shovel tests reveal that this top rock midden does not appear across the extent of the lower rock layers. Shovel tests revealed rock at approximately 50–70 cmbs which is well below the depth that the top rock layer appeared in the test unit. It is not uncommon for burned rock midden sites in central Texas to have an initial rock midden that is buried by a flood event followed by later rock middens with continued use of the site (Prikryl 2017).

Level 3 contained similar amounts of FCR (n=390), chipped stone (n=2), and lithic flakes (n=38). However, the majority of the flakes were primary and secondary in this level (see Table 4-3 and Table 4-4). This level also had a noticeable increase of snail shells (n=1,000). The soil consisted of dark grey (7.5YR 4/1) loam. Level 3 extended 55–85 cmbs (Figure 4-12). The top 5 cm of Level 3 was more organic in composition.

Level 4 was differentiated from Level 3 based on the presence of CaCO<sub>3</sub> in the soil. This layer consisted of gray (7.5YR 5/1) CaCO<sub>3</sub>-rich loam and extended to 95 cmbs (Figure 4-13). The presence of all cultural materials decreased substantially in Level 4. This level contained 80 pieces of FCR, 12 lithic flakes, 5 pieces of chipped stone, 1 point, and 1 mussel shell (see Table 4-3 and Table 4-4). In addition, the amount of snail shells decreased a great deal with only 360 snail shells present in this level. The point found at the base of Level 4 is similar to the Refugio or Pandora points in shape, size, and function (Turner et al. 2011) (Figure 4-14 and Figure 4-15). The point is 10 × 4 cm, has

cortex on one side, and has one re-touched edge. It appears that it may have been used as a knife due to its size and the fact that only one edge is re-touched. Its similarity to the Refugio and Pandora points suggests a date of Middle to Late Archaic.

Below this last cultural level, there was a thin layer (approximately 10 cm) of culturally sterile dark gray (7.5YR 4/1) loam with CaCO<sub>3</sub> on top of the subsoil, consisting of pale yellow (2.5Y 7/3) weathered chalk bedrock.

**Table 4-3. Prehistoric Artifacts Discovered at Site 41TV2553 During Unit Excavation.**

| Artifact Category       | Number of Artifacts | Percentage of Site Assemblage |
|-------------------------|---------------------|-------------------------------|
| <i>Lithics</i>          |                     |                               |
| Chipped Stone Debitage  | 101                 | 10.3%                         |
| Bifaces                 | —                   | %                             |
| Informal Tools          | —                   | %                             |
| Projectile Points       | 1                   | 0.1%                          |
| Cores                   | —                   | %                             |
| Tested Cobbles          | —                   | %                             |
| Ground Stones           | —                   | %                             |
| Fire-Cracked Rock (FCR) | 870                 | 88.4%                         |
| <i>Ecofacts</i>         |                     |                               |
| Mussel Shell            | 12                  | 1.2%                          |
| Animal Bone             | —                   | —                             |
| Charcoal                | —                   | —                             |
| <b>TOTAL</b>            | <b>984</b>          | <b>100%</b>                   |

**Table 4-4. Chipped Stone Distribution at Site 41TV2553 During Unit Excavation.**

| Flake Type   | Number    | Percentage  |
|--------------|-----------|-------------|
| Primary      | 6         | 6.6%        |
| Secondary    | 15        | 16.5%       |
| Tertiary     | 70        | 76.9%       |
| Shatter      | —         | %           |
| <b>TOTAL</b> | <b>91</b> | <b>100%</b> |



**Figure 4-1. Overview of Archaeological Survey Results.**

CONFIDENTIAL INFORMATION



*This page intentionally left blank*

**Figure 4-2. Overview of Disturbed APE due to Construction, Western end of APE, Facing East.**



**Figure 4-3. Overview of Disturbed APE due to Construction, Eastern end of APE, Facing West.**



**Figure 4-4. 41TV2553 Site Map.**

CONFIDENTIAL INFORMATION



**Figure 4-5. View of Landform at Site 41TV2553 Location, Facing Northwest.**



**Figure 4-6. View of Landform at Site 41TV2553 Location, Facing West.**





**Figure 4-7. View of Ridge Cut Showing Extent of Midden marked by Flagged Nails, Facing North.**



**Figure 4-8. Representative View of Shovel Tests within Site 41TV2553 (Shovel Test 2).**







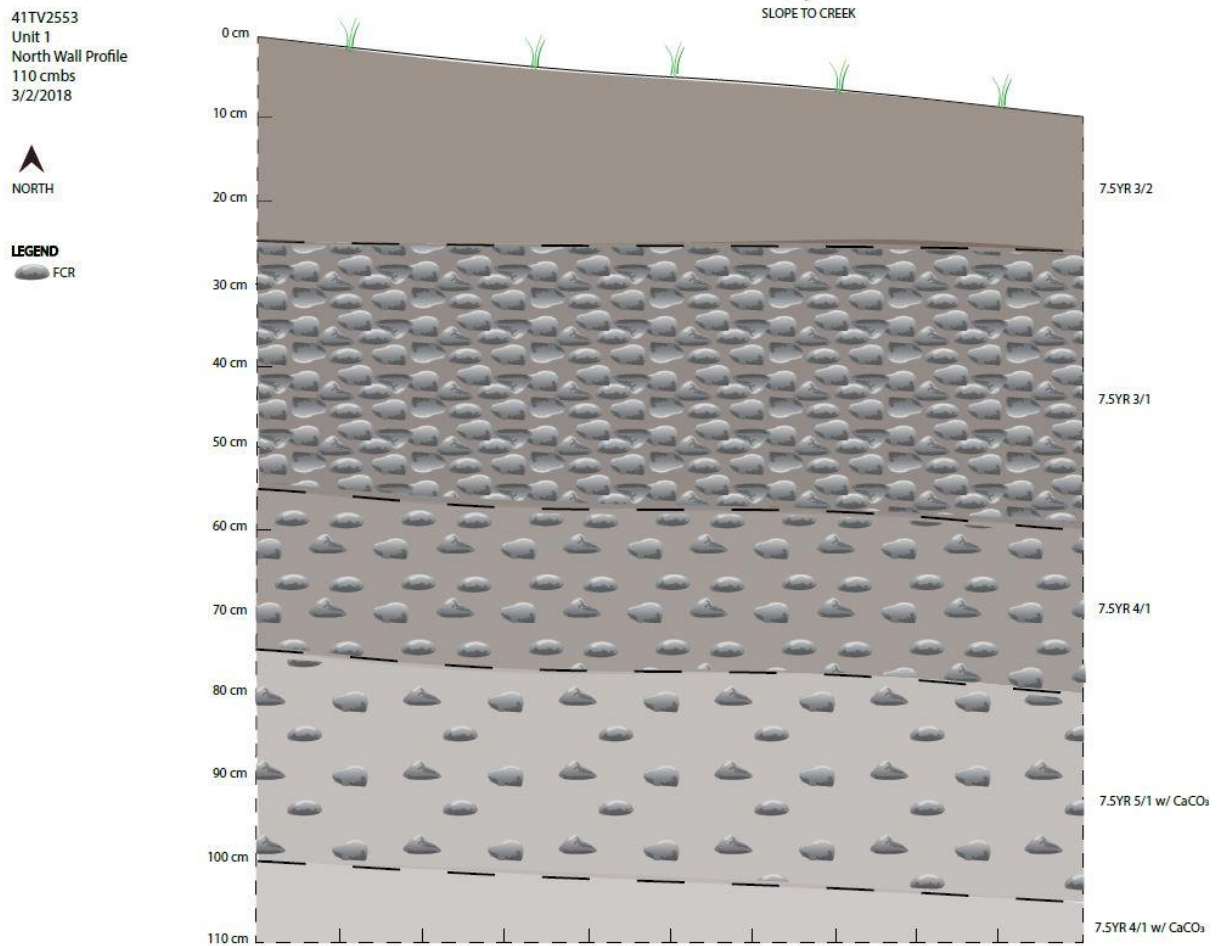
**Figure 4-9. Profile of Midden, Facing North.**

CONFIDENTIAL INFORMATION



*This page intentionally left blank*

Figure 4-10. Unit 1 Profile, North Wall.



**Figure 4-11. Profile of Unit 1, Level 2 (45 cmbs), Facing North.**



**Figure 4-12. Profile of Unit 1, Level 3 (85 cmbs), Facing North.**





**Figure 4-13. Profile of Unit 1, Level 4 (105 cmbs), Facing North.**



**Figure 4-14. Possible Refugio or Pandora Point (Unit 1; 100 cmbs).**



**Figure 4-15. Reverse Side of Possible Refugio/Pandora Point (Unit 1; 100 cmbs).**



## 5 Summary and Recommendations

### 5.1 National Register Eligibility

#### 5.1.1 Criteria for Evaluation of Eligibility

As part of the Section 106 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 (36 CFR 800.2). The criteria for evaluating properties for inclusion in the NRHP (36 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 National Register 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 which 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 often 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.

### 5.1.2 State Antiquities Landmark

At the state level, archaeological sites may be considered significant and be recognized or designated as an 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

The intensive archaeological survey of the APE revealed that the majority of the APE has been disturbed due to both previous and current construction activities. However, the survey resulted in the identification of one site (41TV2553). A total of five shovel tests and one 1 × 1 m test unit were excavated within the site in order to determine its horizontal and vertical limits as well as overall integrity. The investigations revealed a burned rock midden approximately 17 m (55.8 ft) long and 5 m (16 ft) wide for a total of approximately 0.03 acres (0.01 hectares). In the portion of the site investigated via the 1 x m test unit, the cultural deposits appear to be approximately 1 m in depth. However, it is likely that the site extends beyond the edge of the APE, to the north. The test unit excavation revealed three possible occupation events at the site. The recovered point at the base of the cultural deposits appears to be from the Archaic period.

Based on the results of the archaeological survey and phone consultation with the THC on March 5, 2018, the site is recommended eligible for inclusion in the NRHP under Criterion D. Because of its integrity and size, site 41TV2553 has the potential to add to our knowledge about life in central Texas during the Archaic period. This site is also recommended for consideration as an SAL. HDR recommends avoidance of site 41TV2553 during construction of the proposed roadway improvements, if changes to the original project design allow. In addition, HDR recommends cultural resources monitoring during construction near the western border of the site.

## 6 References

Baugh, T., and S. Perkins, eds.

- 2008 Land of Our Ancestors: Studies in Protohistoric and Historic Wichita Cultures. Memoirs of the Plains Anthropological Society. Oklahoma Archaeological Survey, Norman.

Black, S. L.

- 1989 Central Texas Plateau Prairie. In *From the Gulf to the Rio Grande: Human Adaption in Central, South, and Lower Pecos Texas*. Edited by T. R. Hester, S. L. Black, D. G. Steele, B. W. Olive, A. A. Fix, K. J. Reinhard, and L. C. Bement, pp. 17–38. Research Series No. 33. Arkansas Archaeological Survey, Fayetteville.

Castañeda, P. R.

- 1554[1904] *The Journey of Coronado*. Translated and edited by G. P. Winship. A. S. Barnes & Co., New York.

Collins, M. B.

- 1995 Forty Years of Archaeology in Central Texas. *Bulletin of the Texas Archaeological Society* 66:361–400.
- 1998 Clovis and Folsom Lithic Technology on or Near the Southern Plains: Similar Ends, Different Means. In *Folsom Lithic Technology: Explorations in Structure and Variation*. Edited by D. S. Amick, pp.12–38. Archaeological Series 12. International Monographs in Prehistory. Ann Arbor, Michigan.
- 2004 Archeology in Central Texas. In *The Prehistory of Texas*. Edited by T. Perttula, pp. 101–151. Texas A&M University Press, College Station.

Collins, M. B., G. L. Evans, T. N. Campbell, M. C. Winans, and C. E. Mear

- 1989 Clovis Occupations at Kinkaid Shelter, Texas. *Current Research in the Pleistocene* 6:3–4.

Freeman, M. D., and D. K. Boyd

- 1997 Historic Sites Investigations at Lake Alan Henry and in the Texas Panhandle-Plains. In *Caprock Canyonlands Archeology: A Synthesis of the Late Prehistory and History of Lake Alan Henry and the Caprock Escarpment*. Edited by D.K. Boyd, S.A. Tomka, and M. D. Freeman, pp. 65–98. Vol. I. Reports of Investigations No. 110. Prewitt and Associates, Inc., Austin.

Johnson, L., and G. Goode

- 1994 A New Try at Dating and Characterizing Holocene Climates, as Well as Archaeological Periods, on the Eastern Edwards Plateau. *Bulletin of the Texas Archaeological Society* 65:1–51.

Lipscomb, C. A.

- 2008 “Comanche Indians.” *The Handbook of Texas Online*.  
<http://www.tshaonline.org/handbook/online/articles/CC/bmc72.html>. Accessed 16 December 2008.

Prikryl, Dan

- 2017 Analysis of Late Archaic Burned Rock Feature Cluster at the Rob Roy site (41TV41), Travis County, Texas. *Texas Archeological Research Laboratory Newsletter* December 2017 Issue. Available online at: <https://sites.utexas.edu/tarl/2017/12/22/analysis-of-late->

[archaic-burned-rock-feature-cluster-at-the-rob-roy-site-41tv41-travis-county-texas-by-dan-prikryl/](#). Accessed 6 March 2018.

Roberts, A., and J. E. Bradford

1997 Speaking Nation to Nation: A Common Cause on Common Ground. *Common Ground* 2(3/4). Available at [http://www.nps.gov/archeology/CG/vol2\\_num3-4/common.htm](http://www.nps.gov/archeology/CG/vol2_num3-4/common.htm). Accessed 11 April 2010.

Schoeneberger, P.J., D.A. Wysocki, E.C. Benham, and W.D. Broderson, eds.

2002 *Field Book for Describing and Sampling Soils, Version 2.0*. Natural Resources Conservation Service, National Soil Survey Center, Lincoln, Nebraska.

Smyrl, Vivian Elizabeth

2016 Travis County. *The Handbook of Texas Online*. Available online at: <https://tshaonline.org/handbook/online/articles/hct08>. Accessed 6 March 2018.

Turner, Ellen Sue, Thomas R. Hester, and Richard L. McReynolds

2011 *Stone Artifacts of Texas Indians*, 3<sup>rd</sup> edition. New York: Taylor Trade Publishing.

United States Geological Survey (USGS).

2018 Texas Geology Map Viewer. Available online at: <https://txpub.usgs.gov/dss/texasgeology/>. Accessed 5 March 2018.

*This page intentionally left blank*



## Appendix A. Monitoring Report

April 4, 2018

Emilio Burgos  
Federal Highway Administration  
Central Federal Lands Highway Division  
12300 W Dakota Ave.  
Lakewood, CO 80228

Results of Archaeological Monitoring for the RM 1431 Balcones Canyonlands National Wildlife Refuge Entrance Improvements Project, Travis County, Texas

Dear Mr. Burgos:

On March 27, 2018, HDR performed archaeological monitoring of soil removal near the western border of the recorded site, 41TV2553, located within the project Area of Potential Effects (APE) (Figure A-1 through Figure A-3). Based on consultation with the Central Federal Lands Highway Division (CFLHD) and the Texas Department of Transportation (TxDOT) on March 14, 2018, the original project designs were altered in order to avoid impacts to site 41TV2553. A reduction of the length of the turn lane was agreed upon to avoid impacts to the site. The new plans called for a portion of the hill on which site 41TV2553 is located to be removed, but to avoid impacts within 30 feet (ft; 9 meters [m]) of the recorded site boundary. In addition, it was agreed that soil would be placed on top of the exposed face of site 41TV2553 in order to reduce the grade, thus negating the necessity for riprap and to further protect the site (Figure A-4 and Figure A-5). HDR recommended archaeological monitoring during removal of soil near the western boundary of site 41TV2553. No cultural resources were identified during archaeological monitoring, and site 41TV2553 was not impacted during the excavations near the recorded site boundary. This brief letter report summarizes the results of the archaeological monitoring.

**Previous Investigations.** Site 41TV2553 is located within the APE on a ridge overlooking Cow Creek to the south and is adjacent to a spring-fed creek on the east which drains into Cow Creek. The ridge on which site 41TV2553 is located had been cut by previous road construction activities, revealing the profile of the burned rock midden. HDR conducted a Phase I intensive archaeological survey of the APE on March 1–2, 2018 (see Johnson 2018). The survey revealed that site 41TV2553 is approximately 17 m (55.8 ft) long west-east and at least 5 m (16 ft) wide north-south to the edge of the APE, for a total of approximately 0.03 acre (0.01 hectare). However, the site most likely extends beyond the limits of the APE.

The survey of site 41TV2553 revealed a large rock midden consisting of three temporal occupations. A total of approximately 870 fire-cracked rocks, approximately 100 lithics, one projectile point, and mussel shell were discovered during the survey. Based on the site type and the projectile point (possible Refugio or Pandora point), the site was dated to the Archaic period.

**Methods.** An HDR archaeologist was present during all soil removal near site 41TV2553. Soil removal was conducted using a skid steer on March 27, 2018 (Figure A-6). The soil was visually examined for cultural resources by the archaeological monitor as it was excavated. Descriptions of the examined soil followed the guidelines and terminology established by the National Soil





Survey Center (Schoeneberger et al. 2002), and soil colors were recorded using a Munsell Soil Color Chart. Depths of soil horizons were estimated using a tape measure from the ground surface.

**Results.** Removal of soil near the western boundary of site 41TV2553 was monitored on March 27, 2018. Soil removal was conducted between the site and the existing culvert. Excavations did not come closer than 35 ft (10.7 m) of the western boundary of site 41TV2553 (Figure A-7 and Figure A-8).

The profile of the removed portion of the hill revealed three soil layers: 0–65 cm very dark brown (7.5YR 2.5/3) clay loam, 65–135 cm brown (7.5YR 4/3) sandy clay, and 135–150 cm very dark brown (7.5YR 2.5/2) clay (Figure A-9). Very large, river worn cobbles were observed in the deepest soil layer that did not appear to be culturally modified.

**Summary.** No cultural materials were identified during the soil removal, which did not come closer than 35 ft (10.7 m) from the western boundary of site 41TV2553. As discussed with the CFLHD project engineer on-site, the only remaining activities near site 41TV2553 will include the excavation of a ditch for drainage, which will be located adjacent to the base of the slope as extended from its original configuration by the overburden soil. In addition, the slope will require erosion control in order to keep the topsoil in place. This will consist of either ridging the slope with shallow drainage lines or placing erosion control matting on the slope. Due to the overburden placed on site 41TV2553, neither of these activities will impact the site. Therefore, no further cultural resources work is recommended for the remainder of the project.

Please feel free to contact me at any time if you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read 'Melanie Johnson', with a long horizontal flourish extending to the right.

**MELANIE JOHNSON**

Archaeology Crew Chief  
HDR Engineering, Inc.  
melanie.johnson@hdrinc.com

## References

Johnson, Melanie

2018 *Intensive Archaeological Survey of the RM 1431 Balcones Canyonlands National Wildlife Refuge Entrance Improvements Project.*

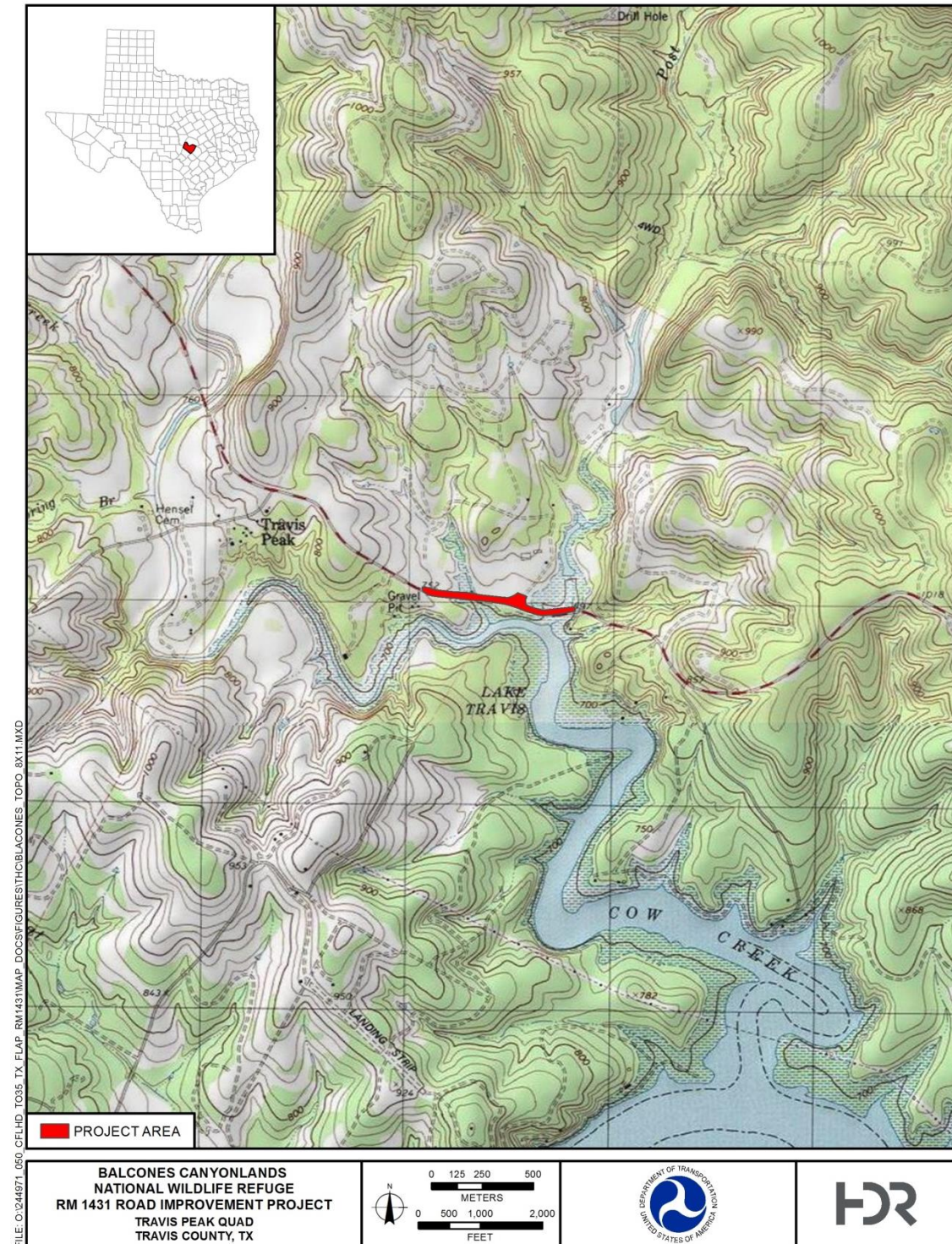
Schoeneberger, P.J., D.A. Wysocki, E.C. Benham, and W.D. Broderson (editors)

2002 *Field Book for Describing and Sampling Soils, Version 2.0.* Natural Resources Conservation Service, National Soil Survey Center, Lincoln, Nebraska.

## Figures

- A-1. General Project Location.
- A-2. Location of Site 41TV2553 within the APE.
- A-3. Area Monitored for Cultural Resources During Soil Removal.
- A-4. Exposed Face of Site 41TV2553 before Overburden Deposition.
- A-5. Slope after Overburden Deposition.
- A-6. Soil Removal near Site 41TV2553.
- A-7. Finished Cut in Hill with Flagged Nail Showing Western Border of Site 41TV2553.
- A-8. Finished Cut in Hill with Flagged Wooden Stake Showing Approximate Center of Site 41TV2553.
- A-9. Soil Profile of Cut in Hill.

Figure A-1. General Project Location.



*This page intentionally left blank*

Figure A-2. Location of Site 41TV2553 within the APE.

CONFIDENTIAL INFORMATION



*This page intentionally left blank*



Figure A-3. Area Monitored for Cultural Resources During Soil Removal.

CONFIDENTIAL INFORMATION



*This page intentionally left blank*

**Figure A-4. Exposed Face of Site 41TV2553 before Overburden Deposition, Facing Northwest.**



**Figure A-5. Slope after Overburden Deposition, Facing Northeast.**





**Figure A-6. Soil Removal near Site 41TV2553, Facing Southwest.**



**Figure A-7. Finished Cut in Hill with Flagged Nail Showing Western Border of Site 41TV2553, Facing Northwest.**





**Figure A-8. Finished Cut in Hill with Flagged Wooden Stake Showing Approximate Center of Site 41TV2553, Facing Northwest.**



**Figure A-9. Soil Profile of Cut in Hill, Facing Northwest.**

