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Archeological Survey For The Temple-Belton Regional Sewer System Improvement Project, Bell County, Texas

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ARCHEOLOGICAL SURVEY FOR THE TEMPLE-BELTON REGIONAL SEWER SYSTEM IMPROVEMENT PROJECT, BELL COUNTY, TEXAS

by

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Kasberg, Patrick & Associates, LP
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by

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ABSTRACT

Prewitt and Associates, Inc., (PAI) was contracted by Kasberg, Patrick, and Associates to perform an intensive archeological survey prior to the proposed installation of new sewer lines, the expansion of one lift station, and the construction of another lift station in Bell County, Texas. This investigation was conducted in April 2013 in compliance with the Texas Antiquities Code. The Temple-Belton Regional Sewer System (TBRSS) Improvement Project will construct a new 1.7-mile-long (8,730-ft-long) Shallowford Force Main sewer line from the Temple-Belton Wastewater Treatment Plant on FM 93 to the Shallowford Lift Station just north of the Leon River. The project also calls for small expansions of the Shallowford Lift Station and Belton Lift Station.

The survey recorded two new archeological sites, 41BL1380 and 41BL1381, and revisited one previously recorded site, 41BL260. All three sites are recommended as not eligible for listing in the National Register or for designation as State Antiquities Landmarks.

The TBRSS project was put on hold in 2013 and 2014, and PAI archeologists did not conduct trenching in a 2,788-ft-long section of the force main alignment where the landowner denied right of entry. This segment in the Leon River valley has the potential to contain intact buried archeological remains in Holocene-age alluvium. Consequently, this section of the force main alignment will need to be investigated with mechanical trenching if the TBRSS project is resurrected.

CURATION

This survey was conducted under a no artifact collection policy. Identified artifacts were noted, briefly described and sometimes photographed, and returned to the point of recovery. All project records will be submitted to the Texas Archeological Research Laboratory at the University of Texas at Austin for permanent curation.

ACKNOWLEDGMENTS

This survey would not have been possible without the assistance of Thomas D. Valle, KPA project engineer, who provided project schematics, kept the field crew apprised of project modifications and alignment changes, and maintained communication concerning right of entry. Dwayne Ordner, vice president of construction, and project manager Jim Robinson, of Shallow Ford Construction Co., coordinated the use of a company backhoe, and Tommy Gober capably operated the backhoe during trenching and backfilling. The author also would like to thank Michael Newman, assistant director of public works/city engineer for the City of Temple, and Les Hallbauer, director of public works City of Belton. Special thanks to those landowners or executors of privately owned parcels along the proposed Shallowford Force Main alignment for granting right of entry for the archeological investigations.

At Prewitt and Associates, Douglas K. Boyd served as the principal investigator, and Damon Burden was the co-principal investigator and project archeologist. John Dockall served as the field archeologist and assisted with various aspects of the project in and out of the field. Sandy Hannum created field maps and created the project maps used in this report. Boyd and Elaine Robbins edited this report.

INTRODUCTION

In April 2013, Prewitt and Associates, Inc., archeologists performed an intensive archeological survey in Bell County, Texas, for KPA on behalf of the Cities of Temple and Belton. This work was performed in compliance with the Texas Antiquities Code (Antiquities Permit No. 6082) and associated regulations (13 TAC 26) in conjunction with the Temple-Belton Regional Sewer System (TBRSS) Improvement Project. The project includes a proposed 1.7-mile-long Shallowford Force Main sewer line, and improvements to the Shallowford Lift Station and the Belton Lift Station. The linear force main sewer line corridor is ca. 8,730 ft long and 30–40 ft wide (including the permanent and temporary easements); most of it runs parallel to the existing buried sewer line. The horizontal Area of Potential Effects (APE) is ca. 7 acres, and the vertical APE, defined by the approximate maximum depth of trenching, is ca. 10 ft.

The pedestrian survey covered 100 percent of the project area, and shovel testing and backhoe trenching were conducted along 3,660 ft of the force main alignment and in the two lift station areas (Figures 1 and 2). Field investigations were performed April 1–4, 2013, and required a total of 8 person-days of effort. Subsurface testing accounted for approximately 3.1 acres of the project APE. Subsurface tests were not excavated along ca. 2,280 ft of the force main alignment (1.7 acres of the APE) that includes these areas: an extensively disturbed area just north of the wastewater treatment plant; the rights of way for FM 93 and Taylors Valley Road; parking lots, driveways, and gravel road segments; a gas pipeline corridor; an abandoned railroad right of way; a large gravel pit; and the steeply sloped south bank and channel of the Leon River. An additional 2,790 ft of the force main alignment on the Leon River floodplain (ca. 2 acres of the APE) was planted in corn at the time of survey. PAI archeologists walked this segment of the force main route, but subsurface investigation was delayed pending harvest and acquisition of a new right of entry agreement. Ultimately, the development project was put on hold indefinitely, and PAI archeologists were not able to return to do the subsurface testing along this segment of the force main route.

ENVIRONMENTAL SETTING

The project area is near the western edge of the Blackland Prairies ecological region, close to its boundary with the Cross Timbers and Prairies regions to the west (McMahan et al. 1984:Figure 1). Although the dominant vegetative regime in the project area is listed as cropland, area soils once supported a mix of native tall and mid-level grasses (Frye et al. 1984; Soilweb 2015). Upland settings also supported widely scattered and occasionally clumped live oak, post oak, elm, hackberry, and mesquite trees, with occasional brush mottes and denser arboreal vegetation along area drainages and terrace footslopes. Elm, hackberry, pecan, live oak, and cottonwood trees were and are relatively common in alluvial settings (Soilweb 2015; USDA-NRCS 2015a, 2015b). Fauna are representative of the Texan biotic province, which includes 49 species of mammals, 2 species of turtle, 16 species of lizards, 39 species of snakes, and 23 species of amphibians (Blair 1950:101–102).

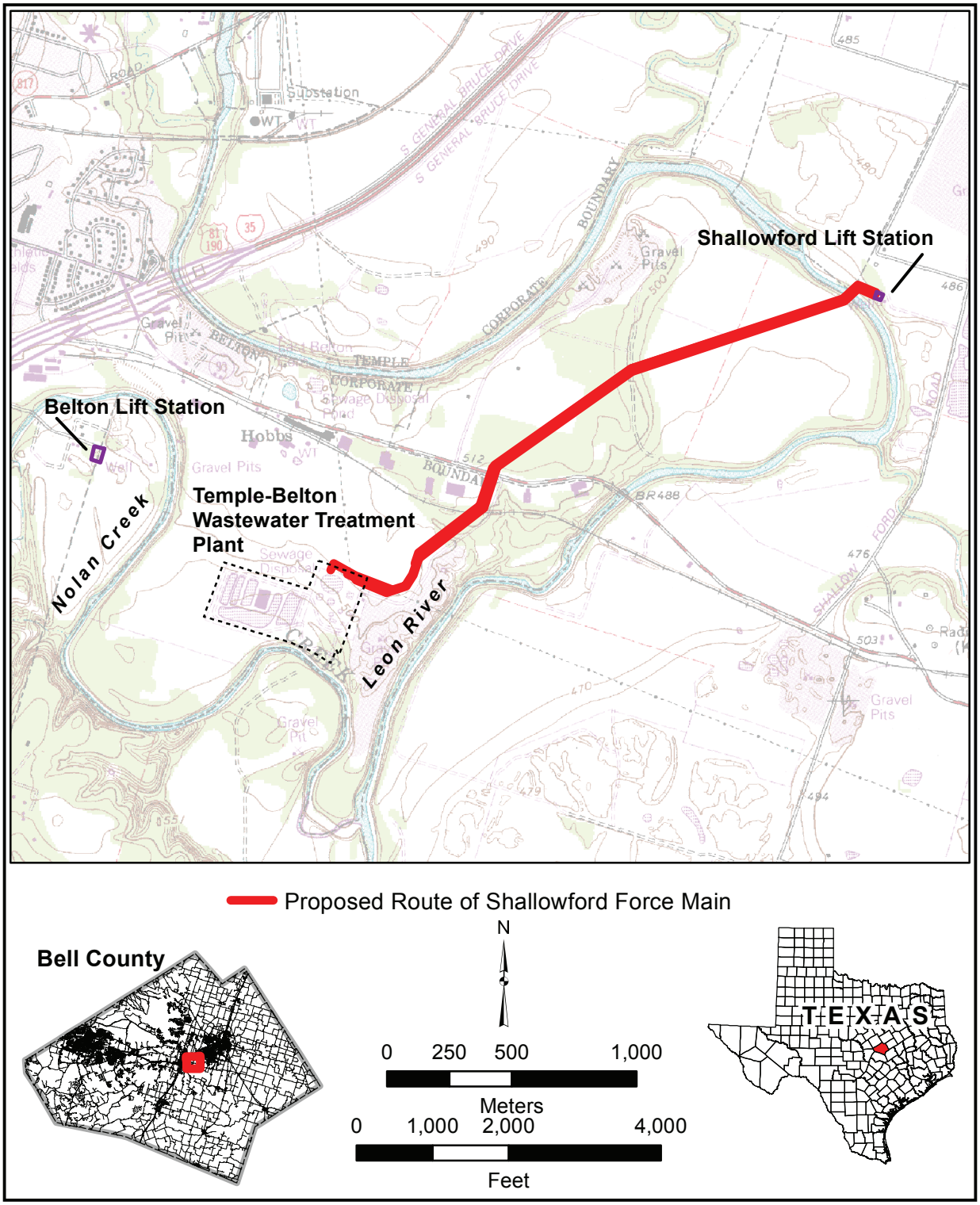

Figure 1. Project location map. Depicts proposed Shallowford Force Main alignment, Shallowford Lift Station, and Belton Lift Station. Base image is the USGS 7.5-minute Belton quadrangle map (USGS 1993).

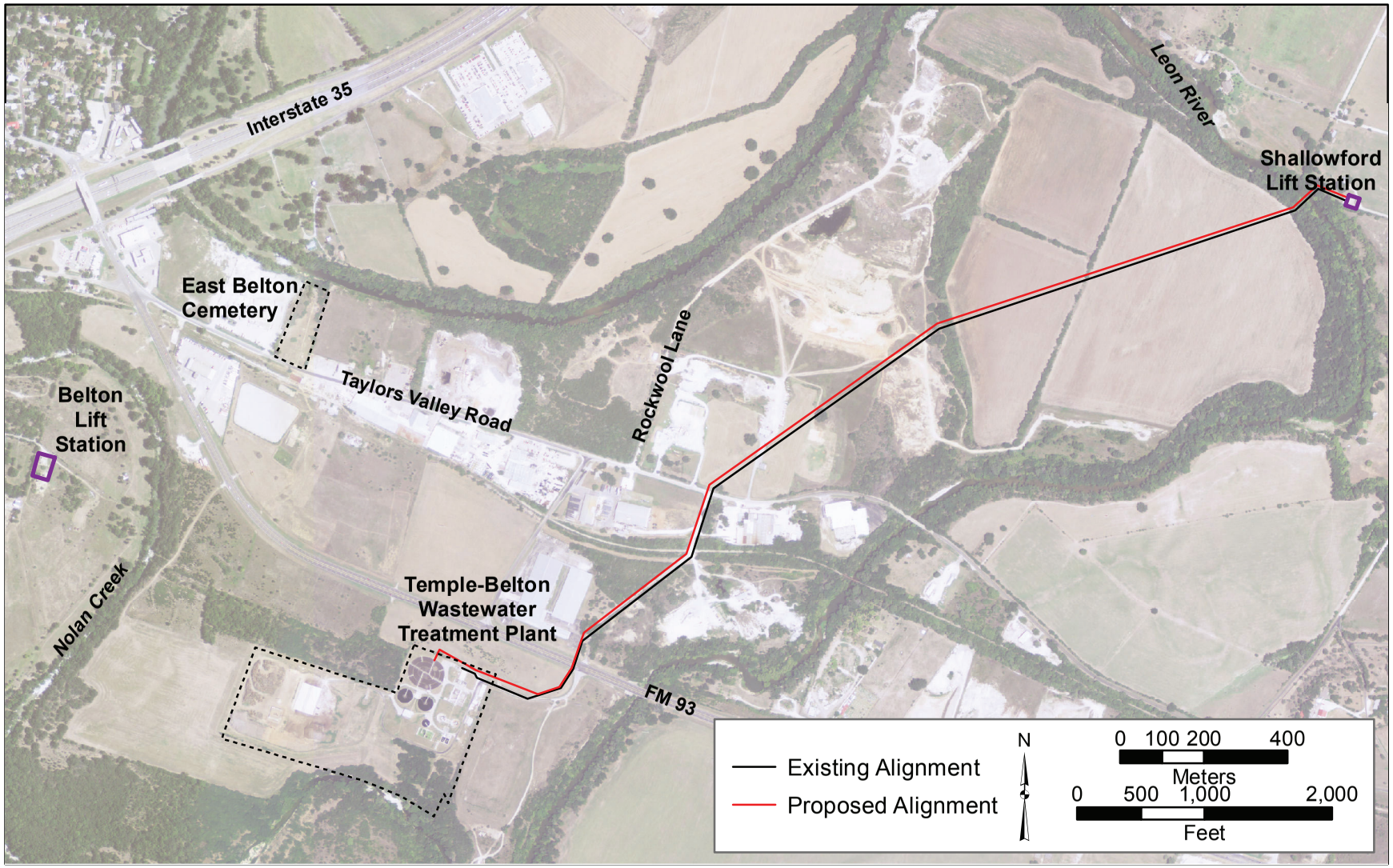

Figure 2. Project overview map. Shows existing sewer alignment, proposed Shallowford Force Main alignment, and lift stations. Base images are the 2012 Belton, SE and SW digital ortho quarter quadrangles from the USDA-NAIP (2012a, 2012b).

The Bell County climate is classified as humid subtropical, with hot summers and mild winters (Huckabee et al. 1977:72–73). Mean daily minimum and maximum temperatures for January are 36 and 57ºF and for July are 74 and 96ºF (Natural Fibers Information Center 1987:48). Precipitation is relatively evenly distributed throughout the year, with an annual average of 33.87 inches (Huckabee et al. 1977:72).

Geologically, the southwest half of the proposed Shallowford Force Main alignment is on a Quaternary (probably Pleistocene-age) fluviatile terrace deposit of the Leon River. The northeast half of the alignment and the Shallowford Lift Station are on geologically recent undifferentiated Holocene alluvium (see Figure 4). The Belton Lift Station is at the interface between Lower Cretaceous–age geologic deposits (Denton Clay, Fort Worth Limestone, Duck Creek Limestone, Kiamachi Clay, and Edwards Limestone) and undifferentiated Holocene alluvium (Bureau of Economic Geology 1979).

The project area is at the west edge of the Gulf Coastal Plain physiographic province, along the boundary between two physiographic units, the Grand Prairie and the Blackland Prairie (Arbingast et al. 1973:12; Huckabee et al. 1977; Sellards et al. 1966). The Grand and Blackland Prairies are north-south-trending subdivisions of the Cretaceous Prairies of Texas, which developed on outcropped Cretaceous-age rocks. The boundary between this subdivision splits Bell County in half. In the western half of the county, Lower Cretaceous-age rocks—primarily limestones and lesser top and basal sands—support a variety of dissected topographic landforms and deeply incised stream valleys, deep to shallow soils, and vegetation characteristic of the Grand Prairie. In the eastern half, Upper Cretaceous-age rocks—principally mudstones, marls, soft limestones, and chalks—support a gently rolling to level prairie with deep soils and vegetation characteristic of the Blackland Prairie. Most of Bell County is drained by the Little River, which forms at the confluence of the Leon and Lampasas Rivers in the central part of the county (Hayward et al. 1996:1–3; Huckabee et al. 1977:1).

As mapped, the project area is on Blackland Prairie soils and primarily includes Mollisols, Inceptisols, and Vertisols belonging to the Speck-Tarrant-Purves (marly, chalky, and limestone uplands) and Trinity-Frio-Bosque (valley alluvium) soil associations (Huckabee et al. 1977). Numerous soil units are mapped along the proposed Shallowford Force Main alignment.

The Belton Lift Station location, marked on soil maps as the "City Dump," is mapped as Krum silty clay, 0–1 percent slopes (Huckabee et al. 1977; Soilweb 2015; USDA-NRCS 2015a, 2015b). Altoga, Bosque, Krum, Lewisville, Pedernales, and Venus series soils are characterized as very deep and well-drained soils; most are moderately permeable. Patrick series soils are moderately deep, well drained, and moderately permeable.

From the southwest end of the force main to the Leon River, the mapped soils are (SoilWeb 2015; USDA-NRCS 2015a, 2015b):

Krum silty clay, 0–1 percent slopes (Kra)
Lewisville silty clay, 1–3 percent slopes (LeB)
Patrick soils, 1–8 percent slopes (PaD)
Venus clay loam, 1–3 percent slopes (VeB)

Pedernales fine sandy loam, 1–3 percent slopes (PdB)
Venus clay loam, 1–3 percent slopes (VeB)
Altoga silty clay on 5–10 percent slopes, eroded (AlE2)
Pedernales fine sandy loam, 1–3 percent slopes (PdB)
Venus clay loam, 0–1 percent slopes (VeA)
Bosque clay loam (Be)

The Leon River channel at the north end of the project corridor is mapped as Venus clay loam, 0–1 percent slopes (VeA), Bosque clay loam (Be), and Venus clay loam, 0–1 percent slopes (VeA).

Altoga series soils formed in calcareous clayey sediments on gently to strongly sloping "erosional uplands, beveled edges of old high terraces, footslopes, and alluvial fans" (Soilweb 2015). Surfaces within these soil units are generally convex. Eroded Altoga silty clay with 5–10 percent slopes are typically expressed in oblong units with sloping to strongly sloping surfaces dissected by numerous shallow gullies (Huckabee et al. 1977; Soilweb 2015; USDA-NRCS 2015a, 2015b).

Bosque series soils formed in loamy, calcareous alluvial sediments on nearly level tributary floodplains of larger Central Texas tributaries. Bosque clay loam is a nearly level soil unit found on more elevated river terraces and higher terrace segments along major rivers (Huckabee et al. 1977; Soilweb 2015; USDA-NRCS 2015a, 2015b).

Krum series soils formed in thick beds of unconsolidated calcareous, clayey sediments on nearly level to moderately sloping and undulating terraces and lower valley slopes. Parent material is probably of Pleistocene age (Soilweb 2015). Krum silty clay, with 0–1 percent slopes, is a nearly level soil found on alluvial terraces along larger streams (Huckabee et al. 1977; Soilweb 2015; USDA-NRCS 2015a, 2015b).

Lewisville series soils formed in ancient loamy and calcareous alluvium presumably derived from areas underlain by limestone. These gently sloping to undulating upland soils typically have plane to convex surfaces and are found on stream terraces and footslopes below limestone hills (Huckabee et al. 1977; Soilweb 2015; USDA-NRCS 2015a, 2015b). Lewisville silty clay with 1–3 percent slopes is found "in curved bands along major streams" (Huckabee et al. 1977:22).

Patrick series soils formed in calcareous clay over very gravelly sediments on nearly level to strongly sloping, ancient upland terraces. Slope gradients are plane to convex. Patrick soils with 1–8 percent slopes consists of undifferentiated, variably sloped soils in irregular units primarily on ridgetops (Huckabee et al. 1977; Soilweb 2015; USDA-NRCS 2015a, 2015b).

Pedernales soils formed in "calcareous loamy and clayey slope alluvium over residuum from Lower Cretaceous age sediments" (Soilweb 2015). These soils are found on the "ancient high terraces that are not associated with the present major drainageways" (Huckabee et al. 1977:25). Pedernales fine sandy loam with 1–3 percent slopes is a gently sloping soil found in irregular units on ridgetop segments on ancient high terraces (Huckabee et al. 1977; Soilweb 2015; USDA-NRCS 2015a, 2015b).

Venus series soils formed in thick beds of unconsolidated, loamy calcareous alluvial sediments of Pleistocene age. These nearly level to moderately sloping soils are on stream terraces, valley footslopes, and ridges (Soilweb 2015; USDA-NRCS 2015a, 2015b). Venus clay loam with 0–1 percent slopes is on low floodplain terraces that are elevated enough to escape flooding. Venus clay loam with 1–3 percent slopes is "on terraces in long, narrow bands parallel to drainageways" (Huckabee et al. 1977:33).

PROJECT SETTING

The project area is on the east edge of the Belton, Texas. The Belton Lift Station is within the city limits. The proposed Shallowford Force Main alignment crosses the city's municipal boundary, ending on unincorporated land between Belton and Temple. The Belton Lift Station and the Shallowford Lift Station expansion areas are on properties owned by the Cities of Belton and Temple. Most of the proposed Shallowford Force Main easement crosses private property.

The proposed Shallowford Force Main alignment will extend northeast from the TBRSS Wastewater Treatment Plant near the confluence of Nolan Creek and the Leon River to the Shallowford Lift Station just north of the Leon River (see Figure 2). Most of the alignment is bounded by a prominent hairpin meander in the Leon River. From southwest to northeast, this segment of the project area crosses nearly level to gently sloping surfaces of a relict terrace before dropping down onto relatively flat alluvial terrace surfaces on the Leon River floodplain. Surface elevations along this part of the project area vary from an average of 510 ft on the fluviatile terrace summit to about 480 ft on lower terraces along the river, which are 20 to 30 ft higher than the river.

The southern 370 m of the proposed Shallowford Force Main alignment crosses modified and maintained property from just inside the TBRSS Wastewater Treatment Plant property to the FM 93 right of way. This segment crosses the edges of a former agricultural field, and processed sewage sludge has been mixed into surface soils. It has been disturbed by excavation of the existing buried force main line and subsurface and overhead utilities.

North of FM 93 right of way, the proposed alignment crosses Bell Eagle Ltd. property, which is between the rights of way for the highway (on the southwest) and the Belton Railroad (on the northeast). This area is a former agricultural field, but the proposed alignment now skirts a paved parking area before turning to parallel the northwest side of a paved roadway. Several subsurface utilities run along the side of the paved roadway where the new line will be located. The ca. 285-m-long segment between a paved driveway and the cleared gas pipeline corridor includes about 115 m of mostly cleared and maintained property dotted with trees and about 170 m of dense, juniper-dominated woodland. A gravel road once passed through the mostly cleared area, and indications of previous construction disturbance and earthmoving activities are apparent. The pipeline corridor and adjacent railroad right of way comprise about 40 m of the proposed alignment.

Railroad property south of the tracks and a thin strip of the adjacent Tarco of Texas, Inc., property north of the tracks are wooded with juniper, elm, and hackberry trees.

Concrete-lined ditches are present on the south edge of the Tarco property, and a depressed area with ponded water is on the alignment between the tree line and a gravel road. The remainder of the Tarco property, which extends north-northeast to Taylors Valley Road, consists of an open, maintained field in the Belton Industrial Park. This, too, was once on the edge of an agricultural field, and this area has also been disturbed by the installation of subsurface and overhead utilities.

The Taylors Valley Road right of way is extensively disturbed, and the proposed force main alignment north of the road crosses property of the R. T. Schneider Construction Company. The majority of this ca. 310-m-long segment is in cultivated hay pasture divided by a gravel driveway and associated parking areas. Surface sediments in the field areas have been disturbed by agricultural and earthmoving activities.

The proposed force main alignment crosses onto the Susanne Hubbard Bond parcel northeast of the Schneider property and continues across the same tract to the Leon River. The ca. 190-m-long line segment, between the Schneider property and a berm along the west edge of a gravel pit, crosses variably maintained open land. The ground surface over much of this area appears to be impacted by previous earthmoving activities, and the area has likely been artificially leveled.

The next ca. 140-m-long segment of the proposed force main alignment crosses an old gravel pit on the edge of the relict alluvial terrace (Figure 3). Sediments along the terrace margin have been removed to a depth of several meters below original surface levels, leaving a scraped and extensively disturbed landscape crossed by a network of two-track roads. The next ca. 65-m-long segment of the proposed alignment crosses a narrow, wooded area that separates the gravel pit and an adjacent agricultural field. The strip of woodland—composed of hackberry, elm, mesquite, and live oak trees—is on the sloped interface between the relict terrace footslope and the adjacent younger alluvial terrace. A gravel two-track road trends north-south along the central portion of the wooded area.

The next 850-m-long segment of the proposed Shallowford Force Main alignment crosses two large agricultural fields on geologically recent alluvium inside the bend in the Leon River. These fields were recently planted in corn at the time of the April 2013 field investigation (Figure 4). The cultivated fields end at a narrow band of riparian woodland that covers the steeply sloped south river bank. Approximately 40 m of the proposed alignment passes through this wooded area.

The force main route crosses the Leon River close to the Shallowford Lift Station. On the Kosper and Byler tract north of the river, the remaining ca. 95-m-long segment of the proposed alignment crosses a narrow T_0 and climbs up and onto the T_1 surface before connecting with the Shallowford Lift Station. The sloping T_0 property consists of maintained pasture dotted with pecan, hackberry, and occasional mesquite trees, while the flat T_1 property (around the north, east, and west sides of the lift station) consists of cleared and maintained yard and easement areas south of an inhabited residence. Schematics of the existing sewer line (Brazos River Authority 1972), provided by Mr. Thomas Valle of KPA, indicate the T_1 was extensively disturbed during previous construction activity and its original surface was capped with imported and graded fill. These modifications became apparent in the stratigraphic profiles exposed in Backhoe Trenches 11 and 12.

Figure 3. View of a section of the proposed Shallowford Force Main alignment. Looking northeast from the top edge of an old gravel pit at the leading edge of the relict Quaternary terrace. Cultivated fields on lower Leon River alluvial terraces are beyond the tree line in the distance.

Figure 4. Looking east-northeast across a recently planted field on an alluvial terrace in the Leon River floodplain. The lathe stakes mark the proposed Shallowford Force Main alignment. The photograph was taken from a point near the relict Quaternary terrace (behind) looking across the more recent alluvium.

The Belton Lift Station expansion area is on an isolated tract at the interface of the upland margin and the leading edge of an alluvial terrace framed by a meander in Nolan Creek (see Figure 2). The surface in the extensively disturbed, artificially flattened area is at an elevation of 497 ft. A 1971 aerial photograph in the Bell County Soil Survey (Huckabee et al. 1977:Sheet 38) indicates that the Belton Lift Station is sandwiched between an area once used as a city dump on the north and an area once used for city sewage disposal on the south. The former dump area is several feet lower than the area of the proposed lift station. The 1965 USGS Belton topographic quadrangle indicates that the elevation discrepancy is at least partly due to gravel mining in that location. Areas immediately west of the lift station also have been mined. Property surrounding the lift station is much disturbed by previous subsurface utilities installation and earthmoving activity. Mechanical push piles and excavation areas are present east and south of the station. The surrounding property is variably maintained and does not appear to be utilized for a specific purpose or function.

PREVIOUS INVESTIGATIONS

Review of the Texas Historical Commission's Archeological Sites Atlas (Atlas) revealed five recorded archeological sites and one historic cemetery within 1 km of the TBRSS project area. Four sites, 41BL259–41BL262, were recorded during surveys conducted by archeologists with the Texas Department of Water Resources (now Texas Water Development Board) in 1982 and 1984 (Fox and Whitsett 1984). These surveys were conducted prior to proposed wastewater collection and treatment system improvements for the Cities of Temple and Belton. The fifth site, 41BL126, was recorded by avocational archeologist Bob Burleson in 1966. Sites 41BL126, 41BL260, and 41BL262 are prehistoric archeological sites. Sites 41BL259 and 41BL261 are multicomponent prehistoric and historic sites. Except where otherwise noted, the site summary information below is taken from the Atlas site forms.

Site 41BL126 is the southernmost of five prehistoric sites recorded on terraces along meanders of Pepper Creek, northwest of the project area. Surface collection recovered Late Archaic and Late Prehistoric artifacts at each of the five Pepper Creek sites, and prehistoric ceramics were found at least some of these sites.

Site 41BL259 is west of the Belton Lift Station on a terrace of Nolan Creek. Bisected by IH-35 and partly encompassed by the city park, the site marks the location of initial historic settlement in Belton. Chert cores, lithic debitage, burned rock, and late-nineteenth-century artifacts (glass, ceramics, and iron) were visible along park road cuts, and a cut limestone well house was recorded between the rodeo stands and a city street northwest of IH-35.

Site 41BL260 is on the proposed Shallowford Force Main alignment just east of the TBRSS Wastewater Treatment Plant. Situated on an upland summit overlooking the Leon River and Nolan Creek, this open terrace campsite was recorded as a 200x100-m surface scatter of lithic debris (flakes and cores) and burned rocks at the east edge of a plowed field bordering the treatment plant access road. Recovery of a Gower-like projectile point suggested the site contained an Early Archaic component. Archeologists recommended the site as eligible for listing in the National Register (Fox and Whitsett 1984:13–14).

The Texas Department of Highways and Public Transportation (now Texas Department of Transportation) initiated testing at 41BL260 prior to the realignment of FM 93, which would pass through the center of the recorded site area. This effort included the excavation of three backhoe trenches, a 1x1-m test unit, and three shovel tests on both sides of a 30-inch-diameter sewer line leading to the TBRSS wastewater treatment plant (Young 1987). Testing indicated that the prehistoric component was limited to a 30-cm-thick plow zone. Artifact densities were consistently low, and no intact cultural deposits, diagnostic artifacts, or prehistoric features were identified. Based on these findings, Young (1987:15) recommended that the site was not eligible for listing in the National Register or for designation as a State Antiquities Landmark.

Site 41BL261 is just west of the proposed Shallowford Force Main alignment, between Taylors Valley Road on the north and an abandoned segment of the Belton Railroad on the south. The site is on an upland summit near the east end of a relict fluviatile terrace overlooking the Leon River. When recorded, most of the 160x180-m surface scatter lay in a plowed field. An ephemeral prehistoric component composed of a few chert flakes and cores was observed in the southern portion of the site area. Historic artifacts were concentrated in the western part of the site. The historic component included disturbed structural debris and early-twentieth-century artifacts (ceramics, window and bottle glass, and scrap iron). Already extensively disturbed when it was recorded, much of the site area has since been covered by commercial development.

Northeast of the Shallowford Lift Station, 41BL262 includes subsurface mussel shell lenses, rock-lined hearths, and lithic debris from ca. 30–120 cm below the surface in the walls of a roadside ditch and a channelized segment of Bird Creek. These deposits were probably derived from a series of occupations on levees along Bird Creek and an adjacent unnamed tributary. Portions of the observed cultural deposits were likely capped by recent earthmoving activities.

Atlas maps indicate that several linear utility line surveys were conducted in the vicinity of the Belton Lift Station in 1976. Brazos Valley Research Associates conducted intensive surveys along two proposed utility alignments for the City of Temple in 1996. The Pepper Creek Trunk Sewer Line extension project extended north from the Shallowford Lift Station (Moore et al. 1996a). The Fryers Creek Sewer Line Extension project stretched east along FM 93 from the TBRSS Wastewater Treatment Plant (Moore et al. 1996b). Two surveys were conducted on behalf of the City of Temple in November 2013. Personnel with Antiquities Planning & Consulting surveyed a proposed reclaimed wastewater pipeline alignment along FM 93, east from the wastewater treatment plant to South 31st Street (Godwin 2013). Archeologists with AR Consultants, Inc., surveyed proposed and existing interceptor segments that extend northeast from the Shallowford Lift Station (Davis 2014). No new archeological sites were recorded within 1 km of the APE during these surveys.

The East Belton Cemetery is west of the project area, between Taylors Valley Road and the Leon River (see Figure 2). This 4-acre African-American cemetery includes an estimated 251 graves.[1] Marked interments date from 1860 to the present.

[1] Source: *Find A Grave* online database.

METHODS OF INVESTIGATION

KPA provided project area maps and schematics and marked the alignments of the proposed Shallowford Force Main and the exiting sewer line with lath stakes several months prior to survey. The pedestrian archeological survey included inspection of vegetation-free surface exposures, shovel testing, and mechanical trench excavation on municipal property and in proposed permanent easements and temporary construction easements on private property (Figures 5, 6, and 7). Backhoe trenches and shovel tests were excavated along ca. 1,115 m of the proposed 2,660-m-long force main alignment and the lift station expansion areas, which combined account for 3.1 acres of the project APE. Pedestrian survey was not performed on about 1,263 ft (385 m) of the 8,726-ft-long (2,660-m-long) Shallowford Force main alignment either because of obvious extensive disturbance or because topographic and environmental settings were considered unsuitable to human habitation (e.g., the river channel). Subsurface testing was not conducted along about 5,056 ft (1,545 m) of the force main alignment (encompassing 3.7 acres of the project APE) for the same reasons, and because 2,788 ft (850 m) of that stretch (ca. 2 acres) was under cultivation at the time of survey and subject to right-of-entry restrictions.

Fifteen trenches that ranged from 3.6 to 10.0 m long were excavated, for a total of 120.3 linear meters. Each trench was 0.76 m wide. Maximum trench depths varied according to encountered sediments and ranged from 1.0 to 3.3 m. Excavated trenches had an average length of 8 m and depth of 1.9 m. Trench walls and floors were monitored for artifacts, cultural features, and other anomalies during excavation. Trench walls were scraped and cleaned with shovels and trowels when 1.5 m or less in depth. A Trench Excavation Record Form was used to record trench dimensions, orientation, the presence/absence of artifacts, and other characteristics. Exposed sediment profiles were described and recorded, and representative wall segments were photographed. Trenches were backfilled soon after excavation.

Shovel tests were approximately 30 cm in diameter and were excavated in 20-cm-thick levels when sediments allowed. Removed sediment was screened through 1/4-inch-mesh hardware cloth or carefully sorted with a trowel when too difficult to screen efficiently. A Shovel Test Record Form was used to record brief sediment descriptions and notes about artifact identification. Shovel tests were excavated to pre-Holocene substrate where possible, and backfilled shortly after excavation. The average shovel test depth was 47 cm, with depths ranging from 35 to 68 cm.

A handheld GPS unit was used to record trench and shovel test locations, and project area disturbances were photographed and described. Since this survey was conducted under a no-collection policy, identified artifacts were noted, briefly described, and in some instances photographed before being returned to the point of recovery.

SURVEY RESULTS

Mechanical trenching, conducted on April 2–3, 2013, included excavation in three locations along the proposed Shallowford Force Main alignment and in the proposed Shallowford Lift Station and Belton Lift Station expansion areas. Fifteen backhoe trenches

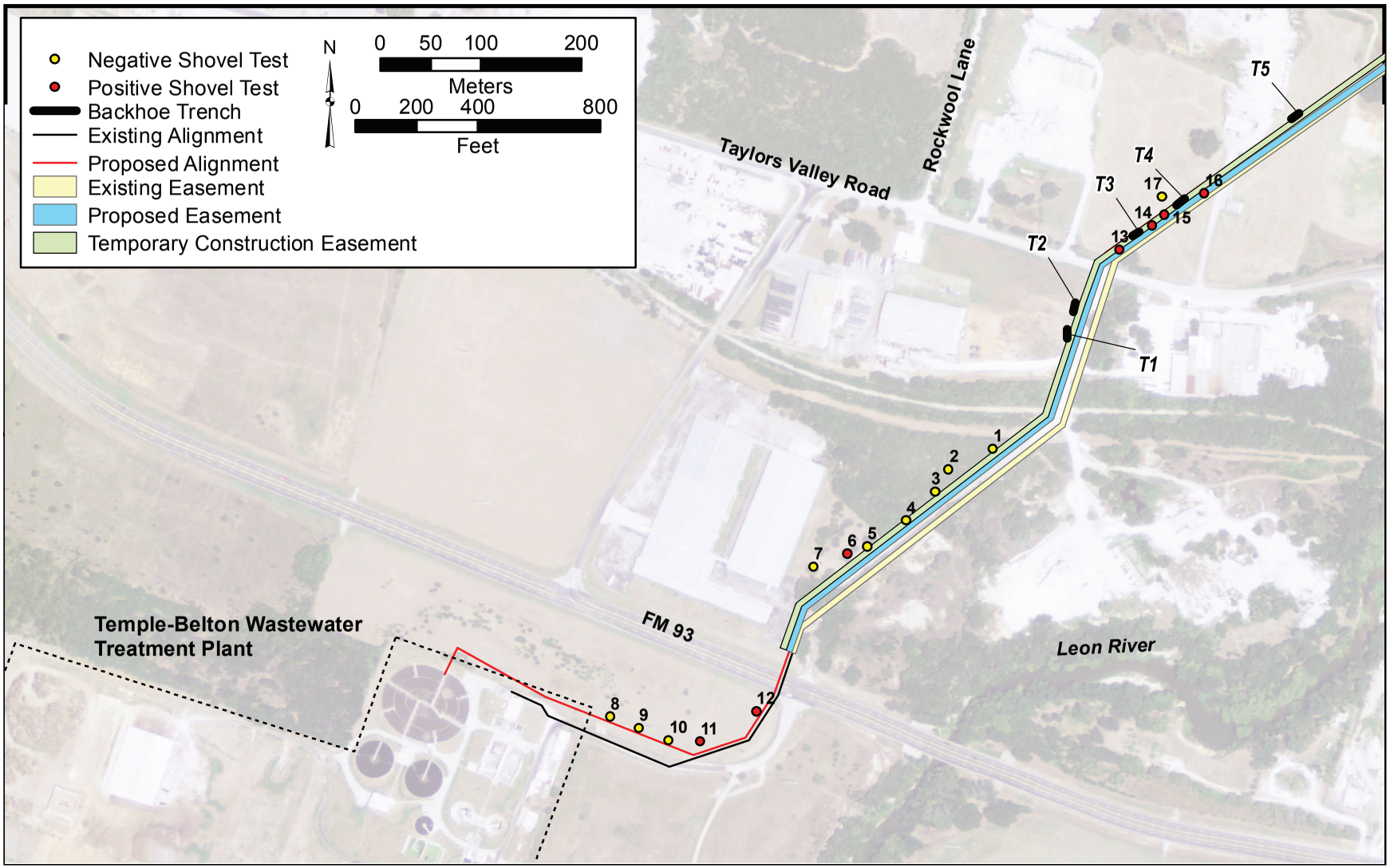

Figure 5. Aerial photograph of the southwest half of the project area showing easements, shovel test and trench locations, and three archeological sites. Base image is the 2012 Belton, SE digital ortho quarter quadrangle (USDA-NAIP 2012a). Site locations are not shown in report copies for public distribution.

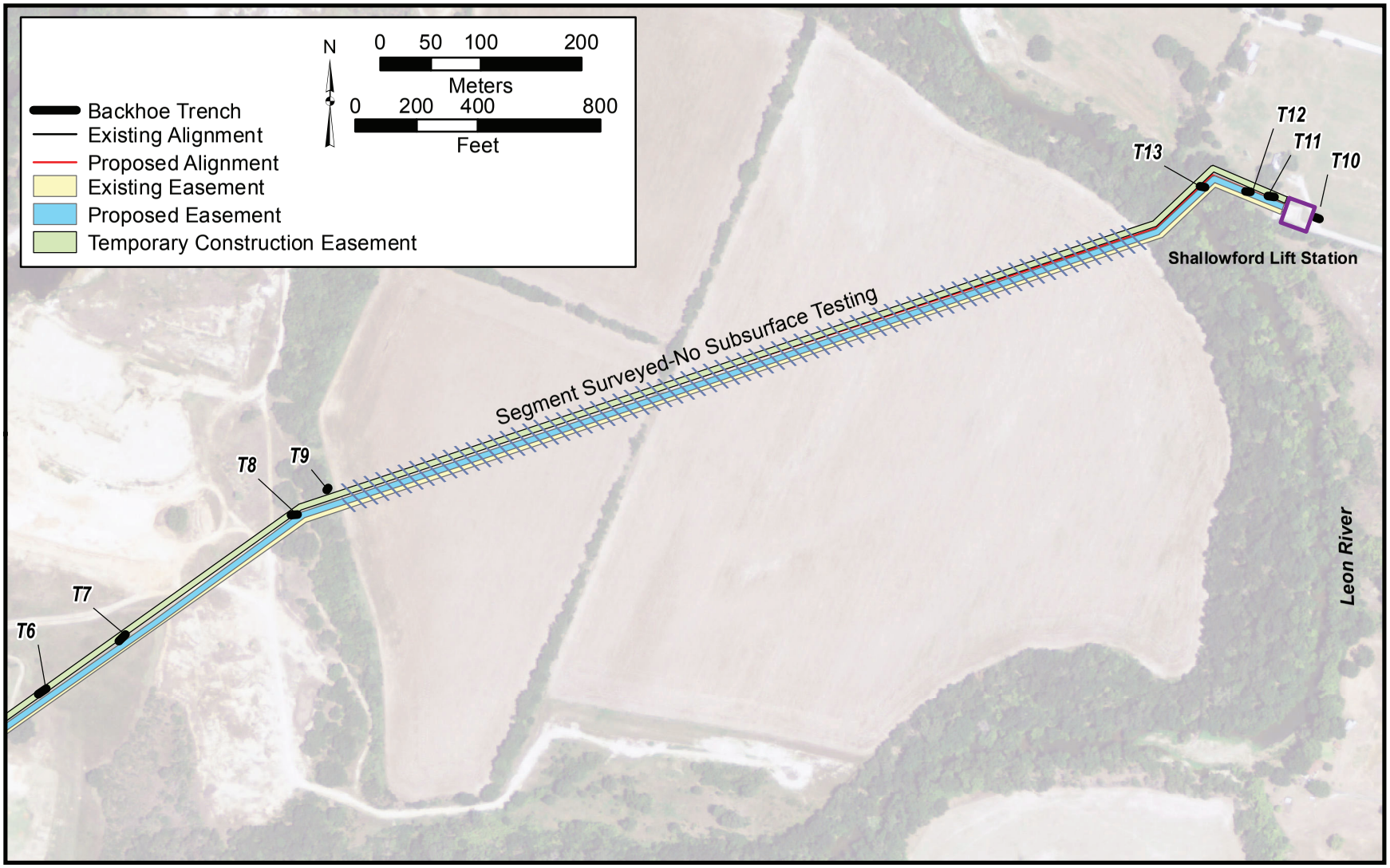

Figure 6. Aerial photograph of the northeast half of the project area showing easements, trench locations, and one archeological site. Base image is the 2012 Belton, SE digital ortho quarter quadrangle (USDA-NAIP 2012a). Site locations are not shown in report copies for public distribution.

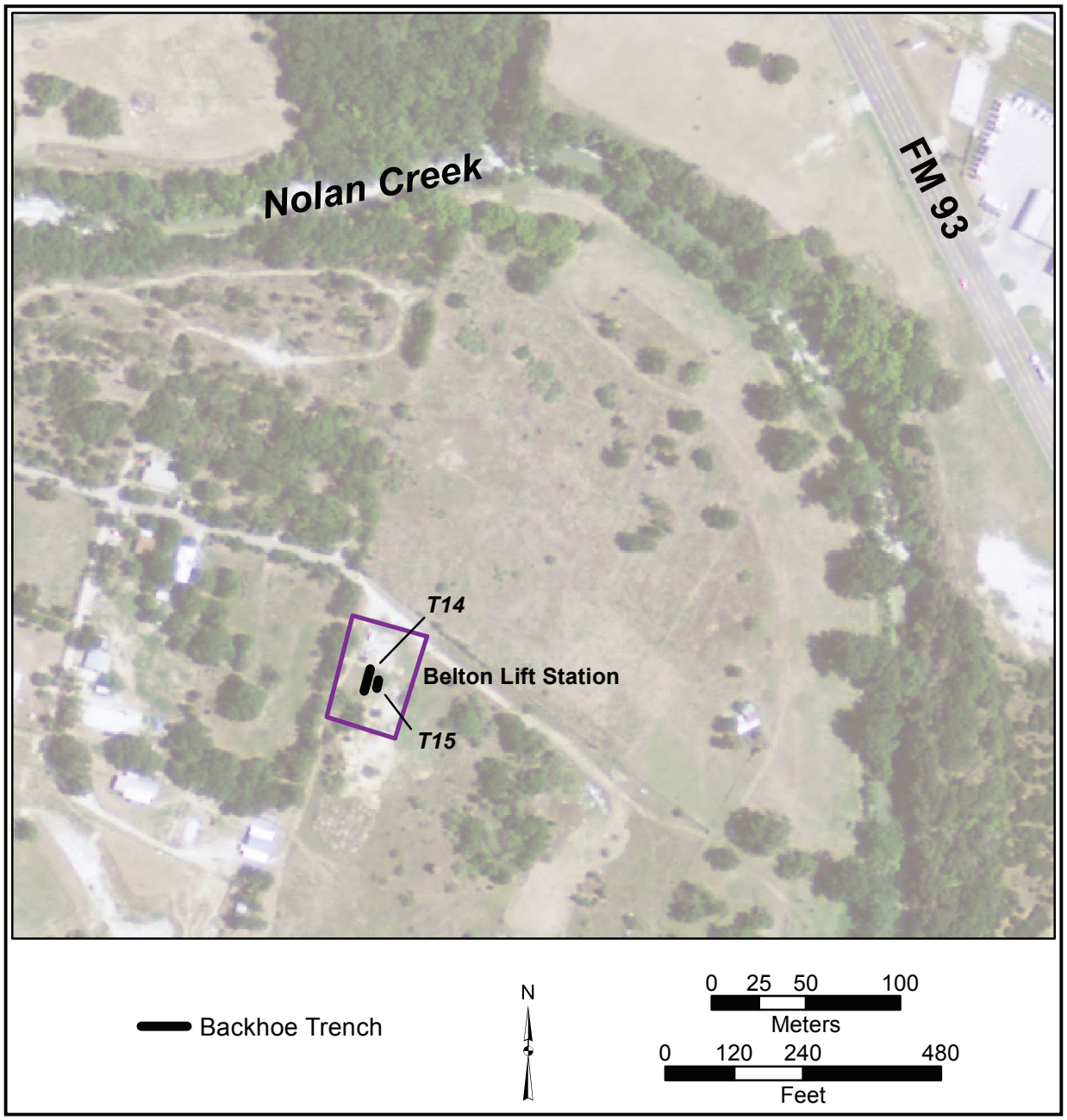

Figure 7. Aerial photograph of the western end of the project area showing the locations of the Belton Lift Station and backhoe trenches. Base image is the 2012 Belton, SW digital ortho quarter quadrangle (USDA-NAIP 2012b).

were excavated: 12 along the proposed force main alignment and 3 at the lift stations (Table 1; see Figures 5, 6, and 7). Seven trenches (BHTs 1–7) were excavated along the central portion of the force main alignment, starting on property south of Taylors Valley Road and ending at the west edge of the gravel pit. Trenches 8 and 9 were excavated in the wooded strip between the east side of the gravel pit and an adjacent agricultural field, and Trenches 11–13 were excavated between the Leon River and the west side of the Shallowford Lift Station. The 12 force main trenches were placed on a single transect that followed the

proposed sewer line alignment as closely as possible. Property boundaries, development, extant utilities, and extensive disturbance affected trench spacing along the alignment, but most were less than 100 m apart. The three lift station trenches were Trench 10 in the Shallowford Lift Station expansion area and Trenches 14 and 15 in the Belton Lift Station expansion area.

Table 1. Summary of backhoe trenches

Trench No.	Area*	Length (m)	Max. Depth (m)	Observed Deposits	Observed Cultural Materials**	Site Association
1	SM	9.9	1.6	Fine-grained alluvium	None	–
2	SM	9.5	1.5	Fine-grained alluvium	None	–
3	SM	10.0	1.2	Fine-grained alluvium	Historic (glass and ceramic sherd) and prehistoric artifacts (1 chert tool) were observed in upper 40 cm	41BL1380
4	SM	9.7	1.4	Fine-grained alluvium	One burned chert flake observed in upper 40 cm	41BL1380
5	SM	9.7	1.2	Fine-grained alluvium	None	–
6	SM	9.7	1.1	Fine-grained alluvium	None	–
7	SM	9.7	1.1	Upper 50 cm is disturbed or artificial fill; lower 60 cm is fine-grained alluvium	None	–
8	SM	9.7	1.3	Alternating layers of fine-grained alluvium and gravelly colluvium	None	–
9	SM	4.4	3.2	Fine-grained alluvium	None	–
10	SL	6.7	3.2	Fine-grained alluvium	None	–
11	SM	7.5	3.1	Entire exposure is artificial fill and three separate zones were observed.	None	–
12	SM	4.3	3.0	An upper zone of artificial fill, a middle zone of silty clay loam/silty clay with historic artifacts, and a lower zone of sand and pea-sized gravels	Historic artifacts observed from 1.4 To 2.0 M, including iron cans and can fragments, bottle glass, applied lip bottle neck, and brick fragments	41BL1381
13	SM	6.1	1.9	Alternating layers of fine-grained alluvium and gravelly alluvium	None	–
14	BL	9.8	2.5	Entire exposure is artificial fill containing modern construction-related deposits and debris; two separate zones were observed	Modern debris observed in artificial fill; prehistoric artifacts (chert flakes and limestone hammerstone) were also found but are in a redeposited context	–
15	BL	3.6	1.0	Entire exposure is artificial fill containing modern construction-related deposits and debris; two separate zones were observed	Modern debris observed; asbestos-lined pipe found in bottom of trench.	–

*Areas are:
SM = Shallowford Main
SL = Shallowford Lift Station
BL = Belton Lift Station
**No artifacts were collected.

The combined mechanically trenched segments of the proposed Shallowford Force Main alignment have an approximate total length of 716 m, which amounts to 1 trench for every 60 m and a trench density of 7 per acre for the 1.7 acres of easements in the trenched portions of the alignment. This excludes the 2,788-ft-long segment of the force main alignment in the agricultural fields within the Leon River meander bend where no trenching was allowed (see Figure 6) and all areas where trenching was not warranted because extensive disturbances were observed (such as road and railroad rights of way).

Trenches 1 and 2 were excavated south of Taylors Valley Road. Although these trenches were placed close to the mapped limits of previously recorded site 41BL261, no archeological material was identified in the trench walls. Exposed sediment profiles consisted of one to two zones of silty loam over basal layers of clay. Small calcium carbonate nodules were abundant to an average depth of 1.2 m below the surface. The top 20–40 cm of sediment had been disturbed by installation of the existing sewer line.

Trenches 3–7 were excavated along a 500-m-long segment of the proposed alignment stretching from the north edge of Taylors Valley Road right of way to the gravel pit. Trenches 3 and 4 were placed southwest of a gravel driveway, and Trench 5 was excavated northeast of the drive and east of the maintenance yard on the same tract. Trenches 6 and 7 were placed in the vicinity of the gravel pit.

Trenches 3 and 4 exposed 35- to 45-cm-thick surface layers of silt, sandy silt, and silt loam over basal layers of clay and sandy clay. The pedological structure of the surface layer and associated inclusions indicate previous surface disturbance derived from agricultural activity, installation of the adjacent sewer line, and mechanical surface grading. A small number of historic and prehistoric artifacts were identified in the upper zones of these trenches (see Table 1 and 41BL1380 site description below). Trenches 5 and 6 exposed 20- to 30-cm-thick upper zones of silty sandy loam over 35-cm-thick intermediary zones of silty sand and basal layers of clay. The top layers in both trenches were disturbed by previous agricultural and earthmoving disturbance. Trench 7 exposed two layers of redeposited gravelly fill over in situ clay. Presumably derived from gravel pit operations to the northeast, gravel fill extended to a maximum depth of 55 cm below the modern surface.

Trenches 8 and 9 were excavated in a wooded area between the gravel pit and a nearby agricultural field. Trench 8 was placed on the valley margin at the interface between the toe of the preexisting relict terrace and more recent Holocene alluvium. Limestone bedrock exposed across the length of the trench sloped downward from southwest to northeast. Intact bedrock was encountered at 135 cm in the bottom of the trench. It was overlain by indurated bedrock and cemented breccia composed of unsorted, fossil-bearing gravels and cobbles. The stratigraphy above this, from bottom to top, included: sandy clay with moderately sorted pea-sized gravels; three distinct zones of fine silty sand interspersed among angular to rounded gravels; a loose layer of silty loam mixed with colluvial subangular gravels; a thin deposit of silty clay, and a thin surface layer of fine silty sand mixed with some colluvial gravels. Trench 8 had a maximum depth of 1.35 m.

Trench 9, located about 40 m northeast of Trench 8, was excavated to a maximum depth of 3.25 m. No bedrock was exposed in this trench. Rather, the stratigraphic profile from top to bottom consisted of a 25-cm-thick surface layer of loose sand mixed with common fine

gravels, a 70-cm-thick zone of very fine sand with a minimal percentage of silt, a 165-cm-thick zone of clay, and a basal zone of tacky clay (65 cm exposed).

Trenches 11–13 were excavated along the 95-m-long segment of the force main alignment north of the Leon River, and Trench 10 was excavated in the proposed expansion area just southeast of the lift station. The sediment profile in Trench 10 consisted of a 65-cm-thick surface layer of silty clay loam over a 95-cm-thick secondary layer that graded from sandy clay to sandy clay loam, and a basal layer (160 cm exposed) that graded from silty sand to sand. These stratigraphic layers contained few inclusions aside from carbonates that increased in frequency starting about 120 cm below the surface.

Trenches 11 and 12 were placed on what appeared to be a flat T_1 surface northwest of the Shallowford Lift Station. Both trenches exposed thick deposits of imported construction fill. Three zones of construction fill were exposed close to the lift station in Trench 11. These deposits extend at least 3.1 m below the modern surface. The lowest zone was composed of what appeared to be coarsely stratified, poorly sorted alluvial gravels interspersed with sands, but the deposit probably is derived from preparation of the lift station pad. The clear upper boundary of this deposit slopes downward toward the lift station and likely served as an equipment ramp. The overlying deposits of sands, silts, gravels, and clays are imported backfill and leveling materials. Trench 12 was placed at the top edge of the terrace tread and excavated to a maximum depth of 3.05 m below the modern surface. A 140-cm-thick zone of construction fill was identified in the deeper northwest half of the short trench. This unit of fill consisted of six relatively horizontal lenses of sediment that were thickest at the west end of the trench and pinched out in different places along the trench wall. The profile suggests that several layers of fill were added to the top edge of the T_1 terrace, perhaps to create and extend a flat surface. Schematics for the adjacent existing force main indicate that approximately 30 cm of the original terrace surface was to be cut and removed over that alignment. Thus, it is possible that at least some of the fill in Trench 12 is natural sediment redeposited in low-lying areas or erosion cuts on the original terrace margin to create a level grade along the existing easement. A deposit of late-nineteenth- to early-twentieth-century artifacts was exposed in what is presumed to be the first intact stratigraphic unit in Trench 12 (see Table 1 and site 41BL1381 description below). These artifacts were recovered from 140 to at least 200 cm below the surface in a layer of well-consolidated silty clay loam and silty clay that extends to 235 cm below the surface. This is underlain by a very loose deposit of sand with abundant pea-sized gravels that is at least 70 cm thick.

Trench 13 was excavated on a narrow T_0 terrace, close to the north bank of the Leon River. The nearly 2-m-deep trench exposure revealed a surface layer of clay loam and two underlying clay units, each partly separated by gravelly clayey sand or silty sand lenses. The 54-cm-thick basal unit of tacky, slightly silty clay is resting on cobbles set in gleyed sediment.

Trenches 14 and 15 were excavated in the expansion area on the south side of the existing Belton Lift Station. Two layers of construction fill were exposed in both trenches. The upper 30- to 45-cm-thick zone consisted of silty loam mixed with abundant angular to rounded gravels, large angular limestone fragments, clay fragments, discernible isolated lenses of gravel and clay, and modern construction debris and other trash. The lower layer of fill was composed of silty clay, clay loam, and sand interspersed with the same inclusions

as the overlying zone and larger pieces of limestone. The lower zone, which was exposed to a depth of 2.5 m below the surface in Trench 14, was drier, unstable, and regularly sloughed in during trench excavation. Two large chert biface thinning flakes, one chert flake fragment, and one cherty limestone hammerstone were identified together with modern debris in Trench 14 backdirt (see Table 1). Another large chert biface thinning flake was found near the modern surface in the west wall of the same trench. These artifacts were mixed with fill used during and after construction of the adjacent well pad and installation of various subsurface utility lines, and were clearly out of their original context.

Seventeen shovel tests were excavated on April 4, 2013 (Table 2; see Figure 5). Twelve shovel tests were used to investigate segments of the Shallowford Force Main alignment where subsurface investigation was considered necessary but backhoe trenching was not feasible due to many subsurface utilities along or close to the proposed alignment. Shovel Tests 8–12 were excavated along approximately 150 m of the alignment between the wastewater treatment plant and FM 93 right of way. Shovel Tests 1–7 were excavated along about 250 m of the alignment between FM 93 and the subsurface gas pipeline corridor. Five additional shovel tests (13–17) were excavated along a 140-m-long segment of the proposed alignment just north of Taylors Valley Road to fill in gaps around Trenches 3 and 4, which contained prehistoric and historic artifacts (see 41BL1380 site description below). All of the shovel tests were placed on nearly flat to gently sloping surfaces on or near the relict terrace summit. All but one of the shovel tests (Shovel Test 17) were placed on a single survey transect that followed the proposed force main alignment as closely as possible where marked. Most were spaced no more than about 98 ft (30 m) apart. Test placement was more variable in the wooded area with a minor drainage north of FM 93 and north of Taylors Valley Road, where tests were placed around and between previously excavated trenches. The combined length of the shovel tested segments of the proposed force main alignment is ca. 1,172 ft (540 m), which amounts to 1 test every 105 ft (32 m) and a shovel test density of 11 tests per acre for the 1.6-acres of tested alignment. This density of shovel testing exceeds the Texas Historical Commission's Minimum Survey Standards for linear projects, which is 16 tests per mile or 1 test every 330 ft.

Shovel Tests 1–7 were excavated along about 250 m of the alignment between FM 93 and the subsurface gas pipeline corridor. Shovel Tests 1–7 were excavated on the Bell Eagle Ltd. tract north of FM 93. These tests varied from 35 to 53 cm in depth. Well-consolidated silty loams with abundant small calcium carbonate fragments were encountered in Shovel Tests 1, 3, and 4. Shovel Tests 2 and 5–7 revealed one to three zones of well-consolidated silty clays. Sediments in these tests contained varying frequencies of small calcium carbonate fragments and calcareous and non-calcareous gravels. Tests 5 and 6 revealed 8- to 15-cm-thick zones of surface disturbance; asphalt shingle fragments were mixed in the top 15 cm of sediment in Shovel Test 6. Small concrete fragments and pieces of charcoal were present to a depth of 30 cm in Shovel Test 7. Shovel Tests 5–7 were placed close to the depicted boundary of previously recorded prehistoric archeological site 41BL260, and a single flake fragment found in the top 20 cm of Shovel Test 6 may be associated with the site.[2] Because of the extensive disturbances evident in this area, however, this association is not conclusive, and the site boundary for 41BL260 was not altered based on this finding.

[2] The official Atlas site location differs from the hand-drawn sketch map with the 1982 site form. According to the 1982 sketch map, PAI Shovel Tests 5, 6, and 7 are close to or within the 41BL620 site boundary.

Table 2. Summary of shovel tests*

Shovel Test No.	Maximum Depth (m)	Observed Deposits	Observed Cultural Materials**	Site Association
1	50	Fine-grained alluvium	None	–
2	53	Fine-grained alluvium	None	–
3	50	Fine-grained alluvium	None	–
4	50	Fine-grained alluvium	None	–
5	45	Fine-grained alluvium	None	–
6	35	Disturbed sediment and modern construction debris	One flake from upper 20 cm	none
7	38	Fine-grained alluvium	Concrete and charcoal fragments in upper 30 cm	–
8	42	Fine-grained alluvium	None	–
9	40	Fine-grained alluvium	None	–
10	38	Fine-grained alluvium	None	–
11	40	Fine-grained alluvium	Burned chert fragment from upper 20 cm	41BL260
12	35	Fine-grained alluvium	Two chert flakes from upper 35 cm	41BL260
13	55	Fine-grained alluvium	Historic items from 0–40 cm (brick and mortar fragments, bottle and milk glass fragments, ceramic sherd); one chert flake from 40–55 cm	41BL1380
14	65	Fine-grained alluvium	Historic items from 0–65 cm (wire nail fragments, glass fragments, coal fragment, brick fragments)	41BL1380
15	62	Fine-grained alluvium	Wire nail fragment from 40–62 cm; mussel shell umbo fragment from 0–20 cm	41BL1380
16	40	Fine-grained alluvium	Brick fragments from 0–30 cm	41BL1380
17	68	Fine-grained alluvium	None	–

*All shovel tests were excavated along the Shallowford Main sewer line route

**No artifacts were collected.

Shovel Tests 8–12 were excavated along a 150-m-long stretch of the alignment between the TBRSS Wastewater Treatment Plant and FM 93 right of way. All were placed on or in the vicinity of the south half of site 41BL260. These tests varied from 35 to 42 cm in depth, and all revealed 10- to 25-cm-thick surface zones of well-consolidated, often tacky silty clays and clays with varying frequencies of calcium carbonate, and small calcareous and non-calcareous gavels that likely mark previously disturbed sediments. Basal zones typically were composed of very well-consolidated silty clays or clays with infrequent small calcium carbonate fragments and small to fine gravels. Snail shell fragments were observed in the secondary zones in Tests 11 and 12, and three small prehistoric artifacts also were identified in those tests (see Table 2 and 41BL260 discussion below). Other prehistoric artifacts were observed at the surface along the top edges of highway and access road section cuts and along an existing ditch cut. All of these materials are associated with 41BL260.

Five additional shovel tests (13–17) were excavated along a 140-m-long segment of the proposed alignment immediately north of Taylors Valley Road to fill in gaps around Trenches 3 and 4 and to better establish the southwest-northeast extent of new archeological site 41BL1380 (see site description below). All of these tests yielded historic artifacts (see Table 2). A chert flake fragment was identified in Shovel Test 13 and a mussel shell umbo (which may be associated with the prehistoric component) was identified in Shovel Test 15. No artifacts were identified in Shovel Test 17, which was excavated in the proposed temporary construction easement northwest of the alignment. Shovel Tests 13–17 ranged from 40 to 68 cm deep. These tests exposed two to three layers of sandy loam, sandy silt, and silty loam that extended to a maximum depth of 68 cm in Test 17. Basal layers of well-consolidated, tacky sandy clay and clay were exposed from 30 to 60 cm in Tests 14–16; depth of exposure in these tests suggests that the sandy clay and clay contact drops from northeast to southwest.

SITE DESCRIPTIONS

41BL260

The site revisit by PAI archeologists was necessitated by changes to the originally proposed Shallowford Force Main alignment, which redirected the line through the currently mapped site area. Texas Department of Water Resources archeologists recorded site 41BL260 in 1982, and limited test excavations were conducted there by Texas Department of Highways and Public Transportation archeologists several years later (see Previous Investigations for more details). Young (1987:15) determined that the site's archeological deposits are sparse and shallow and recommended that 41BL260 is not eligible for listing in the National Register or for designation as a State Archeological Landmark.[3]

As originally mapped on the 1982 site form, the north end of 41BL260 is defined by a minor, intermittent surface drainage north of FM 93. The east edge of the site is defined by the original TBRSS Wastewater Treatment Plant access road (now the segment of paved road on the Bell Eagle parcel north of FM 93). As currently depicted in the Atlas site map, the north edge of 41BL260 ends along the north edge of FM 93 right of way, and most of the site is framed by the plant access road south of the highway.

PAI archeologists excavated eight shovel tests in and adjacent to currently and previously mapped site areas. Shovel Tests 5–7 were excavated along the proposed temporary construction easement north of the FM 93 right of way, and Shovel Tests 8–12 were excavated along the proposed alignment on wastewater treatment plant property south of the highway. Shovel Tests 5–7 revealed disturbed surface sediments over well-consolidated silty clays and clays. A chert flake fragment was identified from 0 to 20 cm in Shovel Test 6, and asphalt shingle fragments were mixed in the top 15 cm of sediment of this test. Concrete and charcoal fragments were present to a depth of 30 cm in Shovel Test 7. Shovel Tests 8–12 revealed thin surface zones of silty clay and clay over very well-consolidated clays. Surface sediments in some of the tests south of the highway are clearly disturbed and are likely redeposited fill. An angular fragment of burned chert was recovered from 0–20 cm in Shovel Test 11, and a

[3] The designation is now called State Antiquities Landmark.

small chert flake and chert flake fragment were recovered from 0–35 cm in Shovel Test 12. Numerous flakes and flake fragments, a core, and a possible hammerstone fragment were observed on the surface at the top edges of the highway and plant access road section cuts and on the outside edge of the access road ditch cut.

Site 41BL260 has been subjected to extensive disturbance over the past 20 to 40 years, and it is doubtful that any of the site's surface or near-surface archeological deposits remain undisturbed. Construction of FM 93 destroyed a large portion of the site. Site deposits north of the highway were disturbed by earthmoving activities, subsurface and overhead utility installation, road and driveway construction, and building and parking lot construction. The site area south of FM 93 was disturbed by earthmoving activities, road construction, and overhead and subsurface utilities installation, including an extensive irrigation system.

The current investigation revealed additional evidence that the prehistoric remains at 41BL260 are shallowly buried and in disturbed context. PAI archeologists concur with the previous investigator's assessment that 41BL260 is not eligible for listing in the National Register of Historic Places or for designation as a State Antiquities Landmark.

41BL1380

Site 41BL1380 is a multicomponent archeological deposit in a hay field just north of Taylors Valley Road, and about 185 m east of Rock Wool Lane (see Figure 5). Late historic artifacts or modern trash and some prehistoric lithics were identified across a 110-m-long segment of the proposed Shallowford Force Main alignment bounded by Taylors Valley Road right of way on the southwest and the gravel driveway of the R. T. Schneider Construction Company on the northeast. The width of the recorded site area corresponds with the 10-m-wide alignment easement, which runs adjacent to but immediately north of the existing force main easement in this area. The site is near the east edge of the nearly level to gently sloping fluviatile terrace summit at an average elevation of 510 ft. The surface slopes gradually to the south and southeast (Figure 8). Two backhoe trenches and five shovel tests were excavated in the site area. These exposures indicated area sediments are bioturbated, with more substantial impacts to surface sediments from grading, scraping, previous disc plowing, regular field maintenance, and equipment traffic. Sediments in the proposed easement were also subject to disturbance during the installation of the adjacent sewer line.

The twentieth-century component consists of a scatter of very late historic artifacts or modern trash present from 0 to 65 cm in Trench 3 and Shovel Tests 13–16. These materials are most abundant within about 60 m of Taylors Valley Road. Observed artifacts include two whiteware sherds, pieces of brown bottle and container glass (some heavily patinated), a piece of milk glass, three wire nail fragments, numerous factory-made brick fragments, mortar fragments, and several small pieces of coal. The age of this component is equivocal since most of the identified items could be either late historic or modern.

The nature of the twentieth-century component and the site location along Taylors Valley Road suggest that these materials might be associated with a nearby farmstead or a home site. A 1916 Bell County soils map indicates the road was in place by that date, but

Figure 8. Looking northeast along the proposed Shallowford Force Main alignment across site 41BL1380. Backfilled Trench 3 is in the center of the image, and Shovel Test 13 is close to the packs in the foreground.

no structures are depicted along the corresponding segment of roadway (USDA-BS 1916). In addition, no structures are depicted in this location on the 1924, 1931, 1965, and 1993 Belton topographic maps (USGS 1931, 1965, 1993) or on a 1971 aerial photograph (Huckabee et al. 1977:Sheet 38). Thus, this historic component may be nothing more than a roadside trash dump. Alternatively, since the deepest items were recovered closest to the existing sewer line, it is possible that the twentieth-century artifacts were mixed in the sediment used to backfill that trench and were horizontally dispersed by later agricultural activities.

The prehistoric component consists of a graver or beaked tool fragment, a burned percussion flake, and a flake fragment (all chert). The tool fragment and burned flake were found in the top 40 cm of sediment in Trenches 3 and 4. The flake fragment was recovered from 40–55 cmbs in Shovel Test 13. A mussel shell umbo recovered at 0–20 cm in Shovel Test 15 also may be or may not be associated with the prehistoric component. The prehistoric component is shallow and sparse in the tested area, and these remains may be derived from imported fill.

Site components may extend beyond the arbitrary limits of the recorded site area, and both conceivably could be an extension of multicomponent site 41BL261, ca. 85 m to the southwest on the other side of Taylors Valley Road. The age of the twentieth-century component is speculative since most of the identified materials could be either late historic artifacts or modern trash (with the possible exception of the coal fragments). While the brick and mortar fragments could indicate a previous structure, none of the reviewed maps shows a structure in this location, which suggests that the twentieth-century materials are imported. Regardless, most of the artifacts were identified in the top 40–50 cm of sediment, which has been subjected to extensive agricultural disturbances. Given the disturbed surface

sediments, the less than substantial nature of the twentieth-century assemblage, questions about its origin, and the absence of temporally diagnostic items that clearly date to the early twentieth century, it is unlikely that this component has sufficient context to yield important information that is relevant to research issues in area history. Therefore, PAI recommends that the historic component at 41BL1380 is not eligible for listing in the National Register of Historic Places under Criterion D or for designation as a State Antiquities Landmark.

The site's prehistoric assemblage consists of only three artifacts. A mussel shell fragment also may be associated. No prehistoric cultural features, evidence of cultural stratigraphy, or temporally diagnostic artifacts were found. Site location, assemblage characteristics, and the absence of features or other definable cultural deposits suggest that the prehistoric component represents ephemeral, short-term use of the locality. The sparse lithic artifacts and the shell fragment are mixed with twentieth-century materials in upper level sediments. Given this upland setting, any additional prehistoric materials are expected to be at the surface or only shallowly buried and will have been subjected to extensive modern disturbances. While further investigations might recover more lithic debitage and perhaps some diagnostic artifacts, there is no indication that such materials could be separated into temporally isolable components for meaningful interpretation. The prehistoric component lacks both integrity and significance and thus is unlikely to have the capacity to address important research issues in area prehistory. Therefore, PAI recommends that the prehistoric component of 41BL1380 is not eligible for listing in the National Register of Historic Places under Criterion D or for designation as a State Antiquities Landmark. This assessment does not apply to any archeological remains that might be present beyond the current site boundary.

41BL1381

Site 41BL1381 is a historic archeological deposit identified in the west half of Trench 12, which was placed at the edge of a modified T_1 alluvial terrace northwest of the Shallowford Lift Station (Figure 9). The topographic setting suggests that the historic artifacts are part of a trash dump on the eroded edge of the original terrace. The site is about 40 m northeast of the Leon River and about 350 m west-northwest of Shallow Ford Road.

The original terrace scarp may have been more gently sloped and eroded. The modern terrace surface, which stands approximately 10 m above the Leon River, includes more than a meter of modern construction fill laid down when the lift station and existing sewer line were constructed. Trench 11, excavated less than 20 m east of Trench 12, revealed three general fill zones, with deposits exposed to a depth of 310 cm in the west half of that trench. Trench 12 revealed a 140-cm-thick zone of construction fill over a 100-cm-thick layer of well-consolidated silty clay loam and silty clay with an abrupt, mechanically scraped boundary between the two (Figure 10). The historic artifacts identified in the western 2 m of Trench 12 were visible in the trench walls from 140 to at least 200 cm below surface. A layer of loosely consolidated sand with abundant pea-sized gravels underlies the zone of clayey alluvium. The modern surface at Trench 12 is at an elevation of 480 ft, and the historic artifacts were observed between 473 and 475 ft.

Figure 9. View of the artificially extended and leveled T_1 terrace looking west from the northwest fence corner at the Shallowford Lift Station. Backfilled Trench 11 is in the foreground. Site 41BL1381 was identified in Trench 12, which is in the background beyond the surface debris.

Artifacts identified in trench backdirt include a brown glass bottle neck with a lipping tool finish, two pieces of bottle/container glass (clear or clear with a greenish tint), a thin subrectangular can, two large can fragments, and several brick fragments. Small unidentifiable fragments of metal and pieces of charcoal were visible in the trench walls. Lipping tools were used for bottle neck finishing from 1870 to 1920 (Archeological Consulting Services, Ltd. n.d.).

Historic artifacts only were identified in the west half of Trench 12, which was excavated deeper below the modern fill layer and into natural terrace sediments. The existing terrace edge essentially delimits the west and southwest boundaries of the historic site deposits. The eastern boundary of the site is not well defined, but the extensive artificial fill throughout Trench 11 suggests that a significant portion of the site has been removed by construction activities near the sewage lift station.

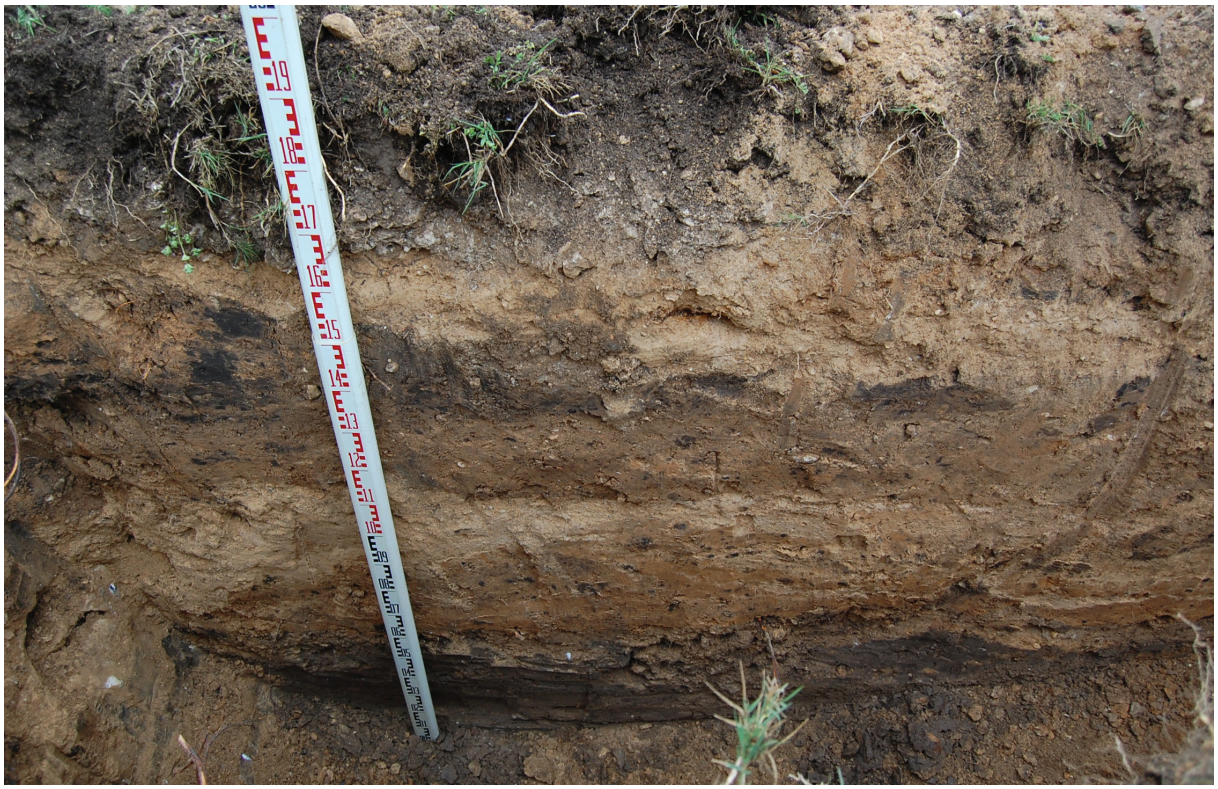

Figure 10. View of the north wall at the west end of Trench 12. Profile shows the 140 cm of graded construction fill above a unit of clayey sediments with historic artifacts designated site 41BL1381. Additional trench excavation exposed artifacts as deep as 200 cm below the surface.

Site 41BL1381 is probably a historic trash dump with materials having been deposited along the top edge of the T_1 alluvial surface and later dispersed when the lift station and sewer line were put in. Near where the Shallowford Lift Station is located today, a house was depicted in the 1993 revisions to the 1965 USGS Belton topographic quadrangle, about 30 m northeast of Trench 12, but it does not appear on the 1965 and 1931 versions of the map (USGS 1931, 1965, 1993). Likewise, no structure is depicted in this locality in a 1971 aerial photograph in the Bell County Soil Survey (Huckabee et al. 1977:Sheet 38). Older historic maps, however, do depict a structure at this location. A small structure is shown on a 1916 Bell County soils map (USDA-BS 1916) and on the 1924 USGS Temple 3-c quadrangle map (USGS 1924). It is likely that the structure depicted on the 1916 and 1924 maps was a rural farmhouse and that the historic artifacts found in Trench 12 are probably associated with this historic farmstead. These maps indicate an early-twentieth-century occupation, when bottles with tooled lips would be expected.[4]

[4] Hand-blown glass bottles with applied lips were most commonly made from 1835 to 1885, but tooled lips gradually replaced them in from the 1870s through the 1890s. The automatic bottle machine came into common use in 1905, and by 1910 almost all bottles in the United States were machine made (Lindsey 2010, 2013a, 2013b, 2013c). So the presence of tooled lips indicates bottles that were likely manufactured before 1910. Allowing for some lag time between purchase and deposition, tooled lip bottles are common at historic sites dating from the 1870s through ca. 1920.

Site 41BL1381 is at the edge of an extensively disturbed landform and is capped with more than a meter of construction fill. The construction schematics for the current lift station and sewer line help explain the extensively disturbed stratigraphic exposures in Trenches 11 and 12. They indicate that the original terrace surface was extensively disturbed by earthmoving activities associated with the lift station construction, the installation of subsurface pipelines, and the installation of the existing 30-inch-diameter sewer main, which was laid up to 15 ft below the original terrace surface (Brazos River Authority 1972). It appears that a late-nineteenth- to early-twentieth-century farmstead once existed in this general location, but its absence on the 1931 topographic quadrangle suggests that it was gone or substantially in ruins by that time. It is likely that most of the historic deposits remaining at the site were extensively disturbed by subsequent construction activities.

While the horizontal extent of these historic-age archeological deposits within the proposed force main easements was not precisely determined, evidence of extensive previous disturbance strongly suggests that any remaining archeological deposits within the project area lacks contextual and historical integrity. The character of the assemblage, the site location along the edge of the Leon River floodplain terrace, and the clear evidence of extensive previous disturbances indicate that any remaining historic-age deposits are likely to be insignificant. Therefore, PAI recommends 41BL1381 as not eligible for listing in the National Register of Historic Places under Criterion D or for designation as a State Antiquities Landmark.

It must be acknowledged that this archeological survey has defined the historic archeological deposits only within the limited linear project corridor. Consequently, it is possible that historic farmstead remains are present beyond the limits of the current project area.

SUMMARY AND MANAGEMENT RECOMMENDATIONS

In April 2013, PAI archeologists performed an intensive archeological survey in Bell County, Texas, for KPA on behalf of the Cities of Temple and Belton. This work was performed in compliance with the Texas Antiquities Code (Antiquities Permit No. 6082) and associated regulations in conjunction with the proposed 1.7-mile-long Shallowford Force Main sewer line, improvements to the Shallowford Lift Station, and improvements to the Belton Lift Station. The APE for the TBRSS improvement project encompasses about 7 acres, most of which is a linear force main sewer line corridor approximately 8,740 ft long and 30 to 40 ft wide. The pedestrian survey included 100 percent of the project area, and shovel testing and backhoe trenching were conducted along 3,660 ft of the force main alignment and in the two lift station areas. Subsurface testing was done in all areas where there is potential for intact buried archeological remains, with one exception as noted below.

The archeological survey of the BTRSS project area resulted in the following findings, site assessments, and management recommendations:

- Prehistoric artifacts were discovered in the Belton Lift Station expansion area, but all of

these materials were found in redeposited contexts within artificial fill layers containing modern construction debris and trash. Due to the extent of the modern disturbances, the prehistoric artifacts are clearly out of their original depositional context, and it is likely that these materials were brought in from other areas. Consequently, no archeological site was recorded for this locality.

- Shovel testing at previously recorded site 41BL260 discovered prehistoric artifacts and adds new data, but this evidence supports the previous investigator's assessment that this prehistoric occupation site consists of shallowly buried remains that are in disturbed contexts and lack integrity. Consequently, it is recommended that 41BL260 is not eligible for listing in the National Register of Historic Places under Criterion D or designation as a State Antiquities Landmark.
- The proposed force main alignment comes close to the plotted location of 41BL261, but nearby mechanical trenching discovered no archeological remains that can be definitely associated with this prehistoric site. Consequently, 41BL261 is outside the project area and will not be impacted by the TBRSS project.
- A multicomponent archeological site, 41BL1380, was discovered in the central portion of the force main alignment. It is a sparse, horizontally dispersed scatter of late historic artifacts along with some prehistoric chipped stone artifacts. The site consists of surface and shallowly buried materials on the summit of the fluviatile terrace overlooking the Leon River floodplain. All materials are within the upper 65 cm of alluvial deposits, within an extensively disturbed agricultural plow zone. No cultural features, discretely datable materials, or intact cultural stratigraphy were identified in the five shovel tests and two backhoe trenches excavated in the site area. Given the assemblage characteristics, shallow nature of the archeological deposits, and various forms of documented disturbance, it is clear that the historic and prehistoric archeological components in the investigated part of this site lack integrity and significance. It is unlikely that the archeological materials in the recorded site area could be segregated into temporally isolable components necessary for meaningful interpretation regarding important issues in area history and prehistory. Therefore, it is recommended that 41BL1380 is not eligible for listing in the National Register of Historic Places under Criterion D or designation as a State Antiquities Landmark.
- Historic archeological site 41BL1381 was discovered on an alluvial terrace at the north end of the force main alignment, adjacent to the Shallowford Lift Station. This site consists of a deposit of late-nineteenth- to early-twentieth-century artifacts identified in one trench (Trench 12) placed on the edge of an alluvial terrace north of the Leon River. These deposits appear to represent a probable trash dump on the margin of a historic farmstead, but the trenching also indicates that the original terrace deposits are extensively disturbed by previous construction activities associated with the sewer lift station and deeply buried sewer line. The intact historic archeological remains were observed only in one area, and they are capped with over a meter of imported fill. The documented archeological deposits appear to lack contextual integrity and significance. It is unlikely that the archeological materials in the recorded site area can contribute significant information useful for addressing important research issues. Therefore, it is recommended that 41BL1381 is not eligible for listing in the National Register of Historic Places under Criterion D or for designation as a State Antiquities Landmark.

Based on the results of the field investigation, Prewitt and Associates proposes a finding that approximately 3,660 ft of the force main alignment and the lift station expansion areas—comprising 3 acres of the project APE—do not contain significant archeological resources (36CFR 800.16(l)). In these areas, the proposed undertaking will not affect any archeological historic properties that are eligible for listing in the National Register of Historic Places under Criterion D (36 CFR 60.4; 36 CFR 800.4, 5) or designation as State Antiquities Landmarks (13 TAC 26.2, 8). It is recommended that this project be allowed to proceed without additional archeological investigations in the above-specified parts of the APE.

Approximately 2,790 ft of the Shallowford Force Main alignment, accounting for ca. 2 acres of the APE on the Leon River floodplain, could not be investigated with backhoe trenching. This segment was planted in crops at the time of the survey, and the landowner would not allow right of entry for excavating machines (see Figure 6). PAI archeologists intended to return to complete the trenching in this section of the force main alignment, but the TBRSS project was placed on hold in 2013–2014. When it became clear that this project could be stalled indefinitely, a decision was made to move forward and complete this archeological survey report to fulfill the Antiquities Permit requirements. Consequently, if the TBRSS project is resurrected at some point in the future, mechanical trenching will be needed for this untested segment of the force main alignment.

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