

TEXAS HISTORICAL COMMISSION

ANTIQUITIES PERMIT APPLICATION FORM  
ARCHEOLOGY

GENERAL INFORMATION

I. PROPERTY TYPE AND LOCATION

Project Name (and/or Site Trinomial) 41WM1535 Data Recovery  
County (ies) Williamson  
USGS Quadrangle Name and Number Hutto, TX  
UTM Coordinates Zone 14 E 640122 N 3375481  
Location Within new SE Loop ROW; between Brushy Creek and CR 163  
Federal Involvement ☐ Yes ☒ No  
Name of Federal Agency \_\_\_\_\_  
Agency Representative \_\_\_\_\_

II. OWNER (OR CONTROLLING AGENCY)

Owner Williamson County  
Representative County Judge Steven Snell  
Address 710 South Main St., Suite 101  
City/State/Zip Georgetown, TX 78626  
Telephone (include area code) 512-943-1550 Email Address ctyjudge@wilco.org

III. PROJECT SPONSOR (IF DIFFERENT FROM OWNER)

Sponsor \_\_\_\_\_  
Representative \_\_\_\_\_  
Address \_\_\_\_\_  
City/State/Zip \_\_\_\_\_  
Telephone (include area code) \_\_\_\_\_ Email Address \_\_\_\_\_

PROJECT INFORMATION

I. PRINCIPAL INVESTIGATOR (ARCHEOLOGIST)

Name Amy Goldstein  
Affiliation Johnson, Mirmiran & Thompson (JMT)  
Address 801 E Old Settlers Blvd., Suite 102  
City/State/Zip Round Rock, TX 78664  
Telephone (include area code) 618-978-4064 Email Address agoldstein@jmt.com

## ANTIQUITIES PERMIT APPLICATION FORM (CONTINUED)

### II. PROJECT DESCRIPTION

Proposed Starting Date of Fieldwork July 29, 2025  
Requested Permit Duration 5 Years 0 Months (1 year minimum)  
Scope of Work (Provided an Outline of Proposed Work) Data recovery excavations of site 41WM1535

### III. CURATION & REPORT

Temporary Curatorial or Laboratory Facility JMT Round Rock office  
Permanent Curatorial Facility Texas Archeological Research Laboratory (TARL)

### IV. LAND OWNER'S CERTIFICATION

I, Steven Snell, as legal representative of the Land Owner, Williamson County, do certify that I have reviewed the plans and research design, and that no investigations will be performed prior to the issuance of a permit by the Texas Historical Commission. Furthermore, I understand that the Owner, Sponsor, and Principal Investigator are responsible for completing the terms of the permit.

Signature \_\_\_\_\_ Date \_\_\_\_\_

### V. SPONSOR'S CERTIFICATION

I, Steven Snell, as legal representative of the Sponsor, Williamson County, do certify that I have review the plans and research design, and that no investigations will be performed prior to the issuance of a permit by the Texas Historical Commission. Furthermore, I understand that the Sponsor, Owner, and Principal Investigator are responsible for completing the terms of this permit.

Signature \_\_\_\_\_ Date \_\_\_\_\_

### VI. INVESTIGATOR'S CERTIFICATION


I, Amy Goldstein, as Principal Investigator employed by JMT (Investigative Firm), do certify that I will execute this project according to the submitted plans and research design, and will not conduct any work prior to the issuance of a permit by the Texas Historical Commission. Furthermore, I understand that the Principal Investigator (and the Investigative Firm), as well as the Owner and Sponsor, are responsible for completing the terms of this permit.

Signature Amy M. Goldstein Date June 18, 2025

Principal Investigator must attach a research design, a copy of the USGS quadrangle showing project boundaries, and any additional pertinent information. Curriculum vita must be on file with the Archeology Division.

### FOR OFFICIAL USE ONLY

Reviewer \_\_\_\_\_ Date Permit Issues \_\_\_\_\_  
Permit Number \_\_\_\_\_ Permit Expiration Date \_\_\_\_\_  
Type of Permit \_\_\_\_\_ Date Received for Data Entry \_\_\_\_\_



June 6, 2025

# Research Design and Scope of Work for Data Recovery at Site 41WM1535

**JMT Project #**  
16-1813-007

**Submitted to:**  
HNTB  
Williamson County





# Introduction

Johnson, Mirmiran & Thompson (JMT) proposes data recovery excavations of site 41WM1535 near the City of Hutto, Williamson County, Texas. While working as a subconsultant for JMT, Stantec Consulting Services, Inc. (Stantec) first recorded this site in 2024 during archeological survey of the proposed Southeast Loop Segment 2 corridor (Figures 1 and 2). The site was recommended as having undetermined eligibility as a State Antiquities Landmark (SAL), and Stantec recommended eligibility testing at the site (Turner-Pearson et al. 2024). JMT conducted testing excavations at the site in November and December 2024 and January 2025 under Antiquities Permit 32031.

The Southeast Loop Segment 2 corridor extends for 4.09 miles (6.58 kilometers [km]) between County Road (CR) 137 and Farm to Market (FM) 3349 (see Figures 1 and 2). The proposed roadway would include four main lanes and six frontage road lanes, with turn lanes at intersections as needed. The proposed right-of-way (ROW) width varies from 100 to 560 feet (30.48 to 170.69 meters [m]). The depth of impacts throughout most of the project area is two feet (0.6 m) or less but will extend up to 41 feet (12.5 m) at the bridge location near Brushy Creek.

The project is sponsored by Williamson County and will be constructed on property owned by Williamson County. Since Williamson County is a political subdivision of the state, the project is required to comply with the Antiquities Code of Texas. The project will not use any funds or require permits from federal agencies and is therefore not required to comply with Section 106 of the National Historic Preservation Act of 1966, as amended.

Construction began on Southeast Loop Segment 2 in September 2024 in areas outside of a protective “construction buffer” drawn around the site between Brushy Creek and CR163. Since this is the only area of the project not clear of eligible cultural resources, JMT has been working with Williamson County and the Texas Historical Commission (THC) to allow construction to proceed in other areas of the project. In order to maintain the overall project schedule, JMT needs to complete archeological investigations at site 41WM1535 and obtain THC concurrence that anticipated impacts to the site have been mitigated by December 31, 2025. To meet this aggressive schedule, JMT submitted an interim testing report to the THC for concurrence of site eligibility so as to move forward with data recovery. The THC concurred with the findings in the interim testing report that the site is eligible as a SAL and that data recovery should proceed in correspondence dated May 21, 2025 (Attachment A).

## Summary of Previous Work at 41WM1535

Stantec archeologists originally recorded site 41WM1535 in January 2024 approximately 100 m north of Brushy Creek (Figure 3). While excavating a backhoe trench, the archeologists encountered Feature 1 at approximately 50 centimeters (cm) below ground surface in the northwest wall of the trench. A 50 cm by 50 cm hand excavated unit was excavated off of the trench wall to better expose the feature in plan view. The feature consisted of at least 17 burned rocks and measured approximately 50 cm wide by 70 cm long and 15 cm thick, although the limits of the feature extended beyond the edges of the hand excavation unit (Turner-Pearson et al. 2024). The feature also contained fragments of large mammal rib bone, two of which showed evidence of cutting or scraping. No other artifacts were found within or around the feature, which was described as “remarkably well preserved” (Turner-Pearson et al. 2024:65). Six shovel tests were placed around the feature in an attempt to delineate site boundaries. None of the shovel tests were positive; however, all terminated by a depth of only 45 cm below surface (Turner-Pearson et al. 2024). The backhoe trench in which Feature 1 was encountered was excavated to a depth of 1.5 m without encountering additional cultural material.



The original site boundary for 41WM1535 measured only 7.5 m by 8 m and encompassed an area of .01 acres. Stantec recommended additional archeological investigations at site 41WM1535 to determine its SAL eligibility due to the excellent preservation and research potential of Feature 1. Stantec further recommended that work could proceed within the APE except for a buffer area around site 41WM1535 (Figure 4; Turner-Pearson et al. 2024). The THC concurred with this recommendation in correspondence dated June 21, 2024 (Attachment B).

JMT conducted testing excavations at the site from November 13-21 and 25, 2024, December 10, 2024, and January 27-28, 2025. Testing consisted of magnetometer survey (carried out by subconsultant Archaeo-Geophysical Associates, LLC [AGA]), mechanical trenching, and hand excavation of test units.

Magnetometer survey was conducted across 0.59 acres of the site and identified six anomalies thought to represent cultural features. Mechanical trenches were excavated where the anomalies were marked; however, it became evident that several of the anomalies were either modern or early to mid-twentieth century metal or brick, even though pre-contact cultural material was also found within some portion of every trench opened over the magnetometer anomalies. After trenches had been opened over all six magnetometer anomalies with limited success finding pre-contact features, ten additional trenches were placed within the ROW in an attempt to find the site boundaries. Of the 16 trenches excavated during the testing phase, 13 were positive for pre-contact cultural material. In addition to Feature 1, originally recorded by Stantec, seven more cultural features were found within mechanical trenches (Table 1). As a result of the trenching effort, the site boundaries were expanded from the original size of 0.01 acres to 2.22 acres (Figure 5).

Table 1. Features recorded during the testing phase at 41WM1535

FEATURE	TRENCH	ELEVATION (TOP)	DEPTH BELOW SURFACE (TOP)	DESCRIPTION
1	BHT 1	99.336	64 cm	Circular burned rock feature with bison rib bones, large quantities of charred plant remains, and few lithics; 100 cm north to south by 85 cm east to west.
2	BHT 3	99.610	35 cm	Amorphous concentration of FCR and large mammal bones; 60 cm north to south by 57 cm east to west.
3	BHT 7	99.599	30 cm	Circular area of burned clay, approx. 15 cm in diameter.
4	BHT 2	99.628	35 cm	Amorphous concentration of FCR and faunal bone; 80 cm east to west by 90 cm north to south.
5	BHT 15	97.393	100 cm	Amorphous concentration of ash and charcoal; approximately 30 cm by 15 cm; not fully exposed in plan view during trenching.
6	BHT 16	98.504	80 cm	Basin-shaped charcoal and ash stain in BHT 16 south wall; 45 cm in length.
7	BHT 16		60 cm	Concentration of FCR and charcoal in the east wall and northeast corner of BHT 16; 25 cm long in eastern wall.
8	BHT 16		20 cm	Concentration of FCR and charcoal in eastern wall of BHT 16; most FCR fell out of the wall during trenching; 30 cm long.



JMT hand excavated 1.75 cubic meters of sediment across three 1 m by 1 m units focused on Feature 1. The test units were excavated off the northeast wall of BHT1 to fully expose Feature 1 in plan view. Once this feature was fully exposed and mapped in plan view, it was bisected, and the north half of the feature was excavated in 10-cm levels.

After testing fieldwork was completed, JMT conducted preliminary analysis of the collected artifacts, soil samples, and radiocarbon samples. Fire-cracked rock (FCR) was likely the most numerous artifact type encountered at the site; however, FCR was typically not collected but weighed by size and provenience and discarded on site. A total of 77.8 grams of FCR were recorded within the test units. FCR was also frequently encountered in trenches but was not weighed as per the testing permit scope of work. Faunal material was the next most common artifact class with 118 specimens collected across the three test units. Lithic tools and debitage were also present though less common with 39 individual lithic artifacts collected from test units and another six collected from trenches. Of these, six were identified as tools. None of the tools were temporally diagnostic, though one broken dart point can be very generally dated to the Terminal Late Archaic period or earlier. Two groundstones were also collected from trenches.

JMT submitted five radiocarbon samples for AMS dating. Two of the samples came from different levels of Feature 1, while the others came from Features 5, 6, and 8 (Table 2).

*Table 2. Radiocarbon dates from the testing phase*

CALIBRATED AGE	FEATURE	CM BELOW SURFACE	ELEVATION (MIDDLE OF FEATURE)	CONVENTIONAL AGE	NOTES
Cal 1490 - 1660 AD	5	100-110	97.393	300 +/- 30 BP	Charcoal/ash concentration on the lower terrace
Cal 1260 - 1310 AD (80.1%)	1	68-80	99.226	710 +/- 30 BP	Level 1 of Feature 1
Cal 1360 - 1390 AD (15.3%)					
Cal 1150 - 1270 AD (94.6%)	8	20-40	99.073	850 +/- 30 BP	FCR/charcoal feature in BHT 16 east wall
Cal 1050 - 1270 AD (0.9%)					
Cal 1020 - 1160 AD	1	110-120	98.826	970 +/- 30 BP	Level 5 of Feature 1
Cal 970 - 1050 AD (82.0%)	6	80-90	98.504	1020 +/- 30 BP	Basin-shaped feature observed in profile in BHT 16 south wall
Cal 1080 - 1160 AD (13.5%)					

## Regional Cultural Background

Three main periods are traditionally recognized in North American—and thereby Central Texas—archaeology: Paleoindian, Archaic, and Late Prehistoric (Collins 2004:112). These periods, which correspond to significant cultural or technological shifts, are further broken into subperiods, which in turn delineate changes in subsistence strategies



(Collins 2004:112). Since the establishment of these periods, a growing body of literature has substantiated the existence of a pre-Clovis culture that predates the Paleoindian period (Waters 2019 and internal citations). This section will provide a brief overview of each of these periods in Central Texas.

## Pre-Clovis

A broad study into Late Pleistocene and Early Holocene human remains from across the Americas—including Texas—finds statistical evidence of non-gendered divisions of labor (Haas et al. 2020). Genetic studies indicate that a single founding population of humans moved into North America from Eurasia approximately 36 thousand years ago (ka), and became genetically isolated from the Eurasian continent approximately 20-25 ka (Waters 2019). Human footprints dating to ~23-21 ka have been found in New Mexico (Bennett et al. 2021), but the earliest dated evidence for human occupation in Central Texas comes from the Gault Site in Bell County, where optically stimulated luminescence (OSL) analysis of alluvial sediments associated with lithic artifacts returned a date range of 16.7 – 21.7 ka before present (B.P.) (Williams et al. 2018). The lithic technology associated with these dates (the Gault Assemblage) is technologically distinct from Clovis technology, featuring both small stemmed and lanceolate points, as well as biface and blade-and-core artifacts (Williams et al. 2018). The nearby Debra L. Friedkin Site, which also contains pre-Clovis cultural deposits (the Buttermilk Creek Complex), has been OSL dated to between 13,500 and 15,500 B.P. (Waters et al. 2018). The Buttermilk Creek Complex and the Gault Assemblage exhibit comparable lithic technologies (Waters et al. 2018), indicating cultural continuity between the two adjacent sites. Although there is scattered evidence of pre-Clovis cultural behaviors at various sites in North America (e.g., Bennett et al. 2021; Hockett and Jenkins 2013), a broad brush characterization of the lifeways of a pre-Clovis people cannot be derived from these geographically distanced groups, and most evidence from purported pre-Clovis Central Texas sites does not hold up to scientific scrutiny (Collins 2004:116). Thus, our understanding of pre-Clovis populations in Texas is currently restricted to the lithic evidence from the Gault Assemblage and Buttermilk Creek Complex.

## Paleoindian Period

The Paleoindian period is broken into Early and Late subperiods (Collins 2004:116). Beginning as the Pleistocene ended, the Early Paleoindian subperiod is marked by the use of typically fluted lanceolate projectile points (e.g. Clovis and Folsom), and the exploitation of several of the large mammal species that went extinct at the end of the Pleistocene (Collins 2004:116). At the Gault Site, the Early Paleoindian assemblage includes culturally modified remains of turtles (Testudines and Kinosternidae), birds, unidentified carnivores, cottontail rabbits (*Sylvilagus* sp.), rodents, pronghorn (*Antilocapra* cf. *americana*), bison (*Bison* sp.), horse (*Equus* sp.), and unidentified microvertebrates (Armstrong 2025), in keeping with broader evidence that Clovis people (ca. 13,020-12,710 B.P) (Waters and Stafford 2007) subsisted on a diet inclusive of diverse fauna (Collins 2004:117). Evidence of labor investment, such as the construction of a stone floor at Kincaid Rockshelter in Uvalde, Texas (Collins 1990), indicates periods of long-term or repeat use of sites by Clovis peoples. Additionally, a series of incised stones and engraved bones dated to the Clovis period have been found at various sites in Texas, including nine stones and one bone fragment from the Gault Site which constitute the oldest evidence of portable art from a secure context in Texas (Lemke et al. 2015).

Less is known about people of the Folsom culture (ca. 12,730-11,730 B.P.) that came after Clovis (Collins 2004:117). Archaeological evidence indicates a greater reliance on bison (Collins 2004:117; Kilby et al. 2024 an internal citations), and evidence from the Gault and Debra L. Friedkin Sites indicate the repeated and long-term occupation patterns of Clovis peoples were replaced by temporary camps (Jennings 2012). That idea is supported by Folsom archaeological evidence more broadly (Hofman 2002:409). A feature filled with mandibles, long bones, and a bison skull at Lake Theo





in the Southern High Plains of Texas is part of a broader pattern of apparent ritual acts using bison skulls, and hypothesized to relate to bison hunting events (Hofman 2002:409–410 and internal citations).

One of the oldest Paleoindian remains in North America was recovered from the Wilson-Leonard site in Williamson County, Texas (Davis et al. 2021). The individual (WL-2) was identified as female, estimated to be between 18 to 25 years old at death (Steele 1998:1446), and dated to ~10,000 B.P. (Davis et al. 2021). Associated grave-goods included an ornamental fossil shark tooth, a limestone cobble, and a sandstone grindstone or chopper (Davis et al. 2021). Additional human remains from this site were determined to be either Late Paleoindian or Early Archaic, and may represent the remains of a single individual (WL-1), or up to seven different individuals (Steele 1998:1443). Isolated elements indicate an adolescent or adult of unknown sex (Steele 1998:1443). Stable isotope analysis on both WL-1 and WL-2 indicate a low-protein diet, with reliance on C<sub>3</sub> plants (e.g. trees, shrubs, forbs, and cool season grasses) and C<sub>3</sub> grazers reflective of hunter-gatherer populations (Wilson 1998:1461–1462).

At Wilson-Leonard, burned rock features are not identified in the Early Paleoindian contexts but are the dominant cultural feature beginning in the Late Paleoindian (ca. 10,000-8,800 B.P.) through Late Prehistoric contexts (Guy 1998:1107–1108). Older features are small, but the latest Late Paleoindian features are larger, possibly indicating an increase in the amount of food processed and subsequently a shift in subsistence strategies or social structures (Guy 1998:1108). A greater variety of fauna appears to have been exploited at this time, alongside shifts in lithic manufacture, possibly in response to increased aridity (Britt Bousman 1998:210).

## Archaic Period

The Archaic period comprises the bulk of Central Texas prehistory, beginning ca. 8,800 B.P. and extending to ca. 1,500 B.P. (Collins 2004). It is generally divided into Early (ca. 8,800-6,000 B.P.), Middle (ca. 6,000-4,000 B.P.), and Late (ca. 4,000-1,500 B.P.) cultural contexts (Collins 2004). In general, the archaeological record indicates increasing trends towards specialized food gathering, group interaction, and population size as the Archaic progressed (Prewitt 1981).

There are several Early Archaic sites in Central Texas, including open campsites and rockshelters, living structures, caches, and various large form burned rock features (Collins 2004:119). Various modified lithic materials point to activities such as fishing or hunting using nets, processes requiring grinding and hammering, and possible woodworking in addition to uniface and biface tools (Collins 2004:119). Both small stone hearths and earth ovens were used throughout the Archaic at Wilson-Leonard, and during the Early Archaic these ovens were used—perhaps not exclusively—to cook hyacinth bulbs (Collins et al. 1998:265–266; 268). At the Sleeper Site in Blanco County, small flat hearths associated with grinding stones are hypothesized to have been used to grind seeds (Collins et al. 1998:265 and internal citation). From these examples of adaptive specialized food processing strategies, it is inferred that Early Archaic peoples were adjusting activities according to resource availability (Collins et al. 1998:266).

Fish, turtle, deer, and rabbit were all common food sources in the Early Archaic (Collins et al. 1998:267), and at Wilson-Leonard there is indication that walnut, hackberry, and various grass seeds alongside hyacinth bulbs played a dietary role throughout the Archaic (Collins et al. 1998:269–270). Dietary isotope evidence supports this, with Early Archaic peoples showing higher levels of C<sub>4</sub> plant (e.g. bluestem [*Adropogon* spp. and *Sorghastrum* spp.]) and grama (*Boiteloua* spp.) grasses (Reemts et al. 2019) as a non-protein dietary contribution compared to Middle and Late Archaic peoples (Bousman and Quigg 2006; Mauldin et al. 2013). The predominance of hyacinth bulbs at Wilson-Leonard suggest a seasonal use of the site, and this in the broader context of Central Texas Archaic suggests a generally mobile hunter-





gatherer subsistence style, with impermanent domestic structures (Collins et al. 1998:269–270; Michael B. Collins 1998:287).

Central Texas conditions during the Middle Archaic were generally xeric, and it is hypothesized that sotol and other xerophytes were increasingly consumed (Collins 2004:121). Dietary isotopic evidence supports this hypothesis, with a trend of increasing  $C_3$  plant dependence, which includes geophytes such as sotol and hyacinth (Bousman and Quigg 2006; Mauldin et al. 2013). This shift to increasing dependency on  $C_3$  plants, alongside increased reliance on deer and rabbit over fish and turtle continues into the Late Archaic (Hard and Katzenberg 2011; Mauldin et al. 2013). Additionally, variations in dietary stable isotopes within Archaic populations in Texas suggest the possibility of mate exchange with other groups (Bousman and Quigg 2006).

## Late Prehistoric Period

The Late Prehistoric Period in Texas is generally divided into the Austin (ca. 1200-800 B.P) (Collins 2004:122) and Toyah (ca. 700-350 B.P) (Mauldin et al. 2013) phases. In Central Texas, the precise onset of the Late Prehistoric is difficult to identify due to the initial absence of most of the traditionally defined cultural indicators (Collins 2004:122); namely arrow points, pottery, and more developed agriculture (Suhm and Krieger 1954:20). As a result, the defining material culture marker of the Late Prehistoric Period is the replacement of lithic dart points with smaller, lighter arrow points, indicating a transition away from the atlatl to the bow and arrow (Collins 2004:122). Isotopic evidence from limited samples indicates a greater reliance by Austin phase peoples on prey consuming a  $C_3$  plant diet (i.e. deer, cottontail rabbit), continuing a trend away from consumption of  $C_4$  grazers (i.e. bison) seen throughout the Archaic (Mauldin et al. 2013). The reduced consumption of bison is consistent with the reduction or absence of bison from Central Texas during the Austin phase (Lohse et al. 2014). Notably, there is evidence for a culture of “scavenging and recycling” of materials from previous cultures, resulting in the presence of Archaic or Paleoindian materials found in what are otherwise considered Late Prehistoric middens (Black and Creel 1997:280). Overall, however, it has been suggested that the Austin phase of the Late Prehistoric is more similar to the Late Archaic than to the cultures that followed, and may not merit distinction from the Late Archaic (Lohse et al. 2014).

The Toyah phase, however, marks a distinct cultural shift in Central Texas, with changes in diet (Mauldin et al. 2013), food production and processing, mortuary habits, (Carpenter 2017), the appearance of local and imported pottery, and the adoption of lithic technology associated with hunting of bison, deer, and antelope (Collins 2004:123). Dietary (Mauldin et al. 2013), faunal (Lohse et al. 2014), and lithic evidence (Collins 2004) indicate the return of bison to the region, which may have significantly influenced culture (e.g., Carpenter 2017). Though understanding of the Toyah phase is improved by its partial overlap with ethnographic accounts, clarity on whether the cultural shift reflects migration, trade, or importation of ideas is still unclear (Carpenter 2017). It has been hypothesized that the Toyah toolkit (e.g., beveled knives, knapping technology, and end scrapers) was used by multiple peoples (e.g. Caddo, Jumano, Rockport etc.) practicing seasonal long-range hunting alongside agriculturalism (Carpenter 2017). Multiple lines of evidence indicate Toyah peoples were highly mobile, with non-redundant short-term occupation sites that significantly correlated with the location of historic cattle trails—taken to be a proxy of bison migration routes—indicating a practice of seasonal bison exploitation (Carpenter 2017).

## Paleoenvironment of Central Texas

Research indicates central Texas underwent a significant environmental shift from grassland to open woodland between the Late Glacial Maximum (LGM) (ca. 20-14.7 ka cal BP) and the Early Holocene (11.7-8.0 ka cal BP), (Seersholm et al.



2020). The LGM abruptly transitioned to wetter conditions marked by large precipitation events at ~14.5 ka as a result of deglaciation (Sun et al. 2021). The increase in storm systems gradually subsided by the Younger Dryas (YD) (12.6-11.7 ka cal BP), with drier conditions established by approximately 11-7 ka, followed by a gradual general increase in moisture into the late Holocene (Sun et al. 2021). LGM mean annual temperatures were below 10.6°C, but rose above 11°C by the Holocene (Seersholm et al. 2020)

Several studies conclude a general increase in aridity from the onset of the YD into the Holocene (e.g. Seersholm et al. 2020; Toomey et al. 1993), while others find evidence of increased moisture (e.g. C. Britt Bousman 1998; Sun et al. 2021). The discrepancy may relate to the application of local proxy results to regional conclusions. A study on changes to the Colorado River drainage system during the Pleistocene-Holocene transition concluded a higher river catchment area, average river channel width of ~600 m, and higher regional effective moisture during the Pleistocene compared to an arid upper river catchment, narrower average channel widths of ~300 m, and increased localized precipitation related to erosion in the Holocene (Gutiérrez and Stockli 2023).

Research indicates central Texas had a no-analogue ecological community (i.e. biotic communities in which no modern analogue is known) during the Pleistocene (C. Britt Bousman 1998; Seersholm et al. 2020). During the LGM, thick soils supported diverse burrowing taxa, such as prairie dogs (*Cynomys* sp.) and marmots (*Marmota* sp.) (Seersholm et al. 2020). Other mammalian taxa identified in the region include but are not limited to camel (*Camelops hesternus* and Camelidae), helmeted muskox (*Bootherium bombifrons*), horses (*Equus* sp.), pronghorn (*Antilocapra americana*), fox (*Vulpes vulpes*), bison (*Bison antiquus*), saber-toothed cat (*Smilodon* sp.), cave lion (*Panthera atrox*), jaguar (*Panthera onca*), short-faced bear (*Arctodus* sp.), black bear (*Ursus americanus*), tapir (*Tapirus* sp.), and various species of rodent, bat, and lagomorph (Johnson and Moretti 2022; Seersholm et al. 2020). Additional vertebrate taxa include ducks, geese and swans (Anatidae), Northern crested caracara (*Caracara cheriway*), sandpipers, passerines, American alligator (*Alligator mississippiensis*), rattlesnakes (*Crotalus atrox* and *viridis*), and various frogs, toads, and salamanders (Johnson and Moretti 2022; Seersholm et al. 2020).

During the Bølling-Allerød (BA) (14.7-12.6 ka cal BP), many of the large mammals disappeared along with the open grasslands, which transitioned to a live oak open woodland, characterized by ash, walnut, and sumac (Seersholm et al. 2020). Soils became increasingly thinner as evidenced by the loss of several burrowing taxa (Seersholm et al. 2020), possibly as a result of increased storm systems associated with major precipitation events (Gutiérrez and Stockli 2023; Sun et al. 2021). With the onset of the YD, central Texas experienced a significant decrease in both floral and faunal diversity (Seersholm et al. 2020).

During the Holocene, evidence indicates a general trend to increased precipitation (Ellwood and Gose 2006; Sun et al. 2021). This trend was marked by fluctuations, including an increased wet environment around 6,000 BP, and dry events at 1,500 and 300-500 BP indicate relative climatic and environmental instability in central Texas, which would have required adaptive strategies on the part of faunal and human populations (C. Britt Bousman 1998). Although floral diversity rebounded during the Early Holocene from its collapse in the YD, faunal diversity did not (Seersholm et al. 2020). Mean annual temperatures increased to above 11°C, and the live oak woodland transitioned to a live oak-juniper woodland (Seersholm et al. 2020).

## Brushy Creek Archeological Sites

Dozens of precontact archeological sites have been recorded along Brushy Creek in Williamson County. Some of these sites warrant additional discussion here due to their potential similarity to 41WM1535.



The most well-known precontact site recorded on Brushy Creek is the Wilson-Leonard site (41WM235), which is approximately 15 miles west of 41WM1535. The Wilson-Leonard site boasts one of the most complete examples of human presence in Central Texas, with dates spanning 11,000 years within stratified alluvial deposits approximately six meters deep (Michael Collins 1998). Features recorded at the site included over 200 hearths and one of the oldest burials in North America, dated to 9,500 BP. Artifacts recovered from the site included projectile points dating from the Early Paleoindian Period through the Late Prehistoric Period, grinding tools for food processing, net sinkers, macro- and microfauna, and paleobotanical remains (Texas Historical Commission 2025).

Site 41WM961, also known as the Dr. Johns Site, is located 1.8 miles (2.91 km) west of 41WM1535. Robert Stiba originally recorded this site in 1976 as a large open campsite with a burned rock midden. Artifacts recorded at the site (which had already been disturbed by looters) include Darl, Fairland, Ensor, Castroville, Marcos, Marshal, Montell, and Pedernales projectile points; drills, manos, knives, a scraper, and lithic flakes; snail shell, freshwater mussel, animal bone, and two conch shell pendants. The thickness of the deposit was estimated to be two feet (Texas Historical Commission 2025).

Site 41WM962 is located approximately .32 miles (500 m) southeast of 41WM1535, also on the north side of Brushy Creek. This site was recorded by Stiba in 1976, who observed artifacts and features including chert debitage, exposed burned rock features, shells (unidentified gastropods and bivalves), blade fragments, a utilized chert core, and unidentifiable projectile point bases (Texas Historical Commission 2025). Based on the Atlas site form, it appears that no shovel tests were excavated at the site; however, Stiba estimated that the cultural deposit was one to two feet deep, presumably based on stratigraphy visible in a gully that cuts through the site.

Site 41WM1028 is located approximately 11.4 miles (18.34 km) west of 41WM1535 on the south bank of Brushy Creek. The site was originally recorded in 2002 as a Middle Archaic midden with an associated lithic scatter (Lawrence et al. 2008). SWCA Environmental Consultants conducted testing excavations at the site from October 6-10, 2007, which included excavation of nine backhoe trenches and five one-by-one square meter test units. Two burned rock features were recorded at the site that were first encountered between 20 and 40 cm below surface. Lithic debitage as well as 46 formal and informal lithic tools were recovered from the site. Due to a lack of integrity from bioturbation and previous impacts, the site was recommended not eligible for listing in the NRHP or for listing as a SAL (Lawrence et al. 2008).

## Research Themes and Questions

Archeological testing at site 41WM1535 has provided significantly more information than was available following the initial survey phase. Building on these findings we have identified key research themes that will inform and guide data recovery excavations. The site has potential to yield additional data that will enhance our understanding of site formation processes on alluvial terraces, Central Texas chronology, shifts in regional subsistence patterns over time, and the transition from the Austin to Toyah phase in the region. Furthermore, these findings will be compared with data from nearby sites to provide a broader regional perspective and refine our interpretations.

## Site Formation Processes

Site 41WM1535 occurs across two terraces of Brushy Creek. Most of the work conducted during the testing phase focused on the upper terrace because this was where the site was originally discovered. Additionally, since the upper terrace is a distinct landform, its edge was first thought to represent the site boundary. However, two mechanical trenches excavated on the lower terrace were positive for cultural material, and one trench (BHT 15) contained a feature



(Feature 5, Table 2). A radiocarbon date from Feature 5 indicated that this was the youngest feature at the site dating to 300 +/- 30 BP. Since Feature 5 appears to be the youngest feature, while also being stratigraphically the lowest, this indicates that the lower terrace landform is both younger than the upper terrace and that the formation processes of the two terraces are different. Specifically, it seems that the lower terrace has been more frequently flooded and has had more rapid sediment buildup than the upper terrace.

Additional, deeper trenches on both terraces and subsequent geoarchaeological analysis will allow us to test these hypotheses. Overall, additional trenching and geoarchaeological analysis will provide a greater understanding of when and how the site was occupied and how these landforms were created over time. The results from the landform study at 41WM1535 may be more broadly applicable to sites in similar settings along perennial streams in Central Texas and could help predict where future sites may be found and at what depths.

## **Chronology at Site 41WM1535**

Site 41WM1535 presents an opportunity to refine the cultural chronology of Central Texas. Unlike many sites in the region, 41WM1535 has exhibited excellent organic preservation as evidenced by the 168.3 grams of charcoal collected during the testing phase (minimum mass recommended for an AMS radiocarbon date is 2 milligrams). Well-preserved faunal bone (both burned and unburned) was also observed throughout Feature 1 and in several trenches. The five radiocarbon dates from the testing phase as well as visual inspection of trench and unit profiles show that the site is also well-stratified. Within the upper terrace, the radiocarbon dates get older with decreasing absolute elevation and have very little to no overlap between dates. Furthermore, the two charcoal samples sent from different levels of Feature 1 produced non-overlapping dates that fit with their stratigraphic position.

Because the site exhibits two key characteristics – an abundance of organic remains and high stratigraphic integrity – it presents a unique opportunity to generate a comprehensive set of radiocarbon dates, further refining the region's chronology. While the radiocarbon dates obtained thus far only span the Late Prehistoric period, it is likely that additional, earlier occupations exist undisturbed at lower depths. If these occupations do not contain enough burned organic material for radiocarbon dating, OSL dating can be used as another means of absolute dating of the components.

## **Regional Subsistence Patterns**

Artifact analysis from the testing phase showed that faunal material was the most numerous artifact type after thermally altered rock. The assemblage consisted mostly of large mammals but also included small mammals, bird, and mollusk shells. Several specimens showed evidence of either burning or butchery, providing further evidence of human food consumption. Preliminary analysis of a light fraction from a flotation sample in Feature 1 showed that charred seeds are preserved within the feature. Taken together, faunal and botanical evidence from the site has the potential to give a robust picture of food preparation and consumption throughout the Late Prehistoric Period in Central Texas. If earlier components are found to be present at deeper levels within the site, the time depth for comparison could be expanded to give an even broader view of changes in regional subsistence patterns over time. A large faunal and macrobotanical assemblage from the site could answer questions related to plant and animal availability over time as well as human preferences for use of certain plants and animals for food. Furthermore, macrobotanical remains and mollusk shells could be used to determine if the site was occupied on a seasonal basis and if that changed over time.

## **Transition from the Austin to Toyah Phase**



Since 41WM1535 has produced radiocarbon dates spanning the Late Prehistoric period – i.e. both the Austin and Toyah phases – the site offers a window into how and when this major cultural shift took place in Central Texas. Feature 1, which has only been half excavated, has already provided interesting data related to this research theme. The first level of Feature 1, dated to 710+/- 30 BP, falls at the very beginning of the Toyah phase. This level of the feature contains bison rib bones, and bison hunting and consumption are typically associated with Toyah culture. However, a partial dart point found adjacent to Feature 1 and at the same level as the top of the feature indicates use of dart points rather than arrow points by those consuming the bison in Feature 1. This may be an example of scavenging and reuse of older lithic materials more typically associated with the Austin Phase. Additionally, Feature 1 consists of at least two different deposition episodes. The repeated use of the same location for cooking runs counter to Carpenter's (2017) suggestion that Toyah peoples used non-redundant short-term occupation sites.

Excavation of the rest of Feature 1 along with excavation of the other features recorded during testing will provide more information about how technology, subsistence, and occupations patterns changed from the Austin to Toyah phase. The site also has the potential to either refute or support Lohse et al.'s 2014 assertion that the Austin Phase is virtually indistinguishable from the preceding Late Archaic period. This will be especially true if earlier Archaic components are found at the site below the Late Prehistoric component.

## Proposed Methods

JMT's proposed field methodology for data recovery excavations includes additional deep mechanical trenching that will be overseen by a geoarcheologist; hand excavation of 1 m x 1 m units. JMT will also collect sediment samples from feature contexts, and JMT's geoarcheologist subconsultant, Charles Frederick, will collect various large and small-scale sediment samples from trenches. Proposed analyses include soil micromorphology; organic carbon analysis; radiocarbon and/or optically stimulated luminescence (OSL) dating; soil flotation and macrobotanical analysis; zooarcheological analysis of the faunal assemblage; and general artifact analysis of any other classes of artifacts collected.

## Geoarcheology and Mechanical Trenching

JMT's subconsultant, Charles Frederick, will conduct geoarchaeological work at the site. The proposed geoarchaeological work is designed to assess and document the large-scale alluvial stratigraphy and detailed context and integrity of the pre-contact component(s) at site 41WM1535. The proposal is structured into two tasks: Task 1 is the trenching and assessment of the large-scale alluvial stratigraphy, and Task 2 is detailed analysis of the excavated pre-contact component(s). At this time, it is considered likely that the deposits within the project area may contain more than one pre-contact component which, if present, should be identified during Task 1.

Task 1 will use a mechanical excavator (a Gradall) to expose windows into the subsurface that will allow assessment and inspection of the alluvial deposits present. This work will be done at the start of field operations so subsequent fieldwork can incorporate these exposures into the excavation plan, if warranted. These excavations will be documented by at least a single column profile that will be cleaned, described and photographed, and then sampled for detailed characterization of the sediments. This assessment will describe the profiles in general concordance with the methods described in (Schoeneberger et al. 2012). Cultural material will be noted when encountered and preliminarily assessed for context and integrity. Up to five mechanical trenches will be excavated during fieldwork, and their locations will be chosen by the geoarchaeologist.



Task 2 is designed to assess, document and describe the context and integrity and overall nature of the pre-contact occupation. This work will occur near the end of hand excavations in order to allow incorporation of all excavations made into the component. The field profiles will be examined, described and photographed so as to capture the nature of the pre-contact deposits and their integrity. A suite of bulk samples will be collected to support the field impression of the deposits, and these may include, but are not limited to samples for bulk sediment/soil analysis, organic carbon analysis, soil micromorphology, and elemental analysis.

JMT archeologists will also collect a 10 cm by 10 cm column sample from at least one trench that extends deeper than 2 m below ground surface for flotation and macrobotanical analysis. The column sample will be limited to a deeper trench because JMT already has dozens of column samples from shallower trenches excavated during the testing phase.

## **Hand Excavation**

JMT will hand excavate ten cubic meters of sediment using 1 m by 1m excavation units. The test units excavated around Feature 1 will be reopened and the remaining half of Feature 1 will be excavated. Excavation units will be opened over Features 2 through 8 that were identified during the testing phase. Since all of these features were revealed through mechanical trenching, JMT plans to reopen previous trenches where features were identified and mechanically remove most of the soil from above the feature. The soil remaining above the feature will be hand excavated to reveal the feature in plan view. After the horizontal extent of the feature has been determined, the feature will be bisected and excavated one half at a time to allow the features to be drawn and photographed in profile. JMT will fully excavate smaller features, while large features may only be half excavated. In addition to excavating the known Features 2 through 8, JMT will also place excavation units over any newly discovered features uncovered by additional mechanical trenching. Their excavation will follow the same methods described above.

Hand excavation will proceed in arbitrary 10-cm levels unless the surrounding soil matrix or internal feature stratigraphy suggests excavating in natural levels or smaller levels would be more appropriate. All hand-excavated sediment will be screened through 1/4-inch hardware mesh.

Details of each level of each unit will be recorded on standardized level forms, and feature details will be recorded on feature forms. Photographs will be taken at the close of every level, and 3D scans of some unit and feature levels will be recorded with the Scaniverse application as determined by the Field Director. Horizontal and vertical measurements of the excavation units will be recorded with a total data station (TDS). A datum stake with string and line level will be placed outside the excavation units for horizontal control and measurement while excavation proceeds.

## **ARTIFACT AND SAMPLE COLLECTION**

All artifacts recovered from hand excavations will be collected for analysis and curation except for thermally altered rocks. Thermally altered rocks will be sorted by size (0-5 cm; 5-10 cm; 10-15 cm; >15 cm) and weighed by size and provenience before being discarded in the field. Only a small sample of thermally altered rock will be retained for curation. Diagnostic artifacts and lithic tools from all trenches will be collected. Non-diagnostic artifacts found in trench back dirt will be recorded but not collected due to their non-specific provenience.

A soil sample will be collected from each excavated feature for flotation. Burned material from feature contexts will be recorded in drawings and mapped with the TDS before it is collected for radiocarbon dating. Burned material found outside of feature contexts will be noted but may not be collected.





## Analyses

JMT will clean all recovered artifacts, after which they will be sorted into classes, quantified by provenience, and entered into an excel database. The physical attributes of lithic artifacts, including raw material, size, weight, and observable human modifications will be recorded within the artifact catalogue. JMT Archaeologist Amy Kolly, who specializes in zooarchaeology, will analyze all faunal material to identify all specimens to the most specific possible taxon. Where possible, individual elements will be recorded, and a minimum number of individuals (MNI) will be estimated. Any modifications to the faunal material such as cut marks or green breaks for possible bone marrow extraction will be recorded.

Soil samples collected from features will undergo flotation to separate any artifacts or botanical remains within the sample into light and heavy fractions. Heavy fractions will be analyzed by JMT staff, and any artifacts present will be recorded in the master artifact catalogue. JMT will send up to 70 light fractions to Dr. Leslie Bush for macrobotanical analysis.

Testing excavations showed that the site has excellent organic preservation, and burned organic material was observed in nearly every feature. As such, JMT expects to collect many more radiocarbon samples throughout the data recovery phase. JMT will submit up to 25 radiocarbon samples to ICA Radiocarbon Laboratory for AMS dating. Samples will be chosen from intact feature proveniences that span the vertical stratigraphy of the site in an attempt to build a robust suite of absolute dates for the site. If a deeper occupation proves to have poor organic preservation that precludes radiocarbon dating, JMT will submit one sample for single grain OSL dating.

As part of the geoarchaeological study of the site, Charles Frederick will conduct a number of soil analyses that could include, but are not limited to, bulk sediment/soil analysis, organic carbon analysis, soil micromorphology, and elemental analysis.

## Human Remains Protocol

Human remains are not anticipated. However, if human remains are encountered during fieldwork, all work will cease in that area and the remains will be covered and protected. JMT will immediately notify Williamson County, the THC, and local law enforcement of the discovery. If it is determined that the remains are human and archeological, no further excavation will occur within that area of the site until a plan for their treatment can be developed in cooperation with Williamson County, the THC, and affiliated Native American tribes. JMT will follow all relevant consultation guidelines and laws in accordance with regulations in Chapters 711-715 of the Texas Health and Safety Code, the Antiquities Code of Texas, and 13 TAC 22.

## Reporting and Curation

JMT will prepare a draft interim report describing the effort undertaken during the data recovery phase and summarizing initial analyses and results. The goal for the interim report is to allow Williamson County to proceed with construction within the site boundary while JMT completes a full analysis and data recovery report in accordance with the CTA's Guidelines and Standards for CRM Reports (Council of Texas Archeologists 2024). The report will include environmental and cultural contexts for the region, methods used, and results of the data recovery excavations and analyses. The draft report will be submitted to the THC for review and comment. Following acceptance of the draft report, JMT will prepare electronic and hard copies of the final report for submittal to the THC and distribution to local repositories in accordance with the terms of the Antiquities Permit.





Artifacts collected during the data recovery, as well as project-related records, will be prepared for curation and submitted to the Texas Archeological Research Laboratory (TARL) to fulfill the requirements of the Antiquities Permit.



## References Cited

- Armstrong, Madeleine Olivia. 2025. Clovis Subsistence at the Gault Site, Texas (41BL323). *Unpublished Undergraduate Honors Thesis, The University of Texas at Austin*.
- Bennett, Matthew R., David Bustos, Jeffrey S. Pigati, Kathleen B. Springer, Thomas M. Urban, Vance T. Holliday, Sally C. Reynolds, et al. 2021. Evidence of Humans in North America during the Last Glacial Maximum. *Science* 373(6562):1528–1531. <https://doi.org/10.1126/science.abg7586>.
- Black, Stephen L., and Darrell G. Creel. 1997. Hot Rock Cooking on the Greater Edwards Plateau: Four Burned Rock Midden Sites in West Central Texas. In *Hot Rock Cooking on the Greater Edwards Plateau: Four Burned Rock Midden Sites in West Central Texas*, edited by Stephen L. Black, Linda W. Ellis, Darrell G. Creel, and Glenn T. Goode, 1:pp. 269–314. Studies in Archeology No. 22. Texas Archeological Research Laboratory, The University of Texas, Austin and Archeological Studies Program, Report 2., Texas Department of Transportation, Environmental Affairs Division, Austin.
- Bousman, Britt. 1998. Chapter 8: Late Paleoindian Archaeology. In *Wilson-Leonard An 11,000-Year Archeological Record of Hunter-Gatherers in Central Texas Volume I: Introduction, Background, and Syntheses*, edited by Michael B. Collins, 1:pp. 161–210. Studies in Archeology No. 31. Texas Archaeological Research Laboratory, The University of Texas at Austin.
- Bousman, C. Britt. 1998. Paleoenvironmental Change in Central Texas: The Palynological Evidence. *Plains Anthropologist* 43(164):201–219. <https://doi.org/10.1080/2052546.1998.11931900>.
- Bousman, C. Britt, and Michael Quigg. 2006. Stable Carbon Isotopes from Archaic Human Remains in the Chihuahuan Desert and Central Texas. *Plains Anthropologist* 51(198):123–139.
- Carpenter, Stephen M. 2017. The Toyah Complex of South and Central Texas: Long-Range Mobility and the Emergence of Dual Economies. *Plains Anthropologist* 62(242):133–156. <https://doi.org/10.1080/00320447.2016.1258858>.
- Collins, Michael (editor). 1998. *Wilson-Leonard An 11,000-Year Archeological Record of Hunter-Gatherers in Central Texas*, Vol. 1–5. Studies in Archeology No. 31. Texas Archaeological Research Laboratory, The University of Texas at Austin.
- Collins, Michael B. 1990. The Archaeological Sequence at Kincaid Rockshelter, Uvalde County, Texas. *Transactions of the 25th Regional Archeological Symposium for Southeastern New Mexico and Western Texas* 25:25–33.
- Collins, Michael B. 1998. Chapter 11: The Place of Wilson-Leonard in Southern Plains Prehistory. In *Wilson-Leonard An 11,000-Year Archeological Record of Hunter-Gatherers in Central Texas Volume I: Introduction, Background, and Syntheses*, edited by Michael B. Collins, 1:pp. 277–292. Studies in Archeology No. 31. Texas Archaeological Research Laboratory, The University of Texas at Austin.
- Collins, Michael B. 2004. Archaeology in Central Texas. In *The Prehistory of Texas*, edited by Timothy K. Perttula, pp. 101–126. Texas A&M University Anthropology Series No. 9. Texas A&M University Press, College Station, Texas.



- Collins, Michael B., Jan Guy, and Susan W. Dial. 1998. Chapter 9: The Archaic Period, 8800 to 1300 s.r. In *Wilson-Leonard An 11,000-Year Archeological Record of Hunter-Gatherers in Central Texas Volume I: Introduction, Background, and Syntheses*, edited by Michael B. Collins, 1:pp. 211–270. Studies in Archeology No. 31. Texas Archaeological Research Laboratory, The University of Texas at Austin.
- Davis, Christopher A., Antonio Profico, and John Kappelman. 2021. Digital Restoration of the Wilson-Leonard 2 Paleoindian Skull ( 10,000 BP) from Central Texas with Comparison to Other Early American and Modern Crania. *American Journal of Physical Anthropology* 176(3):486–503. <https://doi.org/10.1002/ajpa.24379>.
- Ellwood, Brooks B., and Wulf A. Gose. 2006. Heinrich H1 and 8200 Yr B.P. Climate Events Recorded in Hall's Cave, Texas. *Geology* 34(9):753–756. <https://doi.org/10.1130/G22549.1>.
- Gutiérrez, E. Gabriela, and Daniel F. Stockli. 2023. Fluvial Response to Late Pleistocene–Holocene Climate Change in the Colorado River Drainage, Central Texas, USA. *Geology* 51(10):929–934. <https://doi.org/10.1130/G51239.1>.
- Guy, Jan. 1998. Chapter 26: Analysis of Cultural and Noncultural Features. In *Wilson-Leonard An 11,000-Year Archeological Record of Hunter-Gatherers in Central Texas Volume IV: Archeological Features and Technical Analyses*, edited by Michael Collins, 4:pp. 1067–1212. Studies in Archaeology, Architecture and History No. 31. Texas Archaeological Research Laboratory, The University of Texas at Austin.
- Haas, Randall, James Watson, Tammy Buonasera, John Southon, Jennifer C. Chen, Sarah Noe, Kevin Smith, Carlos Viviano Llave, Jelmer Eerkens, and Glendon Parker. 2020. Female Hunters of the Early Americas. *Science Advances* 6(45):eabd0310. <https://doi.org/10.1126/sciadv.abd0310>.
- Hard, Robert J., and M. Anne Katzenberg. 2011. Stable Isotope Study of Hunter-Gatherer-Fisher Diet, Mobility, and Intensification on the Texas Gulf Coastal Plain. *American Antiquity* 76(4):709–751. <https://doi.org/10.7183/0002-7316.76.4.709>.
- Hockett, Bryan, and Dennis L. Jenkins. 2013. Identifying Stone Tool Cut Marks and the Pre-Clovis Occupation of the Paisley Caves. *American Antiquity* 78(4):762–778. <https://doi.org/10.2307/43184972>.
- Hofman, Jack L. 2002. High Points in Folsom Archaeology. In *Folsom Technology and Lifeways*. Routledge.
- Jennings, Thomas A. 2012. Clovis, Folsom, and Midland Components at the Debra L. Friedkin Site, Texas: Context, Chronology, and Assemblages. *Journal of Archaeological Science* 39(10):3239–3247. <https://doi.org/10.1016/j.jas.2012.05.007>.
- Johnson, Eileen, and John A. Moretti. 2022. Diversity and Paleoecology of the Zone 3 Late Pleistocene Vertebrates at Kincaid Shelter (41UV2), Central Texas, USA. *PaleoAmerica* 8(3):228–252. <https://doi.org/10.1080/20555563.2022.2075134>.
- Kilby, J. David, Marcus J. Hamilton, and Christopher W. Ringstaff. 2024. An Overview of Bonfire Shelter Archaeology in the Context of Eagle Nest Canyon. Special Volume, *Journal of Texas Archaeology and History* 6:155–174.
- Lawrence, Ken, John Lowe, and Mercedes C. Cody. 2008. *Archaeological Significance Testing at 41WM1028, Round Rock, Williamson County, Texas*. SWCA Environmental Consultants, Austin, Texas.



- Lemke, Ashley K., D. Clark Wernecke, and Michael B. Collins. 2015. Early Art in North America: Clovis and Later Paleoindian Incised Artifacts from the Gault Site, Texas (41BL323) | American Antiquity. *Cambridge Core*.
- Lohse, Jon C, Stephen L Black, and Laly M Cholak. 2014. Toward an Improved Archaic Radiocarbon Chronology for Central Texas. *Bulletin of the Texas Archeological Society* 85:259–287.
- Mauldin, Raymond P., Robert J. Hard, Cynthia M. Munoz, Jennifer L. Z. Rice, Kirsten Verostick, Daniel R. Potter, and Nathanael Dollar. 2013. Carbon and Nitrogen Stable Isotope Analysis of Hunter–Gatherers from the Coleman Site, a Late Prehistoric Cemetery in Central Texas. *Journal of Archaeological Science* 40(2):1369–1381. <https://doi.org/10.1016/j.jas.2012.09.032>.
- Prewitt, Elton R. 1981. Cultural Chronology in Central Texas. *Bulletin of the Texas Archeological Society* 52:65–90.
- Reemts, Charlotte M., W. Matt McCaw, Thomas A. Greene, and Mark T. Simmons. 2019. Short-Term Control of an Invasive C4 Grass With Late-Summer Fire. *Rangeland Ecology & Management* 72(1):182–188. <https://doi.org/10.1016/j.rama.2018.07.009>.
- Schoeneberger, P.J., D.A. Wysocki, E.C. Benham, and Soil Survey Staff. 2012. *Field Book for Describing and Sampling Soils 3.0*. 2021 Reprint. National Soil Survey Center, Natural Resources Conservation Service, U.S. Department of Agriculture, Lincoln, Nebraska.
- Seersholm, Frederik V., Daniel J. Werndly, Alicia Greal, Taryn Johnson, Erin M. Keenan Early, Ernest L. Lundelius, Barbara Winsborough, et al. 2020. Rapid Range Shifts and Megafaunal Extinctions Associated with Late Pleistocene Climate Change. *Nature Communications* 11(1):2770. <https://doi.org/10.1038/s41467-020-16502-3>.
- Steele, D. Gentry. 1998. Chapter 31: Human Biological Remains. In *Wilson-Leonard An 11,000-Year Archeological Record of Hunter-Gatherers in Central Texas Volume V: Special Studies*, edited by Michael B. Collins, 5:pp. 1441–1458. Studies in Archeology No. 31. Texas Archaeological Research Laboratory, The University of Texas at Austin.
- Suhm, Dee Ann, and Alex D. Krieger. 1954. An Introductory Handbook of Texas Archeology. *Bulletin of the Texas Archeological Society* 25.
- Sun, Chijun, Timothy M. Shanahan, Pedro N. DiNezio, Nicholas P. McKay, and Priyadarsi D. Roy. 2021. Great Plains Storm Intensity since the Last Glacial Controlled by Spring Surface Warming. *Nature Geoscience* 14(12):912–917. <https://doi.org/10.1038/s41561-021-00860-8>.
- Texas Historical Commission. 2025. Texas Archaeological Sites Atlas. *Texas Archaeological Sites Atlas*. <https://atlas.thc.texas.gov/>, accessed June 6, 2025.
- Toomey, Rickard S., Michael D. Blum, and Salvatore Valastro. 1993. Late Quaternary Climates and Environments of the Edwards Plateau, Texas. *Global and Planetary Change* 7(4):299–320. [https://doi.org/10.1016/0921-8181\(93\)90003-7](https://doi.org/10.1016/0921-8181(93)90003-7).
- Turner-Pearson, Katherine, David Sandrock, Brett Lang, Katelyn Pelusio, and Jasmine Kidwell. 2024. *Intensive Archaeological Survey Report for Southeast Loop, Segment 2, Williamson County, Texas*. Stantec Consulting Services, Inc.



- Waters, Michael R. 2019. Late Pleistocene Exploration and Settlement of the Americas by Modern Humans. *Science* 365(6449):eaat5447. <https://doi.org/10.1126/science.aat5447>.
- Waters, Michael R., Joshua L. Keene, Steven L. Forman, Elton R. Prewitt, David L. Carlson, and James E. Wiederhold. 2018. Pre-Clovis Projectile Points at the Debra L. Friedkin Site, Texas—Implications for the Late Pleistocene Peopling of the Americas. *Science Advances* 4(10):eaat4505. <https://doi.org/10.1126/sciadv.aat4505>.
- Waters, Michael R., and Thomas W. Stafford. 2007. Redefining the Age of Clovis: Implications for the Peopling of the Americas. *Science* 315(5815):1122–1126. <https://doi.org/10.1126/science.1137166>.
- Williams, Thomas J., Michael B. Collins, Kathleen Rodrigues, William J. Rink, Nancy Velchoff, Amanda Keen-Zebert, Anastasia Gilmer, Charles D. Frederick, Sergio J. Ayala, and Elton R. Prewitt. 2018. Evidence of an Early Projectile Point Technology in North America at Teh Gault Site, Texas, USA. *Science Advances* 4.
- Wilson, Diane. 1998. Chapter 32: Stable Isotope Results for Burials 1 and 2. In *Wilson-Leonard An 11,000-Year Archeological Record of Hunter-Gatherers in Central Texas Volume V: Special Studies*, edited by Michael Collins, 5:pp. 1459–1462. Studies in Archeology No. 31. Texas Archaeological Research Laboratory, The University of Texas at Austin.



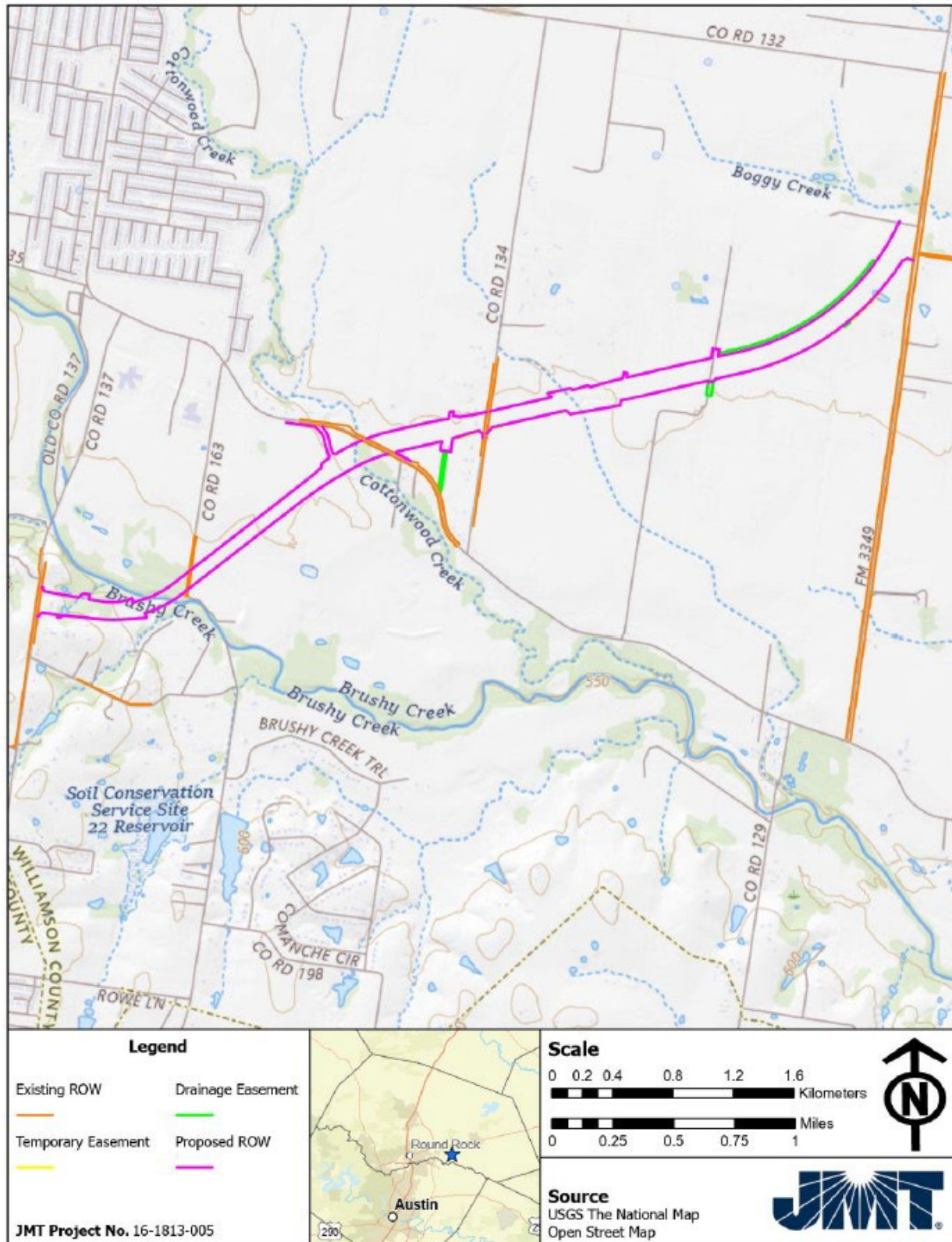


Figure 1. APE on a modern topographic map.





Figure 2. APE on a modern aerial image.



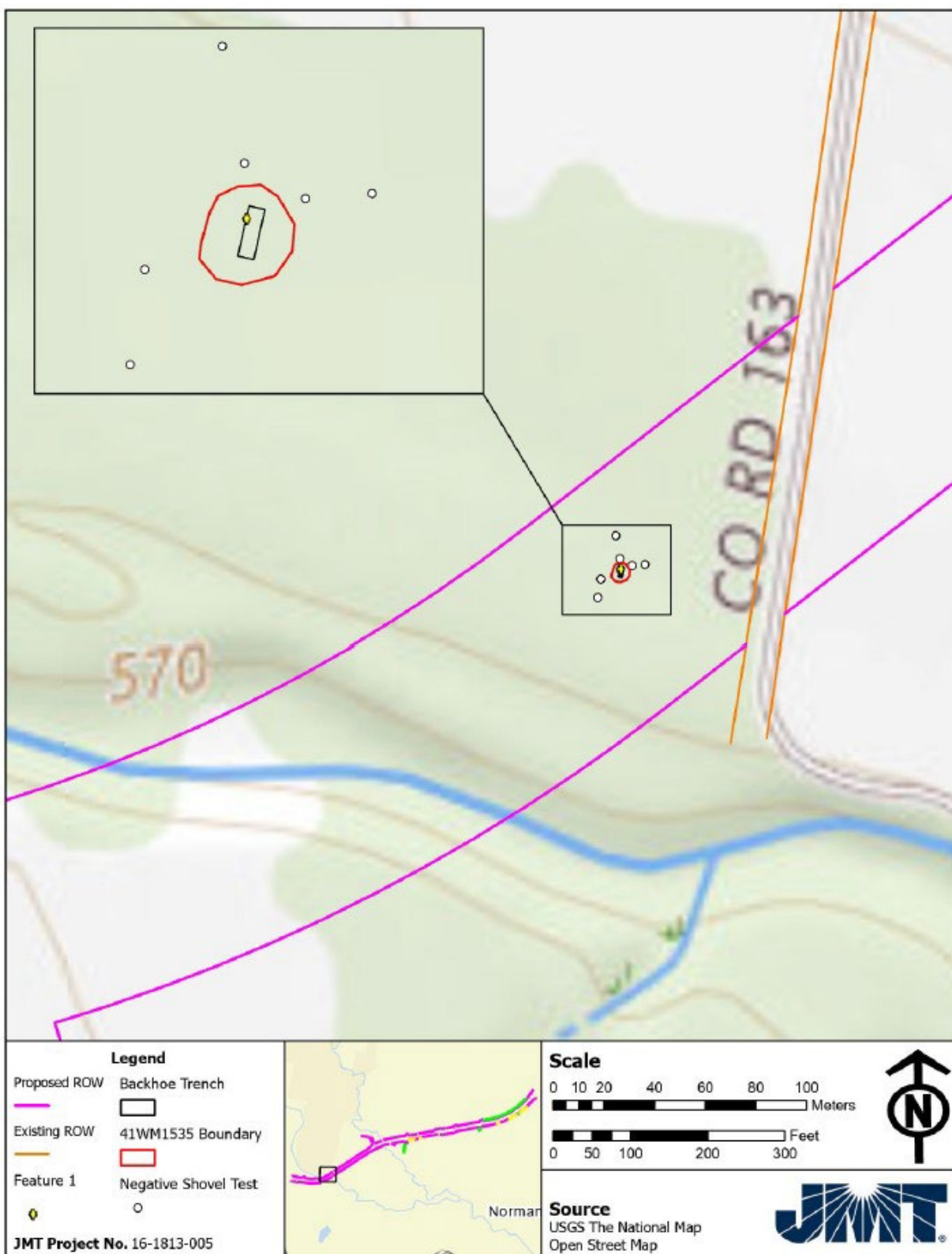


Figure 3. Map of site 41WM1535 following Stantec survey.

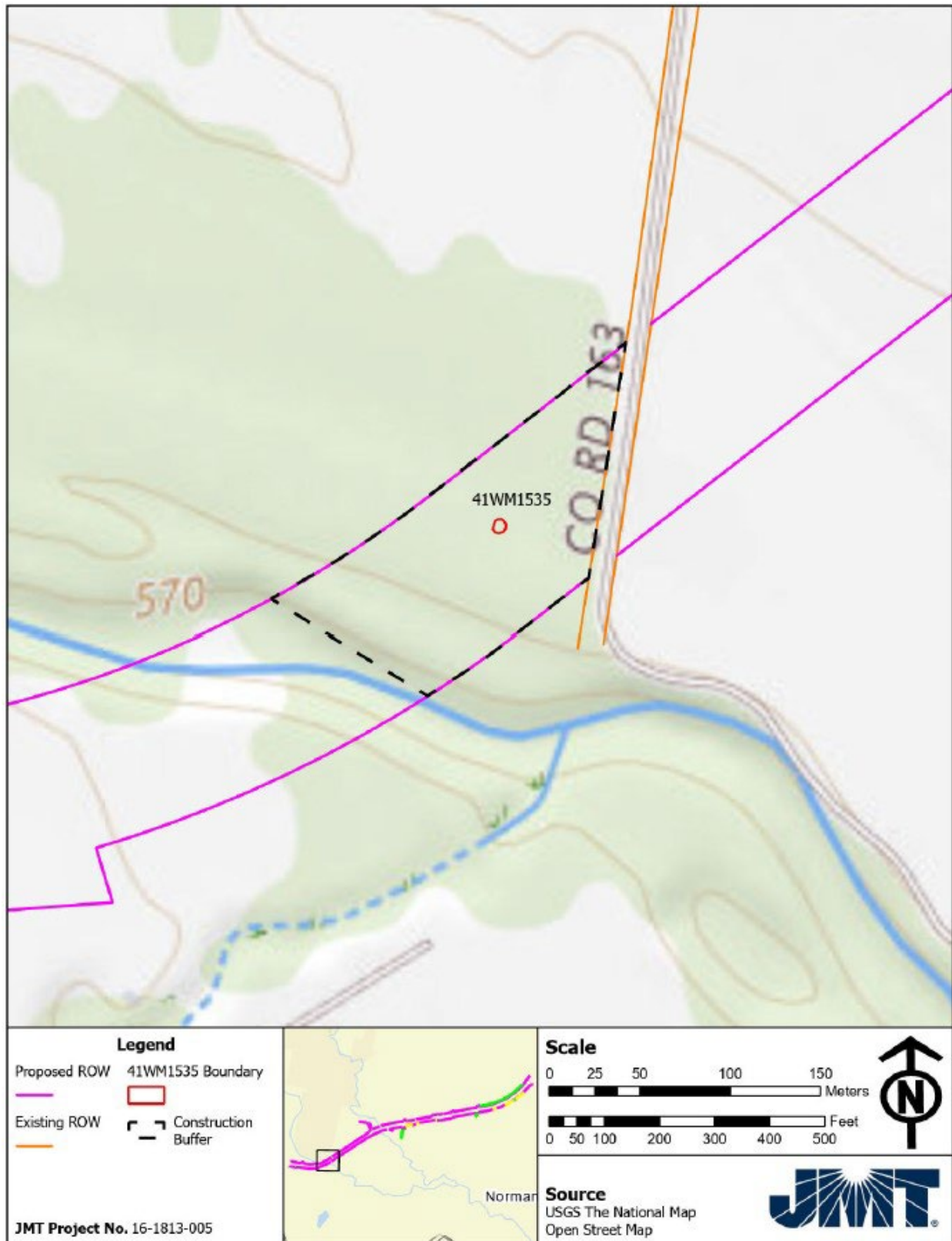


Figure 4. Construction buffer around site 41WM1535.

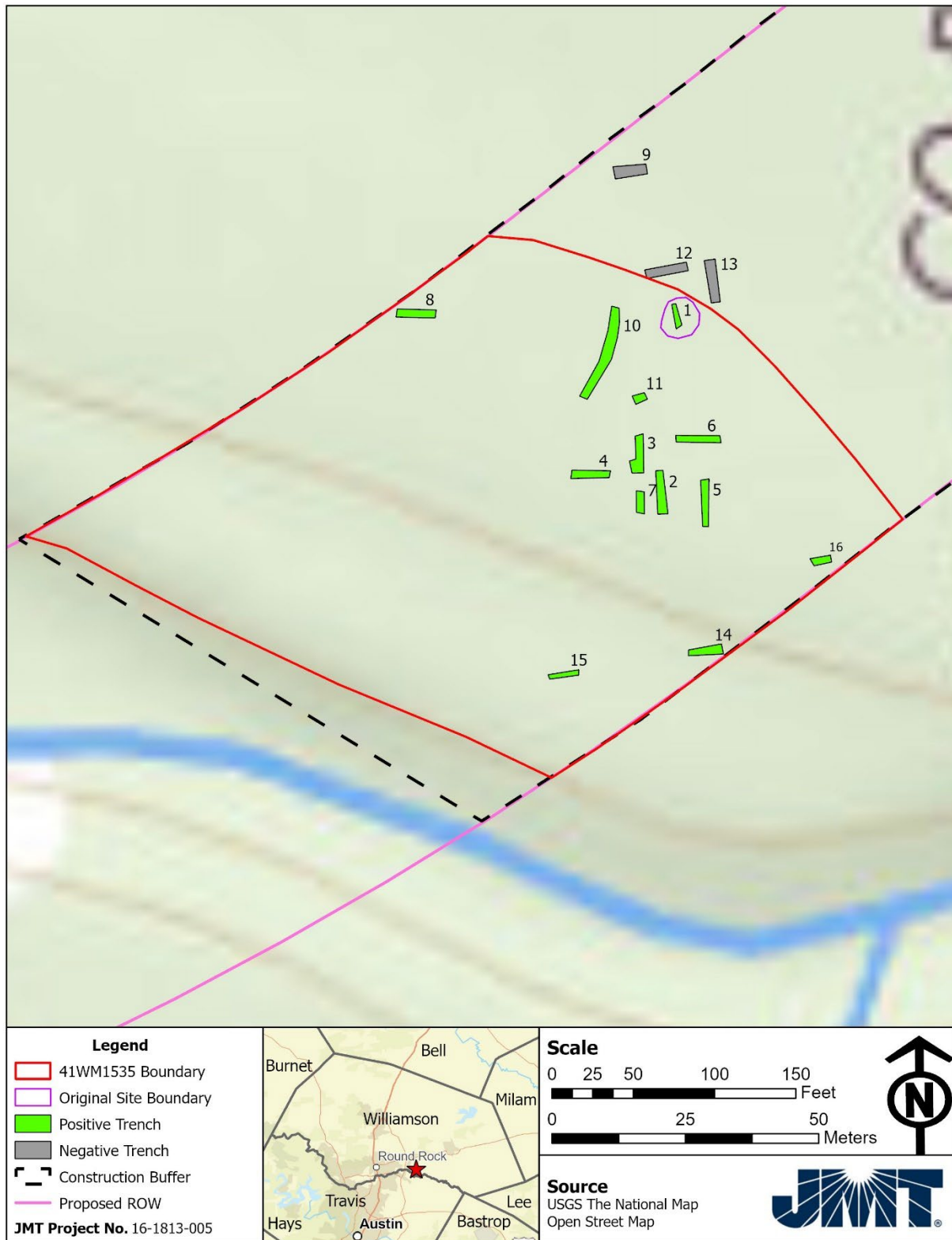


Figure 5. Testing trench results and new 41WM1535 site boundary



# **Attachment A: THC Concurrence on Interim Testing Report**

**From:** [noreply@thc.state.tx.us](mailto:noreply@thc.state.tx.us)  
**To:** Goldstein, Amy; [reviews@thc.state.tx.us](mailto:reviews@thc.state.tx.us)  
**Subject:** [EXTERNAL] 41WM1535 Phase II Testing  
**Date:** Wednesday, May 21, 2025 9:54:31 AM

---

**Cyber Security Reminder: Please use caution - message originated outside JMT.**

---



**Re: Project Review under the Antiquities Code of Texas**

**THC Tracking #202509584**

**Date:** 05/21/2025

41WM1535 Phase II Testing (Permit 32031)

CR 163

Hutto, TX 78634

**Description:** SAL eligibility testing of site 41WM1535 for the Southeast Loop Segment 2 project.

Dear Amy Goldstein:

Thank you for your submittal regarding the above-referenced project. This response represents the comments of the Executive Director of the Texas Historical Commission (THC), pursuant to review under the Antiquities Code of Texas.

The review staff, led by Rebecca Shelton, has completed its review and has made the following determinations based on the information submitted for review:

**Archeology Comments**

- THC/SHPO concurs with information provided.
- Property/properties are eligible for designation or already designated as State Antiquities Landmarks.

We have the following comments: Thank you for the interim report. The Archeology Division review staff concurs with your recommendations that the portion of site 41WM1535 identified in the project right-of-way is eligible for designation as a State Antiquities Landmark (SAL). For the full Draft Report, please include in the Abstract, Research Design, Recommendations and Conclusions, evaluation of 41WM1535 for eligibility under the National Register Historic Places (NRHP) criteria as well as a State Antiquities Landmark (TAC Chapter 25, Rule §25.2 Determination of Significance). We look forward to reviewing the draft report once the final macrobotanical analysis has been completed and all the data collected for faunal and lithic analysis is synthesized in the report. Finally, we concur that data recovery excavations should be conducted since 41WM1535 is eligible for listing on the NRHP and as an SAL and cannot be avoided.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this review

process, and for your efforts to preserve the irreplaceable heritage of Texas. If the project changes, or if new historic properties are found, please contact the review staff. If you have any questions concerning our review or if we can be of further assistance, please email the following reviewers: [rebecca.shelton@thc.texas.gov](mailto:rebecca.shelton@thc.texas.gov).

This response has been sent through the electronic THC review and compliance system (eTRAC). Submitting your project via eTRAC eliminates mailing delays and allows you to check the status of the review, receive an electronic response, and generate reports on your submissions. For more information, visit <http://thc.texas.gov/etrac-system>.

Sincerely,



for Joseph Bell, State Historic Preservation Officer  
Executive Director, Texas Historical Commission

**Please do not respond to this email.**



## **Attachment B: THC Concurrence on Stantec Survey Report**



## Turner-Pearson, Katherine

---

**From:** noreply@thc.state.tx.us  
**Sent:** Friday, June 21, 2024 10:42 AM  
**To:** Turner-Pearson, Katherine; reviews@thc.state.tx.us  
**Subject:** Southeast Loop Segment 2



**TEXAS HISTORICAL COMMISSION**  
*real places telling real stories*

**Re:** Project Review under the Antiquities Code of Texas

**THC Tracking #202410330**

**Date:** 06/21/2024

Southeast Loop Segment 2 (Permit 31165)

East of SH-130, between CR-137 & FM 3349

**Description:** Submitting a Revised Draft Report to address comments from the THC Reviewers.

Dear Katherine Turner-Pearson:

Thank you for your submittal regarding the above-referenced project. This response represents the comments of the Executive Director of the Texas Historical Commission (THC), pursuant to review under the Antiquities Code of Texas.

The review staff, led by Rebecca Shelton and Caitlin Brashear, has completed its review and has made the following determinations based on the information submitted for review:

### **Above-Ground Resources**

- No further review of potential effects to above-ground historic resources is required under the Antiquities Code of Texas. However, should this project ultimately include any federal involvement, additional consultation with THC/SHPO under Section 106 of the National Historic Preservation Act will be required.

### **Archeology Comments**

- THC/SHPO concurs with information provided.
- This draft report is acceptable. Please submit of one bound and one unbound paper final report, a completed Abstracts in Texas Contract Archeology online form, a curation form, and complete and redacted tagged PDF copies of the final report for the above referenced permit. Archeological project area shapefiles are due with the submittal of the draft report; if this has not occurred, please submit the via the tab on eTrac. For questions on how to submit these please visit our video training series at:

<https://www.youtube.com/playlist?list=PLONbbv2pt4cog5t6mCqZVaEAx3d0MkgQC>

We have the following comments: The Archeology Division review staff concurs that site 41WM1424 is not eligible for listing on the NRHP or as an SAL. We concur that the newly recorded site 41WM1535 is of undetermined eligibility and should be avoided as shown in Figure 11. In order to evaluate 41WM1535 eligibility, testing under a testing permit should include full site delineation and the excavation of additional backhoe trenches and test units with detailed analysis of the site deposit and artifacts.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this review process, and for your efforts to preserve the irreplaceable heritage of Texas. If the project changes, or if new historic properties are found, please contact the review staff. If you have any questions concerning our review or if we can be of further assistance, please email the following reviewers: [rebecca.shelton@thc.texas.gov](mailto:rebecca.shelton@thc.texas.gov), [caitlin.brashear@thc.texas.gov](mailto:caitlin.brashear@thc.texas.gov).

This response has been sent through the electronic THC review and compliance system (eTRAC). Submitting your project via eTRAC eliminates mailing delays and allows you to check the status of the review, receive an electronic response, and generate reports on your submissions. For more information, visit <http://thc.texas.gov/etrac-system>.

Sincerely,



for Bradford Patterson  
Chief Deputy State Historic Preservation Officer

**Please do not respond to this email.**

**Caution:** This email originated from outside of Stantec. Please take extra precaution.

**Attention:** Ce courriel provient de l'extérieur de Stantec. Veuillez prendre des précautions supplémentaires.

**Atención:** Este correo electrónico proviene de fuera de Stantec. Por favor, tome precauciones adicionales.