130 ENVIRONMENTAL PARK

APPENDIX IIF
CULTURAL RESOURCES SURVEY

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CULTURAL RESOURCES SURVEY OF THE

130 ENVIRONMENTAL PARK TRACT

CALDWELL COUNTY, TEXAS

By:

S. Alan Skinner, PhD
and
Molly A. Hall, MA

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Cultural Resources Report 2013-43
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HISTORIC BUILDINGS ARCHAEOLOGY NATURAL SCIENCES

ABSTRACT

The 1,229-acre 130 Environmental Park Tract, within which a 208-acre municipal solid waste landfill and a transfer station are proposed to be developed, is located in north central Caldwell County, Texas. Biggs and Matthews Environmental, Inc., contracted with AR Consultants, Inc. (ARC) to conduct a pedestrian survey of the 809-acre study area within the tract. The survey was conducted June 4-5, July 8-12 and 17-19, 2013, and included systematic shovel testing in limited areas.

Two prehistoric scatters (41CW158 and 159) and one historic residential site (41CW157) were newly recorded. The prehistoric sites do not have any structures, features, or datable materials. The historic site dates from the late 1800s through the early 1900s but does not exhibit any clear vertical or horizontal stratigraphy that allowed for segregation of the pre- and post-1900 occupations. Due to the surficial nature of the prehistoric sites and the overpatterning exhibited at the historic site, they have no potential to yield information about past lifeways or environments and they are recommended as not eligible for listing on the National Register of Historic Places and do not warrant designation as a Texas State Antiquities Landmarks. Given the results of this survey, ARC recommends that further cultural resource investigations are unnecessary for this project.

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r-arc: 130 EP Tract Survey (130606)

INTRODUCTION

The 1,229-acre 130 Environmental Park (130 EP) Tract is located in north central Caldwell County, Texas just north of the town of Lockhart and south of the cross roads community of Mendoza (Figure 1). The roughly backwards-oriented, L-shaped tract fronts on US Highway 183 on the west and extends east for a distance of 1.6 miles from the intersection of US 183 and FM 1185 to almost the intersection with CR 183. The northeast boundary of the tract follows CR179 (Homannville Trail). All other boundaries follow barbed wire property line fences as shown on Figure 1. The 130 EP Facility is proposed to include a 208-acre Type I municipal solid waste landfill and a Type V municipal solid waste transfer station to be developed within a 520-acre facility boundary located on the north end of the tract. A 809-acre study area was selected and includes the entire facility boundary, additional areas of the tract along its perimeter on the northeast, north, and west sides, and the western portion of the tract, where a facility entrance road will connect the facilities to SH 183. The overall tract includes gently rolling upland pasture which has been invaded by oaks, cedar elms, and mesquite trees. All drainages, including Dry Creek, are generally dry.

Although prehistoric sites have been reported within and near the 130 EP Tract and artifacts have been reported as being present by the landowner, research conducted prior to field work showed that extensive brush clearing, deep root plowing, creation of earthen levees, and other disturbances had occurred within the tract and allowed ARC to conclude that if prehistoric sites had been present in this largely upland setting, they would have been surface deposits that were destroyed and spread over the ground surface. Two prehistoric sites (41CW68 and 41CW69 on Figure 1) were recorded within the tract during a 2000 survey but were not worthy of further investigation and did not warrant listing on the National Register of Historic Places (NRHP) or as State Antiquities Landmarks (SALs).

This report is written in accordance with report guidelines adopted by the Archeology Division of the Texas Historical Commission (THC) (Council of Texas Archeologists n.d.). This report presents a brief description of the natural setting of the area including the tract and study area, followed by a discussion of the culture history and previous investigations in and around the study area. A chapter on the research design and methodology employed in the investigation is followed by the results of the field investigation. The report concludes with recommendations and a list of references cited. Appendix A is a map that shows the locations of cemeteries, historic structures and sites, archaeologically significant sites, and sites having exceptional aesthetic qualities within one mile of the facility boundary. Appendix B provides artifact provenience details.

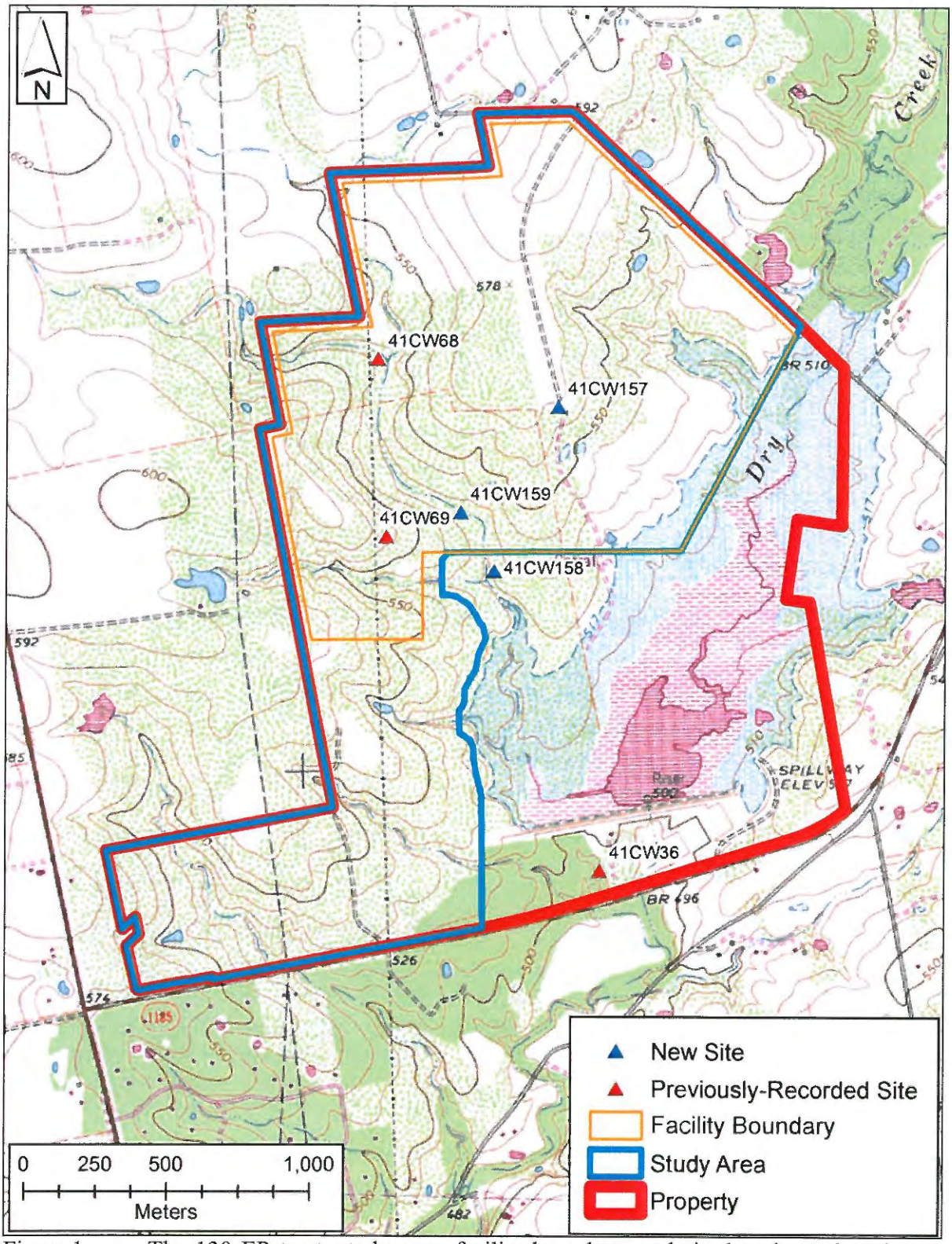

Figure 1. The 130 EP tract, study area, facility boundary, and site locations plotted on a portion of the Lockhart North, TX 7.5' USGS topographic map.

Administrative Information

Sponsor:	130 Environmental Park, LLC and Biggs and Matthews Environmental, Inc.
Review Agency:	Texas Historical Commission
Principal Investigator:	S. Alan Skinner, Ph.D.
Field Crew:	Molly A. Hall, Nick Coleman, Brett Lang, and Skinner
Fieldwork Dates:	June 4-5, July 8-12, 17-19, 2013
Project Person-days:	31
Sites Recorded:	41CW157 (historic), 41CW158 and 41CW159 (prehistoric)

NATURAL ENVIRONMENT

Caldwell County is located in the Blackland Prairie on the west and the Post Oak Savannah or the Clay Pan on the east. The 130 EP tract is included entirely within the Blackland Prairie Ecoregion of Texas (Griffith et al 2004). The Blackland is composed of deep clays and clay loams and much of the area has been farmed for generations (Lowther and Werchan 1978:1). As mapped by the Bureau of Economic Geology (1974), the study area overlies two geological formations. The Leona Formation is primarily west of Dry Creek and is a Quaternary deposit. The terrace sediments include sand, clay, and gravel. The Midway Group is to the west and north and is a deposit that includes clay, silt, and sand. No recent Quaternary alluvium is mapped in the Dry Creek valley.

Soils within the study area (Figure 2) are mapped as being included in the Heiden-Houston Black association. Two soils dominate surface coverage within the study area. These are Fett gravelly soils with 1 to 12 percent slopes and Wilson gravelly loam with 1-5 percent slopes. A layer of gravelly loam or sandy loam constitutes the A horizon of the Fett and Wilson soils and the underlying soil is clay which extends to depths of over five feet below the surface. Smaller areas of Mabank loam and Crockett fine sandy loam are also present on the ridges between the two major intermittent tributaries. A narrow strip of frequently flooded Trinity bottomland clay parallels each of the tributaries. Along the east bank of the intermittent drainage, there are strips of Heiden clay and Houston Black clay (Lowther and Werchan 1978).

Relief within the study area ranges from 504' msl near the eastern corner to 592' msl at the ridge top along CR 179 on the north central edge of the study area. Dry Creek is a second order drainage that is intersected by several first order drainages both upstream and downstream from the study area before it joins with Cottonwood Creek and then Plum Creek. No springs are shown in the Dry Creek Watershed in the vicinity of the study area, but spring-fed Lytton Springs Creek heads on the north side of the same ridge where Dry Creek heads (approximately 1.6 miles north of the study area), so it is possible that a spring may be present on the Dry Creek side of the ridge. Brune (1981:102-103) discusses Lytton Springs (located approximately three miles northeast of the study area near the present-day community of Lytton Springs) and indicates that at one time copious springs were present there, although by the early 1980s only some seeps remained); this could be a reason that prehistoric people might have visited the area. He also notes that "most of the larger springs in Caldwell County discharge from sand and gravel of the Quaternary Leona Formation. The remainder originate in the Wilcox Sand" (Brune 1981:102-103).

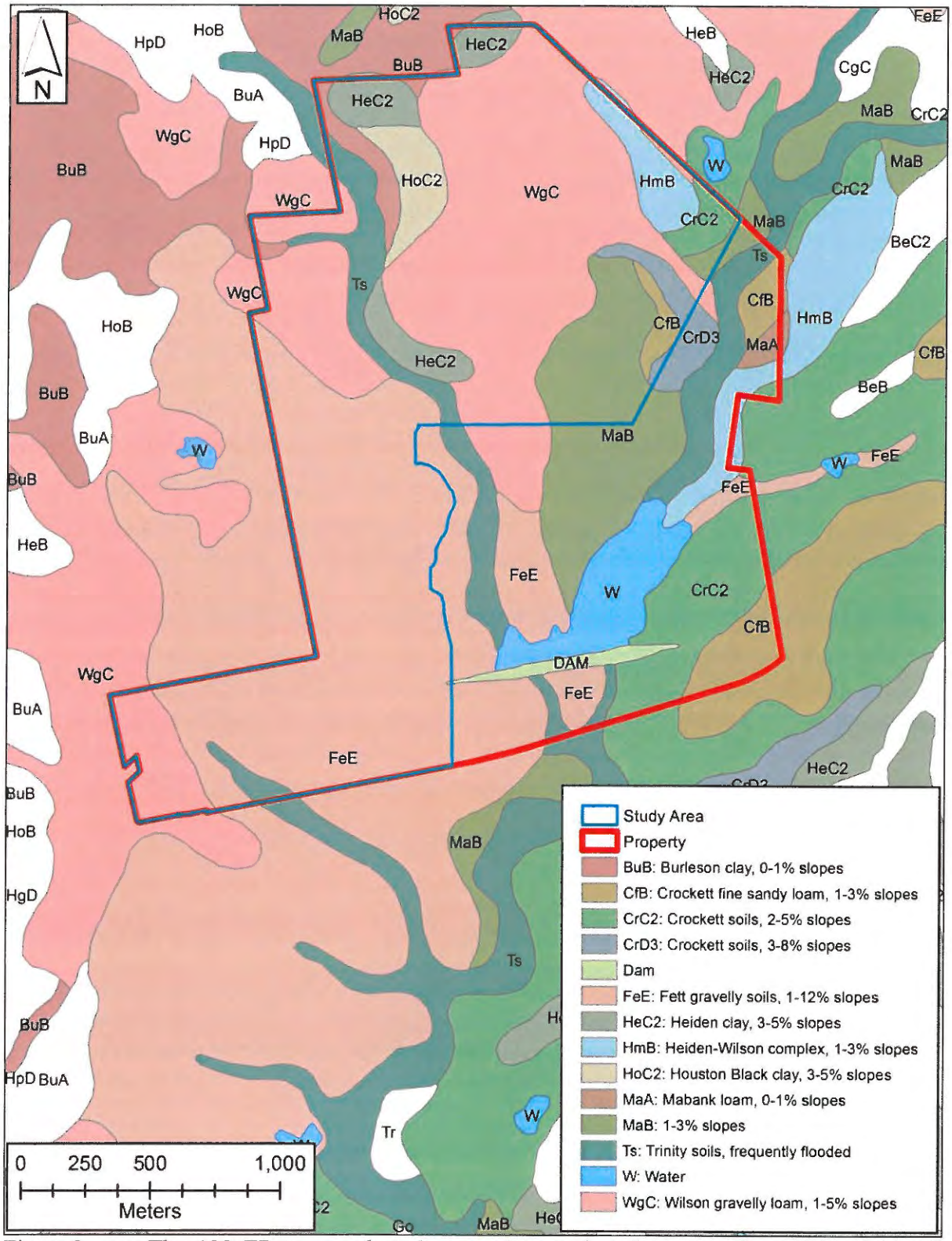

Figure 2. The 130 EP tract and study area shown plotted on a section of the Caldwell County Soils Map (Lowther and Werchan 1978).

CULTURE HISTORY

The 130 EP Tract is located within the central Texas archaeological region (Collins 1995, 2004; Story 1990; Suhm 1960; Prewitt 1981, 1985; Weir 1976). The earliest confirmed archaeology in Central Texas is termed the Paleoindian period and is defined based on the presence of fluted dart points. Bever and Meltzer (2007:Table 1) do not report the finding of any Clovis points in Caldwell County or in Guadalupe County to the south, but they do report them from the surrounding counties to the east, north, and west. No evidence of pre-Clovis occupation has been confirmed in Caldwell County. The following Central Texas culture chronology is derived from Collins (2004) and is presented below to provide the reader with a temporal framework for the culture history of the region.

Table 1. Archaeological Chronology for Central Texas (Collins 2004:Figure 3.9a).

Time Period	**Date Range**
Historic	A.D. 1750-present
Late Prehistoric	A.D. 900-1750
Late Archaic	2,000 B.C.-A.D. 900
Middle Archaic	4,000-2,000 B.C.
Early Archaic	7,000-4,000 B.C.
Paleoindian	9,500-6,000 B.C.

Megafauna became largely extinct by 8000 BC and the associated environmental changes impacted the way of life of the nomadic hunters of the Paleoindian period. As with the earliest period, the Early and Middle Archaic periods are poorly known archaeologically, but there is substantial evidence of seasonal scheduling at Late Archaic sites in central Texas. There appears to have been significant settling into small, band territories resulting in increased use of local resources. Although population density appears to have been low until the Late Archaic, by 1000 BC the number of people occupying central Texas appears to have increased. Prewitt (1981, 1985) postulates that population increases were facilitated by long-distance trade, technological innovations, and changing social relations. Burned rock features appear at Archaic sites along with a variety of dart points and other chipped stone tools. These features continue in use into the Late Prehistoric period at which time arrow points replace dart points and occasional pieces of locally made pottery occur in site deposits. Hunting and gathering continued to provide the foods needed to support the indigenous population, but there is some evidence of exchange with groups in surrounding areas.

Contacts between Native Americans and early explorers began as early as 1528 when Cabeza de Vaca arrived on the Texas Gulf Coast. Soon thereafter, European missionaries and settlers began to arrive. European diseases began to have an impact on the health of the Native Americans and ultimately the diseases, mission system, and fur trade reduced or eliminated the indigenous population. Widespread settlement along the major rivers began in earnest in the early 1800s.

Previous Investigations

Three archaeological sites (Figure 1) have been recorded in the Texas Archeological Sites Atlas (TASA) within the EP 130 Tract, and others are nearby. Two of the sites (41CW68 and 41CW69) are lithic scatters that were recorded by PBS&J, Inc. during survey of the LRCA transmission line corridor that runs north to south through the western side of the study area (Nash et al. 2000). They consist of sparse, wide-spread scatters of lithic debitage located among the surficial mantel of chert and quartzite gravel and cobbles. The recorders and the THC agreed that neither site warranted further investigation. The third site (41CW36), located outside the study area in the south central portion of the EP 130 Tract, is a chimney and house rubble concentration dated to the early 1900s, which was recorded during a survey for the All American Pipeline (Plog et al. 1989). A prehistoric site is located along US 183 near the tract and consists of several accumulations of chert and quartzite cobbles that were described as lithic scatters (TASA 2013). Additional surveys in the study area included ones done for fiber optic (Campbell et al. 1999) and petroleum lines, and also for the creation of SH 130 and the associated modification of US 183. No study was done of the Soil Conservation Survey-funded floodwater retarding structure that is in the tract, but it was built before the passage of federal environmental impact legislation. Numerous other sites (142) have been recorded in Caldwell County and several are in settings similar to parts of the study area. Most of these sites have been deemed ineligible for inclusion on the NRHP or a more thorough evaluation is recommended before a NRHP determination could be agreed upon.

Map Review

The earliest available map on which the study area has been plotted (Figure 3) is the 1880 map that was obtained from the General Land Office of the State of Texas. The map shows that the study area is situated primarily on a tract patented by Isaac Jackson but with a small area located east of Dry Creek on property patented by J.H. Bowman. Few roads and no residences are shown on the section of the map shown on the figure. The reader will note that the San Antonio Road (now known as the Old San Antonio Road) crosses the map in an east-west direction near the top of the figure.

The 130 EP Tract has been plotted on the 1911 San Marcos, Texas 30' USGS topographic map (Figure 4). A county road parallels the northeast and northwest edges of the tract. A private road is along the western edge of the main part of the tract. Two residences are shown inside the tract. A review of the map indicates that while residences tended to be located along the rural roads. The houses situated on the crests of ridges were in well drained upland settings. Most of these houses must have obtained their drinking water from drilled wells or from cisterns that were filled with rainwater from roofs.

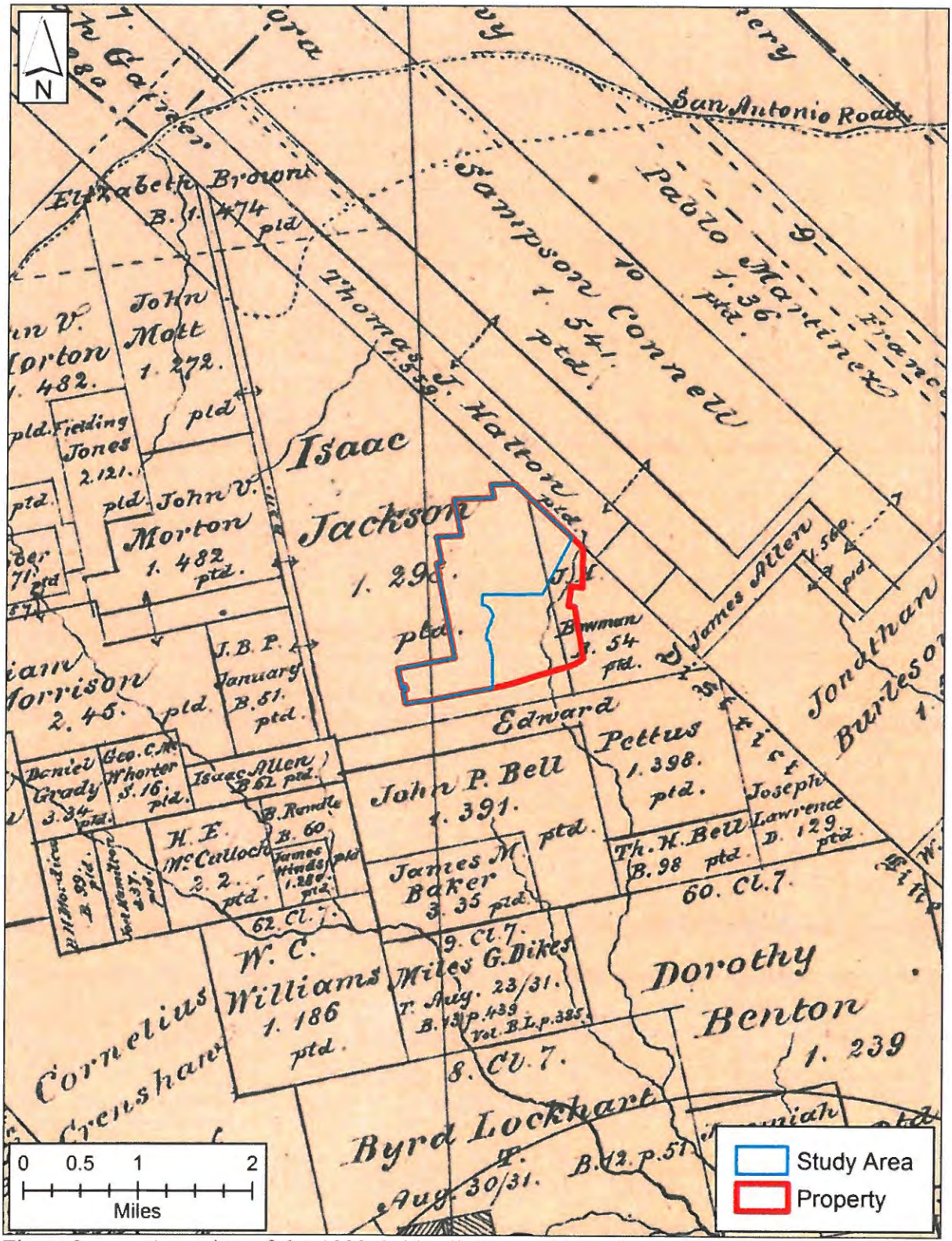

Figure 3. A portion of the 1880 Caldwell County General Land Office map on which the 130 EP tract and study area have been superimposed.

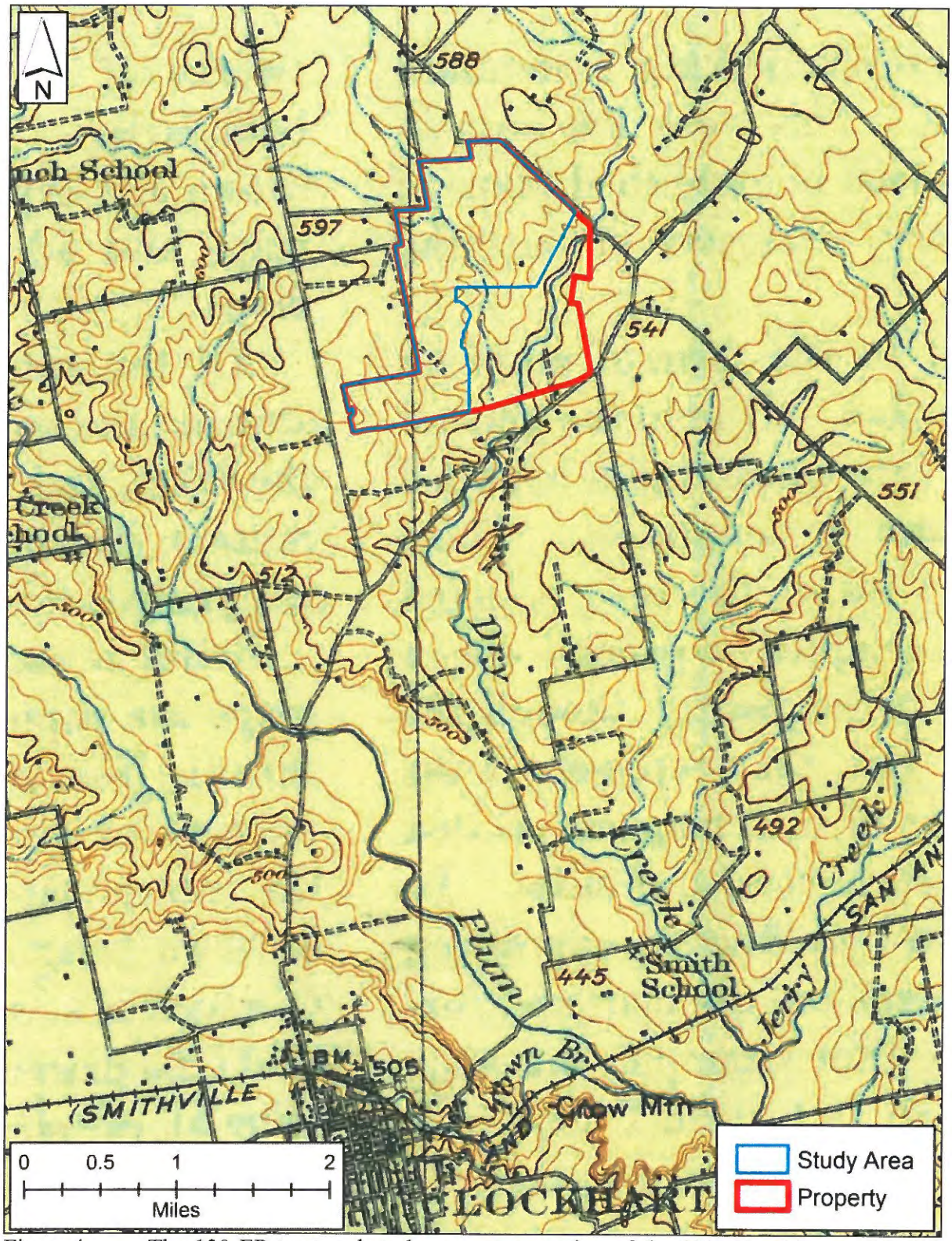

Figure 4. The 130 EP tract and study area on a portion of the 1911 San Marcos, TX 30' USGS topographic map showing Dry Creek, two residences, and adjacent roads.

The 1936 Caldwell County General Highway map (Figure 5) shows the changes within the tract in the 25 years that transpired since 1911. Two residences are shown to be present along the county road on the north edge of the tract and the structures shown on the earlier map are not mapped. A school is plotted to the east of the study area and it presumably served kids from the rural families in the surrounding area. The roadways previously shown along and near the northwestern edge of the study area were no longer mapped as county roads.

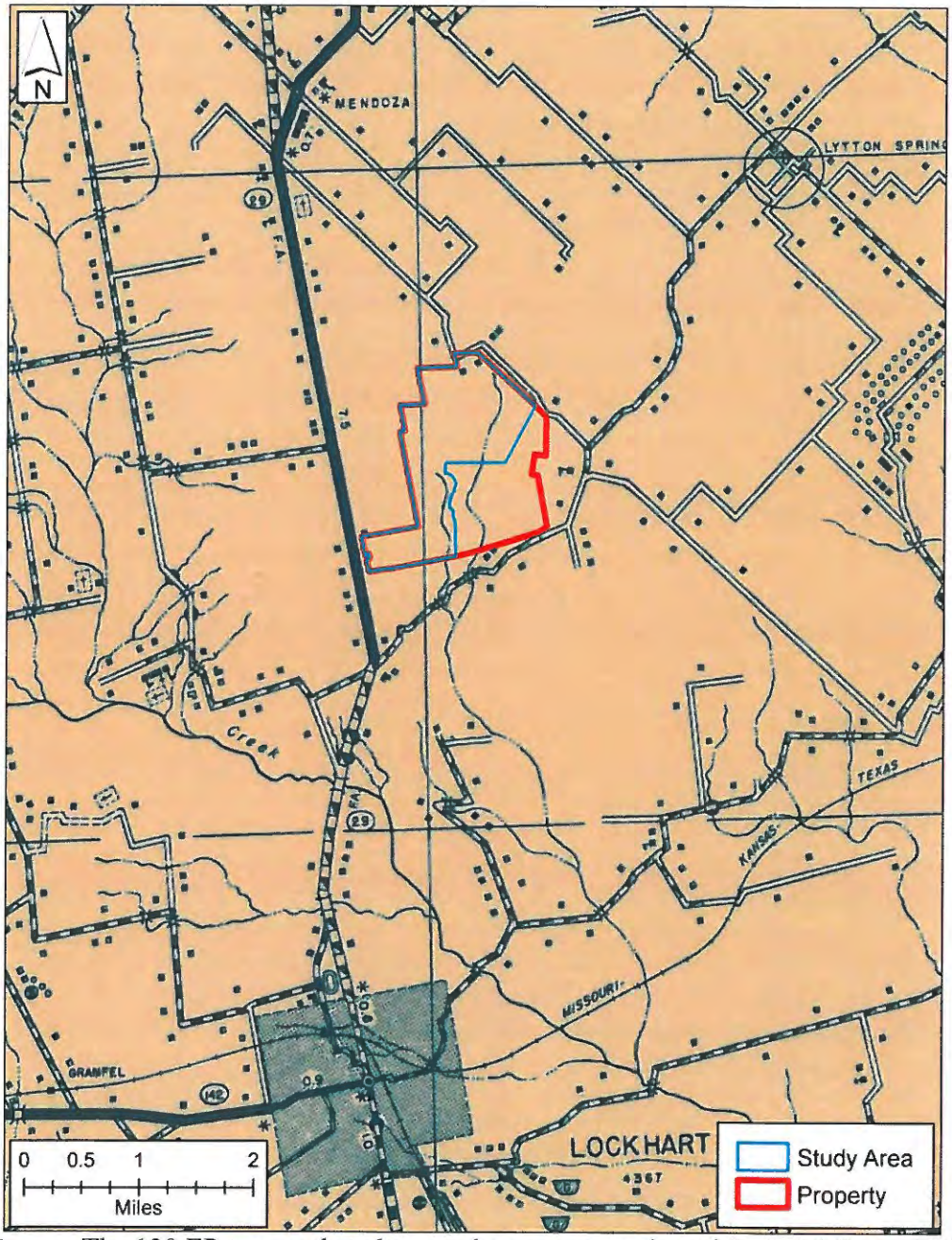

Figure 5. The 130 EP tract and study area shown on a portion of the 1936 General Highway Map of Caldwell County. Two residences are mapped along the north central edge of the tract.

By 1958, the General Highway Map of Caldwell County shows that the number of rural homes in the area surrounding the study area had dropped significantly and that the rural school was no longer present (Figure 6). A school is shown in Lytton Springs and it may have serviced those rural children or they may have gone to Lockhart. No residences are shown inside the study area, but a transmission line and a petroleum pipeline are mapped crossing through the western side of the area.

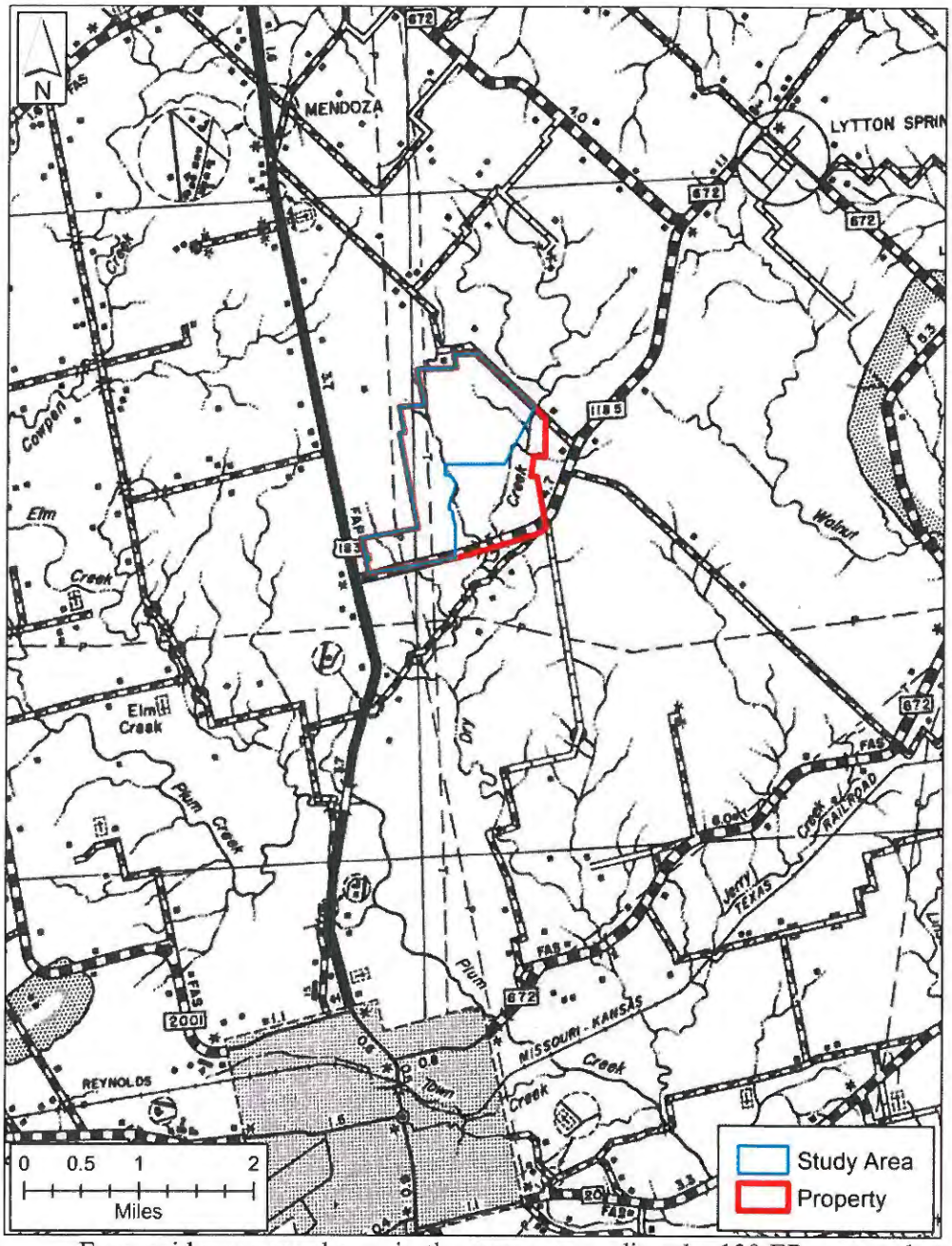

Figure 6. Few residences are shown in the area surrounding the 130 EP tract and study area while none are mapped inside it on this portion of the 1958 General Highway Map of Caldwell County.

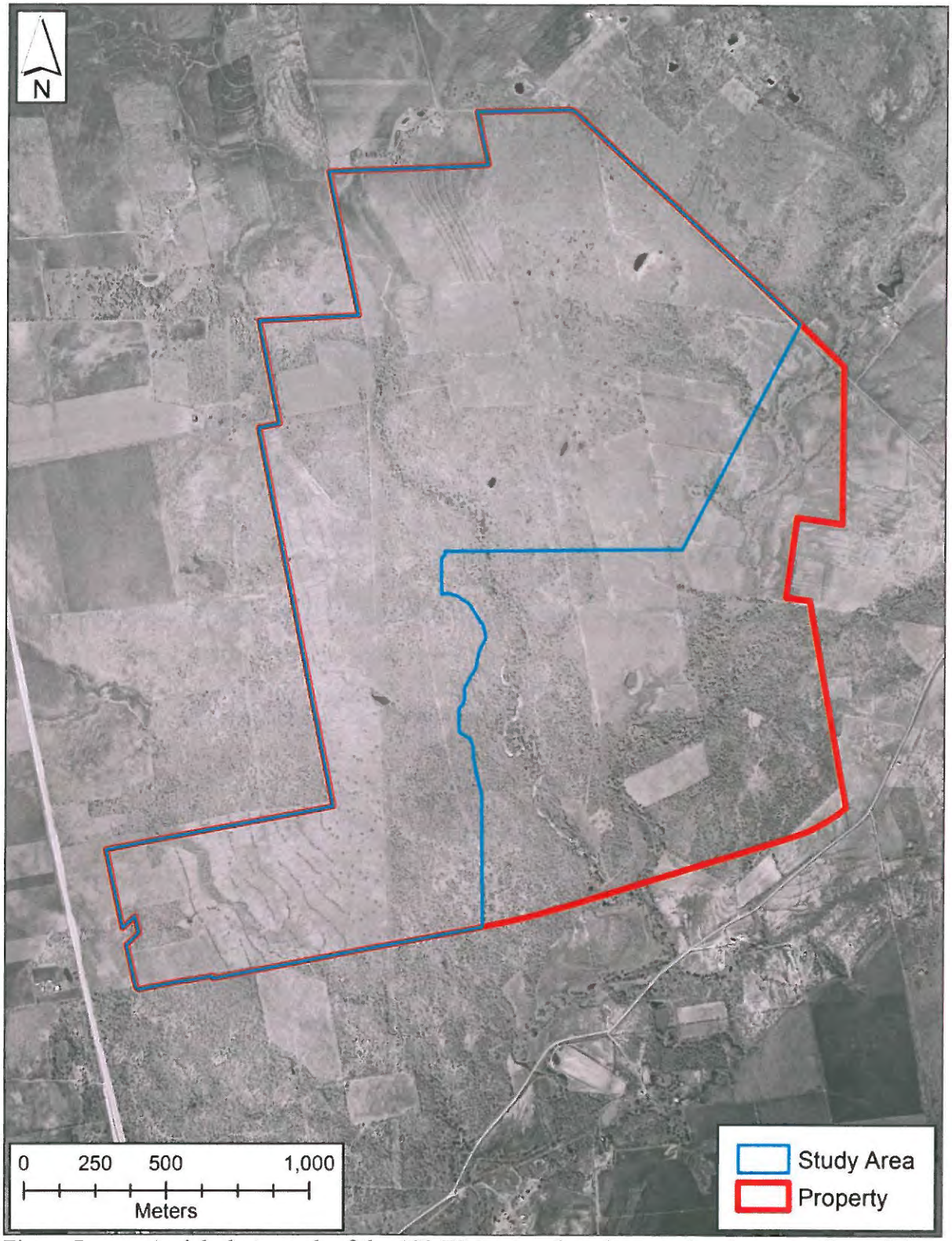

Figure 7. Aerial photograph of the 130 EP tract and study area showing ground conditions in 1954.

Figure 7 is an aerial photograph taken for the Soil Conservation Service in 1954 and shows the modification of the ground surface in the property. It is apparent that trees are largely concentrated in minor ribbons along the drainages, and that much of the land has been fenced and was being farmed or used as pasture. Earthen terraces are present in the southwest, west, and north central parts of the property. Very few large trees are indicated. A shed and apparent residence is shown in the central part of the tract just north of the seed-shaped stock tank. Almost no tree cover is present west of the transmission line that crosses the western quarter of the property.

The Soil Conservation Service dam is the most prominent new feature shown on the 1963 aerial photograph (Figure 8). Tree cover had begun to invade the no longer farmed areas west of the transmission line including the pipeline corridor. The terraces west of the transmission line are no longer apparent and have been obscured by the invasion of oak and mesquite trees along with prickly pear cactus and grasses. The terraces in the north central part of the tract were becoming obscured, but new terraces had been constructed in the east central part of the property on the ridge slope west of Dry Creek. Tree cover east of the transmission line appears to have become denser than in 1954 and the only newly cleared land appears to be associated with construction of the dam/spillway and creation of the upstream lake. FM 1185 had been constructed along the southern boundary of the study area from US 183 east to the intersection with CR 183.

Figure 1 is contemporaneous with Figure 8 and it is dominated by the newly constructed dam and spillway as well as FM 1185. The road from the north terminates at an abandoned structure that coincides with the residence/shed shown on the 1954 aerial and probably on the 1911 map. A new road extends south from the residence past the seed-shaped stock tank to a newly installed corral that coincides with an older corral that had previously been used but was not shown on earlier maps or the earlier aerial photograph. At present, almost all of the property north and west of the dam has reverted to pastures that have been invaded by mesquites or post oaks (Figure 9). Ground cover includes green briars, oak leaves, large clumps of prickly pear cactus, and sparse to dense grass. In the oak-forested area north and west of the dam, chert and quartzite cobbles litter the surface and many of the cobbles are large enough to have been knapped and made into tools. Smaller cobbles are present in the clay soils just about everywhere throughout the area, but these are generally too small to have been used as cores or as tool blanks. However, twentieth century brush clearing, deep root plowing, terrace construction, repeated mowing and possibly some plowing, have resulted in hammering on many of the cobbles. This hammering has apparently removed numerous flakes that might be classified as primary and secondary pieces, as well as the creation of single or multiple struck cobble cores.

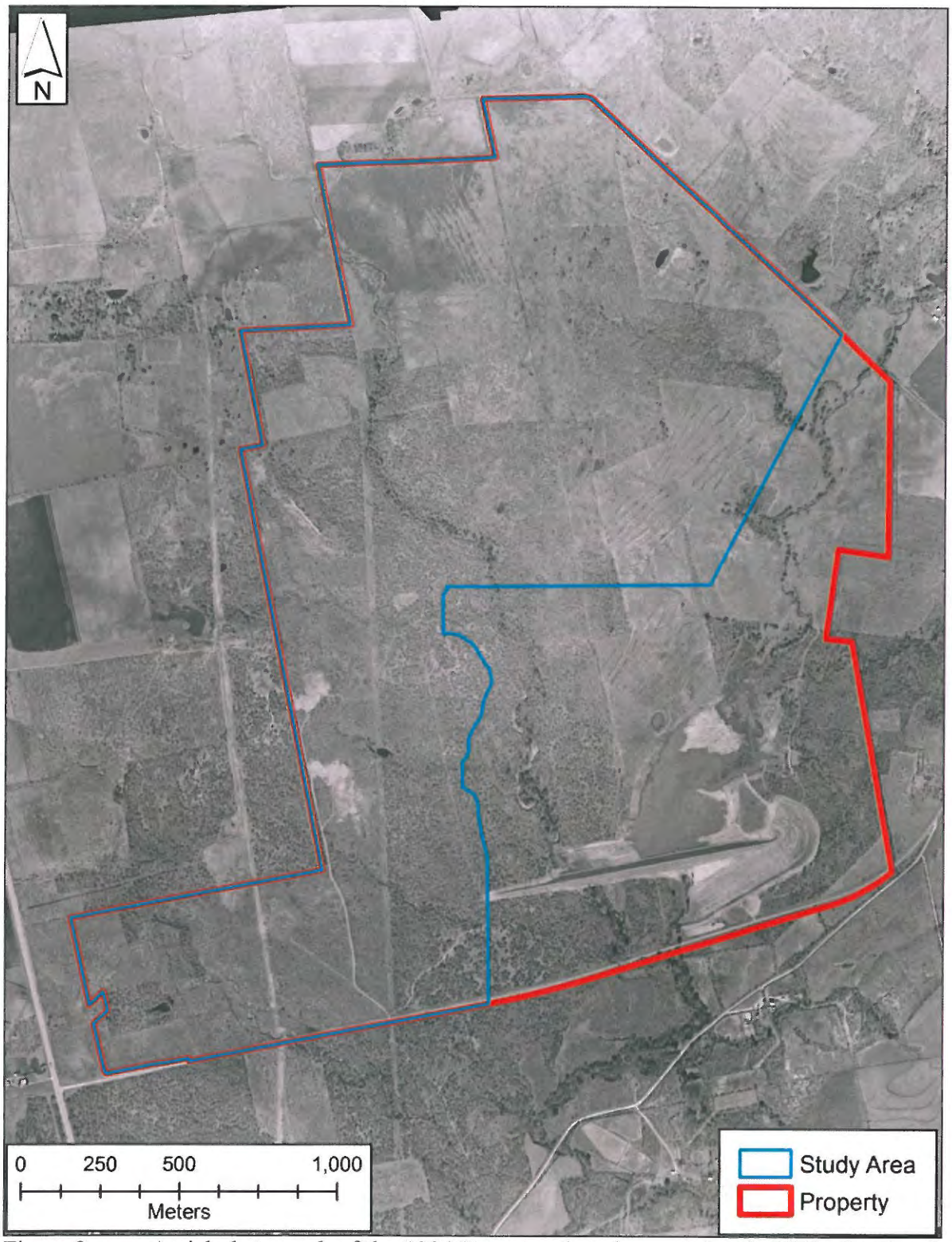

Figure 8. Aerial photograph of the 130 EP tract and study area taken in 1963, showing the flood-water retarding structure and spillway as well as new terraces and areas that have been invaded by trees.

Figure 9. Aerial photograph of the 130 EP tract and study area showing 2012 conditions.

RESEARCH DESIGN AND METHODOLOGY

Prehistoric sites have been recorded throughout Caldwell County and two undated prehistoric sites were recorded within the study area. The landowner reports finding dart points and lithic debris on the surface at unspecified locations within the tract. No evidence of Paleoindian occupation has been reported in this part of the county, nor have historic Native American sites been recorded in the area. Historic settlement by Europeans began in the second half of the 1800s and continues to the present. The following Research Design consists of two predictions that relate to the prehistoric occupation/utilization of the area and one prediction that relates to historic European occupation. These are described below and then a methodology to test these predictions follows.

Research Design

It is proposed that tool stone in the form of knappable chert cobbles (Uvalde Gravel) was gathered from the mantle of mostly well-rounded chert and quartzite gravel that covers the surface of areas mapped as Fett gravelly soils (FeE) by the Soil Conservation Service (Lowther and Werchan 1978:Sheet 7; Figure 2). The gravel is described as being abundant below the present ground surface. In the topsoil, gravel are described as being 30% of the volume in the A1 horizon, which averages nine inches thick, and 80% in the A2 horizon that is five inches thick. Gravel occurs in the A1 horizon of the Wilson gravelly loam between 0 and 15 inches below the surface and this gravel tends to be smaller than those in the Fett gravelly soils. Within the study area, the division between these two soils generally coincides with the unnamed intermittent tributary. The study area approximates the eastern extent of Uvalde gravel in the county (Byrd 1971:Locality 4-24, pp. 46). Gravel is not expected to be found on the surface of the upland ridge clays (Heiden and Houston) that occur as small areas parallel to the east side of the unnamed intermittent tributary that roughly bisects the study area. The unnamed creek joins Dry Creek just upstream from the flood control dam. Knappable gravel may be found in the bed load of the numerous intermittent tributaries, particularly those channels which have deeper deposits of frequently flooded Trinity soils. Broken bifacial tools, cores, bifaces, and lithic debris are expected to be found at site locations within the areas of Fett gravelly soils. However, these sites will be difficult to recognize due to the disturbance and gravel breakage that occurred during mid-twentieth century brush clearing and subsequent plowing and farming.

Prehistoric campsites are predicted to be present on the small but pronounced linear ridges of Heiden clay and Houston Black clay that occur along the eastern side of the unnamed intermittent tributary that drains from the northwest corner of the tract southeast into Dry Creek. On a sporadic or seasonal basis, rainwater was probably present in low spots along the channel adjacent to the clay soil ridges that parallel the frequently flooded Trinity floodplain clays. It is expected that nuts from mature oak and pecan trees were present in this protected valley setting and would have attracted deer and other edible mammals, as well as birds and reptiles. Campsites will be recognized by an abundance of lithic debris, fire-cracked gravel, chipped stone tools, and broken animal bones.

Historic residences are predicted to be present near main roadways as well as at the end of the field road that was constructed along the ridge that is situated between Dry Creek on the east and the unnamed tributary to the west. Such residences may roughly coincide with active stock tanks and may correspond to tree clusters shown on aerial photographs or to residences on early 1900 maps. It is expected that structures are likely to have been one or two-room log or frame structures constructed on wood or stone piers. Heating and cooking was done on cast iron or sheet metal stoves after they replaced wood burning fireplaces. Water would have been collected in above ground or subterranean cisterns at sites constructed in the 1800s and from drilled wells at post-1900 residences. Barns, sheds, root cellars, and corrals are likely to be present and trash accumulations are also expected near residences, roads, and drainages. Unmarked family cemeteries could be present.

Methodology

Field personnel walked the entire 809-acre study area along transects spaced no more than 50 meters apart. Personnel made notes about the ground exposure, presence of gravel, soil types, drainages, and disturbed areas. Two parallel transects were walked in the area mapped as Houston Black Clay that parallels the central drainage. Shovel tests were placed every 50 m within this area. The Houston Black Clay, which is mostly devoid of gravel, is the most likely location of intermittently occupied/seasonal campsites. Additionally, the creek channel was surveyed the full length of the study area in order to identify buried site deposits exposed in the creek banks and the gravel bed load in the channel.

All shovel tests averaged 30 cm in diameter, and were excavated to the depth of Holocene subsoil. Clay soils were manually broken and inspected, in order to determine if cultural materials were present. Soils were described on the basis of color and texture, and the Munsell Soil Color Chart was used to identify the specific soil colors in each test (Munsell Color 2009). Shovel test locations were marked with a handheld Garmin GPSmap78 receiver.

Three east-west gravel sample transects were walked in order to identify the presence and type of gravel on the surface in the various mapped soils. Circles with ½ m diameter were placed every 200 m along these transects and data about the surface gravel, including length, material, and weight were collected

When found, prehistoric and historic site deposits were to be defined using shovel tests where there is less than 30-percent ground visibility. Artifacts were generally recorded in the field and datable artifacts were collected for further analysis in order to determine site chronology and to enhance site descriptions.

RESULTS

Study Area

The fields are dominated by oak trees and cedar elms as well as a grass carpet and scattered mesquites, as seen in Figure 9. The oaks generally appear to be older than the mesquites, but almost none of the trees in obviously once cleared pastures/fields exhibited an age of over 30 years. Cobbles litter the ground surface in the oak tree-covered areas and single-struck chert cobbles or broken chert cobbles are common on the ground surface (Figure 10). Ground visibility was obscured by grass in those fields/pastures that have been invaded by mesquites.

Figure 10. Close-up of chert cobbles on eroded ground surface west of the transmission corridor. The black pen in the center of the picture provides a scale.

At the time of the survey, water was present in each of the stock tanks throughout the study area but absent from the channel of Dry Creek. Although Brune (1981) reports that springs occur in Caldwell County at the base of gravel beds, the gravel deposits within the study area are not thick enough to have served as a water reservoir that would catch and hold rainfall and then release it as seep springs.

Survey Results

The field crew walked the entire study area in 50-meter-wide east/west transects. The area mapped as Houston Black clay was considered to have high potential for prehistoric sites, so two north/south transects were walked while placing shovel tests at 50-meter intervals. These 18 shovel tests did not reveal any artifacts or features. The terracing noted on historic aerials was

obvious during survey and had a dramatic effect on the landscape as evidenced by wetlands that have formed in some of the narrow, low spots. Bare spots that are clearly visible on the 1963 aerial photograph were caused by bulldozing and mining for gravel. These areas are still clearly identifiable on the landscape and extend much farther than is indicated on the 1963 aerial. At least a kilometer-long stretch along the western fence line has been severely disturbed by these mining efforts and any prehistoric remains that may have been present are unrecognizable. The central channel is lined with cobbles and pebbles some of which have washed downslope and some of which have been eroded out of the surrounding formations as the smaller sediments wash downstream. This portion of the survey located five isolated chert bifaces and one prehistoric site (41CW159).

Several prehistoric isolates including large, mid-stage bifaces, and several large flakes were identified on the surface during survey. Only two locations had dense enough artifacts scatters to be considered sites (41CW158 and 159). These sites are described in more detail below.

Also identified during the survey were several push or scrap piles of wood and metal, but the materials all appeared to be from the mid-1900s and there were no diagnostic artifacts. These piles most likely represent the razing of fences and pens prior to farming of the various fields. A concentration of thirty sandstone slabs was found in a roadway south of the seed-shaped stock tank previously mentioned. The slabs range in size from 24 by 12 in to 8 by 9 in and have a thickness range of 3.5 to 5.5 in (Figure 11). They are lying flat in an area 12.5 ft (north-northwest/south-southeast) by 6 ft but do not form a recognizable pattern. No historic artifacts were found associated with the slabs and the clay soil contained small cobbles.

Figure 11. Sandstone slabs concentrated in a bulldozed road south of the seed-shaped stock tank. View is to the southeast.

Gravel Sample Transects

The surface gravels across the study area were inspected via 19 half-meter-diameter sampling units. The size, weight, and composition of the cobbles was recorded for each sample (Figure 12 and Table 2). Any gravel with a maximum dimension less than 8 cm is not feasibly knappable, so the material type was not identified for these cobbles. The smaller cobbles were most abundant in samples located in or on the slopes above drainages (4, 5, 7, 10, 11, 17, and 18). This is likely due to erosion of the cobbles downslope and increased exposure on the slopes as opposed to the crests. There does not appear to be any pattern regarding the ratio of chert to quartzite in relation to soil or topography. No tools or artifacts were found in any of the samples.

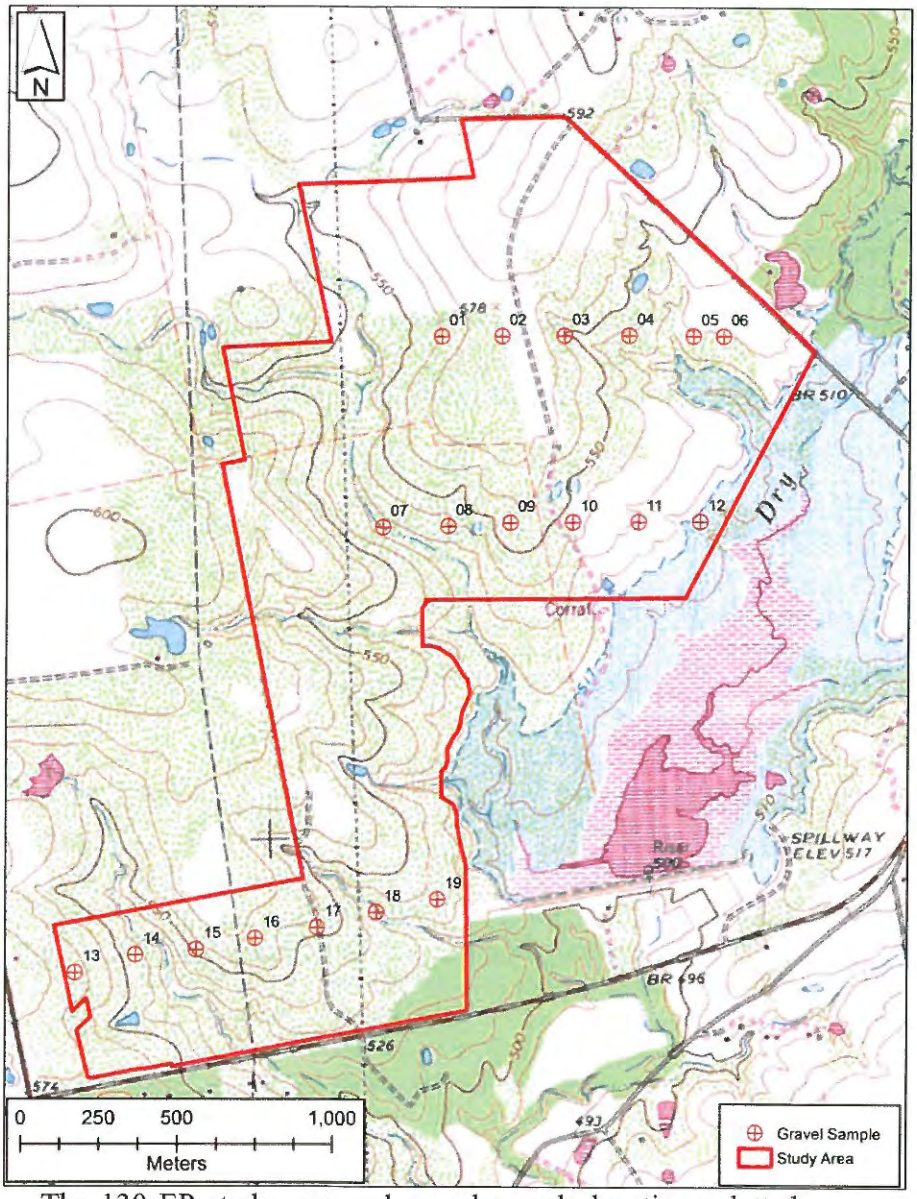

Figure 12. The 130 EP study area and gravel sample locations plotted on a portion of the Lockhart North, TX 7.5' USGS topographic map.

Table 2. Gravel Sample Descriptions.

Sample #	Soil	Quantity	Material	Size (cm)	Notes
		1	Unidentified	0-8	ground visibility 0-15%
		0	Quartzite	8-10	
		0	Chert		
01	Houston	1	Unidentified		
		0	Unidentified	0-8	ground visibility 0-15%
		0	Quartzite	8+	
		0	Chert		
02	Wilson	0	Unidentified		
		4	Unidentified	0-8	ground visibility 0-40%
		2	Quartzite	8-10	
		0	Chert		
03	Wilson	0	Unidentified		
		25	Unidentified	0-8	ground visibility 10-50%
		1	Quartzite	8-9	
		0	Chert		
04	Wilson	0	Unidentified		
		18	Unidentified	0-8	ground visibility 10-45%
		0	Quartzite	8+	
		0	Chert		
05	Wilson	0	Unidentified		
		0	Unidentified	0-8	ground visibility 0-30%
		0	Quartzite	8+	
	Heiden-	0	Chert		
06	Houston	0	Unidentified		
		100+	Unidentified	0-8	smaller gravel includes 2 possible pieces of lithic debitage and 1 piece of petrified wood
		2	Quartzite	8-13	
		2	Chert		
07	Trinity	0	Unidentified		
		1	Unidentified	0-8	larger stones show signs of being burned-brush fire
		1	Quartzite	8-13.5	
		1	Chert		
08	Heiden	0	Unidentified		
		0	Unidentified	0-8	
		1	Quartzite	8-9.5	
		1	Chert		
09	Wilson	0	Unidentified		
		20	Unidentified	0-8	sample featured mostly quartzite
		1	Quartzite	8-8.5	
		0	Chert		
10	Wilson	0	Unidentified		
		34	Unidentified	0-8	1 possible piece of lithic debitage
		0	Quartzite	8+	
		0	Chert		
11	Mabank	0	Unidentified		
		0	Unidentified	0-8	grassy area with no gravel on surface
		0	Quartzite	8+	
		0	Chert		
12	Crockett	0	Unidentified		
		2	Unidentified	0-8	grassy; sparse, large vegetation
		1	Quartzite	8-23	
		6	Chert		
13	Wilson	0	Unidentified		

Sample #	Soil	Quantity	Material	Size (cm)	Notes
		2	Unidentified	0-8	
		0	Quartzite	8-10	
		0	Chert		
14	Fett	1	Unidentified		
		0	Unidentified	0-8	
		2	Quartzite	8-11	
		0	Chert		
15	Fett	1	Unidentified		
		32	Unidentified	0-8	two of the larger ones are not truly knappable
		1	Quartzite	8--9	
		1	Chert		
16	Fett	1	Unidentified		
		13	Unidentified	0-8	half of the small ones are ~3cm, while the rest are ~8cm
		0	Quartzite	8-12	
		1	Chert		
17	Fett	0	Unidentified		
		15	Unidentified	0-8	
		1	Quartzite	8-13	
		0	Chert		
18	Fett	0	Unidentified		
		1	Unidentified	0-8	
		0	Quartzite	8+	
		0	Chert		
19	Fett	0	Unidentified		

Sites

Three archaeological sites were located during the survey, including 41CW159, which is outside the study area but still within the 130 EP Tract. The sites are described below.

41CW157

The Hunter Site consists of a rock chimney, associated rock fall, rock-lined cistern, and trash scatter. The site was first recognized as a low pile of roughly shaped, dark brown sandstone blocks that covers a roughly circular area sixteen feet in diameter (Figure 13). A section of mortared sandstone blocks and smaller chinking rocks extended vertically out of the pile 4.5 feet. Closer inspection of the fallen rock pile and the pillar confirmed that the pillar was the northwest corner of a stone chimney. Several sandstone rocks may represent piers on which the foundation of a probable log cabin had been placed. Furthermore, a large rectangular sandstone slab located at the mouth of the fireplace is interpreted as a hearth stone. No wooden superstructure was observed associated with the rocks and an apparent cistern depression was noted near the estimated southeast corner of the one room structure. A thin scatter of historic artifacts was noted on the surface 10 to 15 feet from the structure in all directions. Un-faced commercially made bricks were the most common artifacts found on the surface, but undecorated clear glass was common as well. All surface artifacts were mapped in place and collected for analysis.

The rock fireplace and chimney have a footprint that is 3 ft deep and 6 ft wide with the opening to the south (Figure 14). The walls and hearth are made of roughly-shaped sandstone blocks that are very dark grayish brown (10YR3/2) in color and contain lighter colored sand. The chimney walls consist of rocks that are mortared together to create a wall that averages 10-11 in thick.

Much of the mortar has eroded away; it only remains between existing rocks of the chimney wall. The chimney stands 43.5 in above the hearth surface and the hearth surface is roughly 12 in above the adjacent ground surface. The chimney fall surrounds the remnant of the standing chimney and covers an area 5 ft to the south, 6 ft to the north, 2 ft to the east, and 2-3 ft to the west. Based on this fall area and the size of the rocks, the chimney is estimated to have been 10-12 ft tall. The rocks that make up the chimney are not present naturally in the immediate area but were quarried and shaped to be used for this purpose.

Figure 13. The rock chimney prior to excavation, looking northwest.

The interesting feature of the chimney fall is a thick sandstone slab that was likely a hearth stone. The slab is 53 in long, 16 in wide, and 6 in thick and could not have been lifted into place by a single person. The sandstone is thinly laminated, well cemented, and is light yellowish brown (10YR6/4) in color. This appears to be an unusual feature as Jordan (1978) does not mention the incorporation of slab hearths in log cabin chimneys.

The northeast side of a cistern collar is preserved in the wall of a 3-foot-deep hole located 25 feet southeast of the hearth base (Figure 15). The cistern has an interior diameter of 30-36 in. No mortar was noted between the light yellowish brown sandstone blocks that make up the rock-lining, nor was any mortar apparent on the inner surface of the remaining wall section. Rock,

soil, and metal trash had been used to fill the probably bell-shaped cistern, but no excavation or probing was done in the cistern fill.

A trash accumulation of broken bottle glass, plain white ceramics, and metal fragments is located 50 feet southwest of the chimney. Scattered pieces of bottle glass and whiteware were noted on the surface north of the house within a distance of 20-25 feet. Systematic shovel testing began south of the chimney opening and was continued at five-foot intervals until artifacts were no longer found (Figure 14 and Table 3). Further testing was conducted to the east, west, and north until it was apparent that the artifact scatter no longer existed or had dropped off to an average of a single artifact per test unit. Negative shovel tests are shown as open circles on Figure 14. No clear floor or habitation zone was found during shovel testing.

Hand dug test units were placed outside the east and west walls of the chimney and three units were excavated inside the chimney fill in order to recover artifact samples and to describe the collapse process. Pack rats had collected various pieces of metal, glass, ceramics, animal bones, and other artifacts in their nests. Chunks of mortar, pieces of chinking rock, and larger rock blocks were found in the areas outside the chimney. Nests were also found surrounding the hearth stone, but the fill in the chimney floor had little pack rat debris.

The artifacts recovered from the surface, shovel tests, and hearth test units help to identify the occupation period of the structure as the late 1800s through early to mid-1900s. Almost 100 pieces of ceramics, mostly whiteware, were found. Some pieces of porcelain and glazed stoneware were also identified. Some of the whiteware and porcelain fragments exhibited decorative techniques including painting, decal, molded relief, and applied designs. Unfortunately, no makers' marks could be identified to help narrow the time period. One glass marble and one ceramic marble were found. Ceramic marbles were common until the 1920s (Zapata 1997: 108). Additionally, two, two-hole, shell buttons were found; utilitarian buttons made of shell became common after 1855. Based on the lack of design, both buttons are likely made from fresh water shell (Luscomb 2006:177).

Metal artifacts recovered from the site are mostly not diagnostic and include a hoe blade, fence staple, bolts, tool parts, and metal scraps. A piece of T. V. Allis buckthorn barbed wire, which dates from 1881 was found on the surface of the cistern hole. A $1^{1}/_{8}$ in brass straight pin and an expended .38 caliber slug were found in the excavation and both post-date 1890 (Jay C. Blaine, personal communication 2013). Twenty-nine wire nails and 18 square-cut nails were identified from across the site. The square-cut to wire nail ratio may indicate that the house was originally built with square-cut nails but was maintained for a longer period using wire nails. By the 1890s, square-cut nails accounted for 15% of nail production in the United States (Adams 2002: 72).

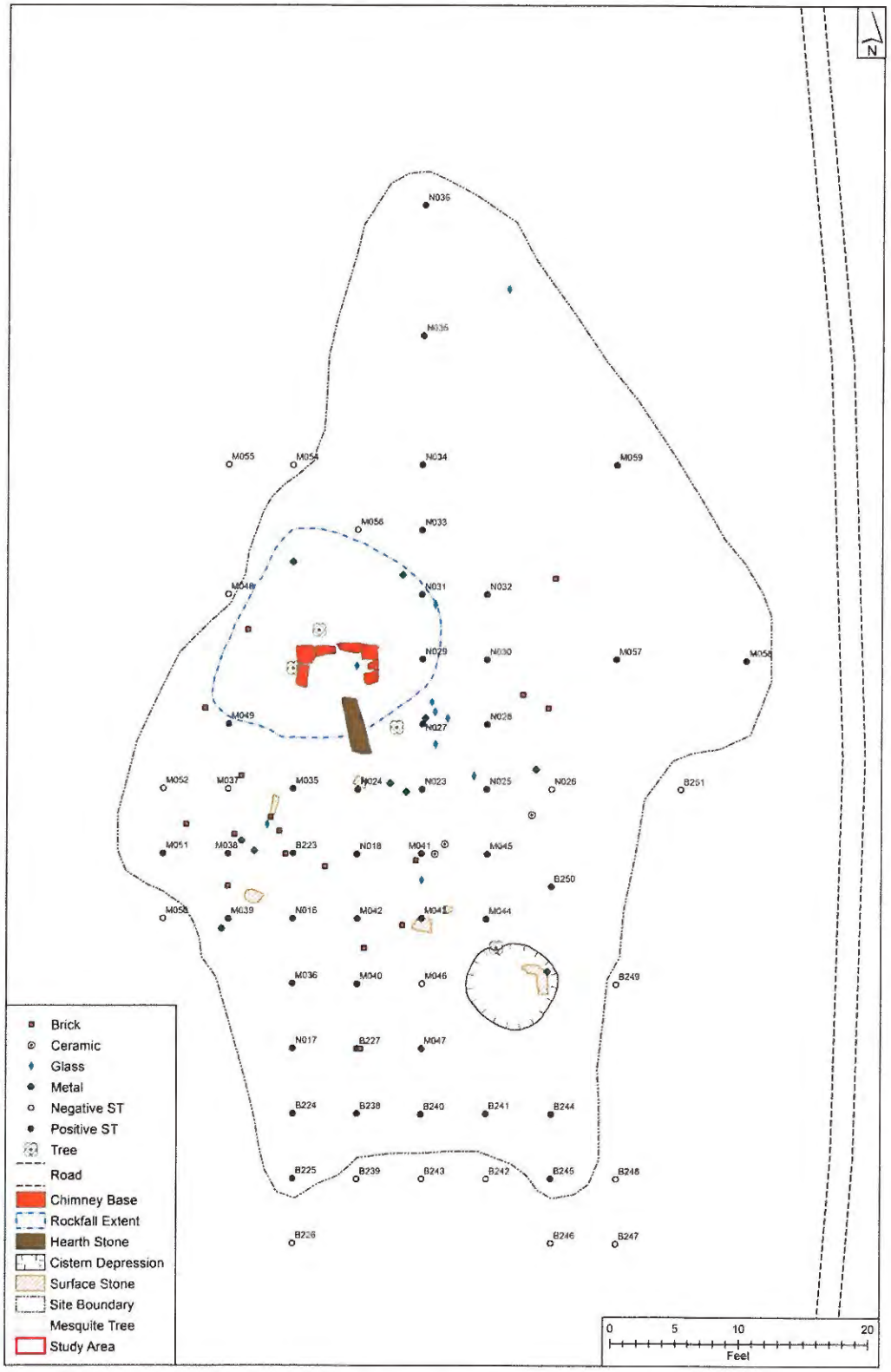

Figure 14. Plan map of 41CW157 showing structural remains, shovel tests, and surface artifacts.

Table 3. 41CW157 Shovel Test Descriptions.

ST#	Depth (cm)	Matrix Description	Comments/Artifacts
M035	0-22 22+	Dark grayish brown (10YR4/2) sandy loam Gravel	0-10: metal, glass, ceramic
M036	0-17 17+	Very dark gray (10YR3/1) sandy loam Gravel	0-10: nails, glass 10-20: nails, glass
M038	0-10 10+	Very dark gray (10YR3/1) sandy loam Gravel	0-10: nails, metal, glass
M039	0-10 10+	Very dark gray (10YR3/1) sandy loam Gravel	0-10: glass, ceramic, nails
M040	0-15 15+	Very dark grayish brown (10YR3/2) sandy loam Gravel	0-10: glass, nail
M041	0-15 15+	Very dark grayish brown (10YR3/2) sandy loam Gravel	0-10: glass
N016	0-35 35+	Very dark grayish brown (10YR3/2) dry loam, with 2-3% gravel Gravel	0-10: whiteware, metal, glass, nails, ceramics 10-20: metal, nails, glass
N017	0-20 20+	Dark gray (10YR4/1) loam, with 20-25% gravel Gravel	0-10: glass, metal
N018	0-30 30+	Very dark grayish brown (10YR3/2) dry loam, with 5-10% gravel Gravel	0-10: whiteware, glass, metal, nail, glass marble 10-20: glass, whiteware, metal, bone, brick 20-30: glass, metal, nails, shell button
B223	0-20 20-40 40+	Dark grayish brown (10YR4/2) sandy loam, with gravel Very dark grayish brown (10YR3/2) sandy loam with gravel Gravel	0-10: glass, ceramic 10-20: glass, ceramic, metal 20-30: glass, ceramic
B224	0-15 15+	Dark grayish brown (10YR4/2) sandy loam, with gravel Gravel	0-10: glass
B225	0-10 10-15 15+	Very dark grayish brown (10YR3/2) sandy loam, with gravel Very dark brown (10YR2/2) clay/clay loam, with gravel Gravel	0-10: glass
B227	0-10 10+	Dark grayish brown (10YR4/2) sandy loam, with 80% gravel Gravel	0-10: glass
M042	0-30 30+	Very dark brown (10YR2/2) clay, with 70% gravel Gravel	0-10: ceramics, metal pin 10-20: ceramics, nail
M043	0-15 15+	Very dark grayish brown (10YR3/2) clay, with 80% gravel Gravel	0-10: brick 10-20: glass
M044	0-15 15+	Very dark grayish brown (10YR3/2) clay, with 80% gravel Gravel	10-20: glass
M045	0-23 23+	Very dark grayish brown (10YR3/2) clay Gravel	10-20: glass
M047	0-16 16+	Very dark brown (10YR2/2) clay Gravel	10-20: glass
M049	0-17 17+	Very dark brown (10YR2/2) clay loam, with 90% gravel Gravel	10-20: glass, ceramic
M051	0-20 20+	Black (10YR2/1) loam Gravel	10-20: glass
M057	0-17 17+	Very dark brown (10YR2/2) loam, with 80% gravel Gravel	0-10: glass
M058	0-12 12+	Very dark grayish brown (10YR3/2) loam Gravel	0-10: glass
M059	0-10 10+	Very dark grayish brown (10YR3/2) loam Gravel	0-10: ceramic
N023	0-25 25+	Very dark grayish brown (10YR3/2) loam, with gravel Gravel	0-10: nail 10-20: metal, glass
N024	0-12 12-24 24+	Very dark grayish brown (10YR3/2) loam, with gravel Very dark grayish brown (10YR3/2) loam, with gravel Gravel	0-10: metal, glass, whiteware, nail 10-20: nail, glass, ceramic 20-30: glass

ST#	Depth (cm)	Matrix Description	Comments/Artifacts
N025	0-12 12+	Very dark gray (10YR3/1) loam, with abundant gravel Gravel	0-10: glass, nail
N026	0-16 16+	Very dark grayish brown (10YR3/2) loam, with abundant gravel Gravel	0-10: glass, wire, stoneware
N028	0-8 8+	Very dark gray (10YR3/1) loam, with abundant gravel Gravel	0-10: glass, metal, wire, nail
N029	0-11 11+	Very dark gray (10YR3/1) loam, with abundant gravel Gravel	0-10: glass, mortar from chimney
N030	0-15 15+	Very dark gray (10YR3/1) loam, with abundant gravel Gravel	0-10: glass
N031	0-13 13+	Very dark gray (10YR3/1) loam, with abundant gravel Gravel	0-10: glass, metal
N032	0-15 15+	Very dark gray (10YR3/1) loam, with abundant gravel Gravel	0-10: glass, metal, nail
N033	0-13 13+	Very dark grayish brown (10YR3/2) loam, with abundant gravel Gravel	0-10: glass, metal, wire, nails
N034	0-8 8+	Very dark grayish brown (10YR3/2) loam, with abundant gravel Gravel	0-10:clear glass, metal, whiteware
N035	0-9 9+	Very dark grayish brown (10YR3/2) loam, with abundant gravel Gravel	0-10: glass, stoneware
N036	0-8 8+	Very dark grayish brown (10YR3/2) loam, with abundant gravel Gravel	0-10: whiteware
B238	0-20 20+	Very dark brown (10YR2/2) clay loam, with 30% gravel Gravel	0-10: nail
B240	0-25 25+	Very dark brown (10YR2/2) clay loam, with 40% gravel Gravel	0-10: glass, ceramic
B241	0-25 25+	Very dark brown (10YR2/2) clay loam, with 40% gravel Gravel	0-10: glass, metal, ceramic
B244	0-25 25+	Very dark brown (10YR2/2) sandy loam, with 50% gravel Gravel	0-10: glass, metal
B245	0-15 15+	Very dark brown (10YR2/2) sandy loam, with 50% gravel Gravel	0-10: nail
B250	0-20 20+	Very dark brown (10YR2/2) sandy loam, with 40% gravel Gravel	0-10: glass, metal

Of the 184 pieces of vessel glass recovered at the site, 144 (78%) were clear. The rest of the fragments were of milk, amber, sun-colored amethyst, pink Depression, cobalt, Coke, olive, sapphire, and light green Depression glass. Sun-colored amethyst glass was commonly used until the end of World War I, when clear glass became the dominant glass type for vessels and containers. Milk glass was commonly used in cosmetic bottles from the 1890s to the mid-twentieth century (Lindsey 2012). A Coke bottle base fragment had a 1932 manufacture date and "LOCKHART/TEX." embossed on the base.

Moir's model (1988) was used for identifying and dating the window pane glass recovered from the site. The assemblage consisted of 126 possible window glass fragments; thickness ranged from 0.99 mm to 3.34 mm with a mean of 2.35 mm. Using Moir's model, the window glass recovered from the site dates as early as 1860. When the thicker glass (dating to post-1920s) is removed from the sample, the mean is 2.06 mm, suggesting the site was occupied from 1860 to 1920. The mean thickness indicates a date from 1880 to 1890.

Figure 15. The Hunter site (41CW159), facing north. Note the large, sandstone slab in front of the chimney.

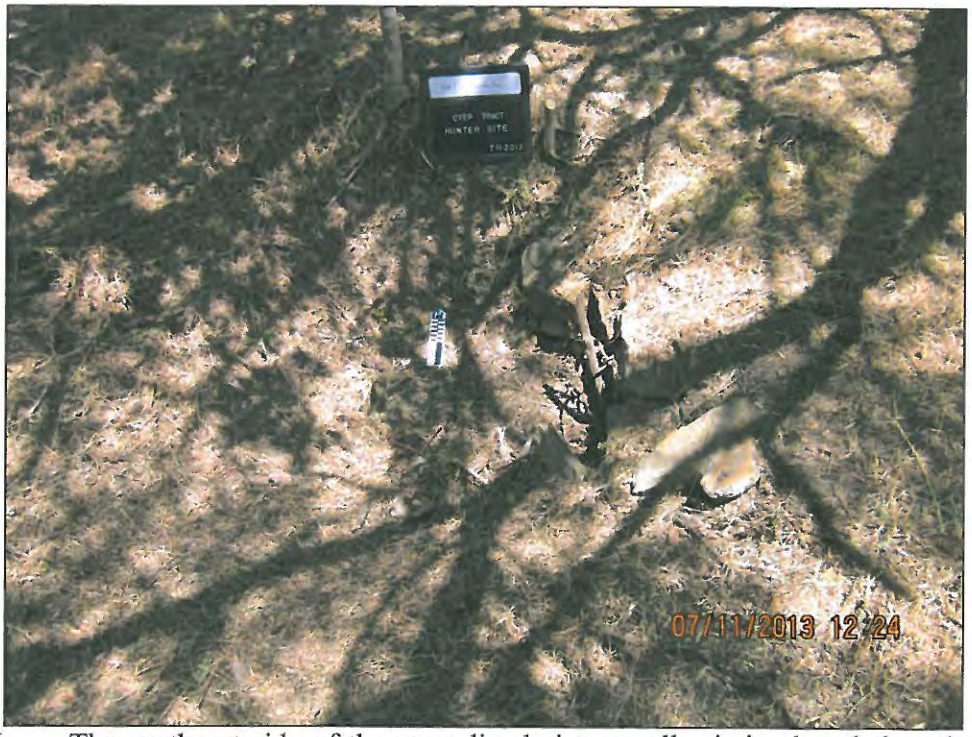

Figure 16. The northeast side of the stone-lined cistern collar is in place below the level of the present ground surface. The remainder of the lining and probably the above ground rock collar has probably fallen into the cistern vault.

41CW158

The site is located along a tributary of Dry Creek. Despite being mapped within frequently-flooded soils, flooding is likely rare, judging by the lack of soil accumulation along the creek and the presence of gravel on the ground surface. The area is thickly wooded, with post and blackjack oaks, mesquite, and greenbrier. Terrain is level.

The site is a small lithic scatter, which likely represents a short term occupation. Artifacts at the site include approximately 30 pieces of lithic debitage (flakes and shatter, mostly secondary and tertiary), two crude bifaces, and two tested cobbles. Material was primarily chert, but some fine-grained quartzite was present. It would appear that the site was used for procurement of the surface gravel and production of lithic tools. The site has little potential to yield information on prehistoric lifeways or environment.

41CW159

The site is located in a thickly-wooded area along an intermittent tributary of Dry Creek, with which it has its confluence approximately 1 km to the southeast. The area likely floods relatively infrequently, judging by the lack of soil accumulation adjacent to the channel, and the presence of gravel on the ground surface. Terrain along the drainage is fairly level. Vegetation consists of post oaks, mesquites, blackjack oaks, honey locusts, greenbrier, and sparse grasses. Ground visibility ranges from 40 to 90 percent, due to sparse ground cover of fallen leaves.

41CW159 consists of a surficial scatter of artifacts, with an assemblage indicating a temporary camp. Artifacts at the site include approximately 100 pieces of lithic debitage (flakes, chips, shatter, tested cobbles), two crude bifaces, a few pieces of FCR, a Bulverde dart preform and a Gower dart point preform (Turner et al. 2011). Most of the flakes are secondary and tertiary, but there are some primary flakes. Abundant lithic debitage indicates that the site was primarily used for chipped stone tool production, and possible procurement of the area's lithic resources (surface mantle of chert and quartzite gravel). Bulverde and Gower dart point preforms would place the site in the Early to Middle Archaic. The site deposit has little integrity and offers no insight into prehistoric lifeways or environment.

Conclusions

The study area has been affected by plowing, mining, and terracing for decades. The potential for prehistoric sites was hypothesized to be low. No prehistoric campsites were found on the ridges mapped as Houston Black clay, though it had been predicted this was the area with the highest potential for camp sites. Though there is a significant amount of gravel present on the surface, gravel sampling shows that much of it is too small to be knappable. A dozen isolated, chipped stone artifacts were found on the surface in the western portion of the study area and two sites were identified. Both sites are scatters of artifacts with no stratigraphy and no potential to offer insight into prehistoric lifeways or environment.

Based on the sandstone block chimney and the rock-lined cistern, it is likely that these features are associated with a residence that was constructed in the late 1800s. The presence of square-cut

nails and relatively thin window glass supports this conclusion. The chimney probably was part of a one-room residence that was made of logs or cut lumber and was built sometime after the Civil War. Water would have been collected in gutters and directed into the subterranean cistern. It is possible that a root cellar could be associated with the house, but the present day vegetation may have obscured its depression or it may have been purposefully filled in. Based on the abundance of artifacts that date to the early 1900s, it is likely that the structure was continually inhabited through the first part of the 20th century and that repairs were made to the structure at that time as indicated by wire nails and thicker window glass.

RECOMMENDATIONS

The purpose of this investigation was to determine if significant cultural resources are present within the proposed 130 EP study area in Caldwell County, Texas. Two prehistoric artifact scatters (41CW158 and 41CW159) and one historic residence (41CW159) were recorded. These sites are not recommended eligible for listing on the NRHP nor to be designated as SALs. The prehistoric sites are not recommended due to the lack of features and structures, their surficial natures, and their inability to yield information about past lifeways or environments. The historic site was thoroughly recorded and shovel tests were placed across the site at 5-foot intervals. The artifacts recovered indicate that the site was occupied from the late 1800s through the early to mid-1900s and, therefore, the site does not represent a singular slice in time. Most of the artifacts recovered, including clear glass and whiteware ceramics, were in use for a broad time range. This site is also not recommended as eligible for listing on the NRHP nor to be designated as a SAL because of the reasons listed above.

AR Consultants, Inc. concludes that further cultural resource investigations are unwarranted within the proposed study area. However, if buried cultural materials are discovered during construction, the Archeology Division of the Texas Historical Commission should be notified.

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APPENDIX A

SITES WITHIN ONE MILE OF THE FACILTY BOUNDARY

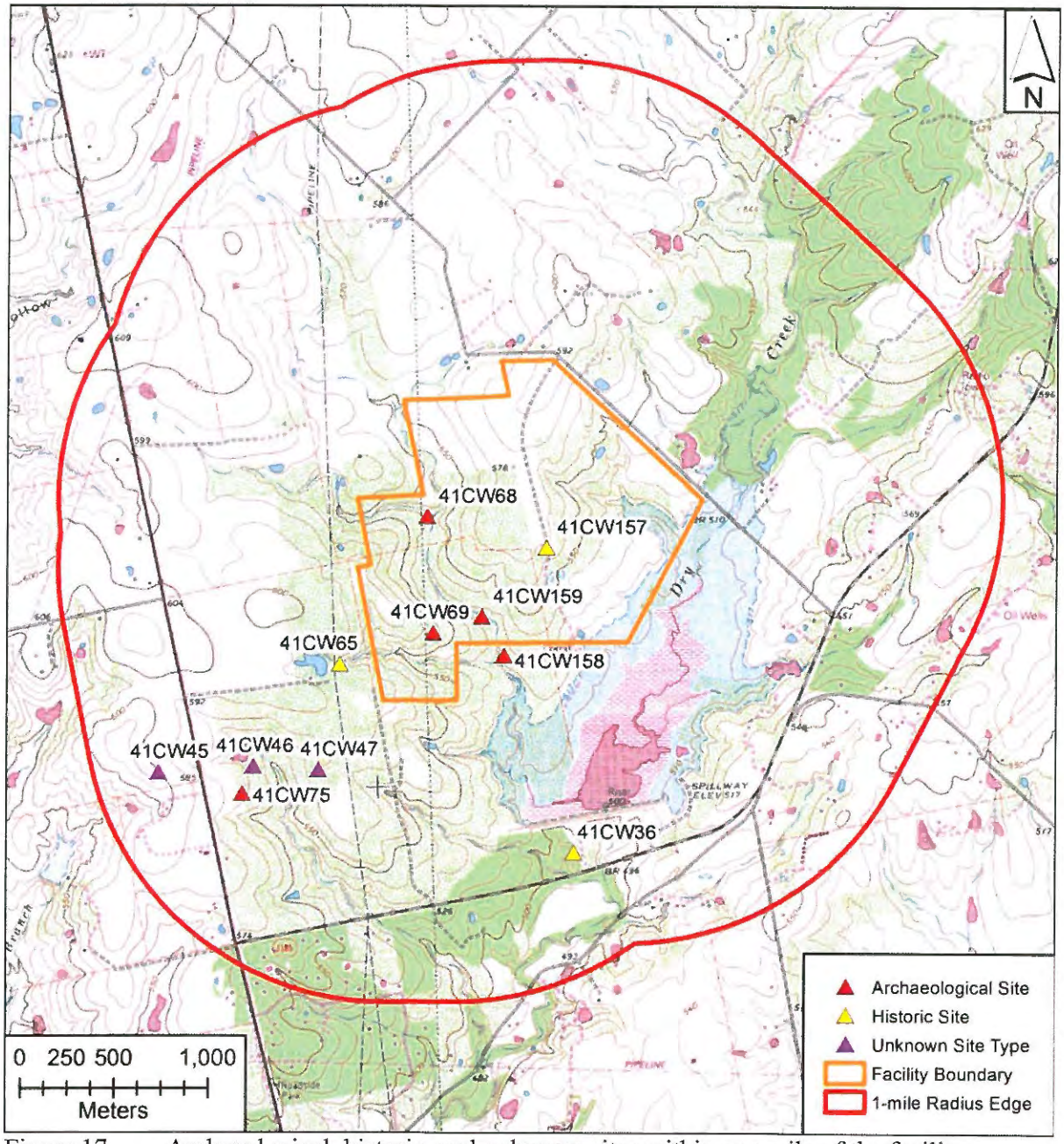

Figure 17. Archaeological, historic, and unknown sites within one mile of the facility boundary shown on a portion of the Lockhart North, TX 7.5' USGS topographic map (TASA 2013).

Note: There are no cemeteries, historically significant sites, archaeologically significant sites, or sites having exceptional aesthetic quality within one mile of the facility boundary.

APPENDIX B

ARTIFACT PROVENIENCE TABLE

Unit*	Depth* (cm below ground surface)	Glass													Ceramic				Metal											Other				
		Window	Clear Vessel	Depression	Amber	Sun-colored amethyst	Cobalt	Sapphire	Olive	Milk	Coke	Other (Knob or Pull)	Other (Marble)		Stoneware	Whiteware	Porcelain	Marble	Wire Nail	Square-cut Nail	Bolt	Fence Staple	Bottle Cap	Scissors	Straight Pin	Bullet	Wire Fragments	Metal Fragment		Shell Button	Rubber Gasket	Unmodified Bone/Shell	Brick Fragment	Slate
Surface		6	22							1	1	1				5																17	
Shovel Tests																																	
B223	0-10	9	2													1																	
	10-20	6	6		1										1	1				2													
	20-30	1	2													1																	
B224	0-10	2																															
B225	0-10		1																														
B227	0-10		1																														
B238	0-10																		1														
B240	0-10		1													1																	
B241	0-10		1																		1												
	10-20															1																	
B244	0-10	1																	1		1												
B245	0-10																		1														
B250	0-10	1	2																			1											
B252	0-10	1	4													1			1								5						
M035	0-10	1	4													3																	
M036	0-10	13	4			1													2	3													
	10-20	3																		2													
M038	0-10	5	3	1															1	2								1					
M039	0-10	1			1											3			1														
M040	0-10	2	3																1														
M041	0-10		1	1																													
M042	10-20															10									1								
	20-30																1		1														
M043	0-10																																
	10-20	2	2																1														
M044	10-20									1																							
M045	10-20				1																												
M047	10-20		3																														
M048	10-20	2	1														3																
M051	10-20	16																															
M057	0-10		1																														
M058	0-10		1																														

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Unit*	Depth* (cm below ground surface)	Glass												Ceramic				Metal										Other				
		Window	Clear Vessel	Depression	Amber	Sun-colored amethyst	Cobalt	Sapphire	Olive	Milk	Coke	Other (Knob or Pull)	Other (Marble)	Stoneware	Whiteware	Porcelain	Marble	Wire Nail	Square-cut Nail	Bolt	Fence Staple	Bottle Cap	Scissors	Straight Pin	Bullet	Wire Fragments	Metal Fragment	Shell Button	Rubber Gasket	Unmodified Bone/Shell	Brick Fragment	Slate
M059	0-10													1		2																
N016	0-10	4	1		2										2			5	3								30					
	10-20	1	1															1								1	9					
N017	0-10	1																									1					
N018	10-20	6	1							1			1		4	1			1								16			1	1	
	20-30	1	1			1												2									6	1				
N023	0-10																	1														
	10-20	1	2																								2					
N024	0-10	9								1								1									7					
	10-20	2																1												1		
	20-30	2																														
N025	0-10	2																	1													
N027	0-10		5															1								1						
N028	0-10		3															1	1							1	1					
N029	0-10		1																													
N030	0-10		2																													
N031	0-10	2	1																			1										
N032	0-10	1								1									1								2					
N033	0-10		1							1						1		2								1	13					
N034	0-10		1			1									1											1						
N035	0-10	4	1		1			1						1																		
N036	0-10														1																	
Hearth Testing																																
Front & Hearth Floor		9	5	1											8	2			1	1												
Hearth Fill											2																			6		
Hearth-East side		3	36	1	1					2				1	2	2			1				1		1		2			4		
Hearth-West side			9		3		1								9	12				1									1	1	1	
NE Hearth		1	1	1						2				1	1																	
NW Hearth		6	4		1	1	1		1					1	7	2	1	3		2								1		2	1	4
Totals		127	141	5	11	4	2	1	1	10	3	1	1	6	62	26	1	29	18	6	1	1	1	1	1	10	90	2	1	15	22	4

*Units and levels with no artifacts are not represented in this table.

130 ENVIRONMENTAL PARK

APPENDIX IIG
TPDES PERMIT

Texas Pollutant Discharge Elimination System (TPDES)
Certification Statement

Mr. Zak Covar
Executive Director
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

RE: 130 Environmental Park
TCEQ Registration Application No. MSW ____

Dear Mr. Covar:

This certification statement indicates that 130 Environmental Park, LLC will obtain Texas Pollutant Discharge Elimination System (TPDES) permit coverage for the 130 Environmental Park in accordance with 30 TAC §330.61(k)(3), pending TCEQ approval of this registration application.

ATTEST:
130 Environmental Park, LLC

Ernest Kaufmann
President and Manager of 130 Environmental Park, LLC

SWORN TO AND SUBSCRIBED BEFORE ME by Ernest Kaufmann on this 30th day of August, 2013, which witness my hand and seal of office.

Joy Hammonds
Notary Public, State of Georgia

Joy Hammonds
Printed Name

JOY HAMMONDS NOTARY PUBLIC CHEROKEE CO., GEORGIA MY COMMISSION EXPIRES JAN. 8 2017

My Commission Expires: 1-8-17