2020

**Intensive Archeological Survey Of Munson Tract Phase I City Of Sherman, Grayson County, Texas**

Caitlin Gulihur
Beth Valenzuela

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Cultural Resources Survey

INTENSIVE ARCHEOLOGICAL SURVEY OF MUNSON TRACT PHASE I
CITY OF SHERMAN, GRAYSON COUNTY, TEXAS
January 9, 2020

Final Report – Public Copy
Terracon Project No. 96197370
Antiquities Permit No. 8941
Caitlin Gulihur, MA, RPA, Principal Investigator

Prepared for:
The Munson Realty Company
Denison, Texas

Prepared by:
Caitlin Gulihur, MA, RPA, Beth Valenzuela, MA, and
Ann M. Scott, PhD, RPA
Terracon Consultants, Inc.
Austin, Texas
ABSTRACT

The City of Sherman is sponsoring the Munson Tract Phase I project where infrastructure including water lines, wastewater lines, and roadways will be constructed in southwest Sherman, Grayson County, Texas. Terracon Consultants, Inc. was retained by the Munson Realty Company to conduct a systematic, intensive pedestrian cultural resources survey of the approximately 210-acre project area. Because the City of Sherman, a political subdivision of the State of Texas, is controlling the project, the proposed undertaking is subject to compliance with the Antiquities Code of Texas and oversight from the Texas Historical Commission (THC). In addition, the survey meets the standards for compliance under Section 106 of the National Historic Preservation Act of 1966, as amended, as a permit from the United States Army Corps of Engineers (USACE) may be required for the project. The cultural resources survey was carried out under Texas Antiquities Permit Number 8941, issued to Caitlin Gulihur, MA, RPA, Principal Investigator. Fieldwork was carried out by Caitlin Gulihur with assistance from Project Archeologist Victoria Pagano, and Archeological Technicians Ruben Castillo, Jr. and Juan Morlock. Records from the project will be curated at the Center for Archaeological Studies at Texas State University.

The approximate 210-acre parcel slated for development was considered the Area of Potential Effect (APE). Survey of the APE consisted of systematic pedestrian coverage, including discretionary shovel tests. The work was carried out on June 17-20, 2019. Several acres of the project area were disturbed from buried and overhead utilities. Seventy-one shovel tests were excavated in areas that had less than 30 percent ground visibility or placed in areas previously undisturbed. Cultural materials were not observed during the excavation of shovel tests. Two historic-age archeological sites were recorded, 41GS255 and 41GS256. Site 41GS255 was recorded in the northwestern portion of the project area and consists of the remains of historic-age structures and an associated artifact scatter. Site 41GS256 consists of the remains of a historic-age farmstead. Terracon recommends that both 41GS255 and 41GS256 are not eligible for National Register of Historic Places (NRHP) listing or State Antiquities Landmark (SAL) designation under any criteria. Therefore, there are no known historic properties present within the APE.

Given the absence of NRHP-eligible historic properties within the APE, it is Terracon’s recommendation that the proposed project be allowed to proceed as currently designed. In the unlikely event that human remains or cultural features are discovered during construction, construction should cease in the vicinity of the remains and Terracon, the Texas Historical Commission’s Archeology Division, or other proper authorities should be contacted.
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INTENSIVE ARCHEOLOGICAL SURVEY OF
MUNSON TRACT PHASE I,
CITY OF SHERMAN, GRAYSON COUNTY, TEXAS
Terracon Project No. 96197370
Antiquities Permit No. 8941
January 9, 2020

1.0 INTRODUCTION

This report presents the findings from an intensive pedestrian cultural resources survey of approximately 210 acres in southwest Sherman, Grayson County, Texas (Appendix A, Exhibits 1 and 2). The proposed project consists of an approximate 210-acre parcel which will be developed, including the construction of roadways, water lines, and wastewater lines controlled by the City of Sherman. The 210-acre cultural resources survey was performed on behalf of the City of Sherman, a political subdivision of the State of Texas. Therefore, the project is under the purview of the Texas Historical Commission (THC) in compliance with the Antiquities Code of Texas. In addition, the survey meets the standards for compliance under Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, as United States Army Corps of Engineers (USACE) permitting may be required for the project. Work was performed under Texas Antiquities Permit Number 8941, issued to Caitlin Gulihur, MA, RPA Principal Investigator, and in adherence to Title 13, Chapter 26 of the Texas Administrative Code.

Abiding by standards set forth by the Council of Texas Archeologists (CTA), this report includes descriptions of the project area, environmental setting, cultural and historical contexts, methods, results, and recommendations. The report was authored by Caitlin Gulihur, Principal Investigator, Beth Valenzuela, Architectural Historian, and Ann M. Scott, Natural/Cultural Resources Group Manager.

2.0 AREA OF POTENTIAL EFFECT

The project area, which is the same as the area of potential effect (APE) for direct effects, is approximately 210 acres. The project area is bounded on the west and south by FM 1417/S. Heritage Parkway, and on the north by Ob Groner Road, in southwestern Sherman, Grayson County, Texas (see Appendix A, Exhibits 1 and 2). The proposed project will consist of the development of an approximate 210-acre tract. As part of the development, approximately 12,900 linear feet of roadways, waterlines, and wastewater lines will be constructed; the construction of this infrastructure will be controlled by the City of Sherman. According to the conceptual layout plan, the width of the right of way for the roadways and water/wastewater lines will be 86 feet or less. The deepest impacts for the project will be associated with the construction of wastewater lines; the maximum vertical APE for the water lines is anticipated to be 20 feet. According to the
conceptual layout plan, an area near a drainage in the eastern portion of the APE will not be affected by the proposed project.

3.0 ENVIRONMENTAL SETTING

Environments are composed of various interconnected elements such as underlying bedrock geology, soil, flora, fauna, and climate. It is important to consider environmental conditions of the past and present when assessing cultural resources.

In general terms, the project area is located near the transition between two large-scale biotic provinces or biomes, the Northern Post Oak Savana and the Northern Blackland Prairie (Griffith et al. 2007). Each of these biomes is characterized by a distinct set of physical and biological properties, and the transitional zone is known to have endemic plant and animal communities as well (Blair 1950). These transitional zones are known as ecotones, and they typically support relatively increased biological richness and diversity (Crumley 1994). Locally, the project area is in Northern Blackland Prairie ecoregion. Northern Post Oak Savana begins north of the project area. More specifically, the APE is nestled in the gently sloping plain west of a tributary to Choctaw Creek in the Red River Basin.

3.1 Geology

The bedrock geology of the project area is identified as Austin Chalk (Late Cretaceous; Gulfian Series) (Kau) consisting of chalk, marlstone, and limestone (Barnes 1992).

3.2 Soils

Soil formation is a function of local climate, biology, parent material, topography, and time, and so it is clearly tied to environment as defined above. Accordingly, soil can serve as a proxy for environmental conditions of the present and past. Defining soils as they are relevant to investigations of cultural resources, however, is useful because of how they are characterized and mapped by the Natural Resources Conservation Service (NRCS), formerly Soil Conservation Service. Though agricultural in nature, county soil surveys provide a description of soil characteristics, including depth, color, inclusions, etc., which can be used to elucidate site formation processes.

Nine soils are mapped within the APE, and are described in Table 1 (Appendix A, Exhibit 3; Cochran 1980; USDA NRCS 2019).

<table>
<thead>
<tr>
<th>Soil or Series Name</th>
<th>Drainage</th>
<th>Soil Depth</th>
<th>Associated Landform</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austin silty clay, 1 to 3 percent slopes (8)</td>
<td>Well drained; moderate slow permeability</td>
<td>57 inches to bedrock</td>
<td>Ridges</td>
</tr>
</tbody>
</table>
### Soils

<table>
<thead>
<tr>
<th>Soil or Series Name</th>
<th>Drainage</th>
<th>Soil Depth</th>
<th>Associated Landform</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austin silty clay, 2 to 5 percent slopes</td>
<td>Well drained; moderate slow permeability</td>
<td>57 inches to bedrock</td>
<td>Ridges</td>
</tr>
<tr>
<td>Elbon soils, frequently flooded</td>
<td>Moderately well drained; moderate slow permeability</td>
<td>84 inches to bedrock</td>
<td>Floodplains</td>
</tr>
<tr>
<td>Fairlie and Houston Black clays, 1 to 3 percent slopes</td>
<td>Moderately well drained; Very slow permeability</td>
<td>60 inches to bedrock</td>
<td>Ridges</td>
</tr>
<tr>
<td>Heiden clay, 1 to 3 percent slopes</td>
<td>Well drained; very slow permeability</td>
<td>70 inches to bedrock</td>
<td>Ridges</td>
</tr>
<tr>
<td>Heiden clay, 3 to 5 percent slopes</td>
<td>Well drained; very slow permeability</td>
<td>70 inches to bedrock</td>
<td>Ridges</td>
</tr>
<tr>
<td>Stephen silty clay, 3 to 5 percent slopes</td>
<td>Well drained; moderate slow permeability</td>
<td>28 inches to bedrock</td>
<td>Ridges</td>
</tr>
<tr>
<td>Whitewright-Eddy-Howe complex, 1 to 5 percent slopes</td>
<td>Well drained; moderate permeability</td>
<td>34 inches to bedrock</td>
<td>Ridges</td>
</tr>
<tr>
<td>Wilson silty clay loam, 1 to 3 percent slopes</td>
<td>Moderately well drained; very slow permeability</td>
<td>80 inches to bedrock</td>
<td>Stream terraces</td>
</tr>
</tbody>
</table>

### Vegetation and Wildlife

3.3 Vegetation and Wildlife

Flora and fauna of the ecotone include species that are representative of both the Northern Post Oak Savana and the Northern Blackland Prairie as well as endemic species (Blair 1950). Major game species of the region include whitetail deer, javelina, and several species of bird, and pronghorn and bison were periodically present further back in history. The region’s natural vegetation is typically a grassland-woodland mosaic (Ellis et al. 1995).

The natural vegetation of the Blackland Prairie was dominated by tallgrass prairie on uplands. Deciduous bottomland woodland and forest were common along rivers and creeks (Diamond and Smeins 1993). The Blackland Prairie is characterized by a high degree of plant community diversity. This diversity, which is in part represented by four major prairie community types, is attributable to the ecoregion’s variety of soil orders and their variation in texture and soil pH (Diamond and Smeins 1985).

The Blackland Prairie was a disturbance-maintained system. Prior to European settlement (pre-1825 for the southern and pre-1845 for the northern half) important natural landscape-scale disturbances included fire and periodic grazing by large herbivores, primarily bison, and to a lesser extent, pronghorn. Fire and infrequent, but intense, short-duration grazing suppressed
woody vegetation and invigorated herbaceous prairie species. Bison herds, though reported for the Blackland Prairie, were far smaller than those found further west in the mixed and shortgrass prairies (Strickland and Fox 1993). Their impact was probably local with long intervals between grazing episodes. Bison were probably extirpated in the region by the 1850s.

3.4 Current and Past Climates

Sherman has a climate classified as warm temperate (hot summers and cool winters), with precipitation ranging from 35 to 40 inches in an average year. Precipitation is less in the western part of the ecoregion and greater in the east (Bailey 2014).

Because most cultural resources originate in the period between the Last Glacial Maximum and the colonization of the western hemisphere by emigrants of the European continent, it is necessary to consider past climates, too. Since past climatic conditions cannot be observed (i.e., measurements did not begin in this region until the late 19th century), proxy data must be relied upon to reconstruct past conditions. Proxy data do not directly reflect past environments, but they can be used to infer conditions under which they form (Ellis et al. 1995).

Based on fossil pollens (Bousman 1998), phytoliths (Joines 2005), microfaunal remains (Toomey 1993), soil chemistry (Nordt et al. 2002), and speleothems (Musgrove et al. 2001), it is clear that climatic conditions of the past approximately 20,000 years have steadily become warmer and increasingly arid with several punctuated episodes. The transition from the Pleistocene to the Holocene at approximately 11,700 years ago was marked by an increase in warmth and aridity. In addition to increased warmth and aridity, the Holocene has been characterized by increasing seasonal variation of temperatures and precipitation. Peak warmth and aridity occurred during the mid- to late-Holocene Altithermal. Following the Altithermal, conditions similar to the early-Holocene returned, but warmth and aridity increase to the present.

4.0 CULTURAL HISTORY

Generally, the cultural chronology of Texas can be divided into three periods: prehistoric, protohistoric, and historic. The protohistoric effectively marks the boundary between the prehistoric and historic periods, and is characterized by the initial introduction of Europeans into the western hemisphere. The following description of Texas’ cultural history is a gross compilation of a vast suite of data and interpretations (cf. Collins 1995, 2004).

4.1 Prehistoric

The prehistoric people of Texas were primarily hunter-gatherers. Through the last 75-plus years of archaeological research in the region, identifiable and repeated patterns in artifact assemblages have indicated major shifts in subsistence strategies and technology through time.
As a result, the prehistoric period now has three subdivisions: Paleoindian, Archaic, and Late Prehistoric.

The Paleoindian period (ca. 12,500–8800 years ago) includes the earliest human occupation of North America, which extends back into the late Pleistocene. During this time, people hunted large game, but they generally had a broad diet. This included plant foods, small game, in addition to megafauna that went extinct with the close of the Pleistocene (i.e., mammoth, mastodon, bison, horse, camel, etc.). Technological traditions further subdivide the Paleoindian period into Early and Late.

The Archaic period (ca. 8800–1250 years ago) of Texas was the longest period in prehistory, and it is generally marked by the introduction of hot rock cooking in addition to the proliferation of a wide variety of diagnostic projectile points. Cooking with fire-heated rocks developed with increased reliance on plant foods, which may have been a response to diminishing game resources and ultimately climatic change or variation. This is not to say that human agency did not play an important role in the shift of economic and subsistence strategies. The Archaic period is subdivided into Early-, Middle-, and Late-Archaic periods, each with a slight variation in response to cultural shifts and ambient conditions.

The Late Prehistoric (ca. 1250–250 years ago) was a relatively brief period, but it was marked by a shift in weapon technology: the introduction of the bow-and-arrow. Like the Archaic, the Late Prehistoric people utilized hot rock cooking to process plants to edible forms. There also appeared to be increasing contact among groups, which resulted in increased trade of materials and competition over resources.

4.2 Protohistoric and Historic

Spanish *entradas* (expeditions) mark the onset of European influence in the New World. These explorations effectively scouted the new land and resulted in the settlement and establishment of missions spread throughout what has become northern Mexico and Texas. The Spanish entered into what is now Texas along the *El Camino Real de los Texas*. During this time, European populations and influence steadily increased as native populations steadily diminished.

European settlement of the area, now known as Grayson County, began in 1836. Settlement in the area progressed rapidly starting in the early 1840s, and Grayson County was formed by the Texas Legislature in March 1846 (Kumler 2016). Trade along the Red River, Preston Road (the oldest trail in Texas), and the Butterfield Overland Mail route spurred an increase of population in the county, which grew from just over 2,000 in 1850 to over 8,000 in 1860. Despite the rise of milling and manufacturing industries in the late 1800s, the economy of Grayson County was primarily agricultural (Kumler 2016). Grayson County experienced a decline in the economy and population during the Great Depression and World War II, but the discovery of oil in the county in 1930 marked the beginnings of the oil and gas industry which became an important part of Grayson County’s economy (Kumler 2016). Trade and manufacturing became major economic
forces in the 1970s and 1980s. Trade, manufacturing, and agriculture continue to be important factors in the economy of the county. As of 2014, the population of Grayson County was approximately 123,500.

Sherman was established and designated as the seat of Grayson County in March 1846; it is one of the few cities in Texas named by the state legislature (Kumler 2016). A community which became a merchandising center quickly developed, and by 1859 Sherman was incorporated and designated as a stop of the Butterfield Overland Mail route (Hart 2019). Sherman continued to grow through the 1860s, and in 1872, the Houston and Texas Central Railway connected to the city. Despite fires in 1875 that destroyed large portions of Sherman, the city continued to thrive and become an important commercial center in the area. In the early part of the 20th century, Sherman became an important industrial center, and Texas’ first electric interurban railway connected it to Denison to the north (Hart 2019). In 1930, Sherman was the location of a major race riot, during which a man was lynched, and the majority of black-owned business and at least one residence were burned to the ground (Thompson 2014). In the late 20th century, the population of Sherman greatly increased, from approximately 20,000 in the mid-1950s to almost 30,500 in the mid-1970s (Hart 2019). Manufacturing continued to be an important part of Sherman’s economy into the 21st century.

5.0 METHODS

The methods described below were employed to identify and characterize cultural resources present within the APE to the extent practicable. Desktop review focused on identifying previous cultural resource projects, previously known archaeological sites, and historic properties, while fieldwork was used to both search for unknown cultural resources and gather more information based on the desktop review.

5.1 Desktop Review

To search for known cultural resources within and in proximity to the APE, reviews of the Texas Archeological Sites Atlas (Atlas), the list of State Archeological Landmarks, and the National Register of Historic Places (NRHP) were conducted. Historical maps and aerial images that include the project area were reviewed for evidence that the location contained buildings or other features that may be considered historic in age (at least 50 years old).

5.2 Intensive Pedestrian Survey

In order to examine the approximately 210-acre APE for previously unknown cultural resources, and to gather additional information based on the desktop review, an intensive pedestrian survey was conducted.

The ground surface in the APE was systematically inspected by four archaeologists walking parallel transects spaced no more than 30 meters apart for 100 percent coverage of the project area. Shovel tests were particularly focused on areas of the APE which may be impacted by
proposed roads, water lines, and wastewater lines, the construction of which will be controlled by the City of Sherman. These areas were treated as linear activities, with shovel tests excavated every 100 meters. Shovel tests were also placed in locations where potentially jurisdictional waterways may be impacted, and in various locations throughout the project area to ensure that minimum survey standards of one shovel test every three acres was met. Shovel tests were placed in areas that appeared to be previously undisturbed or had less than 30 percent ground surface visibility. Conceptual project plans indicate minimal impacts to a drainage in the eastern portion of the APE, so this area was not intensively shovel tested.

As a general method, shovel tests are excavated to varying depths that target Holocene-aged soils. Sediment was excavated in arbitrary 20-cm levels to depth and passed through ¼-inch hardware mesh to screen for artifacts. Characteristics and contents of shovel tests were recorded with photographs, forms and notes, and a hand-held global positioning system (GPS) unit. Upon completion of excavation and documentation, the unit holes and artifacts, if present, were backfilled. Cultural materials encountered through the course of shovel test excavations are described and returned to their approximate origin.

Archeological sites were recorded with the Texas Archeological Research Laboratory and assessed for eligibility for inclusion in the NRHP or designation as a State Antiquities Landmark (SAL) as appropriate. This survey has a “no-collection” policy; therefore, diagnostic artifacts (if encountered) would be documented in the field and not collected. Records will be temporarily housed in Terracon’s office in Austin and will be permanently curated by the Center for Archaeological Studies (CAS) at Texas State University upon completion of the project.

5.3 Artifact Analysis

Artifacts were described and photographed on-site, and then returned to their respective places. The importance of artifacts is in their capacity to relate temporal and functional information about the former occupants of the site, and as such they are categorized according to their material and subdivided by unique or diagnostic characteristics.

5.4 National Register of Historic Places and State Antiquities Landmark Criteria

For a historic resource to be deemed eligible for inclusion in the NRHP, the resource must be at least 50 years old and must possess significance and integrity. 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, materials, workmanship, feeling, and association and:

A. That are associated with the 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 our prehistory or
history (36 CFR 60.4).

Additionally, the State of Texas affords important cultural resources a level of protection beyond
that of NRHP status if the resource meets the criteria for listing as a SAL. Criteria for the SAL are
divided into four categories based on the type of resource: archaeological site, shipwreck, cache
and collection, and historic structure. The criteria for archaeological sites are:
1) The site has the potential to contribute to a better understanding of the prehistory and/or
history of Texas by the addition of new and important information;
2) The site’s archeological deposits and the artifacts within the site are preserved and intact,
thereby supporting the research potential or preservation interest of the site;
3) The site possesses unique or rare attributes concerning Texas prehistory and/or history;
4) The study of the site offers the opportunity to test theories and methods of preservation,
thereby contributing to new scientific knowledge; and
5) There is a high likelihood that vandalism and relic collecting has occurred or could occur,
and official landmark designation is needed to ensure maximum legal protection, or
alternatively, further investigations are needed to mitigate the effects of vandalism and
relic collecting when the site cannot be protected (Title 13, Rule 26.10).

6.0 RESULTS

6.1 Desktop Review

Review of the Texas Archeological Sites Atlas (Atlas) and THC geospatial data using a half-mile
search buffer shows that the proposed project area has likely not been previously surveyed. No
known archaeological sites have been previously recorded in the project APE or within the half-
mile search buffer (Appendix A, Exhibit 4). No SALs, NRHP properties, or Recorded Texas
Historic Landmarks (RTHLs) are present in the search buffer. Four previous surveys have been
conducted within the half-mile search buffer.

Historical topographic maps dating over 100 years cover the project area. Several years were
examined including 1901, 1958, 1975, and 1996. In the topographic map from 1901 and 1958,
historic-age structures are potentially located in the northwest portion of the project area. West
Moore Street can be observed through the central part of the project area. In the maps from 1975
and 1996, five structures can be observed in the northwest portion of the APE; one structure might
be the same as one of the structures from the 1901 map. West Moore Street can still be observed
through the center of the project area, as well as overhead utility lines east of the street. The maps
also contain four structures in the southeastern portion of the APE, just west of the mapped
drainage.
Historical aerials were also reviewed, the earliest of which was dated 1955. Others were dated 1981, 1996, 2004, 2010, 2015, and 2018. In the aerial photograph from 1955, the majority of the APE appears to be cleared agricultural fields. West Moore Street is visible, as well as a utility right of way in the eastern portion of the project area. Structures are visible in the northwestern portion of the APE, most of which appear to be industrial/warehouse-type structures; one might be a residential structure. No other structures can be observed in the project area in the 1955 aerial photograph. The aerials from 1981 and 1996 show that the majority of the APE is cleared agricultural fields. The northwest portion of the APE contains fewer structures than in the 1955 aerial. In addition, five structures can be observed in the southeastern portion of the APE. In the 2004, 2010, 2015, and 2018 aerial photographs, structures are no longer visible in the northwestern portion of the APE. One structure can be observed in the southeastern portion of the APE; the other structures apparent in this location in previous aerials are no longer visible.

6.2 Intensive Pedestrian Survey

The intensive pedestrian survey included the excavation of 71 shovel tests in areas which were generally undisturbed (Appendix A, Exhibit 5). The APE generally consisted of corn fields, with up to 90 percent ground surface visibility between the planted rows (Appendix B, Photo 1). Other portions of the APE contained tall grass vegetation, which typically had ground surface visibility under 10 percent, and wooded vegetation, which had ground surface visibility ranging from 5 to 90 percent (Appendix B, Photos 2-4). S. Moore Street bisected the project area, and consisted of a paved roadway (Appendix B, Photo 5). Large areas of the eastern portion of the APE were disturbed from utilities, including overhead electric lines and a buried gas line (Appendix B, Photos 6 and 7). Some portions of the APE contained bedrock at ground surface (Appendix B, Photo 8).

Intensive pedestrian survey was particularly focused on areas of the APE which may be impacted by proposed roads, water lines, and wastewater lines, the construction of which will be controlled by the City of Sherman. Survey and shovel testing also focused on locations where structures were observed in historical aerial photographs and topographic maps. Conceptual project plans indicate minimal impacts to a drainage in the eastern portion of the APE, so this area was not intensively shovel tested (see Appendix A, Exhibit 5).

Two archeological sites, 41GS255 and 41GS256, were recorded during the course of the survey and are described below. The soil in the shovel tests was predominately clay, with generally shallow depth to bedrock or subsoil (Appendix B, Photos 9 and 10). No cultural materials were observed during the excavation of shovel tests. See Appendix C for details in the Shovel Tests Log.

Site 41GS255

Site 41GS255 was recorded in the northwest portion of the project area and consists of the remains of historic-age structures and an associated artifact scatter (see Appendix A, Exhibits 5 and 6). Structures associated with 41GS255 can be observed in topographic maps from 1958,
1975, 1996; a structure may also be present at the site location in the 1901 map. In an aerial photograph from 1955, structures can be observed at 41GS255. The majority of the structures appear to be industrial warehouses, but one may be residential. Fewer structures are apparent at 41GS255 in the 1981 and 1996 aerial image. Structures are no longer apparent at 41GS255 in the aerial photograph from 2004.

Observed structural remains at 41GS255 consisted of early- to late-20th century features. A collapsed chimney in the eastern portion of the APE contained bricks marked ‘CRUSH’, which date post-1910 (Long 2010; Appendix B, Photos 11-13). A concentration of tar paper shingles south of the collapsed chimney were indeterminate in age (Appendix B, Photo 14). In the western portion of the site, concrete foundation remnants, likely from the warehouse-type structures observed in aerial photographs, were observed (Appendix B, Photo 15).

In addition to the brick marked ‘CRUSH’, a ‘WHITESELLE CHERRY REDS CORSICANA’ brick fragment was observed. Observed ceramic fragments consisted of whiteware, mostly undecorated without maker’s marks. Fragments of a ceramic plate were observed that had green striping around the rim and “…E WARD…E IN CHINA” on the base was noted (Appendix B, Photos 16 and 17). Clear, aqua, and amethyst glass fragments were observed on the ground surface (Appendix B, Photo 18). Amethyst glass dates from the 1870s to the 1920s (Lockhart 2006). One small green glass bottle without a marker’s mark was noted (Appendix B, Photo 19). A clear glass bottle marked “WHITTMORE BOSTON USA” was also observed (Appendix B, Photo 20); the bottle likely contained shoe polish and dates between 1870 and 1930 (Whitten n.d.). Metal hardware fragments and metal cans were also observed at the site.

In general, site 41GS255 is located in a lightly wooded area, with moderate to low ground surface visibility (Appendix B, Photos 21 and 22). Shovel tests excavated within 41GS255 (A01, A02, B01, B02, B03, B29) did not indicate the presence of buried deposits. Other than the artifact concentration in the western portion of the site, artifactual materials at the site were scattered and relatively low density. No standing structures remain. Modern trash dumping was apparent throughout the site.

**Historical Background**

The land associated with Site 41GS255 was part of the original headright land grant of Elizabeth Jones and patented on April 30, 1856 to James P. Dumas. The land grant consisted of just under one league and one labor of land (3,902.2 acres). The deed history for the subject parcel is provided in Table 2. As noted in the table, there is a data gap from the original ownership of James P. Dumas in 1856 to the John H. Duke ownership of the land. Historical research indicates the Duke family owned this parcel beginning ca. 1878 until its sale in 1918 to C.W. Mc Elheny.

<table>
<thead>
<tr>
<th>Date</th>
<th>Type</th>
<th>Grantor</th>
<th>Grantee</th>
<th>Vol/Page</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/29/1960</td>
<td>WD</td>
<td>Robert S. Davis and wife, Lyall Pickett Davis</td>
<td>Munson Realty Co</td>
<td>925/261</td>
<td>G-0625 Jones Elizabeth A-G0625,</td>
</tr>
</tbody>
</table>

**Table 2. Deed history for Site 41GS255, part of a 125.8-acre parcel within the Elizabeth Jones Survey, Abstract No. G-0625.**
Site 41GS255 is located on land that appears to have been first settled by John Franklin Duke, in the late 1870s. John’s brother, George T. Duke, moved to Grayson County from Tennessee in 1876. In 1877, George purchased a 120-acre tract of land one mile west of Howe. He increased his land holdings to 400 acres by 1889. His family joined him in Grayson County by 1878. His father, James, according to Federal census records, lived with him on his farm near Howe. His brother, John F., settled on 400 acres of land three miles west of Sherman in 1878 (assumed to be the subject parcel). The Duke brothers were successful in farming and stock raising on their
land in Grayson County (F.A. Battey & Co. 1889). According to the 1880 agricultural schedule of the Federal census, John F. held 150 acres of improved and tilled land and 170 acres of improved pastures. The reported value of his farm in 1880 was $1500 with $200 in farm implements and machinery and $400 in livestock. The estimated value of all farm productions was $750. John F. Duke owned two horses, one mule, six swine, and a large herd of cattle and flock of chickens. He had planted his tilled acreage in Indian corn, wheat, and cotton (Ancestry.com 2010a).

A 1901 topographic map (Figure 1) indicates at least two buildings were located on the subject parcel at the turn-of-the-nineteenth century (USGS 1901).

By 1900, census records indicate John F. Duke and his wife, Martha, moved to Denton County. According to an application for Confederate Pension, by 1909 John F. Duke suffered from a disease of the spinal cord that rendered him unable to walk without assistance (Ancestry.com 2010b). It appears his son, John Houston Duke, continued to live in Grayson County until 1910 (Ancestry.com 2006). John H. owned the subject parcel until 1918, when the 385 acres of land were sold to C.W. McElheny. An undated picture depicts John H. Duke on his farm; it is not known if the photograph was taken on the subject parcel (Figure 2).
The property was owned by Cameron Walker McElhaney (Mc Elheny in deed records) beginning in 1918, until the land was sold to the A.J. McColl Land Company in 1921. It appears the McElhaney's lived on the property, as indicated by their address on Dorchester Road in the 1920 census (Ancestry.com 2010c). The Sherman–Dorchester Road passed just east of the subject parcel. Mr. McElhaney and his son, Oscar Kilbourn (21 years old), were listed as farmers, his daughter Lula Byrd (20 years old) was a school teacher, and his daughter Frances Lois (18 years old) attended school (Ancestry.com 2010c). The family had moved to Grayson County from Italy, Texas (Ezell 1899). Mr. McElhaney died tragically in a railroad accident and the property was sold to a land development firm in 1921 (Ancestry.com 2013).

The A.J. McColl Land Company appears to be the same firm responsible for land development in the Rio Grande Valley in the 1920s. The company was formed to promote settlement of developed tracts in the areas surrounding McAllen and San Juan, Texas (McAllen Daily Press 1928). According to deed records, the company was dissolved by 1922 and the subject parcel was sold to Francis E. House and his wife, Mildred. The land was sold with its associated personal property (farm implements, horses, mules, and wagons) and county records note that the land had been leased to W.A., Clarence, and Nath Adams. Francis House and his wife continued to live Missouri and it appears they owned the subject parcel as an investment and did not homestead the property.
Francis House sold the property to James and Fred Hansel in 1924 and the Hansel family represents the longest period of ownership for the subject parcel. Review of census records indicates Fred Hansel lived on the subject parcel during his period of ownership. His father, James Price Hansel, lived with Fred at this location until his death in 1925 (Ancestry.com 2013). The 1930 Federal census lists his address on the Sherman—Dorchester Road, where he lived with his wife, Pearl. Hansel’s home value is recorded as $25,000 and his occupation was listed as a general farmer and a veteran of World War I (Ancestry.com 2002). Review of the 1940 Federal census confirms the Hansels continued to live on the subject parcel. Fred and his wife Pearl sold the property to G.P. Gafford in 1945, who in turn sold the property to Robert Smith Davis and his wife Lyall Pickett in 1946.

The configuration of the subject parcel during the Davis ownership period is depicted in Figure 3. Robert Davis was a 1938 graduate of the University of Texas at Austin (UT) with a bachelor’s degree from the College of Arts and Sciences. He and his wife, Lyall, lived in Austin after his graduation, while Lyall pursued a bachelor’s degree in education and a master’s degree in educational psychology from UT. When the couple moved to Sherman in the mid-1940s, Robert served as the department director of the Grayson County Vocational School. Review of Sherman City Directories confirms the Davis family lived on the subject parcel during their ownership period (John F. Worley Directory Co. 1948, 1950).
The residence shown in the 1955 aerial (see Figure 3) appears to be a one or one-and-one-half story residence with twin gabled dormers at the front façade. Gables extend from the rear façade and may be additions to the original building. Based on the location of the brick masonry chimney identified during the archeological survey, it appears the house featured a central interior chimney. The bricks of the chimney were marked “CRUSH,” and were likely manufactured by the Crush Brick Company, located southeast of Sulphur Springs, Texas based on a trademark registered for fire brick, face brick, fiber brick tile and hollow building tile (T.A. Randall 1922). The brick
A manufacturing plant was established by 1908 in the town of Crush, on the Louisiana and Arkansas Railway, five miles east of Sulphur Springs (Fanning 1908). The town’s name was changed to Thermo after the Thermo Fire Brick Company, which produced fire-resistant brick. The factory was still in operation in late 1980s (Long 2010). Howard Hicks purchased the Crush Brick and Tile Company in 1927 (he had served as manager of the company since 1923) and changed the name to the Thermo Fire Brick Company (Bagwell 1942). Based on the dates of operation for the Crush Brick Company plant, it is likely the residence was constructed sometime between 1908 and 1927. Therefore, the residence and outbuildings were likely built during the J.H. Duke (unknown–1918), C.W. McElhaney (1918–1921) or Fred Hansel (1924–1945) ownership periods.

Site 41GS256

Site 41GS256 was recorded in the southeast portion of the APE as the remains of a historic-age farmstead (see Appendix A, Exhibits 5 and 7). Structures associated with 41GS256 can be observed in topographic maps from 1975 and 1996. No structures are present at the location of 41GS256 in the aerial photograph from 1955, but structures can be observed there in the 1981 and later aerials. Site 41GS256 appear to consist of typical mid-20th century residential and outbuilding structures for a farmstead.

A single story, wooden residential building is located in the southern portion of 41GS256. The structure is partially collapsed (Appendix B, Photos 23 and 24). A barn and associated pens are located northeast of the residential structure. The barn, which is mostly intact, is constructed of wood poles and planks, with sheet metal siding and roofing (Appendix B, Photo 25). The associated pens have partially collapsed and were overgrown with greenbrier and poison ivy (Appendix B, Photo 26). Structural debris consisting of wooded planks and sheet metal, likely from a collapsed outbuilding, is located in the northeast portion of 41GS256 (Appendix B, Photo 27). A Quonset hut outbuilding is located in the western portion of 41GS256 (Appendix B, Photo 28). Modern farming equipment was located on the interior of the building, which was likely in use until recently (Appendix B, Photo 29). A small collapsed outbuilding, overgrown with greenbrier and poison ivy, was located northeast of the Quonset hut (Appendix B, Photo 30).

A scatter of structural debris, including wood planks and a door, was present at the western end of site 41GS256 (Appendix B, Photo 31). A midden with structural debris including metal fencing wire, sheet metal, wood planks, and plastic tarp and bucket fragments was located in the central portion of the site. Other than the scatters of structural debris, few artifacts were observed on the ground surface within the site. One clear glass bottle without maker’s marks was observed (Appendix B, Photo 32).

In general, site 41GS256 is located in an open, grassy field and lightly wooded areas (Appendix B, Photos 33 and 34). Shovel tests excavated within 41GS256 (A13, A25, A26, and A27) did not indicate the presence of buried deposits. Two structures at the site have completely collapsed, while the residential structure, Quonset hut, and barn are partly to mostly intact. Other than two
concentrations of structural debris, the ground surface was generally free of artifacts. Some modern trash was observed on the ground surface.

**Historical Background**

The land associated with Site 41GS256 was part of the original headright land grant of Elizabeth Jones and patented on April 30, 1856 to James P. Dumas. The land grant consisted of just under one league and one labor of land (3,902.2 acres). The deed history for the subject parcel is provided in Table 3. As noted in the table, there is a data gap from the original ownership of James P. Dumas in 1856 to the Dan H. Dumas ownership prior to 1929. Historical research indicates that, while the Dumas family did not homestead the land associated with Site 41GS256, the subject parcel remained under Dumas family ownership until 1972. It appears Mildred Shivel Long, great-granddaughter of James P. Dumas, sold the parcel in 1972, but retained a lien on the property. Deed records indicate the lien was released in 1987 by her children, Laura B. Foster and Robert L. Long.

**Table 3. Deed History for Site 41GS256, part of a 283.6-acre parcel within the Elizabeth Jones Survey, Abstract No. G-0625.**

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<thead>
<tr>
<th>Date</th>
<th>Type</th>
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<th>Grantee</th>
<th>Vol/Page</th>
<th>Notes</th>
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<tr>
<td>1/22/1979</td>
<td>WD</td>
<td>John S. Calhoun</td>
<td>The Munson Realty Co</td>
<td>1460/722</td>
<td>G-0625 Jones Elizabeth A-G0625, 283.6 acres</td>
</tr>
<tr>
<td>1/23/1978</td>
<td>WD</td>
<td>Morton and Ozley, Inc., Trustee</td>
<td>John S. Calhoun</td>
<td>1419/729</td>
<td>Tracts 1 and 2; lien payable to Long (Morton trustee)</td>
</tr>
<tr>
<td>3/15/1976</td>
<td>Transfer</td>
<td>Edgar W. Layton, Trustee</td>
<td>A.G. Nichols, Jr., Trustee</td>
<td>1337/389</td>
<td>Default on property payment by Foster Francis; Layton resigned/refused to act as trustee, transferred to A.G. Nichols, Jr.</td>
</tr>
<tr>
<td>Date</td>
<td>Type</td>
<td>Grantor</td>
<td>Grantee</td>
<td>Vol/Page</td>
<td>Notes</td>
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<tr>
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<td>-------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>----------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>2/14/1974</td>
<td>Transfer</td>
<td>Foster Francis, Trustee (payable to D.W. Morton, Trustee and Mildred Long)</td>
<td>Edgar W. Layton, trustee</td>
<td>1273/337</td>
<td>Tract 1 = 277.2956 acres; Tract 2 = 7.0752 acres (less 0.7822 acres w/i bounds of roads 6.3130 acres)</td>
</tr>
<tr>
<td>1/3/1974</td>
<td>WD</td>
<td>A. Starke Taylor, III, Trustee</td>
<td>Nichols, A.G., Jr.</td>
<td>1269/733</td>
<td>Tract 1 = 277.2956 acres; Tract 2 = 7.0752 acres (less 0.7822 acres w/i bounds of roads 6.3130 acres)</td>
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<tr>
<td>12/28/1972</td>
<td>DoT</td>
<td>Edgar W. Layton, Trustee (A. Starke Taylor, III; James Ray Ammons; Richard Stout and Jack Jackson, grantors)</td>
<td>Foster Francis, Trustee</td>
<td>467/204</td>
<td>Tract 1 = 277.2956 acres; Tract 2 = 7.0752 acres (less 0.7822 acres w/i bounds of roads 6.3130 acres)</td>
</tr>
<tr>
<td>12/5/1972</td>
<td>DoT</td>
<td>Francis Foster, trustee</td>
<td>Edgar W. Layton, trustee</td>
<td>466/245</td>
<td>Tract 1 = 277.2956 acres; Tract 2 = 7.0752 acres (less 0.7822 acres w/i bounds of roads 6.3130 acres)</td>
</tr>
<tr>
<td>12/5/1972</td>
<td>WD</td>
<td>D.W. Morton, Trustee</td>
<td>Francis Foster, Trustee</td>
<td>1236/23</td>
<td>Tract 1 = 277.2956 acres; Tract 2 = 7.0752 acres (less 0.7822 acres w/i bounds of roads 6.3130 acres)</td>
</tr>
<tr>
<td>Date</td>
<td>Type</td>
<td>Grantor</td>
<td>Grantee</td>
<td>Vol/Page</td>
<td>Notes</td>
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</tr>
<tr>
<td>7/6/1972</td>
<td>DoT</td>
<td>D.W. Morton, Trustee</td>
<td>Rayburn M. Nall, substitute trustee (for the benefit of Mildred S. Long)</td>
<td>460/51</td>
<td>Tract 1 = 277.2956 acres; Tract 2 = 7.0752 acres (less 0.7822 acres w/ bounds of roads 6.3130 acres)</td>
</tr>
<tr>
<td>7/6/1972</td>
<td>WD</td>
<td>Mildred S. Long, a widow</td>
<td>D.W. Morton, Trustee</td>
<td>1222/824</td>
<td>283.6 acres</td>
</tr>
<tr>
<td>7/6/1972</td>
<td>Transfer</td>
<td>Laura Belle Foster and Robert L. Long</td>
<td>Mildred S. Long</td>
<td>1222/821, 829</td>
<td>136 acres</td>
</tr>
<tr>
<td>1/27/1965</td>
<td>WD</td>
<td>Mildred S. Long, a widow</td>
<td>Laura Belle Foster, feme sole (Mildred's daughter) and Robert L. Long (Mildred's son)</td>
<td>1023/306</td>
<td>added 15 acres to land</td>
</tr>
<tr>
<td>2/7/1964</td>
<td>WD</td>
<td>Mildred S. Long, a widow</td>
<td>Laura Bell Foster, feme sole (Mildred's daughter) and Robert L. Long (Mildred's son)</td>
<td>999/464</td>
<td>Added 18 acres to tract one and 9 acres to tract 2</td>
</tr>
<tr>
<td>11/26/1963</td>
<td>WD</td>
<td>Mildred S. Long, a widow</td>
<td>Laura Bell Foster, feme sole (Mildred's daughter) and Robert L. Long (Mildred's son)</td>
<td>994/56</td>
<td>1/2 interest in two tracts that are part of 600 acres owned by Mildred Long; First tract = 50 acres; Second tract = 44 acres</td>
</tr>
<tr>
<td>4/19/1945</td>
<td>Affidavit of Heirs</td>
<td>W. Lee and Eula Belle Shivel</td>
<td>Mildred S. Long and Robert Lee Shivel (deceased)</td>
<td>555/463</td>
<td></td>
</tr>
<tr>
<td>8/7/1948</td>
<td>Mortgage</td>
<td>Sterling C. Evans, Federal Land Bank of Houston</td>
<td>Mildred S. and Benjamin Long</td>
<td>212/199</td>
<td>606.07 acres</td>
</tr>
<tr>
<td>8/20/1929</td>
<td>Deed</td>
<td>H.P, widow of Dan H. Dumas</td>
<td>Eula B. Shivel</td>
<td>339/667</td>
<td>100 acres; Lot No. 2 of subdivision of 610 acres (plat attached to will of D.H. Dumas)</td>
</tr>
<tr>
<td>10/22/1852</td>
<td></td>
<td>Elizabeth Jones</td>
<td>James P. Dumas</td>
<td>Patent 73, Vol 13, P 314 (GLO 2019)</td>
<td>Granted one-half of original survey (headright league and labor)</td>
</tr>
</tbody>
</table>
Site 41GS256 is located on land that was operated as a hay and grain farm by Daniel H. Dumas until his death in 1921. Daniel was the son of early Grayson County settler and north Texas surveyor, James Pinkney Dumas. James moved with his family to Collin (now Grayson) County just prior to 1845 and farmed land southeast of Sherman. His Sister Grove Farm was located on 640 acres six miles east of Van Alstyne (F.A. Battey & Co. 1889).

Daniel lived on 610 acres southwest of Sherman until he moved with his family to South Austin Street in Sherman by 1900 (Ancestry.com 2004). In the 1901 Sherman City Directory, Mr. Dumas is listed as a civil engineer. He served as the county surveyor for Grayson County, following in the same career as his father, James Dumas. The subject parcel remained under his ownership and in addition to hay and grain, newspaper accounts indicate he also raised Duroe Jersey Swine on his land southwest of Sherman (Sherman Daily Democrat 1915). Dan Dumas died in 1921 and his widow, Harriet Pinkie (Shipp) Dumas transferred the land to their children, Eula Bells Shivel and Walter W. Dumas in 1929. Walter died in 1929 prior to the deed transfer and with no heirs, the land remained under the sole ownership of Eula. According to Grayson County Deed Records, although the original 610 acres was subdivided into separate tracts, the land continued under ownership of Dumas family heirs until 1972.

Review of historical aerials and topographic maps indicate the buildings were constructed/moved to the site by 1975 (but not before 1959). Four buildings/structures are visible on a 1975 topographic map, when deed records indicate it was under the ownership of A.G. Nichols, Jr. (Figure 4). The residential structure appears to be of an earlier construction. The tear-drop siding, five-paneled wood doors, and the knob-and-tube wiring indicate the building was constructed and occupied in the early 20th century, up to the 1940s. However, the building does not appear on a 1959 USGS topographic map of the site (USGS 1959). It is possible the residence was moved onto the site after 1959 and used either as housing or for agricultural storage. The remaining agricultural structures on the parcel are modern and may date to the 1970s or later.
7.0 CONCLUSIONS AND RECOMMENDATIONS

Terracon archaeologists conducted an intensive pedestrian cultural resources survey of an approximate 210-acre area in advance of the proposed construction of infrastructure including water lines, wastewater lines, and roadways, controlled by the City of Sherman, in southwest Sherman, Grayson County, Texas. Seventy-one shovel tests were excavated. Two historic-age archaeological sites, 41GS255 and 41GS256, were recorded.

7.1 NRHP Recommendations

7.1.1 Site 41GS255

Site 41GS255 consists of the remains of a historic-age homestead dating to the early- and mid-20th century; several features and a low-density artifact scatter was observed at the site, but no standing structures remain. The historic-age features at 41GS255 are likely associated with one of three previous owners: John H. Duke, Cameron W. McElhaney, or Fred Hansel. Although the three owners likely contributed to the broad patterns of agricultural development of the Grayson County community during the early and mid-twentieth century, archival research did not reveal
the required level of historical significance to elevate Site 41GS255 to be recommended as an NRHP-eligible historic property. Therefore, the site is not recommended NRHP-eligible under Criteria a or b. There are no standing structures present so the site is not recommended NRHP-eligible under Criterion c. Given the age of the site and the typical domestic materials contained within it, Terracon does not believe that the site is likely to yield information important in history, thus, it is not recommended NRHP-eligible under Criterion d. Therefore, Terracon recommends 41GS255 as ineligible for inclusion in the NRHP. The site is also recommended to be ineligible for listing as a SAL.

7.1.2 Site 41GS256

Site 41GS256 consists of the remains of a historic-age residence and three ca. 1970 agricultural outbuildings. The historic-age standing structures at 41GS256 are likely associated with A.G. Nichols, Jr., although the one structure may date to an earlier ownership by Dan H. Dumas or his heirs, who initially operated a hay and grain farm and later raised swine on a 610-acre parcel that included Site 41GS256. Dan H. Dumas was the son of James P. Dumas, one of the earliest settlers to Grayson County. The Dumas family contributed to the broad patterns of agricultural development of the Grayson County beginning in the mid-19th century. James and Dan both served as Grayson County surveyors and contributed to the settlement and growth of the county. Although 41GS256 and its original owners are linked to important events and development patterns in the history of Grayson County, there are other resources within the region that better represent the contributions the two have made to the county. The standing structures on the subject parcel do not date to the period of ownership of the property by Dan H. Dumas. Review of current aerials indicate the Dan H. Dumas residence at 808 S. Austin Street in Sherman is still extant. Dan resided at this location while he operated his farm and served as county surveyor, and therefore, it may better represent his significant contributions to Grayson County. Therefore, the site is not recommended NRHP-eligible under Criteria a or b. The standing structures do not date to the period of significance for the site under the Dan H. Dumas ownership, therefore, the site is not recommended NRHP-eligible under Criterion c. Given the age of the site and the typical domestic materials contained within it, Terracon does not believe that the site is likely to yield information important in history, thus, it is not recommended NRHP-eligible under Criterion d. Therefore, Terracon recommends 41GS256 as ineligible for inclusion in the NRHP. The site is also recommended as ineligible for listing as a SAL.

7.2 Summary

It is Terracon’s opinion that there are no known historic properties in the APE eligible for listing in the NRHP or designation as a SAL. Therefore, Terracon recommends that the project be allowed to proceed as currently planned because future construction of the proposed infrastructure will not affect historic properties. In the unlikely event that human remains or intact cultural resources are discovered after THC’s review, activities should cease in the vicinity of the discovery and
Terracon, the Texas Historical Commission's Archeology Division, or other proper authorities should be contacted.
8.0 REFERENCES CITED


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U.S. Department of Agriculture, Natural Resources Conservation Service (USDA NRCS), Soil Survey Staff

U.S. Geological Survey (USGS)


Whitten, David
APPENDIX A
Exhibit Maps
Legend

- Project Boundary

Project Mngr: CG
Drawn By: Terracon
Checked By: CG
Approved By: AS

Terracon Consulting Engineers & Scientists
5307 Industrial Oaks Blvd. - #160 Austin, TX 78735
T: (512) 442-1122 FAX: (512) 442-1181

Project No. 96197370
Scale: AS SHOWN
File No.: 96197370
Date: Apr 25, 2019

2015 Aerial Photograph
Munson Tract Phase 1
FM 1417 and Ob Groner Road
Sherman, Grayson County, Texas

Sources: TNRIS, USGS topoView, Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri

SCALE IN FEET

EXHIBIT
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APPENDIX B
Photographs
Appendix B. Photographs
Munson Tract Phase I ■ Sherman, Grayson County, Texas
Terracon Project No. 96197370 ■ Photos taken June 17-20, 2019

Photo 1. Cornfield in southeast portion of project APE. Note higher ground surface visibility between rows. View to the east.

Photo 2. Tall grass vegetation in southwest portion of the APE. Note poor ground surface visibility. View to the north.
Appendix B. Photographs
Munson Tract Phase I • Sherman, Grayson County, Texas
Terracon Project No. 96197370 • Photos taken June 17-20, 2019

Photo 3. Wooded area in northwest portion of the APE. Note poor ground surface visibility. View to the south.

Photo 4. Wooded area in eastern portion of the APE. Note higher ground surface visibility. View to the east.
Appendix B. Photographs
Munson Tract Phase I ■ Sherman, Grayson County, Texas
Terracon Project No. 96197370 ■ Photos taken June 17-20, 2019

Photo 5. S. Moore Street, central portion of APE. View to the northeast.

Photo 6. Overhead electric lines and marker for buried gas line in eastern portion of APE. View to the south.
Appendix B. Photographs
Munson Tract Phase I ■ Sherman, Grayson County, Texas
Terracon Project No. 96197370 ■ Photos taken June 17-20, 2019

Photo 7. Markers for buried utility lines in the southeast portion of the APE. View to the south.

Photo 8. Bedrock at ground surface in the southeast portion of the APE. View to the southeast.
Appendix B. Photographs
Munson Tract Phase I ■ Sherman, Grayson County, Texas
Terracon Project No. 96197370 ■ Photos taken June 17-20, 2019

Photo 9. Shovel Test A04. Note subsoil at shallow depth.

Photo 10. Shovel Test B11. Note bedrock at shallow depth.
Appendix B. Photographs
Munson Tract Phase I ■ Sherman, Grayson County, Texas
Terracon Project No. 96197370 ■ Photos taken June 17-20, 2019

Photo 11. Site 41GS255. View of collapsed chimney in eastern portion of site. View to the southwest.

Photo 12. Site 41GS255. Brick chimney, note white paint on bricks on left side of frame. View to the south.
Appendix B. Photographs
Munson Tract Phase I ■ Sherman, Grayson County, Texas
Terracon Project No. 96197370 ■ Photos taken June 17-20, 2019

Photo 13. Site 41GS255. Brick from collapsed chimney, marked “CRUSH”.

Photo 14. Site 41GS255. Concentration of tar paper shingles in the southeast portion of the site. View to the southwest.
Appendix B. Photographs
Munson Tract Phase I ■ Sherman, Grayson County, Texas
Terracon Project No. 96197370 ■ Photos taken June 17-20, 2019

Photo 15. Site 41GS255. Concrete foundation in western portion of site. View to the north.

Photo 16. Site 41GS255. Ceramic plate, marked “...E WARE ...E IN CHINA”.
Appendix B. Photographs
Munson Tract Phase I ■ Sherman, Grayson County, Texas
Terracon Project No. 96197370 ■ Photos taken June 17-20, 2019

Photo 17. Site 41GS255. Plate from Photo 16, note green striping on rim.

Photo 18. Site 41GS255. Clear, aqua, and amethyst glass fragments from concentration along western site boundary.
Appendix B. Photographs
Munson Tract Phase I ■ Sherman, Grayson County, Texas
Terracon Project No. 96197370 ■ Photos taken June 17-20, 2019

Photo 19. Site 41GS255. Green glass bottle, no marker’s mark.

Photo 20. Site 41GS255. Clear glass bottle marked “WHITTEMORE BOSTON USA”.
Appendix B. Photographs
Munson Tract Phase I ■ Sherman, Grayson County, Texas
Terracon Project No. 96197370 ■ Photos taken June 17-20, 2019

Photo 21. Site 41GS255. General view of southeast portion of site. Shovel at A02 in foreground. View to the west.

Appendix B. Photographs
Munson Tract Phase I ▪ Sherman, Grayson County, Texas
Terracon Project No. 96197370 ▪ Photos taken June 17-20, 2019

Photo 23. Site 41GS256. Residential structure in southern portion of site. View to the east.

Photo 24. Site 41GS256. Close-up of residential structure. View to the southeast.
Appendix B. Photographs
Munson Tract Phase I • Sherman, Grayson County, Texas
Terracon Project No. 96197370 • Photos taken June 17-20, 2019

Photo 25. Site 41GS256. Barn and associated pens in eastern portion of site. View to the northeast.

Appendix B. Photographs
Munson Tract Phase I ■ Sherman, Grayson County, Texas
Terracon Project No. 96197370 ■ Photos taken June 17-20, 2019

Photo 27. Site 41GS256. Structural debris from collapsed outbuilding in northeast portion of site. View to the south.

Photo 28. Site 41GS256. Quonset hut outbuilding. View to the southeast.
Appendix B. Photographs

Munson Tract Phase I ■ Sherman, Grayson County, Texas
Terracon Project No. 96197370 ■ Photos taken June 17-20, 2019

Photo 29. Site 41GS256. Interior of Quonset hut outbuilding. Note modern farming equipment. View to the east.

Photo 30. Site 41GS256. Collapsed outbuilding northeast of Quonset hut. View to the southeast.
Appendix B. Photographs
Munson Tract Phase I  ■ Sherman, Grayson County, Texas
Terracon Project No. 96197370  ■ Photos taken June 17-20, 2019

Photo 31. Site 41GS256. Structural debris, including remains of door, in western portion of site. View to the west.

Photo 32. Site 41GS256. Clear glass bottle, no maker's mark.
Appendix B. Photographs
Munson Tract Phase I ■ Sherman, Grayson County, Texas
Terracon Project No. 96197370 ■ Photos taken June 17-20, 2019

Photo 33. Site 41GS256. Open, grassy field in central portion of site. Note poor ground visibility. Midden with structural debris located in trees in center of photo. View to the north.

Photo 34. Site 41GS256. Wooded area in eastern portion of site. View from collapsed outbuilding to barn. View to the south.
APPENDIX C

Shovel Test Log
<table>
<thead>
<tr>
<th>ST ID #</th>
<th>Depth</th>
<th>+/-</th>
<th>Ground cover</th>
<th>Munsell &amp; Color</th>
<th>Texture</th>
<th>% Gravels</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A01</td>
<td>0-65</td>
<td>-</td>
<td>40-60%</td>
<td>(0-25cmbs) 10YR3/1 Very Dark Grey (25-65cmbs) 10YR2/1 Black</td>
<td>Clay</td>
<td>2-20%</td>
<td>Top 20-ish cm more loamy, clay &amp; gravels inclusions with depth. In 41GS255.</td>
</tr>
<tr>
<td>A02</td>
<td>0-45</td>
<td>-</td>
<td>40-60%</td>
<td>10YR2/1 Black</td>
<td>Clay</td>
<td>2-20%</td>
<td>Bioturbation, modern bottle glass at ~ 0-20 cmbs. In 41GS255.</td>
</tr>
<tr>
<td>A03</td>
<td>0-60</td>
<td>-</td>
<td>5-20%</td>
<td>10YR2/1 Black</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>In margin on edge of cornfield, root bioturbation.</td>
</tr>
<tr>
<td>A04</td>
<td>0-50</td>
<td>-</td>
<td>&lt;5%</td>
<td>(0-5cmbs) 10YR2/1 Black (5-50cmbs) 2.5YR7/4 Light Reddish Brown</td>
<td>Clay</td>
<td>2-20%</td>
<td>In space between rows of corn, calcium carbonate nodules and inclusions with depth; mottles of 7.5YR 6/8 White in last 10-15 cm.</td>
</tr>
<tr>
<td>A05</td>
<td>0-40</td>
<td>-</td>
<td>&lt;5%</td>
<td>(0-15cmbs) 10YR2/1 Black (15-40cmbs) 10YR4/1 Dark Grey</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Gradual transition between soils.</td>
</tr>
<tr>
<td>A06</td>
<td>0-35</td>
<td>-</td>
<td>&lt;5%</td>
<td>(0-20cmbs) 10YR2/1 Black (20-35cmbs) 10YR3/2 Very Dark Greyish Brown</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Gravels confined to lower stratum, abrupt transition.</td>
</tr>
<tr>
<td>A07</td>
<td>0-55</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Very sticky.</td>
</tr>
<tr>
<td>A08</td>
<td>0-35</td>
<td>-</td>
<td>&lt;5%</td>
<td>(0-20cmbs) 10YR2/1 Black (20-35cmbs) 10YR4/1 Dark Grey</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Very sticky.</td>
</tr>
</tbody>
</table>
### Appendix C. Shovel Test Log
Munson Tract Phase I  ■ Sherman, Grayson County, Texas
Shovel Tests from June 17-20, 2019  ■ Terracon Project No. 96197370

<table>
<thead>
<tr>
<th>ST ID #</th>
<th>Depth</th>
<th>+/-</th>
<th>Ground cover</th>
<th>Munsell &amp; Color</th>
<th>Texture</th>
<th>% Gravels</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A09</td>
<td>0-50</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Very dense clay.</td>
</tr>
<tr>
<td>A10</td>
<td>0-45</td>
<td>-</td>
<td>&lt;5%</td>
<td>(0-30cmbs) 10YR2/1 Black (30-45cmbs) 10YR3/1 Very Dark Grey</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>On edge of cornfield.</td>
</tr>
<tr>
<td>A11</td>
<td>0-50</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Very sticky.</td>
</tr>
<tr>
<td>A12</td>
<td>0-40</td>
<td>-</td>
<td>5-20%</td>
<td>(0-20cmbs) 10YR3/1 Very Dark Grey (20-40cmbs) 10YR3/2 Very Dark Greyish Brown</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>More gravels in second half; terminated at large frequent gravels.</td>
</tr>
<tr>
<td>A13</td>
<td>0-50</td>
<td>-</td>
<td>5-20%</td>
<td>10YR2/1 Black</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Near barn and pens, in 41GS256.</td>
</tr>
<tr>
<td>A14</td>
<td>0-45</td>
<td>-</td>
<td>20-40%</td>
<td>10YR2/1 Black</td>
<td>Clay</td>
<td>2-20%</td>
<td>Very sticky, moist clay; Terminated due to clay</td>
</tr>
<tr>
<td>A15</td>
<td>0-50</td>
<td>-</td>
<td>5-20%</td>
<td>10YR2/1 Black</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Very sticky clay; at edge of cornfield</td>
</tr>
<tr>
<td>A16</td>
<td>0-40</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Very sticky clay; in the cornfield.</td>
</tr>
<tr>
<td>A17</td>
<td>0-50</td>
<td>-</td>
<td>5-20%</td>
<td>10YR2/1 Black</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Very sticky clay; in the cornfield.</td>
</tr>
</tbody>
</table>
## Appendix C. Shovel Test Log

Munson Tract Phase I  ■  Sherman, Grayson County, Texas  
Shovel Tests from June 17-20, 2019  ■  Terracon Project No. 96197370

<table>
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<tr>
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<th>Ground cover</th>
<th>Munsell &amp; Color</th>
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<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A18</td>
<td>0-45</td>
<td>-</td>
<td>40-60%</td>
<td>(0-30cmbs) 10YR2/1 Black (30-45cmbs) 10YR3/1 Very Dark Grey</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Bottom 10 centimeters, inclusions, gravels, and calcium carbonates.</td>
</tr>
<tr>
<td>A19</td>
<td>0-35</td>
<td>-</td>
<td>&lt;5%</td>
<td>(0-5cmbs) 10YR2/1 Black (5-35cmbs) 10YR4/1 Dark Grey</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Abrupt soil change, very sticky, especially with recent rain.</td>
</tr>
<tr>
<td>A20</td>
<td>0-40</td>
<td>-</td>
<td>&lt;5%</td>
<td>(0-15cmbs) 10YR2/1 Black (14-40cmbs) 10YR3/1 Very Dark Grey</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Minor inclusions and gravels at depth.</td>
</tr>
<tr>
<td>A21</td>
<td>0-50</td>
<td>-</td>
<td>5-20%</td>
<td>10YR2/1 Black</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>At edge of field, very sticky.</td>
</tr>
<tr>
<td>A22</td>
<td>0-55</td>
<td>-</td>
<td>40-60%</td>
<td>10YR2/1 Black</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>At edge of field, very sticky; carbonates and inclusions appear approximately 30cmbs.</td>
</tr>
<tr>
<td>A23</td>
<td>0-30</td>
<td>-</td>
<td>&lt;5%</td>
<td>(0-15cmbs) 10YR2/1 Black (15-30cmbs) 10YR3/1 Very Dark Grey</td>
<td>Clay</td>
<td>2-20%</td>
<td>Minor gravels and inclusions with depth until you hit bedrock.</td>
</tr>
<tr>
<td>A24</td>
<td>0-50</td>
<td>-</td>
<td>0%</td>
<td>(0-35cmbs) 10YR2/1 Black (35-50cmbs) 10YR3/1 Very Dark Grey</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Few mottles of 10YR6/3 Pale Brown in lower stratum.</td>
</tr>
</tbody>
</table>
### Appendix C. Shovel Test Log

**Munson Tract Phase I ■ Sherman, Grayson County, Texas**  
Shovel Tests from June 17-20, 2019 ■ Terracon Project No. 96197370

<table>
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</tr>
</thead>
</table>
| A25     | 0-10  | -   | 60-80%       | (0-3cmbs)  
10YR3/1 Very Dark Grey  
(3-10cmbs)  
10YR6/3 Pale Brown | Clay loam | >50% | Gravelly loam covering decomposing bedrock; In 41GS256. |
| A26     | 0-15  | -   | 90+%         | 10YR3/1 Very Dark Grey | Clay loam | 2-20% | Very shallow subsoil, calcium carbonates, near junk pile; In 41GS256. |
| A27     | 0-40  | -   | 90+%         | 10YR4/2 Dark Greyish Brown | Clay loam | 2-20% | Subsoil at 10cmbs, gravels and calcium carbonate inclusions with depth; root bioturbation. In 41GS256. |
| A28     | 0-30  | -   | 40-60%       | 10YR2/1 Black | Clay | <2% | Sticky, moist clay. |
| A29     | 0-35  | -   | <5%          | 10YR2/1 Black | Clay | <2% | Homogeneous, terminated due to extra dense clay. |
| A30     | 0-40  | -   | <5%          | 10YR2/1 Black | Clay | <2% | Homogeneous, terminated due to dense clay. |
| A31     | 0-35  | -   | <5%          | (0-15cmbs)  
10YR2/1 Black  
(15-35cmbs)  
10YR3/1 Very Dark Grey | Clay | <2% | Homogeneous, terminated due to dense clay; in clear area within cornfield. |
| A32     | 0-40  | -   | <5%          | (0-15cmbs)  
10YR2/1 Black  
(15-40cmbs)  
10YR3/1 Very Dark Grey | Clay | <2% | Homogeneous, terminated due to dense clay; in clear area within cornfield. |
| A33     | 0-40  | -   | <5%          | (0-35cmbs)  
10YR2/1 Black  
(35-40cmbs)  
10YR3/1 Very Dark Grey | Clay | <2% | Homogeneous, terminated due to dense clay; in clear area within cornfield. |
<table>
<thead>
<tr>
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<th>Munsell &amp; Color</th>
<th>Texture</th>
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<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A34</td>
<td>0-35</td>
<td>-</td>
<td>&lt;5%</td>
<td>(0-15cmbs) 10YR2/1 Black (15-35cmbs) 10YR3/1 Very Dark Grey</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Homogeneous, terminated due to dense clay; in clear area within cornfield.</td>
</tr>
<tr>
<td>A35</td>
<td>0-50</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Slight increase in calcium carbonates with depth. Terminated due to density of clay.</td>
</tr>
<tr>
<td>A36</td>
<td>0-45</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Uniform sticky, black clay.</td>
</tr>
<tr>
<td>A37</td>
<td>0-25</td>
<td>-</td>
<td>&lt;5%</td>
<td>(0-15cmbs) 10YR2/1 Black (15-25cmbs) 10YR7/2 Light Grey</td>
<td>Clay</td>
<td>&gt;20%</td>
<td>Clayey soil on top transitioning to decomposing bedrock.</td>
</tr>
<tr>
<td>B01</td>
<td>0-35</td>
<td>-</td>
<td>90+%</td>
<td>Mixture of 10YR2/1 Black, 10YR6/1 Grey, and 10YR4/1 Dark Grey</td>
<td>Clay</td>
<td>&gt;50%</td>
<td>South of potential foundation; alternating lenses of clay, asphalt, and angular base gravels; terminated at disturbed and overly compacted soil; In 41GS255.</td>
</tr>
<tr>
<td>B02</td>
<td>0-45</td>
<td>-</td>
<td>90+%</td>
<td>Mixture of 10YR2/1 Black, 10YR6/1 Grey, and 10YR4/1 Dark Grey</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>North of potential foundation; Houston Black Clay, moist, sticky; Subsoil at 15cmbs. Terminated at subsoil. In 41GS255.</td>
</tr>
<tr>
<td>B03</td>
<td>0-53</td>
<td>-</td>
<td>90+%</td>
<td>10YR2/1 Black and 10YR4/1 Dark Grey</td>
<td>Clay</td>
<td>&gt;50%</td>
<td>Southeast of historic ruins; sherd (whiteware) at 0-20cmbs; in 41GS255.</td>
</tr>
<tr>
<td>B04</td>
<td>0-53</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR4/1 Dark Grey and 10YR5/4 Yellowish Brown</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Within corn field; 0-25cmbs Ap into sub; decomposing sediments; very compact &amp; sticky.</td>
</tr>
<tr>
<td>B05</td>
<td>0-34</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR4/1 Dark Grey, 10YR6/1 Grey, and 10YR6/2 Light Brownish Grey</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>0-16cmbs: Ap into subsoil; Very compact, sticky, moist, decomposing sediments, terminated at subsoil.</td>
</tr>
<tr>
<td>ST ID #</td>
<td>Depth</td>
<td>+/-</td>
<td>Ground cover</td>
<td>Munsell &amp; Color</td>
<td>Texture</td>
<td>% Gravels</td>
<td>Comments</td>
</tr>
<tr>
<td>---------</td>
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<td>--------------</td>
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</tr>
<tr>
<td>B06</td>
<td>0-44</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black over 10YR4/1 Dark Grey with 10YR6/4 Light Yellowish Brown</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>0-27cmbs: Ap, into sub; decomposing sediments. Very compact and sticky.</td>
</tr>
<tr>
<td>B07</td>
<td>0-50</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR3/1 Very Dark Grey and 10YR4/1 Dark Grey</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Ap with gradual transition to subsoil; &lt; 1mm ferrous accretions throughout. Terminated at sterile level.</td>
</tr>
<tr>
<td>B08</td>
<td>0-55</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/2 Very Dark Brown over 10YR4/1 Dark Grey</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Ap 0-33cmbs over subsoil; decomposing calcareous material; terminated at sterile level, very compact.</td>
</tr>
<tr>
<td>B09</td>
<td>0-50</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR3/1 Very Dark Grey over 10YR6/2 Light Brownish Grey</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Ap 0-20cmbs over subsoil; decomposing calcareous material; terminated at sterile level; very compact.</td>
</tr>
<tr>
<td>B10</td>
<td>0-50</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black over 10YR4/1 Dark Grey</td>
<td>Clay</td>
<td>&gt;50%</td>
<td>Same as above in cornfield, terminated within subsoil and very compact.</td>
</tr>
<tr>
<td>B11</td>
<td>0-24</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black over 10YR8/1 White and 10YR7/1 Light Grey</td>
<td>Clay</td>
<td>0%</td>
<td>Ap over Bedrock; Bedrock at 15cmbs; sticky, moist, dense clay. Terminated at bedrock.</td>
</tr>
<tr>
<td>B12</td>
<td>0-50</td>
<td>-</td>
<td>40-60%</td>
<td>10YR3/1 Very Dark Grey over 10YR4/1 Dark Grey</td>
<td>Clay</td>
<td>0%</td>
<td>0-11cmbs Ap; above subsoil; opposite bank of delineated wetland.</td>
</tr>
<tr>
<td>B13</td>
<td>0-41</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR3/1 Very Dark Grey over 10YR4/1 Dark Grey</td>
<td>Clay</td>
<td>2-20%</td>
<td>0-30cmbs Ap; above subsoil; in a depression; very dense and rooty; terminated at sterile level.</td>
</tr>
<tr>
<td>B14</td>
<td>0-44</td>
<td>-</td>
<td>20-40%</td>
<td>10YR2/1 Black over 10YR3/1 Very Dark Grey</td>
<td>Clay</td>
<td>&gt;50%</td>
<td>Within tree line along fence line. Many roots. &lt;1% green.</td>
</tr>
<tr>
<td>B15</td>
<td>0-50</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black over 10YR3/1 Very Dark Grey</td>
<td>Clay</td>
<td>&gt;50%</td>
<td>0-20cmbs Ap; Near creek, sticky, moist, very dense; Roots; In 41GS256.</td>
</tr>
<tr>
<td>B16</td>
<td>0-30</td>
<td>-</td>
<td>5-20%</td>
<td>10YR2/1 Black</td>
<td>Clay</td>
<td>0%</td>
<td>Very compact with &gt;4 cm roots; impassible.</td>
</tr>
<tr>
<td>ST ID #</td>
<td>Depth</td>
<td>+/-</td>
<td>Ground cover</td>
<td>Munsell &amp; Color</td>
<td>Texture</td>
<td>% Gravels</td>
<td>Comments</td>
</tr>
<tr>
<td>--------</td>
<td>-------</td>
<td>-----</td>
<td>--------------</td>
<td>-----------------</td>
<td>---------</td>
<td>-----------</td>
<td>----------</td>
</tr>
<tr>
<td>B17</td>
<td>0-40</td>
<td>-</td>
<td>5-20%</td>
<td>10YR3/1 Very Dark Grey over 10YR3/2 Very Dark Greyish Brown</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Very compact; 0-15cmbs Ap over subsoil; calcium carbonate accretions in top 0-15cmbs; terminated at sterile level.</td>
</tr>
<tr>
<td>B18</td>
<td>0-22</td>
<td>-</td>
<td>60-80%</td>
<td>10YR5/2 Greyish Brown over 10YR6/4 Light Yellowish Brown</td>
<td>Clay</td>
<td>2-20% to &gt;20%</td>
<td>Soft decomposing bedrock, along tree line.</td>
</tr>
<tr>
<td>B19</td>
<td>0-44</td>
<td>-</td>
<td>5-20%</td>
<td>10YR2/1 Black over 10YR3/1 Very Dark Grey</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>0-18cmbs Ap over sub; subsoil contains redoxic qualities, terminated at subsoil, very compact.</td>
</tr>
<tr>
<td>B20</td>
<td>0-42</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black over 10YR2/2 Very Dark Brown</td>
<td>Clay</td>
<td>0%</td>
<td>Subsoil at 20cmbs; near powerline right of way and tree line; terminated at sterile subsoil and very compact.</td>
</tr>
<tr>
<td>B21</td>
<td>0-33</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black over 10YR3/1 Very Dark Grey</td>
<td>Clay</td>
<td>&gt;50%</td>
<td>Subsoil at 17cmbs; in corn field; very sticky, very moist, terminated at bedrock.</td>
</tr>
<tr>
<td>B22</td>
<td>0-30</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black over 10YR8/1 White</td>
<td>Clay</td>
<td>2-20%</td>
<td>Softish weathered bedrock below clay with incremental limestone decomposition with depth to bedrock; terminated at bedrock.</td>
</tr>
<tr>
<td>B23</td>
<td>0-50</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black over 10YR3/1 Very Dark Grey</td>
<td>Clay</td>
<td>2-20%</td>
<td>Dense Ap over subsoil; limestone gravels throughout; terminated at sterile and very compact.</td>
</tr>
<tr>
<td>B24</td>
<td>0-53</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black</td>
<td>Clay</td>
<td>2-20%</td>
<td>Limestone gravels, angular at ~15cmbs and beyond at depth. Terminated at subsoil and very compact.</td>
</tr>
<tr>
<td>B25</td>
<td>0-50</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black over 10YR3/1 Very Dark Grey</td>
<td>Clay</td>
<td>&gt;20%</td>
<td>Ap over sub; Angular limestone gravels at 15-50cmbs; terminated at bedrock.</td>
</tr>
<tr>
<td>B26</td>
<td>0-50</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black over 10YR5/2 Greyish Brown</td>
<td>Clay</td>
<td>&lt;2% to 2-20%</td>
<td>Gravels increase with depth, subsoil at 25cmbs; calcareous deposits.</td>
</tr>
</tbody>
</table>
## Appendix C. Shovel Test Log
Munson Tract Phase I ■ Sherman, Grayson County, Texas
Shovel Tests from June 17-20, 2019 ■ Terracon Project No. 96197370

<table>
<thead>
<tr>
<th>ST ID #</th>
<th>Depth</th>
<th>+/-</th>
<th>Ground cover</th>
<th>Munsell &amp; Color</th>
<th>Texture</th>
<th>% Gravels</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>B27</td>
<td>0-44</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black</td>
<td>Clay</td>
<td>&lt;2% to 2-20%</td>
<td>No obvious transition; gravels increase with depth. Very sticky, dense; terminated at very compact and sterile soil.</td>
</tr>
<tr>
<td>B28</td>
<td>0-47</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/2 Very Dark Brown over 10YR3/1 Very Dark Grey and 3/2 Very Dark Greyish Brown</td>
<td>Clay</td>
<td>0%</td>
<td>Subsoil at 20cmbs; calcareous inclusions.</td>
</tr>
<tr>
<td>B29</td>
<td>0-50</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/1 Black over 10YR3/2 Very Dark Greyish Brown</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Subsoil at 25cmbs; calcareous inclusions; in 41GS255; terminated at very compact and sterile stratum.</td>
</tr>
<tr>
<td>B30</td>
<td>0-47</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/2 Very Dark Brown over 10YR3/2 Very Dark Greyish Brown</td>
<td>Clay</td>
<td>0%</td>
<td>Within corn; calcareous subsoil at ~25cmbs.</td>
</tr>
<tr>
<td>B31</td>
<td>0-41</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/2 Very Dark Brown over 10YR3/2 Very Dark Greyish Brown</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Within corn; calcareous subsoil at 20cmbs; terminated at very dense and sterile subsoil.</td>
</tr>
<tr>
<td>B32</td>
<td>0-30</td>
<td>-</td>
<td>90+%</td>
<td>10YR3/2 Very Dark Greyish Brown over 10YR5/3 Brown and 5/4 Yellowish Brown</td>
<td>Clay loam</td>
<td>2-20% to &gt;20%</td>
<td>Angular gravel with depth; ~pebble size angular weathered fragmented rock; terminated at rock.</td>
</tr>
<tr>
<td>B33</td>
<td>0-51</td>
<td>-</td>
<td>&lt;5%</td>
<td>10YR2/2 Very Dark Brown or 10YR3/2 Very Dark Greyish Brown</td>
<td>Clay</td>
<td>&lt;2%</td>
<td>Solid layer of well-developed clay; sticky, moist, terminated at very compact and sterile.</td>
</tr>
<tr>
<td>B34</td>
<td>0-50</td>
<td>-</td>
<td>90+%</td>
<td>10YR2/1 Black</td>
<td>Clay</td>
<td>0%</td>
<td>Ap to depth; very compact.</td>
</tr>
</tbody>
</table>