



Report for Archeological Survey

North Houston Highway Improvement Project
CSJ 0912-00-146

Principal Investigator: Steve A. Tomka, Antiquities Permit No. 7458
July 5, 2016

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

Management Summary

Raba Kistner Environmental, Inc. (RKEI) was contracted by AECOM to evaluate the need for cultural resources investigations within the North Houston Highway Improvement Project's (NHHIP) Area of Potential Effect (APE). Upon reaching a determination and subsequent concurrence by the Texas Department of Transportation (TxDOT) District Archeologist, Dr. Jason Barrett, RKEI staff was to conduct a pedestrian survey of areas warranting investigation. The NHHIP-APE consists of three segments: Segment 1, the I-45 corridor between Beltway 8 and I-610; Segment 2, the I-45 corridor between I-610 and I-10; and Segment 3, focused on I-45 and US 59/I-69 between I-10 and their interchange south of downtown Houston. These segments form an APE of a combined 614.7 acres.

The NHHIP involves the acquisition of new Right-Of-Way (ROW) and impacts within existing ROW. The project is overseen by the TxDOT and follows the Memorandum of Understanding (MOU) set forth between TxDOT and the Texas Historical Commission (THC). The project falls under the jurisdiction of the Antiquities Code of Texas by virtue of its impact to State-owned lands and it also falls under Section 106 of the National Historic Preservation Act since it receives partial funding from the Federal Highway Administration. These historic preservation pieces of legislation require that TxDOT determine if the planned project would adversely impact known or previously unidentified cultural resources within the project APE. The technical services provided by RKEI, are designed to help TxDOT comply with these legislative requirements.

Prior to the inception of the intensive survey, RKEI staff divided the APE into Low, Moderate, and High Probability areas for retaining intact cultural deposits with research potential. The definitions were based on proximity to water, historic land use, and archival information on the early history of Houston. Subsequently, a reconnaissance of the probability areas was carried out to verify the original assessments. The number and locations of High Probability areas were revised accordingly and in concert with the recommendations of the TxDOT Potential Archeological Liability Maps (PALM). Intensive pedestrian survey was recommended by RKEI for the High Probability areas identified, which was concurred with by the TxDOT District Archeologist. Subsequent pedestrian surveys of High Probability tracts for which Right-of-Entry (ROE) was available was carried out under Texas Antiquities Committee pedestrian survey permit number 7458. Dr. Steve A. Tomka, RKEI Cultural Resources Program Director, served as Principal Investigator on the project.

Forty-two (42) shovel tests were excavated in twenty-three (23) parcels, measuring a combined 2.25 acres, located in High Probability zones. Field work was conducted on December 15th through 17th, 2015 by Mark Luzmoor and Ashley Jones. This field work focused on the Frost Town area and its vicinity to determine whether shallowly-buried cultural resources were present in the area. Additional parcels located mainly to the west of downtown Houston were investigated on January 25th and 26th, 2016 by Ashley Jones and Daniel Nicholson. Kristi Nichols served as Project Archeologist.

Modern materials identified during the shovel testing consisted of construction debris and isolated trash. These were subsequently reburied in the shovel test units where they were recovered. All project-related materials are temporarily housed at RKEI Archaeology Laboratory and will be permanently curated at the Texas Archeological Research Laboratory (TARL) at the University at Texas at Austin.

Because no intact deposits could be reached by shovel testing within the Frost Town portion of the APE, RKEI intended to follow up with backhoe trenching in selected portions of the area. However, following TxDOT's identification of contaminated soils within the area, and subsequent to a discussion between the Principal Investigator and the District Archeologist, Dr. Jason Barrett, RKEI staff was advised to avoid deep reconnaissance excavations in these areas.

Due to the unknown extent of the contaminated soils, two areas of High Probability located within the Frost Town and Freedmen's Town historic sites could not be adequately investigated. It is recommended that portions of these sites that fall within the project APE be investigated in the future, provided that conditions are safe for archeological investigations. No additional archeological investigations are recommended in other High Probability portions of the APE that could be accessed during the pedestrian survey. However, a number of High Probability areas could not be accessed due to lack of ROE permissions. It is recommended that these areas be subject to pedestrian survey, when ROE is obtained or upon acquisition of the properties by TxDOT.

Project Identification

- **Date:** 2/11/2016
- **Date(s) of Survey:** 12/15/2015-12/17/2015 and 1/25/2016-1/26/2016
- **Archeological Survey Type:** Reconnaissance Intensive
- **Report Version:** Draft Final
- **Jurisdiction:** Federal State
- **Texas Antiquities Permit Number:** 7458
- **District:** Houston
- **County or Counties:** Harris
- **USGS Quadrangle(s):** Aldine (2995-433); Settegast (2995-431); Houston Heights (2995-432); Park Place (2995-424) (**Figure 1**)
- **Highway:** I-45 from Beltway 8 to South Freeway at Blodgett St. and US 59/I-69 at the intersection with Spur 527, including the Downtown Loop. (**Figure 2**)
- **CSJ:** 0912-00-146
- **Report Author(s):** Kristi Miller Nichols, Ashley E. Jones
- **Principal Investigator:** Steve A. Tomka

Texas Historical Commission Approval

Signature

Date

Project Description

- **Project Type:** Highway improvements, enhancements
- **Total Project Impact Acreage:** 614.7 acres
- **New Right of Way (ROW) Acreage:** 0.0 acres (to be calculated by engineers)
- **Easement Acreage:** 0.0 acres
- **Area of Pedestrian Survey:** 2.25 acres
- **Areas of High Probability with ROE Permission:** 2.25 acres

Project Description and Impacts: Raba Kistner Environmental, Inc. (RKEI) was contracted by AECOM (CLIENT) to evaluate the need for archeological investigations within the Area of Potential Effect (APE) associated with the North Houston Highway Improvement Project (NHHIP; **Figure 1**). A reconnaissance of the entire APE was conducted to assess areas that could potentially contain intact cultural deposits and to note any impacts that have affected the cultural resources. A background report and recommendations were produced that identified areas of High, Moderate, and Low Probability for encountering intact cultural deposits, based on the findings from the literature review and reconnaissance. Upon concurrence with the TxDOT District archeologists, RKEI initiated the recommended investigations. The results of the investigations are presented in this report.

The project area encompasses the I-45 corridor between Beltway 8 and I-610; the I-45 corridor between I-610 and to I-10; and the Downtown Loop at I-45 and US 59/I-69 at I-10. The proposed highway improvement project involves the acquisition of new ROW. The total acreage that would be impacted by the proposed project is 614.7 acres. The typical construction ROW would be 130 meters (426.5 feet) wide; however, the actual ROW dimensions vary greatly between segments and alternatives. These dimensions have not been determined across all segments and alternatives, and therefore they are not defined in detail in this report. Furthermore, the depths of impacts have not yet been determined throughout the APE. The specific project schematics that would accompany the final design of the chosen alternative would guide the limits of construction and archeological investigation. Preliminary schematics can be viewed in **Appendix A**.

The project is overseen by the Texas Department of Transportation (TXDOT) and follows the Memorandum of Understanding (MOU) set forth between TXDOT and the Texas Historical Commission (THC). The project would impact State-owned lands and it therefore falls under the jurisdiction of the Antiquities Code of Texas. In addition, because it receives partial funding from the Federal Highway Administration, it also falls under Section 106 of the National Historic Preservation Act (NHPA). Under these legislative requirements, TXDOT is required to determine if the planned project would adversely impact known or previously unidentified cultural resources within the project APE. The evaluation of the potential of the APE to hold significant cultural deposits that may be eligible for nomination to the National Register of Historic Places and/or

formal listing as State Antiquities Landmarks was performed by RKEI to facilitate TxDOT compliance with National Environmental Policy Act (NEPA) and Section 106 of NHPA, as well as the Antiquities Code of Texas.

- **Area of Potential Effects (APE):**

The project area is composed of three segments: Segment 1, the I-45 corridor between Beltway 8 and I-610; Segment 2, the I-45 corridor between I-610 and I-10; and Segment 3, focused on I-45 and US 59/I-69 between I-10 and their interchange south of downtown Houston (see **Figure 2**). Through a series of public meetings and two screening processes, three alternatives have been identified. Each of the three alternatives associated with Segment 1 (Beltway 8 to I-610) would involve the acquisition of ROW either on the west- or east-side or both sides of the existing roadway. In addition, all three of the alternatives would involve ROW acquisition in the vicinity of White Oak Bayou and Halls Bayou, both being areas considered as having a High Probability of retaining buried archeological deposits. Therefore, improvements associated with the possible construction of this segment would have the potential to impact buried cultural deposits found within the ROW that is to be acquired. Preliminary design alternatives associated with Segment 2 that encompasses I-610 to I-10, call for the construction of elevated roadways and the acquisition of small segments of ROW in the vicinity of the I-10 and I-610 interchanges. All three of the alternatives would result in the acquisition of new ROW in the vicinity of Little White Oak Bayou. Finally, the Segment 3 alternatives also require the acquisition of additional ROW in selected areas.

Project Setting

- **Topography:** The topography of Houston is typically flat and featureless cross-cut by stream and bayou channels. Buffalo Bayou, which runs through downtown Houston, historically served as an important access route to the Gulf of Mexico. All areas investigated were located near or adjacent to the bayous previously discussed.
- **Geology:** The *USGS Geological Atlas* identifies the Beaumont and Lissie as the underlying geological formations within the APE (**Figure 3**). These almost flat terraces seem to have changed little since the last glacial maximum (approximately 18,000 years ago) (Abbott 2001:141). The Beaumont Formation (Qb Stippled) is found throughout downtown Houston. The clay, silt and sand deposits of the Beaumont date to the Pleistocene and Holocene epochs. The deposits are deep, often reaching 100 feet or greater. Although the deposits are flat, they often contain depressions from relic river channels or uplifts in the form of pimple (prairie) mounds. Iron oxide and iron manganese concretions are found with depth. Typically, these deposits have low permeability but are highly plastic.

Located to the north of downtown, approaching Beltway 8, is the Lissie Formation (Ql). The Lissie dates to the Pleistocene. The Lissie formation is predominately sand, silt, and clay with occasional fine gravels. Deposits may contain iron oxide, iron manganese, or calcareous deposits. The Lissie formation is characterized by flat, often featureless, deposits, which are

soils dotted by ponded, shallow depressions or pimple (prairie) mounds. The formation runs parallel to the Gulf coast, and deposits increase in thickness towards the sea.

- **Soils:** The soils found within the APE are typically Urban Land Complexes (Ur) (USDA 2016). This designation indicates that these deposits are disturbed by residential and commercial development due to the cutting, filling, or grading of soils. In some areas, these processes have made it impossible to classify the underlying soils. As defined in the Houston metropolitan area, the Urban Land Complex describes areas where 70% to 100% of the area is covered in structures or previously disturbed. This is seen in **Figure 4** for the soil classification of downtown Houston. Moving away from downtown, the Urban Land Complex is defined as areas of moderate disturbance and construction, ranging from 40% to 50% (Wheeler 1976: 21-22).

The identified urban land complex soils in the APE are seen in **Table 1**. These are flat, fluviomarine deposits associated with either the Beaumont or Lissie Formations. The soils are often loamy or silty clays, and contain mottles, iron oxide or iron manganese concretions, or calcium carbonate nodules. Since these soils are often poorly to moderately drained, and others, such as Gessner, Vamont, and Beaumont, sustain ephemeral ponds of water (gilgai), these soils are often mixed or topped with fill to improve drainage (Abbott 2001; USDA 2016; Wheeler 1976).

- **Table 1. Description of APE Soils.**

Soil Complex Name	Soil Description	Parent Material Age of Deposit	Landform	Typical Range in Characteristics
<i>Gessner Loam (Ge) and Gessner-Urban Land Complex (Gu)</i>	Deep, poorly drained loams	Loamy ancient alluvium (Lissie) Pleistocene	Small depressions Upland	Slightly acidic grayish brown loam transitioning to neutral, light gray sandy clay loam with yellowish brown mottles.
<i>Addicks-Urban Land Complex (Ak)</i>	Deep, poorly drained loams	Loamy ancient alluvium Pleistocene	Level or slightly convex (0-1%)	Black loam at surface transitioning to light gray loam with visible calcium carbonate with depth. May have yellow or yellowish brown mottles with depth.
<i>Clodine-Urban Land Complex (Ce)</i>	Deep, somewhat poorly drained loams	Loamy ancient alluvium (Lissie) Pleistocene	Level, shallow slopes (0-1%) Upland	Dark gray loam at the surface. Becomes alkaline with depth and may contain calcium carbonate.
<i>Aldine-Urban Land Complex (An)</i>	Deep, moderately well-drained loams	Loamy ancient alluvium Pleistocene	Level, gently sloping (0-3%) Upland	Dark gray brown fine sandy loam at surface. Transitions to a gray clay loam or silty clay loam with depth. Silty clays may contain yellowish brown or red mottles. Increases in acidity with depth.
<i>Vamont-Urban Land Complex (Vn)</i>	Deep, somewhat poorly drained fluviomarine clayey sediments	Clayey ancient alluvium (Beaumont)	Level, gently sloped areas leading to low terraces and floodplains Upland	The surface of the deposit is characterized by dark gray brown clay. Yellowish brown or brownish yellow mottles with depth. Gray clay without mottles at base of deposit.

Soil Complex Name	Soil Description	Parent Material Age of Deposit	Landform	Typical Range in Characteristics
<i>Bernard-Urban Land Complex (Bg)</i>	Deep, somewhat poorly drained clay loams	Loamy ancient alluvium Pleistocene	Level, shallow slopes (0-1%) Upland	Very dark gray clay loam at surface, transitioning to gray clays with yellowish brown mottles and calcium carbonate deposits.
<i>Midland-Urban Land Complex (Mu)</i>	Deep, poorly drained silty clays	Loamy ancient alluvium Pleistocene	Level, shallow slopes (0-1%) Concave terraces near stream channels or coastal floodplains	Strongly acidic gray brown silty clay loam at surface. Transitions to dark gray clay with depth. May be mottled with olive yellow or brown yellow mottles with depth.
<i>Beaumont-Urban Land Complex (Bc)</i>	Deep, poorly drained clays	Loamy-clayey ancient alluvium; (Beaumont) Pleistocene	Level, shallow slopes (0-1%)	Very firm dark gray to gray clays at surface. Gradual grade into gray clay with slickensides or gray brown clay with olive brown and brown mottles.
<i>Aris-Urban Land Complex (As)</i>	Deep, poorly drained, fluviomarine loamy clays	Loamy-clayey ancient alluvium; (Beaumont) Pleistocene	Level, shallow slopes (0-1%) Upland	Friable gray brown fine sandy loams at surface. Soil color transitions from brown to gray with depth. Dark gray clay deposits may have red or brown mottles. May contain calcium carbonate with depth.

- **Land Use:** The APE falls within an urban setting. All ROW and proposed new ROW is included within or touching properties that have commercial or residential uses.
- **Vegetation:** The City of Houston lies along a transition between Gulf Coast prairies and Pine-Hardwood forests. The Coastal Prairie ecological zone is largely composed of grasses, with some forbs and a few woody plants. Some of the grasses typically found in this area include big and little bluestem, Indian grass, eastern gama, and buffalo grass. Forbs include one of Texas' most famous flowers: bluebonnets. Other common forbs include paintbrush, prairie clover, verbena, wine cup, vetch, ragweed, and Maximilian sunflower. Mesquite, honey locust, huisache, live oak, elm, and hackberry are among the woody plants that may be found in this region. White-tailed deer, coyote, cottontail, skunks, and other small mammals, reptiles, birds and amphibians live in this area (Abbott 2001:24).

The gradual transition from prairie to the Pine-Hardwood forests can be seen north of downtown Houston, where the landscape includes both coniferous and deciduous trees. Coniferous taxa include short and long leaf pine and loblolly pine. Post oak, live oak, blackjack oak, and both red and white oak are included in stands of trees. Pecan, cottonwood, hickory, and American elm trees may be found along the many waterways cross-cutting this area. Shrubs, forbs, and vines thrive in the Pine-Hardwood forest. Yaupon, wild persimmon, green briar, trumpet vine, dewberry, and poison ivy can be found in this area. White-tailed deer, opossum, raccoons, squirrels, rabbits, and other small mammals, birds, and reptiles live in this ecological zone (Abbott 2001:26).

Since the APE is located in an urban setting, most of the project locations are covered in landscaped plants. With the exceptions of parcels located at the end of Nance Street and along Dart Street, surface visibility averaged approximately 30%. The Nance and Dart Street locations were covered in modern refuse, weedy plants, and gravel, therefore the surface was 80% to 90% visible.

- **Estimated Ground Surface Visibility:** 30 %

- **Previous Investigations and Known Archeological Sites:**

Archeological surveys have been conducted in conjunction with several different developments, including highway and park improvement projects. Data presented in the Texas Archeological Sites Atlas was inspected to determine the location of previously recorded archeological sites, previous archeological investigations, and known historic resources.

Downtown Houston has a myriad of recorded archeological sites (**Figure 5**). Most recorded sites pertain to the historic period of the city. Below is a review of the sites located within or immediately adjacent to the areas surveyed during the course of the project. A comprehensive view of known recorded archeological sites in downtown Houston can be found on the Texas Archeological Sites Atlas.

- **Surveys in the Vicinity**

In 2012, Moore Archeological Consulting, Inc. (MAC) conducted an intensive pedestrian survey and shovel testing investigation of several areas associated with the proposed Tiger Trails. Three shovel tests were excavated to the east of the Leonel Castillo Community Center in Hogg Park. The shovel tests contained artificial fill, which contained modern refuse including asphalt, cement, and glass (Mangum 2012).

The 1840 City Cemetery or Second City Cemetery (41HR983) was identified by archeologists with Prewitt & Associates, Inc. in 2005. The cemetery, located near the modern intersection of Elder and Girard Streets, occupied an attractive parcel of land. Early city developers sought to move the interments, but the local community petitioned to leave the interments in place. Despite thousands of interments, the cemetery was selected as the site for the Jefferson Davis Hospital that was constructed in the 1920s. During later renovations to the Jefferson Davis Hospital, converting the building into the Elder Street Artist Lofts, archeologists recorded 58 graves. These interments were either previously disturbed by construction or were intact. No artifacts were found with these burials (Boyd and Broehm 2005). The boundaries of the cemetery have not been defined to date.

- **Nearby Archeological Sites**

Several sites are located within or near the current APE. These include: 41HR747, 41HR1166, 41HR1167, 41HR907, 41HR908, 41HR982, 41HR1037, and 41HR866.

41HR747

In 1993, MAC recorded Site 41HR747 along Buffalo Bayou, northwest of Frost Town. The site consisted of a collection of historic artifacts related to a dump. The cultural materials encountered included glass bottles, ceramic sherds, metal artifacts, and animal bones. The artifacts appeared to be related to the late 19th and early 20th centuries. The site is believed to be associated with railroad stations and 19th century homes located in the area. Although the site was recommended as not eligible for listing on the National Register of Historic Places (NRHP) or as a State Antiquities Landmark (SAL) at the time of the project, further work was recommended prior to future construction activities (THC 2015).

The portion of the site within the ROW was deemed eligible for listing on the NRHP and formal designation as a SAL in 1995 (THC 2015). This was likely a result of encountering cultural deposits during construction monitoring in 2014 (Moore et al. 1995).

41HR1166

As part of the Elysian Viaduct Survey in 2014 conducted by Prewitt and Associates, Inc., 41HR1166 was recorded as a historic site located just southwest of Frost Town. Identified as the Peter Floeck Tracts, the area was occupied by Floeck in 1869. Within the property, Floeck had constructed a primary residence, an outbuilding, and a private brewery. The site was later used as the Rusk School, the Rusk Settlement House, and a Gasometer plant.

Approximately eight to ten feet of fill was brought in to build up the elevation of the property in certain areas of the site. The former structures have been demolished, and their remnants are mixed within the lower layers of the fill. The fill has the potential of capping any subsurface features that may have been associated with the site occupation. No further work was recommended at the time the site was recorded, as construction impacts were not to reach the depth of possible intact deposits. It was noted that the site had potential for producing intact features should impacts penetrate below the fill (THC 2015).

41HR1167

This site was recorded during the 2014 Elysian Viaduct Survey as a historic occupation located southwest of Frost Town and 41HR1166. Archival research indicates that the Republic of Texas Arsenal was located within the block. Investigations did not encounter cultural deposits that were associated with the arsenal, but did encounter historic material consisting of white earthenware sherds, glass bottles and fragments, stonewares, bricks, ceramic tiles, wire nails, and animal bone. The site was determined to consist of construction debris overlying historic-age debris. The topography of the site was altered during the early 20th century, and the historic-age material was likely brought into the site as part of the fill. The original ground surface was not encountered during the course of the project. Additional investigations were recommended if future impacts would exceed 15 feet below the current surface (THC 2015).

41HR907

HRA Gray and Pape, LLC conducted an archeological survey in 2002 along a portion of Buffalo Bayou for a proposed Hike and Bike Trail system near Elysian Viaduct. The site consisted of a brick wall exposed in a cut in the bank of Buffalo Bayou. The cut bank also revealed fragments of slag, metal, and railroad ties. No further investigations were recommended for the site (THC 2015).

41HR908

Another site recorded during the HRA Gray and Pape, LLC, Hike and Bike Trail Survey is located on the north bank of Buffalo Bayou, to the east of 41HR907. The site was identified as a possible brick structure that potentially dated to the 19th century. Historic artifacts were noted in association with the brick feature. No additional work was recommended for the site (THC 2015).

Frost Town (41HR982 and 41HR1037)

Both sites 41HR982 and 41HR1037 are part of the historic Frost Town, one of Houston's first subdivisions that dates from the 1820s to the 1950s. Site 41HR982 consists of the main section of Frost Town, covering 8 city blocks along Buffalo Bayou. The site was first recorded as a result of the Elysian Viaduct Survey conducted in 2003 by Prewitt and Associates, Inc. During the initial survey, as many as thirteen features were encountered that were associated with the occupation of the area. Cultural material encountered consisted of white earthenware fragments, glass fragments, nails, and other metal items. During the trenching, areas that were burned were identified. It was postulated that the burned areas were either related to the razing of the neighborhood, or as a result of incinerator trash being disposed along Buffalo Bayou.

During the 2003 investigations, it was determined that Frost Town was a significant historic archeological site that contained the potential for producing much information concerning the early occupation of Houston, as well as the development of the City into the 20th century. The site was recommended as eligible for listing on the NRHP and warranted formal designation as a SAL in 2005.

Prewitt and Associates, Inc. conducted several more seasons of investigations within Frost Town over the next decade in association with the Elysian Viaduct improvements. In 2010, the site was formally designated as a SAL (THC 2015).

In 2014 and 2015, Prewitt and Associates, Inc. conducted additional backhoe trenching along the Elysian Viaduct. During the backhoe trenching, it became evident that much of the area has up to 9 feet of fill and incinerator trash pockets (Doug Boyd, Personal Communication 2015). During the trenching, additional features pertaining to the occupation and use of Frost Town were uncovered. Several features that were associated with the railroad that entered into Frost Town were encountered. Railroad ties were placed on a base of oyster shell. Features consisting of cisterns and house foundations were uncovered that related to the 19th and 20th century occupations. Due to this latest investigation, the boundaries of Frost Town (41HR982) were

extended from Buffalo Bayou to south of McKee Street. The southeastern corner of the site extends under US 59/I-69 and touches Runnels Street. The southwestern boundary touches North Jackson Street at its junction with the US 59/I-69 ramp (THC 2015).

Additional investigations within Frost Town have been recommended after each project. The site is historically rich, and the data gathered from the site offers valuable information concerning the early years of Houston. In addition, potential for encountering intact house foundations, privies, cisterns, and trash middens is high (THC 2015; Doug Boyd, Personal Communication, 2015). The practice of incinerating trash in the area also adds an interesting component to the site. Incinerated trash was deposited in gullies along Buffalo Bayou. In addition to artifacts that are associated with the trash deposits, the soil has become contaminated with heavy metals.

Adjacent to 41HR982 is 41HR1037. Another section of Frost Town, this site was recorded in 2007 by J.K. Wagner and Company, Inc. for the property owner. The site consists of Block F, Lots 4 and 5 of Frost Town (THC 2015). Three 1-x-1 meter test units were excavated during the course of the project. The excavations revealed brick foundation piers, and sidewalks. The investigations determined that although modern fill caps much of Lots 4 and 5, it has preserved the remnants of house foundations and other possible features related to the occupation of Frost Town up until 1907 (THC 2015). Further investigations of the site were recommended to gather information concerning the Hispanic occupation of Frost Town.

Freedmen's Town (The 4th Ward) (41HR866)

On June 19, 1865, Union General Gordon Granger read the Emancipation Proclamation in Galveston, freeing Texas' slaves. By the end of the Civil War, there were over 400,000 slaves residing in Texas, having been brought to the state by plantation owners fleeing the war (Glasrud and Smallwood 2007:25). Reconstruction in Texas brought about a new state constitution and new restrictive codes for African American residents. Despite the establishment of the Freedmen's Bureau in 1865 and efforts in the late 1860s by Governor E.J. Davis, newly freed slaves were suppressed from political, social, and economic activities (Glasrud and Smallwood 2007:227-29).

In response to the Emancipation Proclamation, Houstonian Garret S. Hardcastle created a subdivision in the 4th Ward for newly freed slaves. Hardcastle, along with other Houstonians, purchased more land to create Freedmen's Town. By 1866, there were twenty-two dwellings in the Hardcastle Subdivision (Aulbach 2012:208-207-209). Hardcastle and other Houstonians sold land in the 4th ward to emancipated slaves. Despite repressive policies, Freedmen's Town thrived, creating their own newspapers, churches, schools and other institutions (Feit and Jones 2008:21; McDavid et al. 2008:38). The Third New City Cemetery was established near the Hardcastle Subdivision in 1879.

San Felipe Courts were constructed between 1939 and 1940, as a part of urban renewal efforts. Although they were in Freedmen's Town, they were designed as housing for working class whites (Aulbach 2012:209). The landscape in Freedmen's Town changed again in 1954, when the ROW was cleared for the newly designed I-45. The corridor removed the oldest

portions of Freedmen's Town and effectively severed the residential area from the commercial area, dividing the community (Aulbach 2012:215; Feit and Jones 2008:23).

Archeological investigations have been conducted in the area's two historic districts: San Felipe Courts (Allen Parkway Village) and Freedmen's Town. The San Felipe Courts encompasses the archeological site of the Third New City Cemetery (41HR886). 41HR886 is a 36-acre area encompassing the original Hardcastle Subdivision and the Third New City Cemetery. PBS&J conducted archeological investigations of the area starting in 1996. Over two months in 1998, burials were removed and sent to the PBS&J laboratory for analysis. In addition, field investigations identified structural remains, including cisterns, privies, trash-filled gullies and other architectural materials. In some areas, cultural materials were approximately 5 feet below ground surface, covered by debris from area development (THC 2015).

Interments were reburied in the lot adjacent to the City of Houston Housing Authority building. Each interment is numbered and the cemetery is maintained by the Housing Authority (Aulbach 2012:216).

Several archeological investigations have been conducted with a particular focus on the cemetery. MAC archeologists investigated the area in 2005 for the proposed hike and bike trail along Buffalo Bayou. They did not find cultural deposits in their study area (Driver 2010). In 2009, archeologists with R. Christopher Goodwin and Associates monitored construction along Sabine and Heiner Streets as new pipeline was installed. Backhoe trenches along Sabine Street and south along Heiner Street did not produce any cultural materials, and found that soils were consistent with urban land complexes (Eberwine and Athens 2009). In 2010 a trenching project was monitored by TXDOT, with no significant findings reported (THC 2015).

Carol McDavid and David Bruner have been working with the Yates Community Archaeology Project and the Community Archeological Research Institute (CARI) to document sites in the southern portion of Freedmen's Town (McDavid et al. 2008). These sites were mostly identified through surface surveys and researching particular buildings. 41HR993 is the Bethel Missionary Baptist Church, established in the 1870s (THC 2015). 41HR979, 41HR1032, 41HR1033, 41HR1070, and 41HR1031 are all local residences. In 2004, CARI excavated shovel tests and one unit near the Pullum House (41HR979). The Pullum residence was constructed c. 1898 (THC 2015). Other sites, such as 41HR1033, the Robin Street residences, provide a description of residences along this street, and glass, ceramics, and other modern cultural materials located in the area.

Comments on Project Setting:

While prehistoric archeological deposits have not been recorded in the vicinity of the bayous found in the APE, historic sites are numerous and hold a great deal of potential to make significant contributions to the history of Houston and the post-slavery history of this nation. Specifically, Freedmen's Town and Frost Town represent large neighborhoods that offer a veritable laboratory for the study of a number of significant and unique social phenomena that this nation has witnessed during its history (i.e., slavery, post-slavery integration), as well as

common social dynamics that provide a compliment to development of other multi-cultural settings and the evolution from rural to urban centers across the United States.

Determining Probability Areas for Survey

Based on RKEI evaluations of project schematics and locations identified for possible ROW acquisition, the APE was divided into Low, Moderate, and High Probability zones for encountering intact cultural deposits. The criteria employed consisted of a combination of theoretical expectations related to prehistoric hunter-gatherer behavior, historic land use, and archival information on the early history of Houston.

Low Probability zones were defined as having little prospect of producing intact, significant cultural remains. Typically, these areas were heavily disturbed by construction or development, or were recently surveyed with no substantial findings. Therefore, RKEI did not recommend further archeological investigations of these areas.

Moderate Probability zones are located in areas with minimal development and no previous archeological surveys. It is possible that areas with deeply buried deposits exist in these zones. RKEI did recommend backhoe trenching in these areas once right-of-entry (ROE) is obtained.

High Probability zones are areas located adjacent to waterways (e.g., bayous and drainages), adjacent to or within known archeological sites, near cemeteries, and within areas of Houston that have potential for producing significant historical deposits. RKEI recommended shovel testing and backhoe trenching as these areas have the potential to produce both shallow and deeply buried cultural deposits.

Next, the Project Archeologist traveled to the project area to assess on-the-ground conditions and determine if any alterations in the probability assessments needed to be made to reflect recent disturbances and impacts along the APE. This reconnaissance led to the removal of several segments of the APE from the High Probability list and their demotion into Low Probability areas. No areas that were previously identified as Low or Moderate Probability were up-graded to High Probability.

Following these revisions, TxDOT's Potential Archeological Liability Map (PALM) (**Appendix B**) was consulted and their recommendations were overlain on the RKEI assessments. This exercise resulted in the removal of yet another handful of High Probability areas from the list of tracts to be investigated. In a few instances, however, RKEI felt that the historic resources present within proximity to the APE warranted the recommendation of investigation, even in areas where the PALM data recommended otherwise. **Appendix C** presents areas of High and Moderate Probability Areas that were proposed for survey.

High Probability Areas Proposed for Survey

RKEI staff identified several parcels that were slated for acquisition as having high probabilities for containing intact buried cultural deposits. The locations of these parcels within the project APE, is described below divided by project segment.

Segment 1 did not contain High Probability areas, and therefore was not included in this intensive survey project. Segment 2 also did not contain areas of High Probability.

Segment 3 High Probability parcels are located near known archeological sites, cemeteries, and water sources. The northernmost parcel identified as High Probability within Segment 3 lies adjacent to White Oak Bayou at the edge of the Near Northside Historic District (**Figure 6**). Although there are no previously identified archeological sites in the area, the building on the parcel was constructed in 1919 as the Robert E. Lee School. In addition, the location of the area overlooking White Oak Bayou warranted the designation. The area is currently being used as a park (Hogg Park) and a community center.

The 1840 City Cemetery or Second City Cemetery (41HR983) is located in close proximity to existing ROW near the interchange of I-45 and I-10. The cemetery is located near the modern intersection of Elder and Girard Streets. Previous archeological investigations in the area encountered graves, some disturbed by previous construction activities. The boundaries of the cemetery have not been identified; therefore, the ROW at Dart Street was included in the investigation (**Figure 7**). The parcels in this location are currently being used as a staging area for highway construction crews.

Approaching downtown on Segment 3 at Allen Parkway and I-45 are archeological sites associated with Freedmen's Town and the Third New City Cemetery (1879). Archeological sites in this area offer insight into the lives of African Americans in Houston after the Civil War. The High Probability zone in this area extends from W. Dallas northward towards Buffalo Bayou (**Figure 8**). The exact boundaries of the New Third City Cemetery are currently unknown. The High Probability designation of this area is due to the potential presence of Freedmen's Town deposits and its close proximity to a historic cemetery. This strip of land is currently used as landscaped space associated with Heiner Street and Buffalo Bayou Park.

The last High Probability zone in Segment 3 is located to the east of downtown Houston. The current ROW located between McKee Street and US 59/I-69 contains portions of archeological sites associated with Frost Town (41HR982 and 41HR1037) (**Figures 9 to 11**). Previous investigations in the area encountered 19th century cultural materials, buried between 20 centimeters (8 inches) to nearly 100 centimeters (40 inches) below the modern surface. In the 19th and 20th centuries, the area to the north and east of Buffalo Bayou and Frost Town was mainly industrial. Portions of this area remain dedicated to area businesses, while other land is now residential use. James Bute Park is located along the western edge of the parcel. The combined size of the High Probability parcels found within Segment 3 is 42.7 acres.

Upon the identification of the final list of High Probability parcels, and in collaboration with AECOM staff, the Project Archeologist and GIS specialist created a list of the High Probability parcels and their ROE status (See **Table 2**). The information from this table was transferred to project area maps created in ESRI's ArcGIS (v. 10.3) software.

- **Parcel Number(s):** Figure 12-Figure 15
- **Project Area Ownership:**

Table 2. Project area ownership, parcel numbers, and right of entry status of High Probability areas.

Name	HCAD No.	Map Parcel No.	Fig. Number	ROE Received	Owner
Pinto Realty Development, Inc.	1213640010004	1	12	No	Private
Pinto East End LLC	1243850010001	11	15	No	Private
Pinto East End LLC	0422210000086	13	15	No	Private
Harris County ROW Dept.	0400170000002	2	6 and 13	Yes	Public
Metropolitan Transit Auth.	0400200000018	3	13	Yes	Public
Sterling Family Prop. LLC	0400200000026	4	7 and 13	Yes	Private
Harris County	0271110000001	5	15	No	Public
KJD Auto Storage LLC	0151870000001	6	15	No	Private
Southwell Properties LLC	0151890000007	7	10	Yes	Private
McCall Street Partners LP	0230530000030	8	15	No	Private
McCall Street Partners LP	1245420030001	9	15	No	Private
McCall Street Partners LP	0412210000039	12	15	No	Private
McCall Street Partners LP	1245420010001	14	15	No	Private
Gillespie Jensen Dvlpmt LLC	0152620000001	10	15	No	Private
Houston Housing Authority	0371080090023	15	15	No	Public
Houston Housing Authority (COH)	1204480020002	54	14	No	Public
Dominga Rodriguez	0142630000009	16	9 and 15	No	Private
Texas Dept. of Trans.	0230530000031	24	11	Yes	Public
Texas Dept. of Trans.	0142650000010	34	9 and 15	Yes	Public
Texas Dept. of Trans.	0142650000011	35	9 and 15	Yes	Public
Texas Dept. of Trans.	0142640000006	38	9 and 15	Yes	Public
Texas Dept. of Trans.	0142640000011	39	9 and 15	Yes	Public
Texas Dept. of Trans.	0142640000012	40	9 and 15	Yes	Public

Name	HCAD No.	Map Parcel No.	Fig. Number	ROE Received	Owner
Texas Dept. of Trans.	0142640000007	42	9 and 15	Yes	Public
Texas Dept. of Trans.	0142640000003	43	9 and 15	Yes	Public
Texas Dept. of Trans.	0142640000015	44	9 and 15	Yes	Public
Texas Dept. of Trans.	0142630000012	47	9 and 15	Yes	Public
Texas Dept. of Trans.	0142630000013	48	9 and 15	Yes	Public
Texas Dept. of Trans.	0142630000010	49	9 and 15	Yes	Public
Texas Dept. of Trans.	0142630000011	50	9 and 15	Yes	Public
Texas Dept. of Trans.	0142630000014	51	9 and 15	Yes	Public
Texas Dept. of Trans.	0142630000004	52	9 and 15	Yes	Public
City of Houston	1204480020001	55	8 and 14	No	Public
City of Houston	1204480020003	56	8 and 14	No	Public

Survey Methods

- **Surveyors:** Kristi Miller Nichols, Mark P. Luzmoor, Ashley E. Jones, Daniel Nicholson.
- **Methodological Description:** Intensive pedestrian surveys, with surface reconnaissance and shovel testing, were conducted on twenty-three (23) parcels within High Probability areas. These parcels, located near downtown Houston, were the only parcels with ROE permission. Sixteen (16) of these parcels are associated with Frost Town (41HR982 and 41HR1037). Although the initial scope of work recommended backhoe trenching (BHT) for deeply buried sites and at archeological sites under deep fill deposits, RKEI did not complete such backhoe excavations. Contaminated soils, including high levels of lead, are especially concentrated in the Frost Town area, on both banks of Buffalo Bayou. During discussions between the Principal Investigator and the TxDOT District Archeologist, Dr. Jason Barrett, RKEI was advised not to conduct backhoe trenching in these areas due safety concerns related to the soil conditions. Therefore, backhoe trenching was not carried out in search of undisturbed deposits that may lie below the modern fill within the portions of Frost Town and Freedmen’s Town investigated during this survey.

Shovel tests were used to explore areas with potentially shallow deposits and to assess the amount of fill covering the original occupation surface. In total, forty-two (42) shovel tests were excavated in the project area within the parcels that were considered High Probability and for which ROE was obtained. Shovel tests were excavated to 60 centimeters (approximately 2 feet) below the surface (cmbs). The typical diameter of shovel tests ranges from 32 to 35 cm (12 to

13 inches) and were excavated in 10-cm (4-inch) levels. Soils were screened through ¼-inch mesh to recover artifacts. A shovel test form was completed for each excavated unit. Information recorded includes: soils encountered; artifacts identified (if present); disturbances; and references to photographs. A separate photograph log was kept. Artifacts derived from each level were noted and, if diagnostic, were photographed in the field. All artifacts from shovel tests were reburied with associated matrix at the completion of the unit.

- **Subsurface Probes (attach map):** (Figures 16-21)

Method	Quantity in Existing ROW	Quantity in Proposed New ROW	Quantity in Temporary Easements	Total Number per Acre
Shovel Test Units	35	7	0	18.2

- **Other Methods:** None
- **Collection and Curation:** NO YES If yes, specify facility.
- **Comments on Methods:**

The survey conducted within the available parcels followed, and exceeded, the minimum standard guidelines set forth by THC/CTA for project area surveys. A minimum of seven shovel tests were required to be excavated according to the THC minimum survey standards (three per every acre). Forty-two shovel tests were excavated over the 2.25 acres survey area.

The presence of contaminated soils in the project area prevented RKEI from conducting deep subsurface investigations via backhoe trenching. Once a viable safety guideline is developed to reduce hazards of contact with the hazardous soils, deep reconnaissance of the Frost Town area should be revisited.

A no-collection policy was practiced for this project. All cultural materials encountered in the field were recorded on shovel test forms. Any diagnostic artifacts were photographed. All materials were reburied in associated matrix upon completion of the shovel test.

All project-related documentation produced during the survey was prepared in accordance with Federal regulation 36 CFR 79, and with THC requirements for State Held-in-Trust collections. Field notes, field forms, photographs, and field drawings were placed in labeled archival folders and converted into electronic files. Digital photographs were printed on acid-free paper, labeled with approved archival materials, and were placed in archival quality plastic sleeves, when appropriate. All field forms were completed in pencil. A copy of the report, once approved, and digital materials will be saved onto a CD and stored with field notes and documents. All project-related materials will be temporarily housed at RKEI Archaeology Laboratory and will be

permanently curated at the Texas Archeological Research Laboratory (TARL) at the University at Texas at Austin.

Survey Results

Project Area Description: The project areas investigated for this project were High Probability areas identified within the NHHIP APE. These areas are located within Segments 2 and 3 of the project, and are located in close proximity to downtown Houston. Each project area is located in an urban setting.

Parcel 7 is located to the north of Frost Town and Buffalo Bayou (**Figure 22**). The project area is a maintained lawn near local businesses.

Parcels 16, 34, 35, 38-44, and 47-52 are associated with Frost Town and located in James Bute Park and just west of US 59/I-69 (**Figures 25-27**). The park is covered in maintained grass, while the green spaces along the highway are landscaped with trees. Landscaping fabric and fencing has been placed along the banks of Buffalo Bayou to discourage erosion (**Figure 33**). Along this portion of the APE are large pieces of cement and a drainage pipe elevated on a scaffold (**Figure 34**). Similar structures are still visible in the bayou to the west, and are related to the Gable Street Power Plant (c. 1890) (Aulbach 2012:395-399). The area is a dumping spot, and modern refuse is spread from Runnels Street to Buffalo Bayou.

Parcel 2 is located near White Oak Bayou in Hogg Park (**Figure 35**). This space is composed of a maintained lawn, landscaping near the Community Center, and mature trees. Water from nearby Quitman Street runs through a concrete drainage system into a cut towards White Oak Bayou (**Figure 36**). Highway construction is currently impacting the western portion of Hogg Park, near the bayou (**Figure 37**).

Parcel 24 is located to the west of US 59/I-69 at Nance Street (**Figure 40**). This parcel is covered in gravel and is currently used to hold highway construction materials, including large pieces of cement and a dumpster.

Parcel No. 4 is a small, brushy lot located on Dart Street and underneath I-45 (**Figure 41**). The area is currently being used as a staging area for road construction. The southern portion of the parcel serves as an informal route between Kessler and Dart Streets (**Figure 42**). Crush and run gravel has been added to the surface. The northern portion of the parcel is covered in brush and grass. There is a billboard located in this area, advertising to southbound I-45 traffic. The area is disturbed not only by previous construction activities, but by the dumping of concrete, tires, and modern refuse.

Parcels 54-56 run along Heiner Street, across Allen Parkway, into Buffalo Bayou Park. Parcels 54 and 55 are a maintained lawn with mature trees, while Parcel 56 is composed of grasses and landscaped trees (**Figures 44, 48, 50, and 52**). Shovel test investigations of the parcels were kept within the existing TXDOT ROW. A sewage line and other utilities cross the APE along Heiner Street (**Figure 46**). Currently, Heiner Street serves as a staging area for Allen Parkway construction (**Figure 47**). The northern end of Parcel 56 is on a steep slope into Buffalo Bayou

and has been landscaped with trees, shrubs, and other plants for soil retention. In addition, several water and electrical lines run through this area into Buffalo Bayou (**Figure 55**). With a few exceptions, all shovel tests were terminated at 60 cmbs; however, soils continued beyond this depth.

- **Archeological Materials Identified:** Although cultural material was encountered in the High Probability zones, no materials were collected. A no collection policy was followed during this project. The procedure followed included noting items identified on shovel test documentation and photographing items that may be diagnostic.

Parcel 7: Two of the shovel tests (ST 14 and ST 16) encountered chunks of concrete in Level 3 (20–30 cmbs; **Figure 23**). Gravel was present in the first 30 cmbs. STs 14 and 16 are located at the north and center of this portion of the APE. ST 14 contained some modern materials, including pieces of metal, a portion of a metal bolt, and window glass. ST 15 is located approximately 5 meters north of the fence line along Nance Street. Metal and mussel shell were observed in the upper 30 centimeters of the shovel test. However, around 20 cmbs, a thick gravel bed was encountered and water began to seep into the unit. Below the gravel, at approximately 35 cmbs was a 5-centimeter thick layer of charcoal. The last excavated level in ST 15 was 40 to 50 cmbs, as water had accumulated into the unit and the waterlogged sediment was difficult to remove (**Figure 24**).

Incinerators were the main method for disposing of the City's solid waste and trash. By 1930, there were eight incinerators in the Houston area. Established near existing garbage dumps, these incinerators burned approximately eighty-two (82) tons of waste per day. The incinerator located near the APE on North Velasco Street continued operations until the 1950s (Aulbach 2012:511). The burning of waste may have contributed the charcoal layer seen in ST 15. Industrial activities and the distribution of charcoal from incinerators have added toxins into the soil in this area.

Parcels 16, 34, 35, 38-44, and 47-52: Twenty-five shovel tests were excavated in this High Probability zone of the APE. Ten of the twenty-five (25) excavated shovel tests contained either asphalt, concrete, or modern brick below 10 cmbs (**Figure 28**). In addition, fifteen (15) shovel tests contained modern refuse below the surface, as well as historical materials. Often, historical materials were found at 40 cmbs (ST 5, ST 18 and ST 20). ST 18 contained modern refuse, silver foil paper and a sliver of yellow plastic with white lettering, ten centimeters below a piece of solarized glass. This indicates that this area of the site is disturbed and contains fill.

Two shovel tests (ST 22 and 35) contained broken yellow-green bottles (**Figure 29**). Often, historic materials were found in context with modern debris and artifacts. As in ST 22, the yellow-green bottle was found under a metal plate and asphalt (**Figure 30**). The excavation of ST 6 revealed landscaping cloth and darker soil. The shovel test was moved slightly to avoid the cloth, but the darker sediment continued. In this sediment, white earthenware fragments, several shards of various colored glass, and metal fragments were observed (**Figure 31**). In addition to pieces of glass, metal, and construction materials, whole and fragmented mussel

shell was prevalent in shovel tests and observed in nearly all levels. A shell arrow point was documented from ST 18, in Level 4, along with mussel shell fragments (**Figure 32**).

Although cultural materials were encountered in all but three of the shovel tests, it is clear that these materials are associated with overlying fill. This is perhaps best illustrated with the abundance of mussel shell and the presence of the shell arrow point. Shell was most likely added to the fill. In addition, the presence of highly mottled soils, the numerous soil colors encountered in the APE, and the presence of “older” artifacts (e.g., solarized glass) above “younger” materials (e.g., plastic), indicates that there is a thick fill layer present over Frost Town deposits. The presence of fill on both banks of Buffalo Bayou, and the existence of intact deposits under the fill, has been demonstrated by previous investigations by Prewitt & Associates, Inc. (Boyd et al. 2005) and HRA Gray & Pape, LLC (Hughey et al. 2007).

Parcel 2: Five shovel tests were excavated in this location. White earthenware was identified in the first 10 centimeters of matrix in the first shovel test (ST 29). ST 30 contained modern cultural materials from 0 to 30 cmbs and from 40 to 50 cmbs. These items included a colorless glass jar bottom and a piece of the neck, a green coin (possible penny), and wire fragments. Placed on either side of a drainage bisecting the northern edge of the project area, STs 32 and 33 each contained colorless glass, including window glass, and one piece of amber glass. The silty clay soil in this area ranged in color from yellowish browns to dark yellowish brown (**Figure 38**). This is consistent with the findings of the MAC excavations for the proposed Tiger Trails (Mangum 2012).

Parcel 24: This highly disturbed area is covered in gravel and contains underlying pieces of cement, gravel, and asphalt. Therefore, it was difficult to place a shovel test that encountered soils beyond a few centimeters. The one shovel test excavated in this parcel (ST 35) was ended at 37 cmbs due to a large piece of cement (**Figure 40**). No artifacts were observed in this shovel test.

Parcel 4: Despite being located near the 1840 New City Cemetery (41HR983) and Jefferson Davis Hospital, the lot did not contain historic cultural deposits. A plastic hat for a child’s toy doll, colorless glass, and other modern refuse were recovered from the single shovel test excavated (ST 34). Near the surface, the shovel test contained silty clay soils that were brown in color. However, these soils became heavily mottled and redder in color with depth (**Figure 43**).

Parcels 54-56: Five shovel tests were excavated within the TXDOT ROW along Heiner Street. A shovel test investigation of Parcels 54 and 55 occurred to the east of the property’s fence line and retention wall. The soil texture in this area was predominately silty clay, and ranged in color from dark grayish brown to dark brown (**Figure 45**). Soils became lighter in color, ranging from light brownish gray to light gray towards Allen Parkway. No cultural deposits were identified in ST 36 through ST 40. ST 41 and ST 42 were located in median spaces adjacent to Buffalo Bayou Park. These shovel tests contained several colors of silty clay. Bands of very dark grayish brown overlay mottled yellowish red soils with redox soils (**Figures 50-52**). ST 41 contained colorless glass shards between 10 and 30 cmbs. Colorless glass, yellow glass, amber glass, cobalt glass, and a small colorless glass neck were identified between 10 and 20 cmbs in ST 42. No other

artifacts were identified in this shovel test. The northern portion of Parcel 56 was not investigated due to its steep slope (**Figures 53-54**) (greater than 30°). In addition, this location contained markers for utility lines and was landscaped with thick vegetation (**Figure 55**).

- **APE Integrity:** The shovel test investigation of High Probability parcels indicates that activities associated with urban development have disturbed underlying cultural deposits. However, this does not suggest that intact cultural deposits do not exist in disturbed areas. The materials identified in the shovel tests from the High Probability zones investigated indicate that cultural materials from outside the APE are present in the project area, having been incorporated in soils brought in as fill. This is consistent with the finds of previous archeological investigations conducted within the APE and adjacent areas (Boyd et al. 2005; Hughey et al. 2007; Mangum 2012). These cultural deposits are in a secondary context and their origin is unknown.

In addition, the installation of gas, electrical, sewage, water, and communication lines, the construction of roads and highways, adjacent secondary impacts and the addition of soil as fill, or the removal of soil through grading or natural erosion have impacted the integrity of the APE. This is best exemplified by the northernmost portions of Parcel 56, which slope steeply into Buffalo Bayou and contain utility lines; the addition of gravel, cement, and the impact of highway and infrastructure construction as seen in Parcels 24 and 4; and the elevation change between Heiner Street and the Houston Housing Authority property in Parcels 54 and 55.

Despite these disturbances, previous excavations in the area have shown that deeply buried, intact, deposits are likely to be present in Frost Town (41HR982 and 41HR1037) and Freedmen's Town (41HR866), below thick layers of fill (Boyd et al. 2005; Hughey et al. 2007).

Recommendations

- **Archeological Site Evaluations:** The survey of sixteen High Probability zone parcels located within the NHHIP APE did not encounter significant intact cultural deposits. ROE could not be obtained for a number of parcels that were in High Probability areas of the APE. In addition, areas with possible intact deeply buried cultural deposits could not be investigated due to the presence of contaminated soils. No new archeological sites were identified and/or documented.

- **Frost Town (41HR982 and 41HR1037)**

The shovel tests excavated in parcels associated with Frost Town suggest that intact cultural materials may lie underneath deposits of fill that blanket the area at least to a depth of 60 cmbs near the southern edge of the associated parcels and to an even greater depth toward the north as one approaches Buffalo Bayou. Heavily mottled clay soils documented across the area coupled with pockets of crushed mussel shell indicate that these soils were brought into the area as fill. Cultural materials found within this matrix are not associated with the site.

Frost Town (41HR982) has been determined to be eligible for inclusion on the NRHP (THC 2015) [36 CFR 800-16(l)]. A further assessment of overlying fill and potential disturbances from highway construction is needed to determine if 41HR1037 is eligible [13 TAC 26 §26.10].

- **Freedmen's Town (41HR886)**

The San Felipe Courts Historic District is located within the boundaries of 41HR886. Freedmen's Town (41HR866) was determined to be eligible for inclusion on the NRHP (2002) (THC 2015) [36 CFR 800-16(l)]. The contributing elements to the historic district include the cemetery, and cultural materials and features associated with the early Freedmen's Town inhabitants.

RKEI did not locate additional deposits associated with the Third New City Cemetery or Freedmen's Town. Heiner Street lies between 6 inches to 5 feet lower than the Houston Housing Authority complex. The depth increases moving northward down Heiner Street.

The current site boundary ends along the fence line between the Houston Housing Authority Building and Heiner Street. Heiner Street has been impacted by construction of I-45, installations of utilities, including a sewer line and water line with fire hydrant, and the construction of the Houston Housing Authority complex. It is possible that these impacts could have reached intact cultural deposits, although additional archaeological work is needed to determine if the utilities have encountered deposits. Further investigations within the area cannot be carried out until the issue of contaminated soils is resolved or proper measures are implemented to allow for archeological crews to investigate the site using adequate safety protocols.

Comments on Evaluations: The reinterred remains from the Third New City Cemetery located on Houston Housing Authority land should be avoided.

- **Further Work:** Low Probability areas were determined to lack potential for producing intact, significant cultural materials. The Low Probability areas were heavily disturbed by construction or development, or had no significant findings during previous surveys. The PALM was also consulted to determine if these parcels had potential for intact cultural deposits beneath the known impacts. The Low Probability areas were not recommended to be archaeologically investigated during the course of this project, as they lacked either the potential for significant cultural deposits, or were heavily impacted by standing or previous construction. RKEI recommends that no archeological investigations of these areas are warranted during the remainder of the NHHIP.
- The Moderate Probability areas were identified as exhibiting minimal development and no previous archeological surveys. Review of the PALM and reconnaissance indicated that the Moderate Probability areas could potentially produce deeply buried deposits. Moderate Probability areas were not investigated during the course of this survey, per consultation with the Houston District. In addition, many of the parcels deemed to be Moderate Probability were located on private property for which ROE had not yet been obtained at the time of the survey. RKEI recommends the Moderate Probability areas determined during the initially reconnaissance and consultation with the District be revisited once ROE is obtained. RKEI recommends that these areas be investigated via archaeological backhoe trenching to locate potential deeply buried deposits.

- RKEI staff recommends that further work be performed within portions of the APE determined to be High Probability before construction of the NHHIP commences. High Probability zone parcels not investigated during this undertaking should be investigated as ROE is obtained. Also, once hazardous soils are properly addressed, parcels associated with Frost Town and Freedmen's Town should be revisited. These areas warrant deep reconnaissance for potentially intact deposits located under fill materials. Should any additional changes be made to the project area, further work may be required.
- **Justification:** Despite the various disturbances that have impacted the APE and the lack of integrity documented in shovel tests, it is highly likely that the proposed construction would encounter or impact intact and significant archeological deposits in areas of High Probability described below. Two significant archeological and historic sites are located within or nearby the APE (Frost Town [41HR982] and Freedmen's Town [41HR886]) [36 CFR 800-16(l)]. Frost Town (41HR982) was determined to be eligible for the NRHP in 2005. Frost Town is recognized by the City of Houston as an archeological site and historic landmark. The Third City Cemetery and Freedmen's Town deposits (41HR886) were determined to be eligible for the NRHP in 2002 (THC 2015). It is unlikely that cemeteries would be disturbed in the investigated High Probability zones, however, the project should be careful to avoid impacting Third City Cemetery remains located on Parcel 55 near the Houston Housing Authority building [Health and Safety Code, Title 1, Chapter 711.010, Title 1, Chapter 711.035]. It is unlikely that the project would impact SALs [13 TAC §26.12].

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Figures

Figure 1. USGS 7.5 Minute Quadrangle maps, including Aldine (2995-443), Sett gast (2995-431), Houston Heights (2995-432), and Park Place (2995-424).

Figure 2. North Houston Highway Improvement Project (NHHIP) APE on Aerial.

Figure 3. Geology of the APE.

Figure 4. Soils map of the APE.

Figure 5. Texas Archeological Sites Atlas Map with site locations.

Figures 6 to 11. Investigated High Probability Areas.

Figures 12 to 15. Parcel Maps of Moderate and High Probability Areas.

Figures 15 to 21. Locations of Shovel Tests.

Figures 22 to 55. Shovel Test Investigation Photographs.

Appendix A

Houston District PALM.

Appendix B

High and Moderate Probability Zones within Proposed Alternates for All Segments.

Appendix C

NHHIP Schematics.



This report was written on behalf of the Texas Department of Transportation by

12821 W. Golden Lane
San Antonio, TX 78249

www.rkci.com

Figure 1. North Houston Highway Improvement Project (NHHIP) on the USGS 7.5 Minute Quadrangle maps, including Aldine (2995-443), Settegast (2995-431), Houston Heights (2995-432), and Park Place (2995-424).

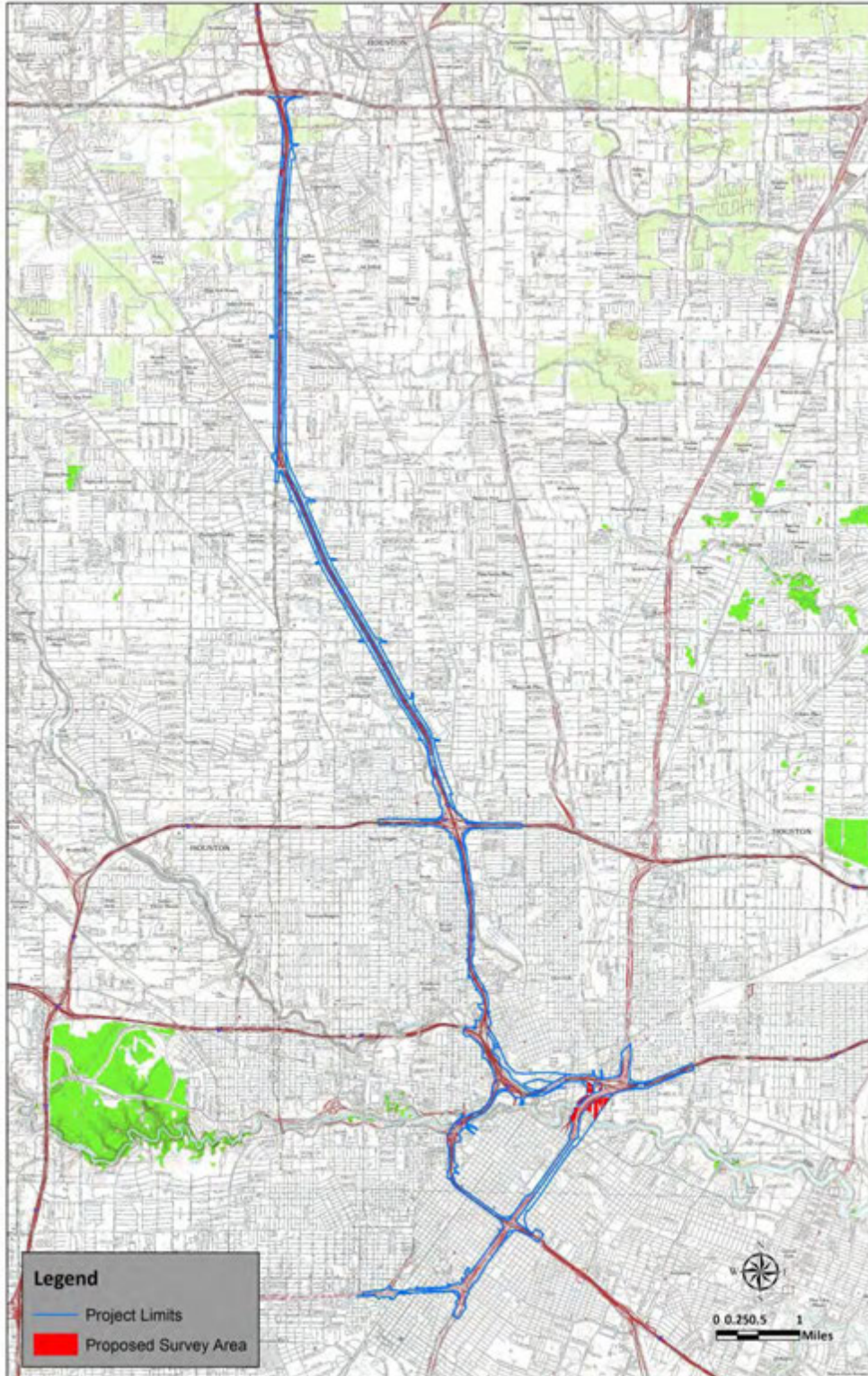


Figure 2. NHHIP APE on Aerial Map.

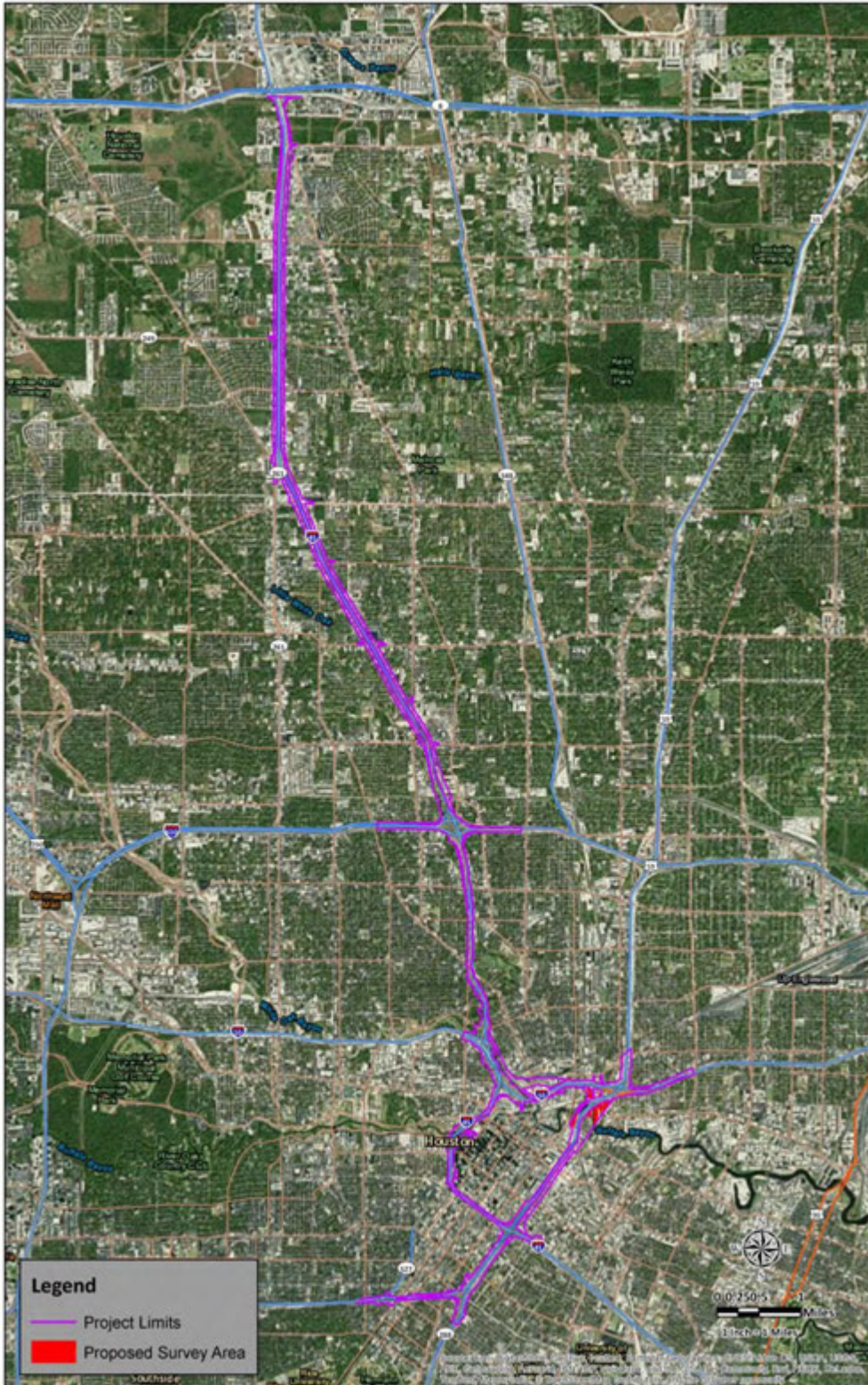


Figure 3. Geology of the APE.

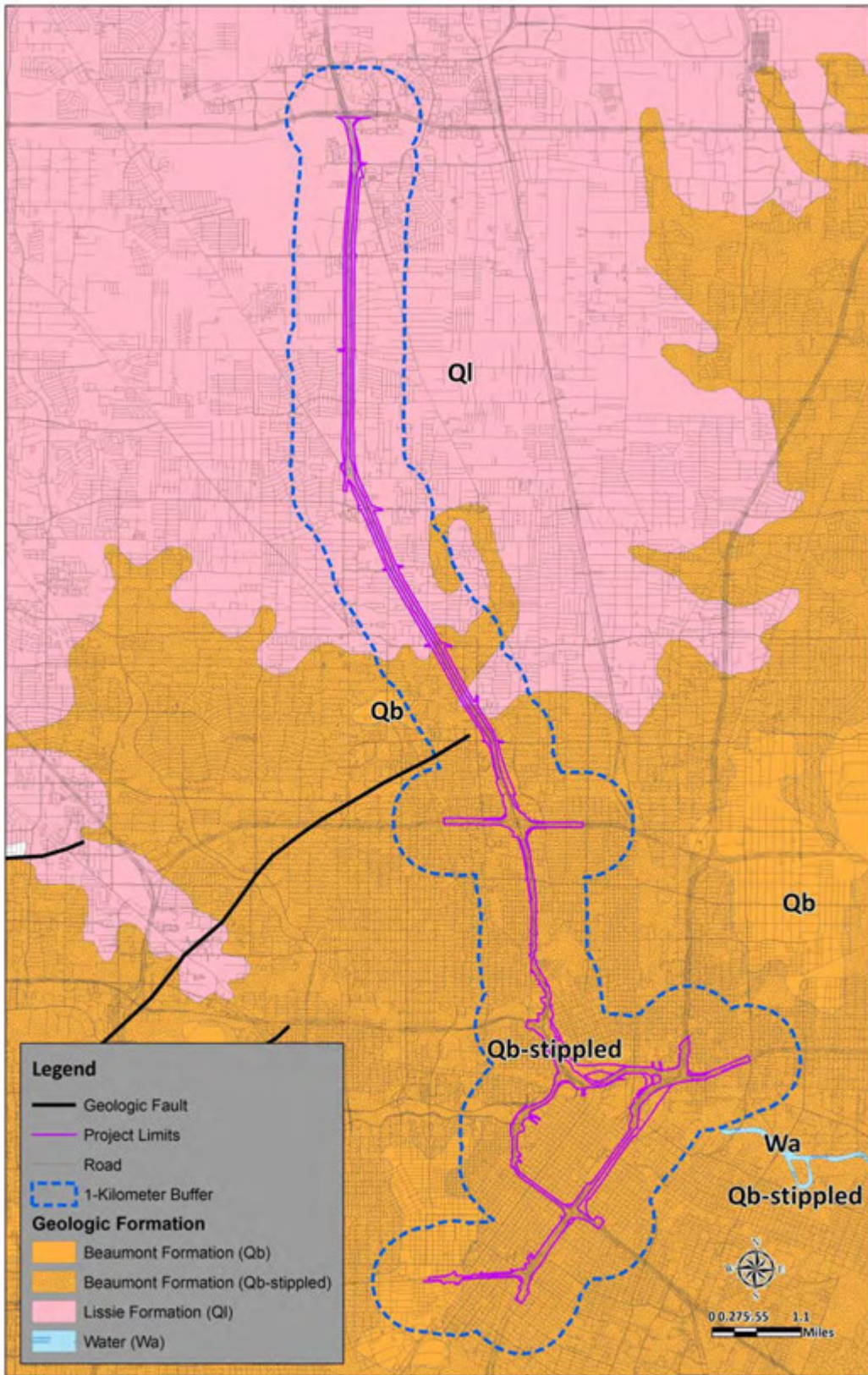
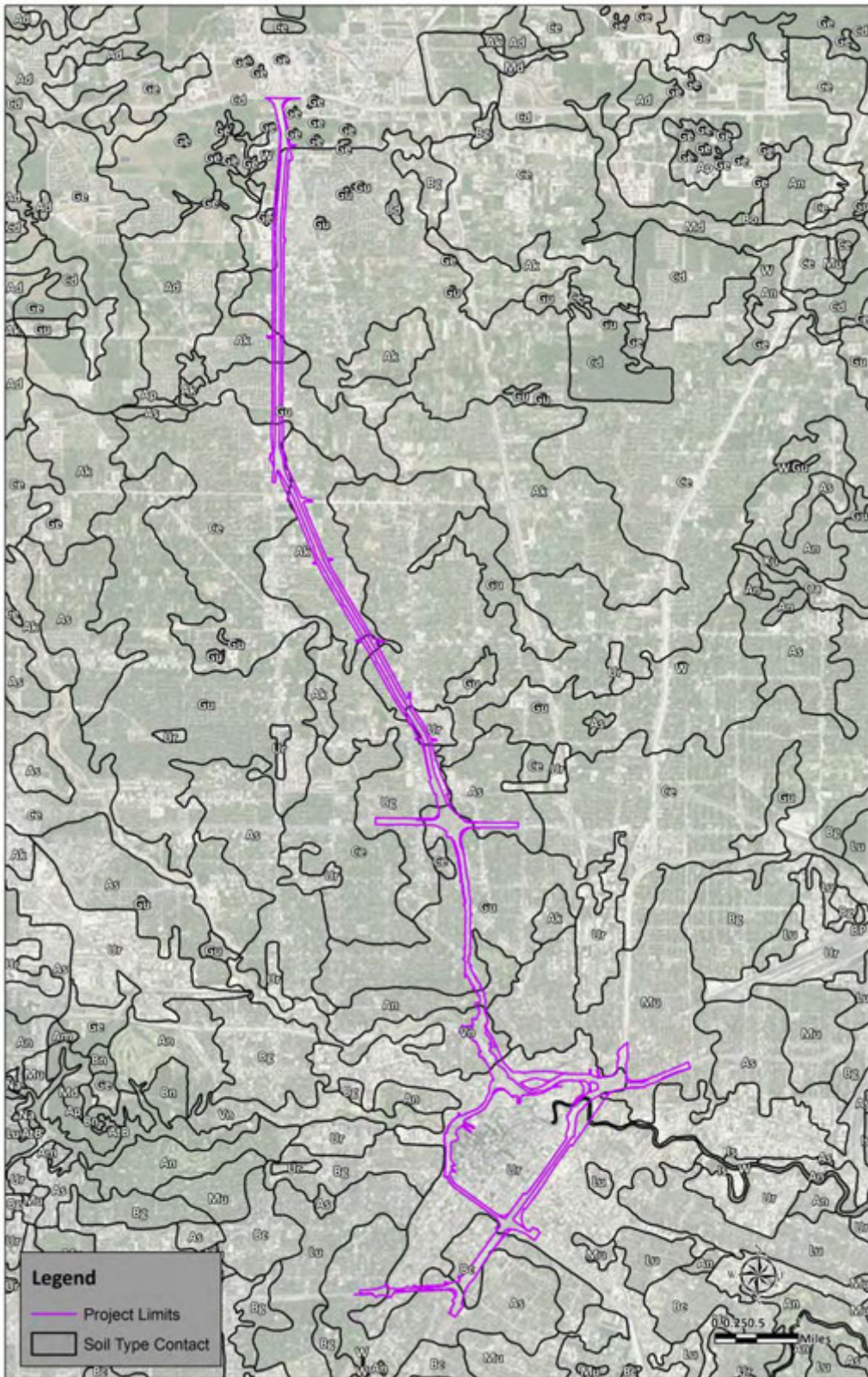


Figure 4. Soils map of the APE.



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**Project Photographs for
Parcel No. 7 (Figures 22-24)**



Figure 22. Looking north along APE in Parcel No. 7.



Figure 23. Shovel Test No. 14 at 30 cmbs with metal strip and possible concrete.

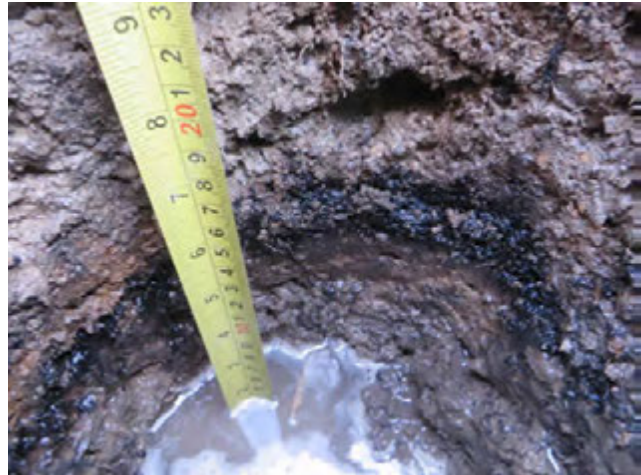


Figure 24. A close-up of the gravel, charcoal, and crushed mussel shell and clay strata in Shovel Test No. 15.

**Project Photos for Parcels
Nos. 16, 34-35, 38-44, and 47-52
(Figures 25-34)**



Figure 25. The APE under the US 59 flyovers, looking North. Note Elysian Street to the left



Figure 26. Looking South down the APE along US 59. Note the berm sloping away from the main lanes.



Figure 27. The APE at Buffalo Bayou, looking Southwest towards Elysian Street and Downtown.



Figure 28. Shovel Test No. 19 at 60 cmbs. Note cement in unit.



Figure 29. A close-up of the green bottle at 40 cmbs in Shovel Test No. 22.



Figure 30. Shovel Test No. 22 at 40 cmbs. Note asphalt, metal plate, and green bottle.



Figure 31. Mottled soils and dark stain with fabric cloth in Shovel Test No. 6.



Figure 32. Shell arrow point from Shovel Test No. 18, Level 4, 30 – 40 cmbs.



Figure 33. Landscape fabric used to prevent soil from eroding into Buffalo Bayou.



Figure 34. Scaffold and drainage pipe into Buffalo Bayou, southern bank, looking north

**Project Photographs for Parcel No. 2
(Figures 35-38)**



Figure 35. Project area on Parcel No. 2 looking southwest towards I-45 and downtown Houston.



Figure 36. Looking west towards highway construction near Shovel Test No. 32.



Figure 37. Looking south towards drainage from Shovel Test No. 34.



Figure 38. Shovel Test No. 34 at 60 cmbs. Note the soil color change

**Project Photographs for Parcel No. 24
(Figures 39 and 40)**



Figure 39. Looking north at Parcel No. 24.



Figure 40. Shovel Test No. 35. Note cement in shovel test and mottled soil.

**Project Photographs for Parcel No. 4
(Figures 41-43)**



Figure 41. Looking north into Parcel No. 4



Figure 42. Looking south along Parcel No. 4. Note gravel area used as a cut-through for traffic.



Figure 43. Shovel Test No. 34 at 60 cmbs.

**Project Photographs for Parcels Nos. 54-56
(Figures 44-55)**



Figure 44. Looking north along Parcels No. 54 and No. 55.



Figure 45. Shovel Test No. 38 at 60 cmbs. Note mottled soils.



Figure 46. Sewage cap sitting along ROW between Shovel Test Nos. 37 and 38, looking south.



Figure 47. Highway construction at Allen Parkway and Heiner Street.



Figure 48. Looking south from Shovel Test No. 41 towards Allen Parkway.



Figure 49. Shovel Test No. 41 at 60 cmbs. Note soil color changes



Figure 50. Looking northeast from Shovel Test No. 41.



Figure 51. Shovel Test No. 42 at 60 cmts. Note heavily mottled soils.



Figure 52. Looking east from Shovel Test No. 42.



Figure 53. South bank of Buffalo Bayou. Note steep slope down to hike and bike trail.



Figure 54. Looking east towards APE along Buffalo Bayou. Note lights along path.



Figure 55. Southern bank of Buffalo Bayou. Note poles marking various utilities.

REDACTED PER ANTIQUITIES CODE AND SECTION 106 REQUIREMENTS



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February 2, 2017

RECEIVED
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Section 106/Antiquities Code of Texas: Coordination, Review and Comments (Permit #7458)
Intensive Survey Draft Report: North Houston Highway Improvement Project
Houston District; Harris County (CSJ: 0912-00-146)

Ms. Patricia A. Mercado-Allinger
Division Director/State Archeologist
Archeology Division
Texas Historical Commission
PO Box 12276
Austin, TX 78711-2276

Dear Ms. Mercado-Allinger:

The proposed project will be undertaken with Federal funding. In accordance with Section 106 (and the First Amended Programmatic Agreement among the Texas Department of Transportation [TxDOT], the Texas State Historical Preservation Officer [TSHPO], the Federal Highway Administration [FHWA], and the Advisory Council on Historic Preservation) and the Antiquities Code of Texas (and the Memorandum of Understanding between the Texas Historical Commission [THC] and TxDOT), this letter initiates consultation for the proposed undertaking.

The Houston District of the Texas Department of Transportation (TxDOT) proposes to widen and improve Interstate 45 between Beltway 8 and I-610; the I-45 corridor between I-610 and to I-10; and the Downtown Loop at I-45 and US 59/I-69 at I-10 (CSJ: 0912-00-146). The proposed project is composed of three segments: Segment 1: the I-45 corridor between Beltway 8 and I-610; Segment 2: the I-45 corridor between I-610 and I-10; and Segment 3: focused on I-45 and US 59/I-69 between I-10 and their interchange south of downtown Houston. The proposed highway improvement project involves the acquisition of new ROW. The total acreage that would be impacted by the proposed project is 614.7 acres. The typical construction ROW would be 130 meters (426.5 feet) wide; however, the actual ROW dimensions vary greatly between segments and alternatives. The area of potential effect (APE) is defined as the proposed project length, the existing and proposed ROW width, and the depth of construction impacts (as much as 100 feet for grade separations).

Raba Kistner Environmental, Inc. (RKEI) archeologists, under contract to AECOM and on behalf of TxDOT, conducted an intensive survey of the above proposed project during December 2015 and January 2016. Archival review determined that there were several recorded archeological properties within and adjacent to the proposed project APE, particularly in the downtown area. Low probability areas and moderate probability areas, the bulk of the 614.7 acre APE did not warrant intensive survey due to soil, landform, and disturbance issues. The High Probability Areas within the APE were assessed via pedestrian survey and 42 shovel-tests, across 23 parcels measuring a combined 2.25 acres of identified high probability areas. RKEI intended to follow up with backhoe trenching in selected portions of the area. However, following TxDOT's identification of contaminated soils within the area, and subsequent to a discussion between the Principal Investigator and TxDOT Archeologist, Dr. Jason Barrett, RKEI staff was advised to avoid deep reconnaissance excavations in these areas. No archeological materials were encountered within the APE only modern trash and extensively disturbed soils. Based on this, RKEI archeologists recommended that no further archeological investigations were needed at this time. RKEI archeologist further recommended that due to the unknown extent of the contaminated soils, two areas of High Probability located within the Frost Town and Freedmen's Town historic sites could not be adequately investigated. They recommend that portions of these sites that fall within the project APE be investigated in the future, provided that conditions are safe for archeological investigations. No additional archeological investigations are recommended in other High Probability portions of the APE that could be accessed during the pedestrian survey. However, a number of High Probability Areas could not be accessed due to lack of ROE permissions. Similarly a small amount of

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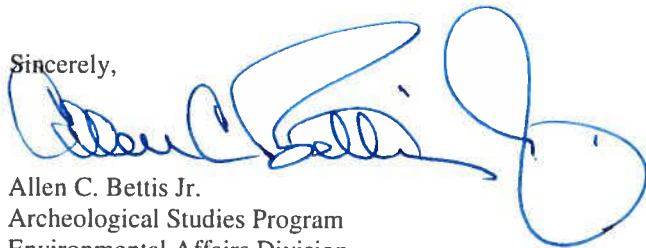
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Moderate Probability Areas needing mechanical trenching were denied ROE. It is recommended that these areas be subject to intensive survey, when ROE is obtained or upon acquisition of the properties by the State. TxDOT archeologists agree with these recommendations. TxDOT requests permission to defer the remainder of the survey until that time that access is acquired and allowing the National Environmental Policy Act process, and property acquisition, to continue. Once access has been acquired, TxDOT would be obligated to complete the intensive survey. No construction may commence in the unsurveyed portion of the APE until the archeological inventory and coordination with your office is completed.

Please find attached for your review and comments the draft survey report from Horizon, *Report for Archeological Survey, North Houston Highway Improvement Project*. If you have no objections to the recommendations made or any comments on this draft report and find it acceptable, please sign below to indicate your concurrence and stamp the cover to indicate acceptance.

Thank you for your consideration in this matter. If you have any questions or further need of assistance, please contact Allen Bettis of the TxDOT Archeological Studies Program at (512) 416-2747.

Sincerely,


Allen C. Bettis Jr.
Archeological Studies Program
Environmental Affairs Division

Attachment
cc w/o attachments:

Steve Tomka, RKEI – Austin
Kelly Lark, Houston District Office
ACB ECOS


Concurrence:
for Mark S. Wolfe, State Historic Preservation Officer

2-21-17
Date:

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

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Texas Department of Transportation



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May 24, 2018

Section 106/Antiquities Code of Texas: Coordination, Review and Comments
Background Study: Interstate Highway 45 – North Houston Highway Improvement Project
Houston District; Harris County (CSJ: 0912-00-146)
AUG 5/31/2018

Ms. Patricia A. Mercado-Allinger
Division Director/State Archeologist
Archeology Division
Texas Historical Commission
PO Box 12276
Austin, TX 78711-2276

Dear Ms. Mercado-Allinger:

The proposed project will be undertaken with Federal funding. In accordance with Section 106 (and the Programmatic Agreement among the Texas Department of Transportation [TxDOT], the Texas State Historical Preservation Officer [TSHPO], the Federal Highway Administration [FHWA], and the Advisory Council on Historic Preservation) and the Antiquities Code of Texas (and the Memorandum of Understanding between the Texas Historical Commission [THC] and TxDOT), this letter continues formal Section 106 consultation for the proposed undertaking.

The proposed project, known as the North Houston Highway Improvement Project (NHHIP), would improve Interstate Highway (IH) 45 between US Highway (US) 59/IH 69 at Spur 527 and IH 45 at Beltway (BW) 8 N to create additional roadway capacity to manage congestion, enhance safety, and improve mobility and operational efficiency. The proposed project includes roadway improvements to add four managed express lanes on I-45 from Downtown Houston to Beltway 8 North, reroute IH 45 to be parallel with IH 10 on the north side of Downtown Houston and parallel to US 59/IH 69 on the east side of Downtown Houston, realign portions of IH 10 and US 59/IH 69 in the Downtown area to eliminate the current roadway curvature, and transition the proposed roadway improvements to the interchange of US 59/IH 69 and Spur 527 south of Downtown Houston. The proposed project also includes reconstruction of mainlanes and frontage roads, the addition of bicycle/pedestrian features along frontage roads, and the addition of express lanes on IH 10 from IH 45 to US 59/IH 69 (see Figure 1 & Figures 2a-2c).

At present, the area of potential effect (APE) is the preferred alignment that measures approximately 25 miles in length and ranges in width from approximately 200 feet on minor surface streets to more than 1,500 feet at major intersections. The estimated range of impact depths is similarly broad, from 2 feet or less at minor surface transitions to more than 30 feet at major intersections and waterway crossings. The project footprint covers a total area of 1,653.4 acres, of which 1,205.2 acres is existing right-of-way (ROW) and 448.2 acres is proposed ROW. For the purposes of this cultural resources review, potential impacts are considered within an area that includes the stated APE, as well as a 100 foot lateral buffer around the low probability parcels to account for potential alterations

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to the proposed APE included in the final project design (see attached map for buffer areas). Consultation would be continued if potential impacts extend beyond this buffer, based on the final design.

The proposed project APE is described as an area of predominately relict soils across a broad area of upland coastal plain, with an approximate elevation of 45 to 90 feet NGVD. The APE is located in an area of urban roadways with extensive residential and commercial development. Current land use is as existing urban roadway and mechanically maintained ROW. The proposed improvement project is depicted on the attached sections of the USGS Aldine, TX (2995-433) and the USGS Houston Heights, TX (2995-432) 7.5' topographic quadrangle maps.

The Geologic Atlas of Texas, Beaumont Sheet (BEG, UT-Austin: 1968 - photo revised 1992), depicts the current proposed project APE within a broad area mapped as Pleistocene Lissie Formation and Pleistocene Beaumont Formation (see attached). The Web Soil Surveys (USDA-NRCS: 2008, <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>) for Harris County, Texas depicts the APE within an area mapped within the following relict soils; in the north end of the APE, soils are mapped predominately as Clodine fine sandy loam and Clodine-Urban Land; in the south end, nearly the entirety is mapped as Urban Land. Other minor areas of soils are identified as Addicks, Aris, Bacliff, Bernard, Gessner, Verland, Texla, and Vamont Series soils (see attached). No fully intact soils are known to exist in the project area, which has been profoundly disturbed by nearly 200 years of historic-period and modern settlement, industry, and drainage modification. Drainage in the proposed project area is via manmade channels and storm sewers.

A review of the Texas Historic Sites Atlas on 05/07/2018 revealed that there are at least two previously recorded archeological site, archeological historic properties (36 CFR 800.16(1)) or State Antiquities Landmarks (13 TAC 26.8) located within or immediately adjacent to the APE for this proposed project (see attached). These are 41HR982 and 41HR1037, both associated with the Frost Town subdivision. There are numerous other recorded sites located in close proximity, less than 1,000 meters (3,300 feet), of the APE. Most of these are located in the downtown area and include 41HR747 - a historic trash dump located northwest of Frost Town along Buffalo Bayou, 41HR1166 - the Peter Floeck Tracts located southwest of Frost Town, 41HR1167 - a gully that was filled with historic trash and debris, 41HR907 - a brick wall structure located along Buffalo Bayou, 41HR908 - a possible 19th century brick structure, and 41HR866 - Freedmen's Town (the 4th Ward). The 2007 TxDOT archeological survey of the entire project APE did not encounter any archeological materials within the APE. There are several archeological surveys that either cross or are located adjacent or nearby the proposed project APE, these include the following. The 1990 State Department of Highways and Transportation survey of Farm-to-Market Road (FM) 525, the 1998 City of Houston survey of Little Whiteoak Bayou east of the NHHIP APE, the 2006 Federal Highways Administration (FHWA) survey of a bridge replacement project on Houston Avenue at Whiteoak Bayou, the 2005 Harris County Flood Control District (HCFCD) reconnaissance survey of Halls Bayou, the 2003 and 2014 TxDOT surveys of the Elysian Viaduct improvement project, the 2012 US Army Corps of Engineers (USACOE) - Galveston District survey for a commercial development west of the NHHIP at the northern end of the APE, the 2012 City of Houston survey of the Tiger Trails Project, and the 2017 FHWA/TxDOT survey by Raba Kistner of the NHHIP APE.

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The APE is located within an area of predominately relict soils. These relict soils are located on a stable landform that generally predates human occupation and has very little reasonable probability for Native American archeological materials except where intact soils are located in close proximity to a reliable source of freshwater. There is a high probability for historic-age archeological materials throughout the Downtown area whenever intact features are encountered below modern developmental fill and disturbance. The APE is described as an area of urban roadway and urban development, the majority of the APE has been extensively disturbed by the above developmental activities. The 2017 Raba Kistner survey for TxDOT only surveyed a few minor areas of the NHHIP APE either because of right-of-entry issues (this was dealt with in separate coordination) or hazardous material concerns. Raba Kistner recommended that parcels with moderate probability for archeological materials at the northern end of the NHHIP APE and parcels with a high probability in the downtown area at the southern end of the NHHIP APE warranted intensive archeological survey (see Figures 2a-2c). TxDOT agreed with this recommendation and coordinated the Raba Kistner survey report with your office on February 2, 2017, your office concurred with the recommendations made on February 21, 2017.

Based on the results of this background study, TxDOT further recommends that parcels within the NHHIP APE that are also within the Elysian Viaduct APE and have already been surveyed and assessed by the Elysian Viaduct archeological survey (see Figures 3 & 4) do not warrant any further investigation under this project (please note, some of these parcels may currently have data recovery investigations ongoing). TxDOT additionally recommends that the remainder of the NHHIP APE (low probability/no probability parcels) that was not recommended for intensive survey is extensively disturbed by the above mentioned developmental activities and no further archeological investigations are warranted for the existing ROW and parcels containing proposed new ROW. Any archeological materials that might have occurred within the APE are disturbed and out of context and would lack sufficient horizontal and vertical integrity of location, association, and materials to be able to address important questions of history and prehistory (36 CFR 60.4). Review of available historic maps has revealed that there were no structures of more than 50 years in age within the portion of the NHHIP APE not recommend for intensive survey (see attached spreadsheet of parcels recommended for survey, excluding the parcels already being investigated by the Elysian Viaduct project).

Pursuant to Stipulation VI of the PA and 43 TAC 2.24(f)(1)(C) of the MOU, TxDOT finds that the proposed undertaking would not affect archeological historic properties (36 CFR 800.16(1)) or State Archeological Landmarks. No further investigations are warranted within the NHHIP APE, except for those parcels that warrant intensive survey, and the proposed project should be allowed to proceed to construction. The proposed project should be allowed to proceed to construction except for those parcels warranting intensive survey. As provided in Stipulation IX .D.6.a of the First Amended Programmatic Agreement among the Federal Highway Administration, the Texas Department of Transportation, the Texas State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings, consultation with SHPO is not necessary for this undertaking. Based on the above findings, TxDOT proposes the following recommendations:

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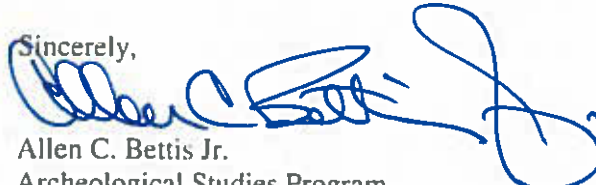
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- an archival review has found that no archeological historic properties (36 CFR 800.16(l)) or SAL (13 TAC 26.8) would be affected by this project;
- that no further archeological investigation is warranted within the NHHIP APE, except for those parcels that warrant intensive survey, and the proposed project should be allowed to proceed to construction;
- that a buffer zone of 100 feet beyond the low probability parcels within the APE be considered as part of the cultural resources evaluation; and,
- if changes to the project APE extend beyond the 100-foot buffer around the low probability parcels and/or the remainder of the APE requires an archeological investigation, additional coordination with your office would be necessary;

In the event that unanticipated archeological deposits are encountered during construction, work in the immediate area will cease, and TxDOT archeological staff will be contacted to initiate post-review discovery procedures under the provisions of the PA-TU and MOU.

TxDOT is seeking your formal concurrence on the above recommendations for Section 106 coordination. If you have no comments to make or objections to the above recommendations made, please sign below to indicate your concurrence.

Thank you for your consideration in this matter. If you have any questions or further need of assistance, please contact Allen Bettis of the TxDOT Archeological Studies Program at (512) 416-2747.

Sincerely,

 Allen C. Bettis Jr.
 Archeological Studies Program
 Environmental Affairs Division

Attachment

cc w/o attachments: Terri Dedhia, Houston District Office
 ACB ECOS


 Concurrence: _____ Date: 5/25/18
 for Mark S. Wolfe, State Historic Preservation Officer

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.



Final Archeological Survey/Testing Report

Assessment of 2.3 Acres of High Archeological Probability, Including Portions of 41HR982 and 41HR1037, for the North Houston Highway Improvement Project, Harris County, Texas

CSJ: 0912-00-146

Principal Investigators: Chris Dayton, PhD, RPA
Scotty Moore, MA, RPA

Report Authors: Scotty Moore, MA, RPA
Melissa M. Green, MA, RPA
Brett Lang, MS, RPA
Tom Nuckols
Chris Dayton, PhD, RPA
Cox|McLain Environmental Consulting, Inc.

May 2019

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

Assessment of 2.3 Acres of High Archeological
Probability, Including Portions of 41HR982 and
41HR1037, for the North Houston
Highway Improvement Project,
Harris County, Texas
(CSJ: 0912-00-146)

Prepared by

Scotty Moore, MA, RPA (Co-Principal Investigator)
Melissa M. Green, MA, RPA (Senior Archeologist/Analyst)
Brett Lang, MS, RPA (Project Archeologist)
Tom Nuckols (Technician/Analyst)
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Cox|McLain Environmental Consulting, Inc.
1710 S. Dairy Ashford Road, Suite 110
Houston, TX 77077

For

Texas Department of Transportation
Houston District

Under

Texas Antiquities Permit 8613

Cox|McLain Environmental Consulting Inc. Archeological Report 213
(CMEC-AR-213)



May 10, 2019

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

ABSTRACT

An assessment of high archeological probability areas associated with the North Houston Highway Improvement Project (NHHIP) was conducted under Texas Antiquities Permit #8613 in November and December 2018. This assessment included deep mechanical investigations within a portion of site 41HR982 (Frost Town and El Barrio del Alacrán) that will be affected by highway demolition. The project is overseen by the Texas Department of Transportation (TxDOT) and partially funded by the Federal Highway Administration; therefore, it is subject to Section 106 of the National Historic Preservation Act as well as the Antiquities Code of Texas.

In consultation with TxDOT throughout 2017 and 2018 and following on probability assessments and survey fieldwork carried out by others in 2016, the survey area for this phase of the project was defined as approximately 2.3 acres (0.93 hectares) of publicly- and privately-owned land located immediately northeast of downtown Houston. Approximately 1.8 acres of the survey area (78 percent; 0.7 hectares) is located on existing public right-of-way within the established site boundaries of 41HR982 and 41HR1037, while the remainder consists of privately-owned and extensively disturbed land north of Nance Street. In 2016, the 41HR982/1037 acreage was subjected to pedestrian survey and shovel testing by others; at that time, such methods were found to be insufficient and deep testing of the area was recommended. The work described in the present report therefore completes the final outstanding survey investigations within NHHIP high-probability areas and also provides testing-level data regarding site 41HR982.

The northernmost high archeological probability locations, comprising 0.5 acres of privately-owned property, are located north of Buffalo Bayou and adjacent to Nance Street where it intersects US Highway 59. Due to evidence of significant disturbance caused by modern commercial use and utility installations, no additional subsurface investigations were conducted in these locations. No further work is recommended in the privately-owned part of the survey area.

The southernmost high archeological probability location, which falls entirely within sites 41HR982 and 41HR1037, is bounded to the west and north by privately-owned land, to the east by northbound lanes of U.S. Highway (US) 59, and to the south by Runnels Street. It is located directly beneath the elevated southbound lanes of US 59. The property is currently undeveloped but was the setting for a transient camp until October 2018. This 1.8-acre location represents the portion of the overall 1,657-acre NHHIP footprint where deep testing was recommended, feasible, and likely to encounter intact archeological deposits. Site 41HR982 has been previously determined eligible for inclusion on the National Register of Historic Places (NRHP); the purpose of the current deep testing program is to determine the extent and integrity of buried cultural resources within the portion of this site that would be impacted by the proposed project and to determine whether any buried resources represent contributing elements to the site's NRHP eligibility.

Fieldwork was conducted over the course of two weeks from November 26 to December 5, 2018. In all, 24 mechanically excavated trenches with a combined length of 125.8 meters (m; 412.7 feet [ft]) and a single 0.5-m-by-0.5-m (1.64-ft-by-1.64-ft) test unit were investigated within the survey area. Examination of exposed stratigraphy and cultural deposits clearly show that the entire survey area has been subjected to disturbance from activities related to the construction of US 59 in the 1950s, later highway maintenance, modern utility installation, and the recent transient encampment.

Despite the high level of disturbance, the deep testing program resulted in the identification of 28 intact or partially intact historic features and over 1,000 domestic, personal, structural, and indefinite artifacts related to the early-to-mid-twentieth-century occupation of the area within the boundaries of 41HR982. A total of 33 temporally and culturally diagnostic artifacts were collected from intact features for analysis. No *in situ* evidence for the nineteenth-century occupation of the site was observed. Several of the features and artifacts represent unique sources of information that are not duplicated elsewhere within the Frost Town site boundaries (e.g., unique glass bottles and combination brick and concrete house piers). Cox|McLain Environmental Consulting, Inc. (CMEC) interprets these unique resources as contributing to the NRHP eligibility of site 41HR982.

The presence of intact features and archeological deposits within a portion of the survey area and the likelihood that they would be further disturbed and/or destroyed by proposed construction leads CMEC to recommend that a limited data recovery program be conducted within the southern portion of the project area (south of the former alignment of Vine/Bramble Street) to add pertinent information about mid-twentieth-century lifeways to the Frost Town / El Barrio del Alacrán data set. Data recovery would permit a more complete record of the informal and opportunistic nature of residential occupation within this community near its final decades. Additionally, CMEC recommends that the two site trinomial currently used for the Frost Town community (41HR982 and 41HR1037) be combined and subsumed under the original site number, 41HR982. This step is recommended to consolidate information and reduce future researcher confusion.

Out of the 33 artifacts collected during the assessment, 23 were discarded due to lack of information potential and 10 were curated per consultation with THC. Project-related artifacts and records will be curated at the Center for Archaeological Studies at Texas State University.

On February 3, 2019, TxDOT recommended that no further work be conducted within this portion of the overall project area as archeological deposits did not represent contributing elements to the sites' eligibility. TxDOT recommended that sites 41HR982 and 41HR1037 be collapsed into a single trinomial for the Frost Town site: 41HR982.

The Texas Historical Commission concurred with TxDOT's recommendations on February 14, 2019.

MANAGEMENT SUMMARY

The Texas Department of Transportation proposes to construct improvements to Interstate Highway 45 in the northern portion of the City of Houston, Harris County, Texas. As part of the initial cultural resources survey for this project in 2016, three non-contiguous areas totalling 2.3 acres (0.93 hectares) were identified as having a high probability of containing archeological resources, including approximately 1.8 acres (0.7 hectares) of public right-of-way located within the boundaries of two known sites: 41HR982 and 41HR1037. Both sites are associated with the historic Frost Town community that was founded in 1836, and site 41HR982 has been determined to be eligible for inclusion on the National Register of Historic Places. Although no surface expressions of these sites remain, previous work conducted within the portions of these sites located outside the current project area revealed intact subsurface features.

In November and December 2018, Cox|McLain Environmental Consulting, Inc. conducted an intensive survey and testing program within the portions of these sites that fall within the current survey area to ascertain the nature and condition of subsurface archeological resources. No subsurface testing was conducted within the two locations north of Buffalo Bayou comprising 0.5 acres (0.23 hectares) due to evidence of extensive disturbance (including utility installation) and lack of access.

The project is sponsored and funded by the Texas Department of Transportation, with funding from the Federal Highway Administration, and is therefore subject to Section 106 of the National Historic Preservation Act as well as the Antiquities Code of Texas. The fieldwork was carried out over the course of a single field session (approximately 200 person-hours or 25 person-days) under Texas Antiquities Permit #8613 by archeologists Scotty Moore, Brett Lang, and Tom Nuckols of Cox|McLain Environmental Consulting, Inc.

In all, 24 mechanically excavated trenches with a combined length of 125.8 m (412.7 ft) and a single 0.5-m-by-0.5-m (1.64-ft-by-1.64-ft) test unit were placed within the survey area; all trenches were located within the boundaries of site 41HR982. Proposed trench locations within site 41HR1037 were excluded due to hazardous materials concerns and modern utility line emplacements. Mechanical trenching was preferred over shovel testing since previous work in neighboring sections of 41HR982 had encountered extensive subsurface deposits at depths beyond the reach of manual shovel tests. Also, previous work within the survey area had established that manual shovel testing was ineffective in penetrating near-surface fill and buried structural debris.

A total of 28 intact and partially intact subsurface features were identified within the boundaries of 41HR982; all were related to the early-to-mid-twentieth-century residential occupation of the Frost Town / El Barrio del Alacrán community. Intact features included subsurface gas, water, and sewage pipelines; wooden posts; soil features/trash pits; residential structural piers; and portions

of two possible remodeled sidewalks. Over 1,000 domestic and structural artifacts were observed and noted within trenches; 33 temporally and culturally diagnostic artifacts were collected from intact features that provided clarification about the age of deposits within the survey area.

Significant ground disturbance was evident throughout the site; a large portion of this disturbance was related to the demolition of neighborhood residences as part of the US Highway 59 construction project in the 1950s and manifested as a thick layer of mixed historic and modern debris overlying intact features. Other disturbances to the project area included substantial modern utility installations, construction of highway support pylons, and ground trampling from occupants of a transient camp that was located within the survey area until October 2018.

Results of the survey/testing indicate that all aboveground remnants of the Frost Town community within the area of potential effects have been demolished and/or displaced, but subsurface features (e.g., utility lines, structural piers) and deposits are still present within the project area. Some of these features and deposits exhibit moderate to high vertical and/or horizontal integrity and could contribute to the NRHP eligibility of site 41HR982, especially within the southern third of the current survey area. Several of the features and artifacts represent unique sources of information that are not duplicated elsewhere within the Frost Town site boundaries (e.g., unique glass bottles, the combination brick and concrete house piers).

Cox|McLain recommends the following: (1) that a limited data recovery program be conducted within the survey area south of the former Vine/Bramble Street alignment to better describe the early-to-mid-twentieth-century residential occupation of the site (e.g., El Barrio del Alacrán), and (2) that the two trinomial for the Frost Town community, 41HR982 and 41HR1037, be combined into the original 41HR982 trinomial.

Out of the 33 artifacts collected during the assessment, 23 were discarded due to lack of information potential and 10 were curated per consultation with THC. Project-related artifacts and records will be curated at the Center for Archaeological Studies at Texas State University.

On February 3, 2019, TxDOT recommended that no further work be conducted within this portion of the overall project area as archeological deposits did not represent contributing elements to the sites' eligibility. TxDOT recommended that sites 41HR982 and 41HR1037 be collapsed into a single trinomial for the Frost Town site: 41HR982.

The Texas Historical Commission concurred with TxDOT's recommendations on February 14, 2019.

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1. INTRODUCTION

Overview of the Project

The Texas Department of Transportation (TxDOT) proposes to construct improvements to Interstate Highway 45 (I-45) in the northern portion of the City of Houston, Harris County, Texas. The proposed project, referred to as the North Houston Highway Improvement Project (NHHIP), begins at the interchange of I-45 and Beltway 8 North and continues south along I-45 to downtown Houston where it terminates at the interchange of U.S. Highway (US) 59/I-69 and Spur 527 south of downtown Houston. The project area also includes portions of I-10 and US 59/I-69 near downtown Houston. The overall NHHIP project area is approximately 26.4 miles (mi) or 42.5 kilometers (km) in length, covers approximately 1,657 acres (ac) or 670.6 hectares (ha), and consists of 1,207 ac (488.5 ha) of existing right-of-way and 450 ac (182.1 ha) of proposed right-of-way. Width ranges from approximately 200 feet (ft) or 61.0 meters (m) on minor surface streets to more than 1,500 ft (457.2 m) at major intersections. The estimated range of impact depths is similarly broad, from 2 ft (0.6 m) or less at minor surface transitions to more than 30 ft (9.1 m) at major intersections and waterway crossings. The archeological area of potential effects (APE) for this project is the entire 1,657-ac (670.6-ha) project footprint.

In 2016, Raba Kistner Environmental, Inc. (RKEI) was contracted to evaluate the APE. RKEI subdivided it into zones of low, medium, and high probability based upon a number of factors, including TxDOT Potential Archeological Liability Map (PALM) classification, previous survey coverage, visible disturbance, proximity to water, historic land use, and archival information (Nichols and Jones 2016). RKEI evaluated the bulk of the APE as having zero or very little probability for intact archeological deposits due to heavy previous disturbances such as highway and commercial construction. Following pedestrian survey of the medium and high probability areas, RKEI recommended the mechanical excavation of test trenches, sometimes referenced as “deep reconnaissance” in TxDOT documentation, within two medium-probability areas near the north end of the APE and several dozen high-probability areas, mostly fractional acreages, along and near Buffalo Bayou. However, the recommended deep testing was not pursued at that time due to access limitations, the identification of soil contaminants in similar deposits nearby, and the perception that deposits within the NHHIP APE would also contain such contaminants.

In 2017, Cox|McLain Environmental Consulting, Inc. (CMEC) began working with TxDOT to complete the recommended investigations, meeting with TxDOT Environmental Affairs (ENV) and Houston District (HOU) staff throughout fall 2017 and spring 2018. Initially, CMEC obtained Antiquities Permit #8256 in November 2017 to conduct investigations in two medium-probability privately-owned areas at the north end of the APE, but this permit was cancelled in February 2018 due to lack of access.

During meetings with ENV and HOU in February and May 2018 and numerous rounds of discussion with the NHHIP design team, it became clear that many of the high-probability areas identified by RKEI in 2016 and discussed in the scope of cancelled Antiquities Permit #8256 were digital artifacts borne of misalignments between datasets (e.g., preliminary design information layered over Houston Central Appraisal District [HCAD] property boundaries). Subsequent design refinements and clarifications removed many of these areas from the APE, leaving three non-contiguous high-probability locations covering approximately 2.3 ac (0.93 ha) adjacent to Buffalo Bayou.

Following the ENV and HOU meetings in early 2018, as well as a background study prepared by ENV and coordinated with the Texas Historical Commission (THC) in May 2018, CMEC was directed to focus on these three areas, which were the focus of Antiquities Permit #8613, obtained in October 2018 (**Figure 1**). Pre-survey hazardous materials soil testing was conducted in October 2018 by TxDOT and TRC Solutions, and the results were used to eliminate areas with elevated chemicals of concern within the 2.3-acre survey area (see **Appendix A**). This acreage included approximately 1.8 ac (0.7 ha) located within the boundaries of two known sites: 41HR982 and 41HR1037 (Nichols and Jones 2016). Both sites are associated with the historic Frost Town community that was founded in 1836; site 41HR982 has been determined to be eligible for inclusion on the National Register of Historic Places (NRHP). Although no surface expressions of these sites remain, previous work conducted within the portions of these sites located outside the current project area revealed intact subsurface features at both sites (Boyd and Norment 2015; Boyd et al. 2005).

Scotty Moore, Brett Lang, and Tom Nuckols of CMEC performed survey and testing fieldwork under Antiquities Permit #8613 in November and December 2018. In all, 24 mechanically excavated trenches totaling 125.8 m (412.7 ft) and a single 0.5-m-by-0.5-m (1.64-ft-by-1.64-ft) manual test unit were excavated within site 41HR982. Proposed trench locations within site 41HR1037 were excluded due to hazardous materials concerns and modern utility line emplacements. In addition, the northern survey area locations adjacent to Nance Street (Parcels 7 and 24 in the initial RKEI survey) were not subjected to mechanical excavation due to evidence of significant ground disturbances. In total, 28 features were identified within the boundaries of site 41HR982, including 9 wooden posts, 8 pipelines, 6 soil features, and 5 structural remnants. Additionally, over 1,000 artifacts were observed and noted; 33 culturally and temporally diagnostic artifacts were collected from intact features for analysis. Features and artifacts date to the early-to-mid-twentieth-century occupation of the site.

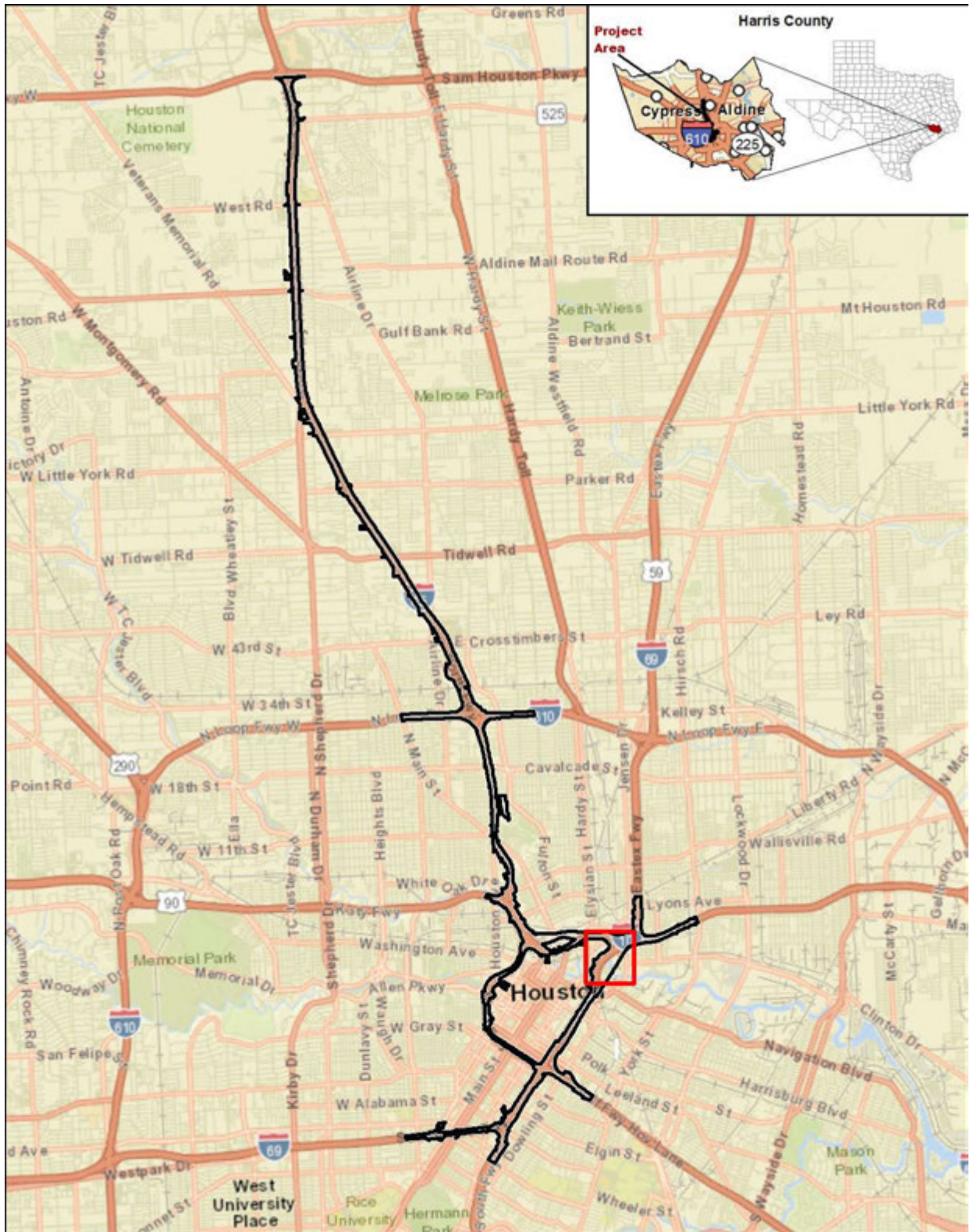


Figure 1
Project Location
North Houston Highway Improvement Project

Project Location/APE
 High Probability Survey Area

	0	2 Miles
	0	3 Kilometers
Prepared for: TxDOT	1 in = 2 miles	
CSJ 0921-00-146	Scale: 1:126,720	
	Date: 1/21/2019	

G:\Projects\SH249\Arch_Figure 1_Project Location_20190121.mxd

Basemap Source: ESRI (2017)

All work followed guidelines established by the Council of Texas Archeologists (CTA) and approved by the THC. The methods employed during this study and relevant constraints are discussed in Sections 3 and 4.

Regulatory Context

TxDOT is the proponent of this project and owns or is proposing to acquire all land within the APE. TxDOT is an agency of the State of Texas, which makes the project subject to the Antiquities Code of Texas (9 Texas Natural Resource Code [TNRC] 191). Antiquities Permit #8613 was assigned to this project by the THC. The project also has a federal nexus, which triggers Section 106 of the National Historic Preservation Act (NHPA), as amended (16 U.S. Code [U.S.C.] 470; 36 Code of Federal Regulations [CFR] 800).

Diagnostic artifacts from intact features were collected and analyzed. The artifacts and other materials (notes, photographs, administrative documents, and other project data) generated from this work will be curated at the Center for Archaeological Studies (CAS) at Texas State University where they will be made permanently available to future researchers per 13 TAC 26.16–17.

Structure of the Report

Following this introduction, Section 2 presents environmental background information, a brief cultural context, and a summary of previous archeological research near the survey area. Section 3 discusses research goals, relevant methods, and the underlying regulatory considerations. Section 4 presents the results of the survey and summarizes the implications of the investigations. References are in Section 5. A summary of hazardous materials testing within proposed trench locations is provided in Appendix A, detailed descriptions of mechanically excavated trenches are provided in Appendix B, detailed feature descriptions are provided in Appendix C, and scans of original feature plan drawings are provided in Appendix D. Appendices E and F contain the Health and Safety Plan and After-Action Report for the project.

2. ENVIRONMENTAL AND CULTURAL CONTEXT

Topography, Geology, and Soils

Elevations within the survey area range from 10.7 to 13.7 m (35 to 45 ft) above mean sea level. The survey area is located on a heavily developed urban floodplain and peninsula surrounded by Buffalo Bayou to the west, north, and east (**Figure 1**). The current land surface slopes consistently from south to north toward the bayou. Geologically, the survey area is underlain by clays, silts, sands, and other alluvial deposits of the Quaternary-age Beaumont Formation (U.S. Geological Survey [USGS] 2018). The entirety of the survey area is mapped as Urban Land (Natural Resources Conservation Service [NRCS] 2018). No fully intact soils are known to exist within or around the project area, which has been profoundly disturbed by nearly 200 years of residential, infrastructural, and industrial development and drainage modification.

Vegetation, Physiography, and Land Use

The project is located in the South Central Plains (West Gulf Coastal Plain) ecoregion, according to the Texas Parks and Wildlife Department (TPWD) Ecoregion Map (TPWD 2011) derived from data developed by Gould and colleagues (1960). According to the TPWD's *Vegetation Types of Texas* map and accompanying descriptions, the survey area is mapped as "urban," or Type 46 (McMahan et al. 1984).

Current land use in the survey area varies. The two high archeological probability locations adjacent to Nance Street (Parcels 7 and 24) consist of maintained lawns and gravel-covered lots, respectively, adjacent to local businesses. The 1.8-acre (0.72-ha) location that lies within sites 41HR982 and 41HR1037 shows some variability from north to south; the southern one-third is covered with six rows of live oak trees (**Figure 2**) and the remainder is covered in low grasses (**Figure 3**). Street lights and support pillars for US 59 are present within the survey area, and the elevated roadbed for the highway crosses above it. Significant recent disturbance to the ground surface was caused by a large transient camp that occupied the entire project area until October 2018.



Figure 2. View of southern high archeological probability location facing north; note Texas Historical Marker for El Barrio del Alacrán.



Figure 3. View of southern high archeological probability location facing south.

Archeological Chronology for Southeast Texas

The entire APE lies within the Southeast Texas archeological region (Kenmotsu and Perttula 1993; Patterson 1995; Perttula 2004; Story et al. 1990), which has a cultural history extending back at least 12,000 years. Human occupation of the area during this time is divided into four broad periods: Paleoindian, Archaic, Late Prehistoric, and Historic. The periods are based on a proposed sequence of economic/subsistence strategies identified in the archeological and historical records. These proposed shifts in dominant lifeways are based on cultural, economic, and technological factors and provide a model useful for attempting to understand ancient and early historic populations. The dates assigned to the period interfaces represent a generalized time range but are based on scientific results from archeological research. The dates presented in **Table 1** are derived from Perttula (2004). These phases of human occupation are summarized below; for a more detailed discussion regarding the prehistoric record, the reader is referred to Aten (1983), Patterson (1995), and Story and colleagues (1990), among others.

Table 1: Archeological Chronology for Southeast Texas	
Period	Years Before Present*
Paleoindian	
Early	11,500–10,000 B.P.
Late	10,000–8,000 B.P.
Archaic	
Early	8,000–6,000 B.P.
Middle	6,000–3,500 B.P.
Late	3,500–2,200 B.P.
Tchula	2,200–2,000 B.P.
Ceramic	
Early	2,000–1,200 B.P.
Late Prehistoric	1,200–270 B.P.
Protohistoric	270 B.P. – 190 B.P.
Historic	Post 190 B.P.

Source: Perttula 2004:9, Table 1.1

*Based on uncalibrated radiocarbon dates, which are typical in Texas archeology (see Perttula 2004:14, Note 1).

Paleoindian Period

The Paleoindian period represents the earliest known occupation in east-central Texas. During this period, people relied on megafauna (predominantly mammoth and *Bison antiquus*) as well as broader-based hunting and gathering strategies for their subsistence needs (Perttula 2004). Paleoindian artifacts include distinctive lanceolate projectile points, side scrapers, end scrapers, graters, modified flake tools, and drills. These tools are sometimes associated with the remains of extinct megafauna species. Typically, Paleoindian sites are located near playa lakes and relict streambeds or along small rises and ridges. These sites are usually ephemeral, however, and may be difficult to recognize. Differences in topographic settings and artifact and faunal assemblages have led archeologists to interpret Paleoindian sites in terms of function classes based on the activities inferred to have taken place there. Typical site types of this period include campsites, kill sites, processing sites, and quarry sites. During the Paleoindian period, the climate was vastly different than it is today—it has changed continuously over the last several thousand years. During the earlier phases, the environment was wetter and cooler. Throughout the course of the Paleoindian period, the climate became increasingly arid and exhibited greater seasonal variation. These conditions resulted in shifting vegetation patterns and faunal extinctions, which, in turn, affected Paleoindian subsistence strategies, settlement patterns, and lithic technologies.

Archaic Period

Usually divided into three more or less equal parts, the Archaic Period encompasses the bulk of southeast Texas prehistory. The Archaic record is confounded by mixed deposits (Hofman et al. 1989) and possible large-scale erosion that removed evidence of cultural activities during the middle of the period. The available data show that Archaic peoples were more likely than their predecessors to make projectile points and other stone tools out of local raw materials; this pattern may be evidence of more spatially restricted territories and/or subsistence areas and may reflect seasonal rounds through a specific series of resource-gathering zones (Ferring and Yates 1997). Generally, the population is thought to have increased throughout later stages of the Archaic Period, perhaps in response to stabilizing climatic conditions.

Tchula Phase

The end of the Archaic Period was characterized by increased sedentism and a reduced focus on long-distance trade. Tchula-period populations were still primarily hunter-gatherers who occupied coastal areas and lowlands, usually near slow-moving streams throughout southeastern Texas and southern Louisiana (Neuman 1993). Tchula settlement distributions in Texas are sparse, and their cultural centers (notably the site of Tchefuncte) seem to have been more focused on the southeastern Louisiana area.

Ceramic Period

The Ceramic period has been generally divided into three periods (although see Aten [1983] for an alternative division). Ceramic artifacts appear in the archeological record of the Galveston Bay area during the Early Ceramic by approximately A.D. 100, and by A.D. 500 had been adopted by a number of inland populations (Perttula et al. 1995). A plain, sand-tempered type of ceramic identified as Goose Creek became prevalent during the period, although a number of decorated varieties and tempering materials were also present (Patterson 1995; Perttula et al. 1995). The appearance of Caddoan pottery in southeast Texas around A.D. 1000–1300 has been used to suggest the presence of extensive trade networks or migration during this time (Aten 1983). The period has also been associated with the introduction of the bow and arrow around A.D. 600 (Aten 1983).

Late Prehistoric Period

Beginning sometime between A.D. 600 and 900 and continuing to as late as A.D. 1550, the archeological record of southeastern Texas reflects increasing regional and interregional variability. Settlement patterns suggest an increase in sedentary villages and ceremonial centers. Social-cultural features include an established social hierarchy and widespread long-distance trade (Perttula et al. 1995).

Protohistoric Period

The beginning of the Protohistoric Period is marked by the first appearance of Europeans in Texas with the ill-fated Narvaez expedition that, in 1528, deposited Cabeza de Vaca onto the Texas coastline (possibly on Galveston Island). Long-term contacts with Spanish settlers in this area did not directly impact aboriginal lifeways in the same manner seen in the high-profile early Spanish occupations in south and south-central Texas (Campbell 2003). Nevertheless, even without the missions, military outposts, and other facilities characteristic of the Spanish presence to the south, the effects of trade, disease, and other factors on native populations were still dramatic. Indigenous groups of the Protohistoric Period are little known apart from sporadic finds of European trade goods at native sites (Stephenson 1970).

Historic

The last two centuries saw the immigration of substantial populations who displaced earlier groups. The newcomers documented their lives extensively and created what is commonly referred to as the Historic Period. In brief, the landscape and material culture of southeast Texas during this time are characterized by the overwhelming dominance of European-derived populations, the expansion of agriculture and ranching activities, the discovery and exploitation of petroleum resources, the supplanting of small tenant farming by mechanized agriculture and urban sprawl, and various waves of commercial and industrial development. The most recent example of development is the rise of the service and information economies (Campbell 2003).

Harris County

Harris County (named Harrisburg County until 1839) was formed in 1836, and Houston was named as the county seat at the same time (Henson 2010). German families settled the area of Spring and New Caney beginning in the 1840s, and the towns became agricultural centers. The railroad brought an industrial and urban boom to the towns from 1871 to 1923, when Houston took over as home to the major rail facilities in the region. The San Jacinto estuary continued to be an economic asset to the county: in 1911 the Harris County Ship Channel Navigation District was formed (Henson 2010). The channel was widened and deepened in 1914, and in 1918 petroleum refineries and other industries moved into the district. People in the area east of the East Fork of the San Jacinto River continued to rely on a largely agricultural economy with a focus on rice cultivation. Harris County became the most populous county in Texas in 1930, and it had more than 4 million residents in the 2010 census (Henson 2010).

Frost Town / El Barrio del Alacrán

The community of Frost Town was one of the first settlements in the Houston area and was located within a prominent bend along the southern bank of Buffalo Bayou northeast of Allen's Landing.

This area was part of an 1824 Mexican land grant given to John Austin, although the earliest settlement on or near this location may have occurred as early as 1822 (Aulbach 2012). Jonathan Benson Frost built a home and settled there sometime after in 1836, and Austin sold this portion of his land holdings to the Allen brothers in August of the same year. Frost then bought the land where he had located his home, including about 15 ac (6.1 ha) in the horseshoe bend, in April 1837. A separated subdivision is illustrated within the bayou bend at this location on an 1839 map of Houston (Girard 1839), which by this time had become known as the community of Frost Town.

Early maps show that Frost Town originally comprised eight city blocks that were designated as Blocks A–F (Girard 1839; Woods 1866, 1869). By the 1880s, Frost Town had expanded to include additional blocks east, west, and south of the original eight-block area (**Figure 4**). The residential area to the south, called the Moody Addition, was commonly referred to as part of Frost Town in Houston City directories printed between 1880 and 1905 (Aulbach 2012). Two bird’s-eye-view maps of Houston show that the Frost Town area was a well-developed neighborhood by 1873 (Koch 1873) and more densely settled by 1891 (Westyard 1891).



Figure 4. Detail of map of Houston depicting Frost Town and Schrimpf field (Woods 1869).

Much of the area immediately south of Frost Town became industrialized during the late nineteenth and early twentieth centuries, with businesses centered on the area’s expanding

railroad yards (Aulbach 2012). It was during this period of rapid industrialization within Houston's Second Ward that Frost Town began to experience economic decline.

German immigrants were among the earliest residents of the Frost Town community, and they would continue to be the dominant demographic group in the neighborhood for many decades. German immigrants settled in virtually every area of Houston, but the Second Ward became an unofficial hub of German-American culture and social life during the nineteenth century (McWhorter 2010). The typical household in the community's German period (ca. 1840 through the 1870s) was "a blend of a rural homestead in an urban environment" (McWhorter 2010:40). Aulbach (2012:428) describes a typical German house:

The homes in Frost Town were modest and similar to many of the houses of the period. A typical Frost Town residence was a white frame cottage built of cypress as a square dog-trot with three rooms on each side of a central hall and a roof sloping over the front porch. The roof had central dormer windows front and back to provide light to the loft, and there were separate buildings for the kitchen, a well house, a smokehouse, a wash house, a chicken house, a barn, and a privy.

By 1890, the German-period wood houses were nearing half a century in age, and the community was described as a "dreary huddle of shabby houses" (Aulbach 2012:443). Public service systems, such as gas, electricity, telephone, and water, came to Houston between about 1870 and 1900. A private water system was built in 1879, and it eventually was taken over and expanded by the City of Houston in 1904. Houston's downtown area and the city's affluent neighborhoods were among the first to receive public utilities; other areas of the rapidly expanding city received services over the next few decades. Public services made their way to Frost Town slowly, with some areas of the community still not on the city sewer system as late as the early 1950s. By the mid-twentieth century, the community had become "one of Houston's worst slums" (Byrd 1952).

During the last decades of the nineteenth century, more of the European immigrant families who had been the early occupants of Frost Town moved to other parts of Houston (and to other areas of the state), and Frost Town rapidly transitioned into a predominantly African-American neighborhood. At the beginning of the twentieth century, the Frost Town neighborhood had 143 households (families and single adults), of which 55.9 percent were African-American, 44.1 percent were white, and none were Hispanic (Aulbach 2012:443-444). In 1920, the Frost Town population was 49.4 percent black and 20.1 percent white, and the Hispanic population had increased significantly to 30.5 percent (Aulbach 2012:444).

Frost Town's economic decline unfolded slowly over several decades as increasing industrialization and urban development chipped away at the character and cohesiveness of the Second Ward. The pace of decline notably increased in 1926 when a large portion of southern

Frost Town was removed to make way for the Missouri, Kansas, and Texas Railroad (MK&T) terminal.

Throughout the 1920s, demographics within Frost Town continued to change, and the 1930 census listed the population as 65.8 percent Hispanic, 24.2 percent African American, and 10 percent white (Aulbach 2012). During this Hispanic-dominated period, the old Frost Town neighborhood became known as El Barrio del Alacrán—the Scorpion Neighborhood. “El Alacrán” was one of the most underserved neighborhoods in the city and was referred to by many as a slum.

During the 1950s, the eventual demise of the Frost Town community became inescapable when a large portion of the original neighborhood was destroyed during the construction of the Elysian Street Viaduct and the Eastex Freeway (now US 59). By 1955, only a few of the old wood frame houses of old Frost Town still existed. The former Frost Town/El Barrio del Alacrán neighborhood essentially disappeared by the 1970s, and by 1990 only six wood frame homes remained standing. The last remaining home was removed by 1999 (Aulbach 2012:453). In 2013, a historical marker for the community (#17509) was erected within the current survey area adjacent to Runnels Street (see **Figure 2**). Its inscription reads:

Between 1910 and 1920, Houston attracted a large number of Mexican immigrants and Mexican Americans to the Second Ward where the Old Frost Town and Schrimpf's Field neighborhoods offered inexpensive housing for industrial workers. In the 1930s, the Spanish-speaking residents gave the area a new name - El Alacran, The Scorpion. Churches, the Rusk Settlement House, Rusk School and sports leagues provided social and educational services for the community. Urban renewal and highway construction in the 1950s demolished El Alacran. Once a notoriously impoverished neighborhood, El Alacran gave many residents a working start toward full integration into American society. (THC 2018)

Previous Investigations and Previously Identified Resources

The Houston PALM dataset (Abbott 2001) was initially reviewed for all locations impacted by the NHHIP project. As expected, given the high level of intense development, the bulk of the APE falls within Map Unit 4 (No Survey Recommended), with small areas in Map Unit 2 (Surface Survey of Mounds Only) at the north end and areas in Map Unit 3a (Deep Reconnaissance Recommended if Severe Deep Impacts Anticipated) along Buffalo Bayou. The present survey area is located at least partly within Map Unit 3a. Given the coarse resolution of PALM data, the complexity of the urban environment, and the small size of the proposed survey area, PALM figures will not be reproduced here but are available elsewhere (Nichols and Jones 2016) for reference. Archeologists from Raba-Kistner Environmental, Inc. combined PALM classifications with site-specific observations to arrive at low probability (disturbed), medium probability (unsurveyed and

apparently less disturbed), and high probability (along waterways and/or adjacent to known, sensitive sites) classifications of the APE (Nichols and Jones 2016). The current survey area is classified as high probability in the Raba-Kistner protocol, in line with its original PALM 3a classification.

A search of the Texas Archeological Sites Atlas (Atlas) maintained by the THC and the Texas Archeological Research Laboratory (TARL) was conducted to identify previously conducted surveys and previously recorded archeological sites, historical markers, Recorded Texas Historic Landmarks, properties or districts listed on the NRHP, State Antiquities Landmarks (SALs), and cemeteries within and near the survey area. Due to the extent of previous coordination regarding this project (e.g., Nichols and Jones 2016, cancelled Antiquities Permit #8256, and various CMEC/ENV/HOU meetings in 2017 and 2018), the search focused only on the 2.3-ac survey area called out in **Figure 1**. This survey area represents the highest-probability surveyable zone for which access is available within the overall 1,657-ac project APE. The standard 1-km (0.8-mi) search radius was reduced to 0.25 km (0.16 mi) due to the high density of mapped resources in downtown Houston (**Figure 5**). The results are presented in **Table 2** (previously identified sites) and **Table 3** (previous surveys) below. Portions of archeological sites 41HR982 and 41HR1037 are mapped within the 2.3-ac survey area. These sites are highlighted in gray in **Table 2** and discussed in the text below **Table 3**.

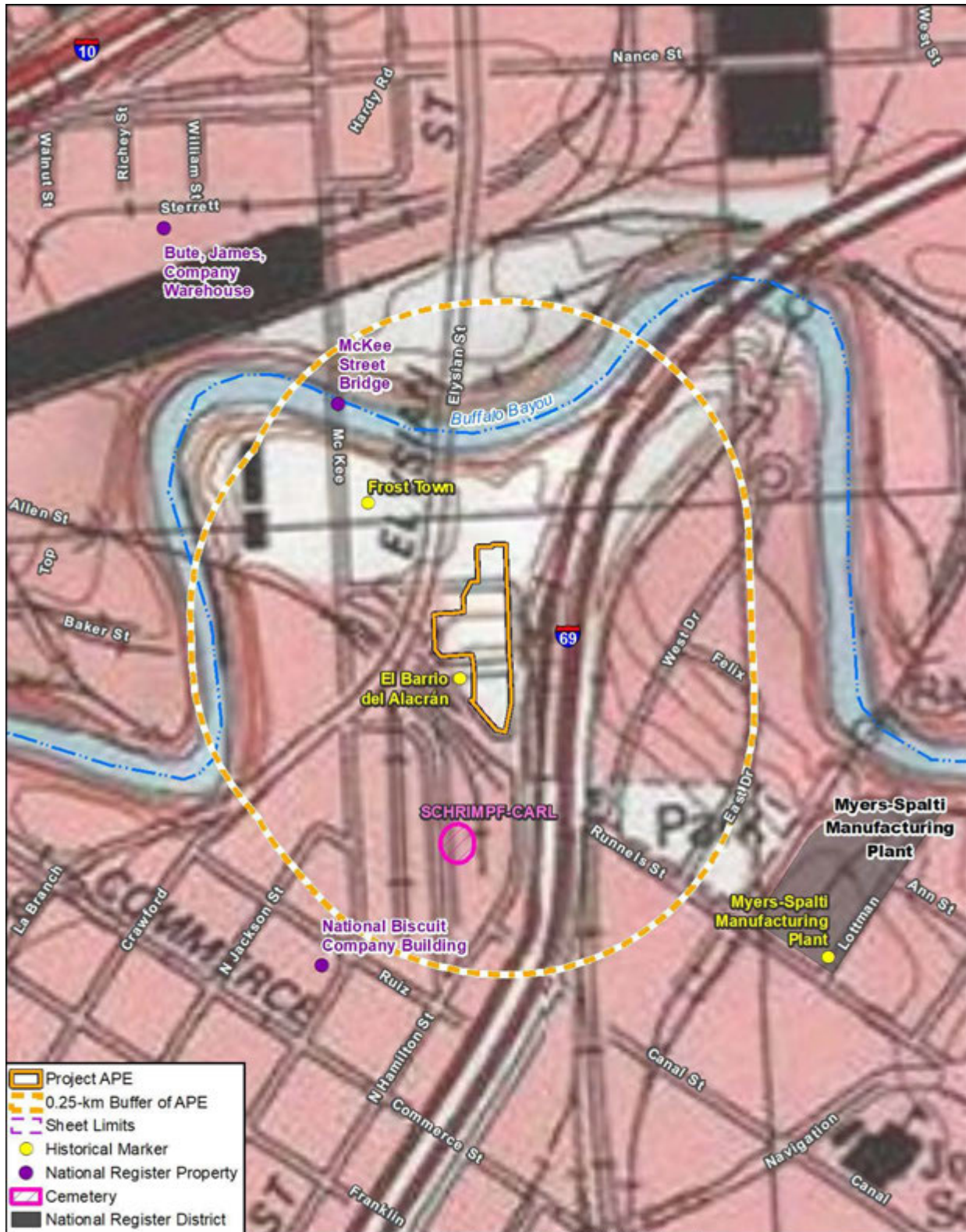


Figure 5
 Location of High Archeological Probability Survey Area
 North Houston Highway Improvement Project

Data Sources: THC (2018), NHD (2018)
 Topographic Source: USGS Settegast 7.5' Quadrangle (1995)

	0	500 Feet
	0	150 Meters
Prepared for: TxDOT	1 in = 500 feet	
CSJ: 0921-00-146	Scale: 1:6,000	
	Date: 4/10/2019	

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Table 2: Archeological Resources within 0.25-km Study Radius around Survey Area			
Resource Name/ Trinomial	Description	Location	NRHP/SAL Eligibility
41HR907	Historic artifact scatter containing slag, brick, glass, and metal fragments, as well as a partially buried brick wall feature.	North of survey area	Undetermined
41HR982 Frost Town Site	Site of key African-American community and historic town settled as early as 1822. Artifacts include bricks, whiteware, glass fragments, nails, and other metal fragments. Features observed include three cisterns, three square stains from pier footings, post molds, and one pit of unknown function. Data recovery excavations currently underway for Elysian Viaduct project.	Within/adjacent to survey area	Listed as a SAL and on NRHP
41HR1037	Historic-age subdivision of Frost Town (Block F, Lots 4 and 5), associated with site 41HR982, the NRHP- and SAL-listed Frost Town Site. Site contains bricks and other construction materials.	Within/adjacent to survey area	Associated with NRHP/SAL-listed 41HR982; assumed eligible
41HR1157	Historic-age urban dumpsite containing multiple layers of trash fill including incinerator trash fill and construction debris. Contents include glass, ceramic, metal, wood, and plastic.	North of survey area	NRHP-eligible
41HR1166	Historic-age Peter Floeck Tract house site containing a fill-modified landscape, bricks, slate fragments, bottle fragments, various kitchen wares, a horseshoe, window and bottle glass fragments, cut bone, and various ceramics.	Southwest of survey area	Undetermined
41HR1167	Historic-age Arsenal/Armory Block house site containing a fill-modified landscape, whiteware ceramics, glass bottle fragments, stoneware and other utilitarian housewares, bricks, ceramic tile, ceramic sewer pipe, wire nails, various metal fragments, faunal remains, and wire.	Southwest of survey area	Undetermined
Frost Town Historical Marker	Texas Historical Marker for historic-age settlement of Frost Town. Marker placed in 2008.	Northwest of survey area	N/A
El Barrio del Alacrán Historical Marker	Texas Historical Marker for historic-age settlement of El Barrio del Alacrán. Marker placed in 2013.	Southwest of survey area	N/A
McKee Street Bridge	Historic-age bridge constructed between 1925 and 1949.	Northwest of survey area	NRHP-listed
Schrimpf-Carl Cemetery	Incomplete Atlas entry, no other information available.	South of survey area	Unknown

Source: THC 2018

Table 3: Archeological Projects within 0.25-km Study Radius around Survey Area		
Date	Description	Location
2004	Linear survey by Moore Archeological Consultants, Inc. (MAC) for City of Houston	Within and northwest of survey area
2005	Areal survey by Prewitt and Associates, Inc. for TxDOT	Adjacent to survey area
2007	Areal survey by J. K. Wagner and Associates for Arts & Environmental Architecture, Inc.	Adjacent to survey area
2012	Areal survey by MAC for City of Houston for Tiger Trails	Within survey area
2015 to 2016	Areal survey by Raba-Kistner Environmental for TxDOT for NHHIP	Within survey area*

Source: THC 2018

*Caveat: Atlas map notations were derived from the overall APE map produced by Raba-Kistner, although not all recommended work was conducted due to disturbance, access limitations, and design refinements

Frost Town and Schrimpf’s Field

The current survey area lies primarily within Blocks E, F, and G of site 41HR982, which encapsulates the historic 8-block Frost Town community that was founded in the early 1820s (Boyd et al. 2005; **Figure 6**). There are no surface manifestations of the Frost Town community, which was bulldozed, burned, and removed when the Elysian Viaduct was built in the mid-1950s (Aulbach 2012; Boyd et al. 2005). In 2004, Prewitt and Associates, Inc. conducted survey augmented with focused trenching of northern portions of Frost Town for the Elysian Viaduct project immediately to the west of the current survey area. Subsurface investigations revealed both mixed and *in situ* deposits including remnants of old Frost Town residences such as brick pier pads and intact brick-lined cisterns (Boyd et al. 2005).

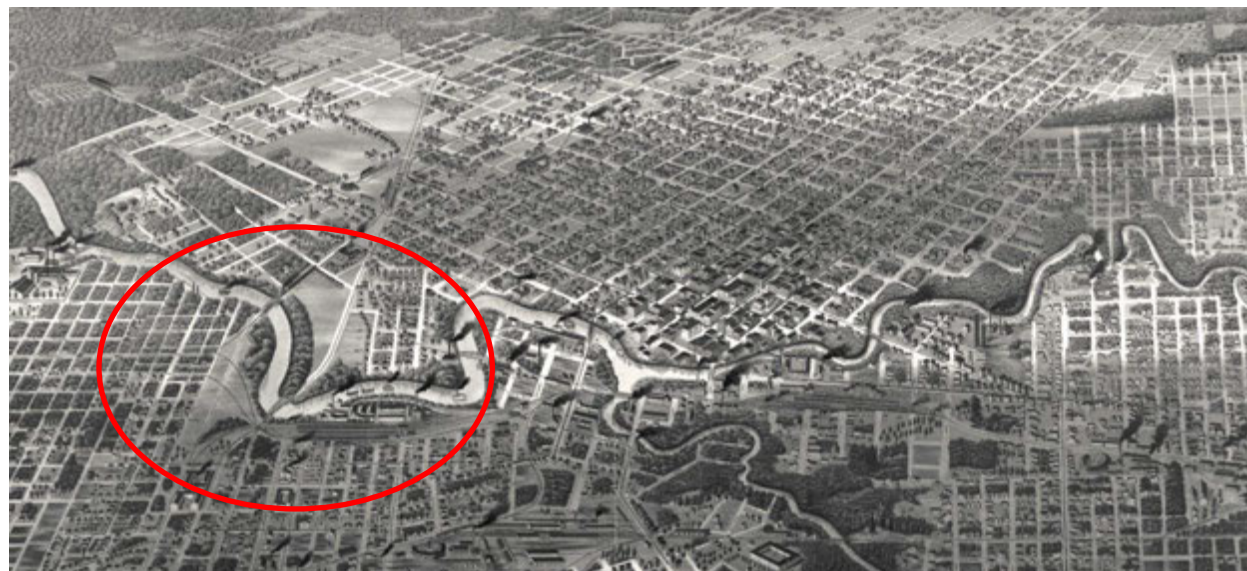


Figure 6. Buffalo Bayou area in downtown Houston (Westyard 1891), view south. The current survey area is located within the red circle.

In 2009, the City of Houston designated Frost Town / El Barrio del Alacrán as a city landmark. That same year, Prewitt and Associates, Inc. conducted some preliminary archival research on the history of Frost Town for the Environmental Affairs Division of TxDOT (TxDOT-ENV). This work is a general history of the 8-block Frost Town community; the review starts with the platting of the community in 1839 and includes an intensive examination of public records for six lots within the community. Dase and Katauskas (2009) discuss the results of this archival research in an unpublished interim report, which describes significant changes in the socioeconomics and ethnicity of the neighborhood as it evolved from the 1830s to the 1950s. Aulbach (2012) presents a rather detailed history of the Frost Town community and its transition from a German immigrant village into the predominantly Hispanic *El Alacrán* (the Scorpion) neighborhood.

In 2015, Prewitt and Associates, Inc. began testing efforts within the southern portion of 41HR982 and eventually expanded into extensive data recovery excavations within Frost Town blocks E and F in 2017 and 2018. This work has revealed the presence of intact residential and commercial features, including some related to an early twentieth-century MKT railroad terminal (Boyd and Norment 2015). Artifact density within excavated areas was extremely high, with counts of some artifact types soaring into the hundreds of thousands. Of significant note, burned deposits were identified throughout the excavated areas and appear to be associated with two events: (1) the bulldozing and burning of Frost Town houses by the MKT Railroad after they acquired the land for a terminal in 1926, and (2) further bulldozing and burning of Frost Town along the Elysian corridor when the old bridge was built in the mid-1950s (D. Boyd personal communication 2018). The extent to which burned deposits extend into the current project area is unknown but may be small given that aerial photography shows standing Frost Town residences into the 1970s.

The current southern high archeological probability area also partially falls partially within site 41HR1037, which was recorded by J. K. Wagner and Company, Inc. in September 2007 for Arts & Environmental Architecture, Inc. (THC 2018). According to its site form, the site is a 2-ac (0.81-ha) block located immediately east of the Frost Town site (41HR982). Investigations conducted by J.K. Wagner and Company, Inc. included excavation of three 1-by-1-m (3.3-by-3.3-ft) test units and two smaller units. The investigators concluded that the upper level was a cap of artificial fill, but intact deposits were encountered below the cap. The site form states that “the base of the modern fill contains the destruction debris from the post-1907 habitation of Frost Town and appears to be minimally truncated” (Molineau 2008). The site form lists a “Site map of excavations” as an attachment, but it is not currently available on the Atlas. No copy of the excavation report was available from THC, and Dr. Jason Barrett of TxDOT indicated that to his knowledge no report was ever produced (personal communication 2019).

The area documented as 41HR1037 is partially located east of the 8-block area that was originally platted as Frost Town and includes the area of a former residential housing subdivision immediately east of old Pine Street that was called the Moody Addition (or Moody Subdivision).

The site also extends farther eastward into the area once called Schrimpf's Field. The Moody Addition and Schrimpf's Field areas are shown as part of the Frost Town community on some historic maps and were referred to as such in some deed records (Aulbach 2012). On the 1869 Woods map, the Schrimpf family residence is shown within the bounds of the current survey area (Frost Town Block G). While the house appears to have been razed and replaced in the early twentieth century, it was initially hypothesized that intact deposits associated with this structure remained.

North Houston Highway Improvement Project Survey

As discussed in Chapter 1, RKEI was contracted to evaluate the entire 1,657-acre APE in 2016. RKEI subdivided it into zones of low, medium, and high probability based upon a number of factors, including PALM classification, previous survey coverage, visible disturbance, proximity to water, historic land use, and archival information (Nichols and Jones 2016). RKEI evaluated the bulk of the APE as having zero or very little probability for intact archeological deposits due to heavy previous disturbance such as highway and commercial construction.

RKEI conducted a pedestrian survey of the medium and high probability areas, including the three non-contiguous areas under current study (two locations totaling 0.5 ac [0.2 ha] north of Buffalo Bayou and one location totaling 1.8 ac [0.73 ha] south of Buffalo Bayou). The two northern locations (parcels 7 and 24) were covered with maintained grasses and gravel, respectively. Shovel tests within parcel 7 revealed modern materials, shell, and gravel from 0-30cmb. Shovel tests were abandoned after this depth due to standing water. Shovel tests within parcel 24 were obstructed because of the presence of large chunks of cement and asphalt (Nichols and Jones 2016:19-20).

RKEI's survey of the southern high archeological probability location (parcels 16,34,35, 38-44, and 47-52) revealed that the surface consisted of a predominantly empty "dumping spot" covered in oak trees, grasses, and modern debris (Nichols and Jones 2016:19). A total of 25 shovel test units were excavated within the southern high archeological probability area; fifteen of these revealed the presence of mixed modern and historic debris to a depth of approximately 40 cmb, leading the RKEI team to conclude that the location had been heavily disturbed but might contain intact deposits at depth.

Within the 2.3-ac current survey area, RKEI recommended follow-up investigations focused on mechanical trenching, which was not conducted at the time due to a perceived risk of soil contamination.

Disturbances

Known and perceived disturbances in the survey area include those associated with construction and maintenance of existing highways and streets; rail construction, maintenance, and removal; channelization of waterways; flooding and flood debris removal; construction and demolition of industrial facilities; and both illicit and officially sanctioned dumping of fill, trash, and industrial waste. Historic maps of the area show considerable evidence of industrial facilities along Buffalo Bayou, including sawmills, paper mills, soap works, foundries, factories, cotton compressors, cotton gins, oil refineries, and power plants. As documented in survey and testing project reports for various sites along the Elysian Viaduct, such as 41HR907, 41HR908, 41HR1157, and 41HR982/41HR1037 (Frost Town), as well as in TxDOT's recent data recovery excavations at Frost Town, generations of industrial land use have left thick, widespread deposits of incinerator spoil, ironworks slag, and other contaminants along both banks of Buffalo Bayou.

3. RESEARCH GOALS AND METHODS

Purpose of the Research

The present study was carried out to accomplish three major goals:

1. To identify all historic and prehistoric archeological resources located within the survey area defined in Chapter 1;
2. To perform a preliminary evaluation of the identified resources' potential to contribute to the previously-established NRHP eligibility of site 41HR982; and
3. To make recommendations about the need for further research on the identified resources based on the preliminary NRHP/SAL evaluation, with guidance on methodology and ethics from the THC and CTA.

Section 106 of the National Historic Preservation Act

Section 106 of the NHPA of 1966, as amended (16 U.S.C. 470; 36 CFR 800), directs federal agencies and entities using federal funds to “take into account the effects of their undertakings on historic properties” (36 CFR 800.1a). The CFR defines a “historic property” as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior” (36 CFR 800.16).

In order to determine the presence of historic properties (with this phrase understood in its broad Section 106 sense), an APE is first delineated. The APE is the area in which direct impacts (and in a federal context, indirect impacts as well) to historic properties may occur. Within the APE, resources are evaluated to determine whether they are eligible for inclusion in the NRHP and to determine the presence of any properties that are already listed on the NRHP. To determine whether a property is significant, cultural resource professionals and regulators evaluate the resource using these criteria:

- ... The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, material, workmanship, feeling, and association and
- a. that are associated with events that have made a significant contribution to the broad patterns of our history; or
 - b. that are associated with the lives of persons significant in our past; or
 - c. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic

values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

- d. that have yielded or may be likely to yield, information important in prehistory or history. (36 CFR 60.4)

Note that significance and NRHP eligibility are determined by two primary components: integrity *and* at least one of the four types of association and data potential listed under 36 CFR 60.4(a–d). The criterion most often applied to archeological sites is the last—and arguably the broadest—of the four; its phrasing allows regulators to consider a broad range of research questions and analytical techniques that may be relevant to the specific resource (36 CFR 60.4(d)).

Occasionally, certain resources fall into categories which require further evaluation using one or more of the following Criteria Considerations. If a resource is identified and falls into one of these categories, the Criteria Considerations listed below may be applied in conjunction with one or more of the four National Register criteria listed above:

- a. A religious property deriving primary significance from architectural or artistic distinction or historical importance, or
- b. A building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event, or
- c. A birthplace or grave of a historical figure of outstanding importance if there is no other appropriate site or building directly associated with his or her productive life, or
- d. A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events, or
- e. A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived, or
- f. A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own historical significance, or
- g. A property achieving significance within the past 50 years if it is of exceptional importance (36 CFR 60.4).

Resources listed in the NRHP or recommended eligible for the NRHP are treated the same under Section 106.

After cultural resources within the APE are identified and evaluated, effects evaluations are completed to determine whether the proposed project has no effect, no adverse effect, or an adverse effect on the resources. Effects are evaluated by assessing the impacts that the proposed project will have on the characteristics that make the property eligible for listing in the NRHP and on its integrity. Types of potential adverse effects considered include physical impacts, such as the destruction of all or part of a resource; property acquisitions that adversely impact the historic setting of a resource, even if built resources are not directly impacted; noise and vibration impacts evaluated according to accepted professional standards; changes to significant viewsheds; and cumulative effects that may occur later in time. If the project will have an adverse effect on cultural resources, measures can be taken to avoid, minimize, or mitigate this adverse effect. In some instances, changes to the proposed project can be made to avoid adverse effects. In other cases, adverse effects may be unavoidable, and mitigation to compensate for these impacts will be proposed and agreed upon by consulting parties.

Antiquities Code of Texas

Because the project is owned and funded by TxDOT, an agency of the State of Texas, the project is subject to the Antiquities Code of Texas (9 TNRC 191), which requires consideration of effects on properties designated as—or eligible to be designated as—SALs, which are defined as:

. . . sites, objects, buildings, structures and historic shipwrecks, and locations of historical, archeological, educational, or scientific interest including, but not limited to, prehistoric American Indian or aboriginal campsites, dwellings, and habitation sites, aboriginal paintings, petroglyphs, and other marks or carvings on rock or elsewhere which pertain to early American Indian or other archeological sites of every character, treasure imbedded in the earth, sunken or abandoned ships and wrecks of the sea or any part of their contents, maps, records, documents, books, artifacts, and implements of culture in any way related to the inhabitants, prehistory, history, government, or culture in, on, or under any of the lands of the State of Texas, including the tidelands, submerged land, and the bed of the sea within the jurisdiction of the State of Texas. (13 TAC 26.2)

Rules of practice and procedures for the evaluation of cultural resources as SALs and/or for listing on the NRHP, which is also explicitly referenced at the state level, are detailed at 13 TAC 26. An archeological site identified on lands owned or controlled by the State of Texas may be of sufficient significance to allow designation as a SAL if at least one of the following criteria applies:

1. the site has the potential to contribute to a better understanding of the prehistory and/or history of Texas by the addition of new and important information;

2. the site's archeological deposits and the artifacts within the site are preserved and intact, thereby supporting the research potential or preservation interests of the site;
3. the site possesses unique or rare attributes concerning Texas prehistory and/or history;
4. the study of the site offers the opportunity to test theories and methods of preservation, thereby contributing to new scientific knowledge; or
5. there is a high likelihood that vandalism and relic collecting has occurred or could occur, and official landmark designation is needed to ensure maximum legal protection, or alternatively, further investigations are needed to mitigate the effects of vandalism and relic collecting when the site cannot be protected. (13 TAC 26.10)

For archeological resources, the state-level process requires securing a valid Texas Antiquities Permit from the THC, the lead state agency for Antiquities Code compliance. This permit must be maintained throughout all stages of investigation, analysis, and reporting.

Survey/Testing Methods and Protocols

CMEC archeologists conducted an intensive survey and testing program per 13 TAC 26.20 and using the definitions in 13 TAC 26.5. Field methods and strategies complied with the requirements of 13 TAC 26.20, as elaborated by the THC and the CTA.

Per coordination with TxDOT ENV and TxDOT Houston District from February through October 2018, CMEC focused subsurface field investigations in the high-probability areas located within the portion of the NHHIP project area where significant ground disturbance due to construction activities is anticipated. Field investigations consisted of mechanical trenching and hand excavation of one test unit. Early coordination with TxDOT identified 45 potential trench locations within the high-probability areas of the right-of-way (ROW; see **Figure 7**), though ultimately this number was reduced to 24 due to utility conflicts, contaminant levels identified within potential trench locations, proximity to existing elevated roadway supports, and the fact that impacts would be limited to the existing footprint throughout the majority of the area. All proposed trench locations within the two locations adjacent to Nance Street north of Buffalo Bayou (RKEI Parcels 7 and 24) were eliminated from consideration due to landscape alteration related to industrial development, disturbance from modern utility installations, and lack of access to the ground surface.

Prior to field investigations, approximately 30–50 individuals living in an informal transient encampment were relocated, and the 41HR982/1037 high-probability area was surrounded with a gated fence. All abandoned materials associated with the camp (e.g., tents, tarps, food packaging) were collected by TxDOT hazardous material personnel and stored in secured bins

onsite until they could be removed. TxDOT also contracted with TRC to conduct soil tests for all proposed trench locations to identify areas with elevated levels of contaminants of concern. This testing revealed that seven proposed trench locations contained elevated levels of at least one chemical or bacteria of concern (e.g., lead, E. coli, and fecal coliform); these locations were blocked off with caution tape and excluded from testing (see **Figure 7** and **Appendix A**).

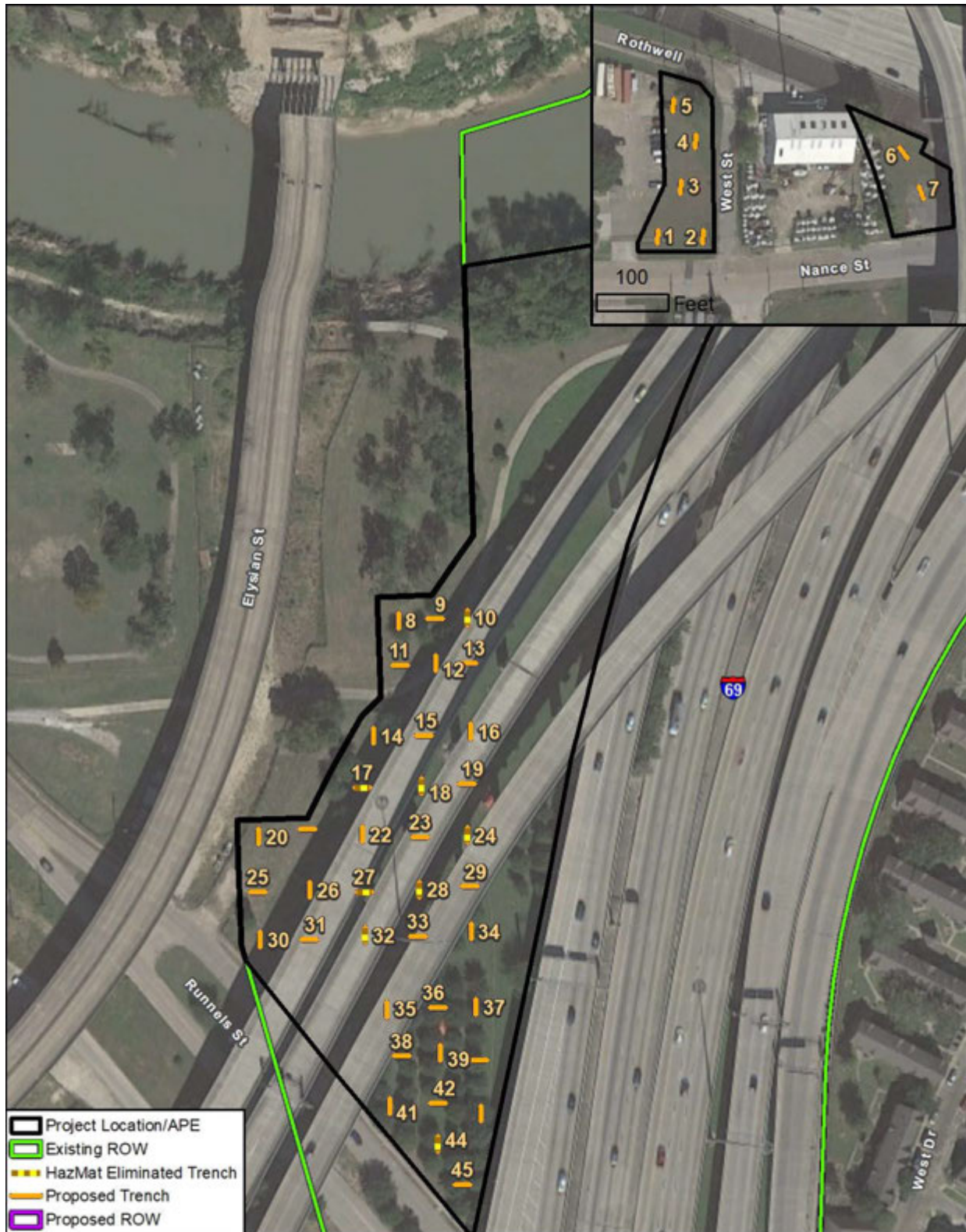


Figure 7
Proposed Trenches

North Houston Highway Improvement Project

Data Sources: CMEC (2018)
 Aerial Source: Google (2017)

	0	150 Feet
	0	50 Meters
Prepared for: TxDOT	1 in = 150 feet	
CSJ: 0921-00-146	Scale: 1:1,800	
	Date: 4/10/2019	

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Subsurface investigations were conducted via mechanically excavated trenches and one hand-excavated test unit within the southern high archeological probability areas. Excavated trench locations maintained a minimum 20-ft (6.1-m) buffer distance from bridge support columns. The trenches were excavated to depths at which the presence, absence, and integrity of buried prehistoric- or historic-age archeological deposits could be evaluated. All mechanical excavations were performed utilizing a 5-ft-wide (1.5-m-wide) clean-out bucket under the supervision of archeologists who examined profiles, trench floors, and backdirt for the presence of cultural materials and features. The trenching progressed in 10-centimeter (cm) (3.9-inch [in]) depth increments, with a sample from each increment screened through 0.635-cm (0.25-in) hardware cloth or crumbled/troweled (when the clay or moisture content was too high for effective screening of sediments). All trenches were at least 15 ft (4.6 m) in length and were extended as necessary to better delineate features; the longest trench measured 7.2 m (24 ft). Trench widths were generally one clean-out bucket's width (5 ft [1.5 m]), but some trenches were widened to better delineate features; the widest trench was 7 ft (2.1 m) wide. In one case (Trench 18), a perpendicular trench extension was added to the initially excavated trench, creating a "T" shaped trench. This extension was added to follow two buried utility features identified within the original trench. Final trench depths measured approximately 6.6 to 13.1 ft (2 to 4 m) and varied based on the presence and disposition of features and stratigraphy.

Following completion of the mechanical excavations, CMEC personnel examined the exposed deposits (as allowed by trench configuration and safety issues) and described them using conventional texture classifications and Munsell color designations. In general, the upper one meter (3.3 ft) of each trench profile was scraped via straight-edged shovel to expose stratigraphy. Below this depth, excavated sediment was examined and assessed but trench walls were not scraped due to safety concerns. CMEC staff complied with Occupational Health and Safety Organization standards for trench safety. Basic recordation of trench data was performed via ground-level observations; however, when archeological features were identified within the first meter of deposits, crew members were permitted to enter trenches to collect artifacts and to record and photograph features.

Prior to any trench ingress, field crew took air quality readings of carbon monoxide, methane, oxygen, and hydrogen sulfide using an RKI Eagle Multiple Gas Monitor to ensure that conditions were safe. Results of each air quality test were documented by the Project Archeologist. Safety benches would have been pulled back from the central cut when ground-level observations were insufficient for documenting and assessing the potential integrity of archeological deposits; however, this contingency was not activated. Following description of the deposits and sketching and photographing of profiles and features observed, CMEC personnel supervised the complete backfilling and leveling of each trench location.

One 0.5-by-0.5-m (1.64-by-1.64-ft) test unit was hand-excavated adjacent to Trench 8. This unit was placed to systematically expose a buried historic utility pipe located near the surface that was damaged by the initial excavator scrape. This unit was excavated in arbitrary 10-cm (3.9-in) levels that were unearthed using trowels until no artifacts or cultural materials were present. The unit was then cleared using flat-bladed shovels to scrape the dense clay-rich soils. Excavated matrix from the unit was screened through 0.635-cm (0.25-in) hardware cloth, as allowed by moisture and clay content. Compact and clayey soil was crumbled and sorted by hand, trowel, and/or shovel point. Deposits were described using conventional texture classifications and Munsell color designations, and all observations were recorded on standard CMEC Unit Level Forms. Unit locations were recorded with a Trimble GPS unit.

At the direction of TxDOT, CMEC followed a limited-collection policy. Most artifacts were recorded in field notes (including information on unit, depth, material class, and approximate number). Culturally and temporally diagnostic artifacts were recovered from intact feature contexts and collected for analysis. All artifacts were bagged and recorded in a field specimen log that included information on their provenience. Artifacts were cleaned in the field per procedures outlined in CMEC's Health and Safety Plan and were then temporarily housed in climate-controlled conditions in CMEC's Houston office. They were then transferred to CMEC's Irving office for analysis and storage prior to curation.

CMEC personnel also kept a complete record of field notes with observations including (but not limited to) identified features, cultural materials, location markers, contextual integrity, estimated time periods of occupations, vegetation, topography, hydrology, land use, soil exposures, general conditions at the time of the survey, and field techniques employed. These field notes were supplemented by digital photographs.

Given the previous residential use of the parcels and demolition of the historic-age buildings, these intensive field investigations had a low likelihood of encountering human burials. If unanticipated burials had been found, all work in the vicinity would have ceased and all requirements of the Texas Health and Safety Code (THSC) as found in 8 THSC 711 would have been followed, including notification of the Harris County Clerk's office and TxDOT. No burials were identified during the project.

Laboratory Analysis

Following the completion of field investigations, artifacts were cataloged in the lab using the Field Specimen Inventory system. Each artifact was assigned a Lab Specimen number and Sub Lab Specimen Number. The Lab Specimen Number corresponds to the assigned Field Specimen number and the Sub Lab Specimen Number corresponds to the individual artifact based on specific analytical characteristics. After artifacts were cataloged, they were then cleaned and

analyzed using the Sonoma Historic Artifact Research Database, or SHARD, as guidance (Gibson and Praetzellis 2009).

Artifacts were first placed into major analytical categories following South (1977). These follow functional categories, and those used for this project include domestic, personal, structural, and indefinite. Briefly, the domestic category includes items in the subcategories of cleaning, food, food preparation, food consumption, food storage, heating, lighting, and alcohol. Those subcategories are further divided into tableware (e.g., dish) and containers (e.g., bottle). The personal category includes clothing (e.g., button), grooming/health wares (e.g., cold cream jar), and toys (e.g., doll). The structural category includes hardware (e.g., nails) and construction materials (e.g., window glass and brick). The indefinite category includes items that are unclassifiable by function, regardless of material type.

The major functional categories are further divided and characterized by material, decoration, manufacture technique, and other distinguishing characteristics, as applicable. These characteristics are associated with manufacture and use dates when possible. The section below details the artifacts by material (glass, earthenware, etc.), decoration (bottle embossing, transfer print, etc.), and manufacturing techniques (pressed brick, hand blown bottles, etc.) as these characteristics provide the best temporal information. The discussion below only includes the specific characteristics observed in the assemblage and is not intended to be an exhaustive list of all characteristics that are possible for such materials.

Glass

A brief overview of glass production is presented here to provide some context for historic glass use and to contextualize the discussion of other glass characteristics.

Diagnostic Glass Features

Bubbles are common in glass produced prior to 1920; by 1920, the glass-making process became more advanced and the presence of bubbles was generally eliminated (Polak 2000). However, there are complexities to this overall pattern. According to Lindsey (2014), some researchers have observed that, for mouth-blown and some machine-made bottles, the presence of many bubbles indicates a manufacture date prior to 1910, and a date prior to 1904 is even more likely (pre-1904 bottles would primarily be mouth-blown). Lindsey contrasts this with observations from others who have found no correlation between the number and size of bubbles and the age of the glass artifact. Either of these assertions might be correct for a specific context (Lindsey 2014).

The practice of “stippling” and “knurling” of bottle bases likely began with the Owens-Illinois Bottle Company ca. 1940 (Lindsey 2014; Toulouse 1971, 1977). Stippling was produced by hand punching the base plate of a bottle, and knurling was created by a machine pressing the bottle

base; the distinction between the two can be difficult to make, and both techniques came into use around the same time (i.e., ca. 1940). This feature is still present on bottles manufactured in the present day.

Embossing on bottles has been used for a very long time and is still common today. Therefore, unless the embossing provides clues to the maker or use of the bottle contents, embossing alone is not particularly diagnostic (Lindsey 2014). However, there are exceptions; for example, embossing related to capacity usually post-dates the period during which consumer protection laws were enacted, which ranges from 1906 to 1910 (Lindsey 2014).

Patination, or decomposition of the glass, occurs when glass is weathered. Patination was noted on recovered artifacts. However, patination itself is generally not temporally diagnostic as some glass is more prone to patination, and different environmental conditions affect the patination process (Lindsey 2014).

During the analysis of the artifact assemblage collected during this project, the term “vessel glass” was assigned to any item that could not be identified as a specific type (e.g., bottle or jar), but had a thickness, curvature, and/or pattern or design that suggested it was used to hold liquid and/or food. If glass was determined to be pressed, it was categorized as a “dish” rather than “vessel.”

Finishes

There are numerous ways to finish a bottle and a variety of finish types. The finishing methods observed in this assemblage include a definitive tooled finish and a possible machine-made finish. Although no applied finishes were observed, the description of the technique is included to provide context for the other finish types. The types of finishes observed include Oil or Ring Finish, Prescription Finish, and External Threaded Finish.

Between 1830 and 1885, the most common way of finishing American-made bottles was with “applied finish.” Applied finish is the application of a strip of glass where the blowpipe was removed (Fike 1987; Lindsey 2014). Bottle necks with a mold seam that “disappears” at the neck are created by a finishing tool “wiping” clean the mold seams (Lindsey 2014; Toulouse 1969). These “tooled” finishes typically do not occur prior to 1885, although certain types of bottles with tooled finishes may have dates as early as 1870. Hand-tooled finishes disappeared around the 1920s (at the latest) when machine-made bottles took over. Tooled finishes are also found on blown bottles where the entire bottle is formed at once. This is in contrast to manufactured bottles, where the finish is created as a separate piece of glass that is later applied to the body of the bottle.

An Oil Finish, or Ring Finish, is a one-part finish that is usually flat with slight rounding, and its height is roughly equal to or more than its width. This finish was one of the most common finishes on a great range of different bottle types ranging from the 1830s to the 1920s.

The Prescription Finish is a vertically narrow one-part finish that gradually narrows from the top to the bottom of the finish; typically, the top of the finish tapers into the bore. Prescription finishes were typical of drug store and prescription bottles from the 1870s to the 1920s, hence the name “prescription.”

Beginning with the invention of the Mason fruit jar in 1858, wide-mouth threaded external finishes became common for canning and food storage jars (Fike 1987; Lindsey 2014). This type of external threaded finish is the most common finish used on both large- and small-mouthed bottles and jars today. Although some varieties of external threads can be found prior to the widespread use of machine manufacturing for bottles, this finish type required precision in order to function as a closure for bottles (Lindsey 2014). Thus, this type of finish is mostly found on machine-made bottles manufactured from the 1920s to today.

Glass Maker’s Marks and Corporate Embossing

Maker’s marks and embossing can provide detailed information about the use and date of use of a particular bottle or vessel (Bottle Research Group 2018; Lockhart et al. 2007). Although the two jar shards and one bottle shard recovered bore evidence of maker’s marks and/or embossing, they could not be connected to a manufacture or use.

Glass Colors

Colorless glass bottles are uncommon prior to the 1870s but were ubiquitous after the use of automatic bottle machines became widespread in the mid to late 1910s (Lindsey 2014). Colorless glass turns amethyst (i.e., solarized) when manganese—which was added to glass to neutralize impurities—is exposed to sunlight (Lindsey 2014; Stelle 2018). The addition of manganese to glass for tableware items occurred as early as 1850, but was not prevalent in bottle glass until later, between 1870 and about 1920 (Lockhart 2006).

Opaline, or milk glass, was most commonly used for cosmetic and toiletry bottles and containers and occasionally used for food containers (Lindsey 2014). Opaline glass was rarely used for bottles prior to the 1870s. Opaline glass was also used for tableware, which is considered “dishware” and not a “container” for analysis purposes.

Amber glass is a common glass color and includes a variety of shades, some of which have temporal utility. The majority of the amber glass recovered during this project is a medium amber shade that began to dominate bottle production around the 1920s, when glass-making chemistry was refined (Lindsey 2014). It was at this time that many of the shades of amber glass (e.g., yellow

amber, black amber) were phased out of production (Lindsey 2014). Amber glass has been most commonly used for beer bottles, although use of amber glass for products other than alcohol was common in the late 1800s.

Olive glass was generally produced more in the nineteenth century than in the twentieth century, with the exceptions of wine and liquor bottles (Lindsey 2014). Modern olive glass tends to have a brighter appearance and can be distinguished from earlier olive glass.

Aqua is the most common glass color in American-made bottles; it was used for bottles of all uses from the early nineteenth century to the 1920s (Lindsey 2014). In the 1920s the use of aqua glass was replaced with the use of colorless glass to display the contents of the bottle to consumers; exceptions to this trend include fruit jars and Coca-Cola bottles. All aqua glass found during this project was determined to be from bottles.

Green glass includes nearly as many shades as amber, has been used on all varieties of vessels, and has little diagnostic utility, with a couple of exceptions. Very bright green (e.g., glass used for 7Up bottles) is more common on twentieth-century bottles. "Congressville" green and blue-green were infrequently used in the twentieth century, and such colors typically indicate that a vessel or bottle was manufactured in the nineteenth century (Lindsey 2014).

Ceramics

Ceramic types noted in the assemblage include stoneware, refined earthenware, and porcelain. A discussion of observed paste types is presented below, followed by a discussion of decorative techniques.

Paste Types

Stoneware was generally used for utilitarian containers produced for storing food materials. Stoneware has a long history in America that continues today. Stoneware itself is not particularly temporally diagnostic, but the treatments to the interiors and exteriors of the wares can have some dating utility. Bristol glazed stoneware was introduced during the late Victorian period (the 1880s) and was generally used in combination with an Albany-type glaze until the late 1910s. Subsequently, Bristol glaze was used alone to produce white-glazed stoneware vessels of the twentieth century (Greer 1981; Stelle 2018). Occasionally, Bristol-glazed stoneware would have cobalt-colored glaze applied as simple decoration. The only example of stoneware recovered was Bristol-glazed with a cobalt design.

White refined earthenware includes pearlware, whiteware, and ironstone. Pearlware generally has a much harder paste than the earlier "creamware." Pearlwares replaced creamwares by around 1810, in part because decoration appeared more attractive on the bluish pearlware than the

yellowish creamware (Miller 1980). The use of the term “pearlware” would not have been used at the time of manufacture the way archeologists use the term now.

The production of pearlware is followed by whiteware and then by ironstone ware; however, it can be extremely difficult to distinguish between the three refined earthenware paste types, as the technological differences are not easily discernable on small sherds and there is temporal overlap in the production of the ware types. Paste hardness varies among these types with pearlwares being slightly softer than whitewares and ironstones the harder or more vitrified of the three. On larger sherds, where distinguishing paste-type is difficult, pearlware can still be identified where the blue-ish glaze would pool (Stelle 2018). No pearlware was observed in this assemblage.

Whiteware usually has a harder paste than pearlware, and the glazes tended to be clearer than the blue-ish glazes used on pearlware. Whiteware does not have a specific date at which it came into production; rather, it had developed from pearlware by around the 1820s and was present in most American households by the 1830s (Miller 1980).

Whiteware is usually marked by softer paste than the ironstone wares, but technological advances in whiteware production increased the paste hardness, which can make distinguishing between the two nearly impossible. All the refined earthenware sherds from this project were categorized as transitional whiteware/ironstone ware and given a broad date range of between 1840 and 1910 (Ketchum 1983, 1987; Moir 1987; Stelle 2018) when no other temporal marker was present to refine the expected use period or when a noted decoration had a long date of production. Modern or pure white whiteware gained popularity between the 1890s and the 1920s but are still produced today (Moir 1987). These wares exhibit absolutely no evidence of the blue in their glazes, which are very often crazed.

Porcelain is the most vitrified of the ceramic paste types observed. The porcelain observed tended to be less vitrified with inconsistencies in the paste and was interpreted to be of the English-style “soft paste” variety (Hughes and Hughes 1960; Stelle 2018). Porcelain was often decorated with decals, gilding, or hand painting; the best way to date porcelain is by the decoration type. Unfortunately, most of the porcelain sherds recovered were not decorated; the English-style porcelain has a date range that overlaps with refined earthenware (1830 to 1900).

Both whiteware and ironstone ware remain in production today (Ketchum 1987; Stelle 2018) as does porcelain (Stelle 2018).

Decoration Types

Transfer printed ware refers to ceramics that had a design from an inked copper plate transferred to a ceramic dish. The transfer printing process was first used in the 1750s but could only be used for display items since the print would easily be removed by use (Coysh and Henrywood 1982). By

the 1780s, many blue-printing departments were established by Staffordshire potters. Stippling was added during the early nineteenth century (1800 to 1815) as a technique to add detail. During the “Second Transitional Period” (1835 to 1845), glazes were clear and the use of colors other than blue for patterns became popular. As technology improved, other colors were added, including purple and red (Maryland Archaeological Conservation Lab [MACL] 2015).

Often, styles of printed wares had dates of popularity (Coysh 1974; Coysh and Henrywood 1982). However, due to the small sizes of the sherds and limited views of the vignettes, no patterns or styles could be identified on the sherds found during these investigations.

Fortunately, the colors of the transfer print have diagnostic utility (MACL 2015). The only colors observed during these investigations were light blue swag and medallion transfer print (ca. 1880s–1920) and mocha with a thick blue band between thin black bands (ca. 1870s).

Structural Materials

The structural materials observed during the current investigation include brick, mortar, window glass, and nails. Machine-made or pressed brick can have maker’s marks that can be temporally diagnostic to a production date and location. Most bricks that could be identified within the current survey area were either house bricks or vitrified street pavers.

Vitrified bricks were first used for paving in the U.S. in Charleston, West Virginia, in 1870. By 1900, vitrified bricks had become the most common type of street pavement in the U.S. (Chamberlain 2018). A vitrified brick is fired at a higher temperature and for a longer period of time than a conventional brick used in construction or for sidewalks, making it harder and impervious to water. Hundreds of brick manufacturing companies appeared around the country, usually stamping or molding their company name and sometimes their location onto one face of the brick, which was oriented away from the surface and not visible upon installation. The high cost of shipping bricks limited their distribution and encouraged the emergence of brick manufacturing plants around the country.

The city of Thurber, Texas, had the best-equipped brick plant west of the Mississippi until the mid-twentieth century (Chamberlain 2018). Manufactured from the area’s rich deposits of shale clay, Thurber brick paved hundreds of miles of Texas highways and streets including Congress Avenue in Austin; the Galveston sea wall; the Bankhead Highway; Camp Bowie, Main Street, and the stock yards in Fort Worth; and other roadways.

Mortar was observed as individual artifacts and, in some instances, was still adhering to collected brick. Two main types of mortar were observed: the harder “Portland” style and the softer “lime” variety. Lime mortar has been used for thousands of years and was produced by mixing lime with water, and often with local sand, and then allowing the mixture to mature for weeks or months.

Portland cement was patented in 1824 in Great Britain but was not used in the U.S. until 1872 (Mack and Speweik 1998).

Window glass is distinguished from vessel glass by its uniform flatness; both colorless and aqua-tinted window glass were collected during the current investigation.

All nails collected were of the cut variety. Cut nails represent a technological change from hand-wrought nail production, a switch that occurs between 1790 and 1830 (Stelle 2018). Cut nails were widely available after 1830. Although it is possible to refine the dates of cut nails further based on the direction the nail shaft was cut from (Stelle 2018), the nails collected from this project were heavily corroded and oxidized, and such analysis was not possible. However, perfected machine-made heads were identifiable, which date from 1840 to today.

Miscellaneous Items

One small, four-hole, porcelain Prosser button was recovered. These buttons, which are also referred to as “small chinas,” were first introduced in the 1840s and were commonly produced until the mid-twentieth century (Marcel 1984). An early electrical current tap with threaded copper metal casing and base was also identified; these taps were in use by the 1890s but fell out of use by the mid-twentieth century (Tod 1977).

Reporting and Curation

This report represents the initial written summary of the findings of the archeological survey per 13 TAC 26.24 and CTA guidelines. Following these standards, the report includes a description of the methods employed and work accomplished. The report also includes a series of maps identifying the locations of all mechanical trenches, a table summarizing data obtained for each excavation unit (including the depth, nature, and integrity of archeological deposits encountered), and a description of each new or revised archeological site. The report highlights any potentially significant archeological features that were encountered within each site or site subarea and provides an evaluation of their archeological research potential. The report concludes with a data-supported assessment that summarizes whether additional fieldwork is warranted at each site or site subarea. The assessment takes into consideration the anticipated scope of planned construction activities when assessing potential impacts to any archeological deposits. The report includes recommendations for further work or no further work with appropriate justifications based on the requirements of 13 TAC 26.20 and using the definitions in 13 TAC 26.5. Report drafts have been submitted to State points of contact in PDF format.

Comments will be incorporated into a final project report to be submitted to TxDOT and the THC. Per 13 TAC 26.16, the final permit-closure submittal will include a transmittal letter, abstract form, project area shapefile, tagged PDF files of the report in both restricted (with site locations) and

public (without site locations) versions, as applicable. All materials and forms generated by this project will be made available to future researchers through curation at the Center for Archaeological Studies at Texas State University per 13 TAC 26.16 and 26.17.

4. RESULTS AND RECOMMENDATIONS

General Field Observations and Results

Over the course of a single field session between November 26 and December 5, 2018, CMEC personnel conducted an intensive archeological survey and testing program within approximately 1.8 ac (0.7 ha) of the NHHIP footprint approximately 0.1 mi (0.16 km) northwest of the intersection of Hamilton and Runnels streets in Houston, Harris County, Texas. The investigations included the mechanical excavation of 24 trenches and hand excavation of a single 0.5-by-0.5-m (1.64-by-1.64-ft) test unit.

The survey area is located in a generally flat but southward sloping parcel of cleared property currently being utilized as an access point to several support pylons for US 59 and one street light. The entire survey area was surrounded by a gated fence; at the time of the project, numerous informal transient encampments encircled it on the south and west sides. Although most of the detritus left by the transient camp that previously occupied the project area had been placed in secure storage containers, the ground surface was still blanketed in modern trash (both from the encampment and from passing traffic). Ground surface visibility within the project area was fair to good (50–90 percent) due to a combination of property maintenance and vegetation trampling by the previous transient occupants.

Field conditions during the survey were mild to cool, with average daily temperatures reaching 55 degrees Fahrenheit (12.8 degrees Celsius), cloudy skies, and a trace amount of rainfall. During brief rainfall events, surface water drained from the northern portion of the site to the south, where it pooled in areas of little slope.

Prior to the excavation of trenches or test units, the survey area was surveyed by field crew. Additionally, areas of elevated chemicals of concern were demarcated using wooden stakes and caution tape to prevent any field personnel or visitors from inadvertent contamination.

Mechanical Excavations

Originally, CMEC proposed to excavate a total of 45 trenches within three areas of high probability within the NHHIP footprint; these areas included the 41HR982/1037 area and two locations immediately north of Buffalo Bayou (Parcels 7 and 24; **Figure 7**). After consultation with Dr. Jason Barrett, the archeologist for TxDOT Houston District, the northern locations were removed from consideration due to modern utility and commercial disturbances, indicating a lack of data potential; this reduced the number of proposed trenches by seven. An additional four trenches along the western portion of the project area were removed from consideration since did not lie within areas expected to be negatively impacted by demolition of US 59. Seven proposed trench locations were removed from consideration after soil testing revealed elevated levels of lead, fecal

coliform, and *E. coli* bacteria (the latter two contaminants associated with the transient camp that was removed in October 2018). Finally, five trench locations were eliminated due to their proximity to either highway support columns or existing utility lines. Two new trench locations (Trenches 10 and 19) were added where a coverage gap existed; this brought the total number of trenches excavated to 24 (Table 4). Figure 8 shows the final locations of excavated trenches within the survey area overlaid on the 1869 map of Frost Town (Wood 1869). Figure 9a-d presents a more detailed depiction of trench locations, excluded areas, identified feature locations, and extrapolations of linear utility features based upon their positions within trenches.

Table 4. Mechanically Excavated Trenches						
Trench Number	Original trench number from proposal/permit	Orientation	Length (m)	Width (m)	Depth (m)	Cultural Resources
1*	45	East-West	5.1	1.5	3.9	Mixed historic/modern debris in upper strata
2	43	North-South	5.0	1.5	2.0	Concrete water pipe at base of trench
3	42	East-West	5.1	1.5	3.5	Mixed historic/modern debris in upper strata
4	41	North-South	5.0	1.5	2.7	Feature 4.1 (trash pit); 4.2 (trash pit / soil feature)
5	38	East-West	5.0	1.5	3.0	Feature 5.1 (trash pit)
6	39	North-South	5.0	1.5	2.8	Feature 6.1 (utility pole); 6.2 (utility pole)
7	37	North-South	5.0	1.5	3.0	Mixed historic/modern debris in upper strata
8	36	East-West	7.2	1.5	2.6	Feature 8.1 (concrete sidewalk); 8.2 (residential pier); 8.3 (residential pier)
9	35	North-South	5.1	1.5	3.0	Mixed historic/modern debris in upper strata; Feature 9.1
10	N/A	East-West	5.0	1.5	1.3	Feature 10.1 (ferrous metal pipe sections)
11	34	North-South	5.0	1.5	1.10	Modern electrical line (inactive)
12	29	East-West	5.0	1.5	2.2	Feature 12.1 (iron gas pipeline); 12.2 (soil feature)
13	19	East-West	5.8	1.5	1.6	Feature 13.1 (structural remains); 13.2 (gas pipeline); 13.3 (sewer pipe)

Table 4. Mechanically Excavated Trenches						
Trench Number	Original trench number from proposal/permit	Orientation	Length (m)	Width (m)	Depth (m)	Cultural Resources
14	22	North-South	5.0	1.5	2.2	Mixed historic/modern trash; "burned layer"
15	23	East-West	5.0	1.7	2.8	Feature 15.1 (utility pole); 15.2 (utility pole); 15.3 (soil feature)
16	31	East-West	5.0	1.5	3.0	Feature 16.1 (soil feature / trash pit)
17	14	North-South	5.1	1.5	2.8	Mixed historic/modern trash; "burned layer"
18	15	East-West	5.0	1.7	2.9	Feature 18.1 (wood post); 18.2 (wood post); 18.3 (wood post); 18.4 (wood post); 18.5 (gas pipeline)
18 extension	N/A	North-South	3.1	1.5	2.9	Feature 18.5 (gas pipeline); 18.6 (concrete pipeline)
19	N/A	East-West	5.0	1.5	1.8	Feature 19.1 (possible remodeled sidewalk); 19.2 (gas pipeline)
20	13	East-West	4.5	1.5	1.8	Feature 20.1 (wood post); 20.2 (metal pipe)
21	12	North-South	4.8	1.5	3.1	Mixed historic/modern debris in upper strata
22	11	East-West	5.0	1.5	3.2	Mixed historic/modern trash; "burned layer"
23	8	North-South	5.0	1.5	3.5	Mixed historic/modern trash; "burned layer"
24	9	East-West	5.0	1.5	4.3	Feature 24.1 (metal pipe)
Total			125.8			

* Full trench descriptions are found in Appendix B

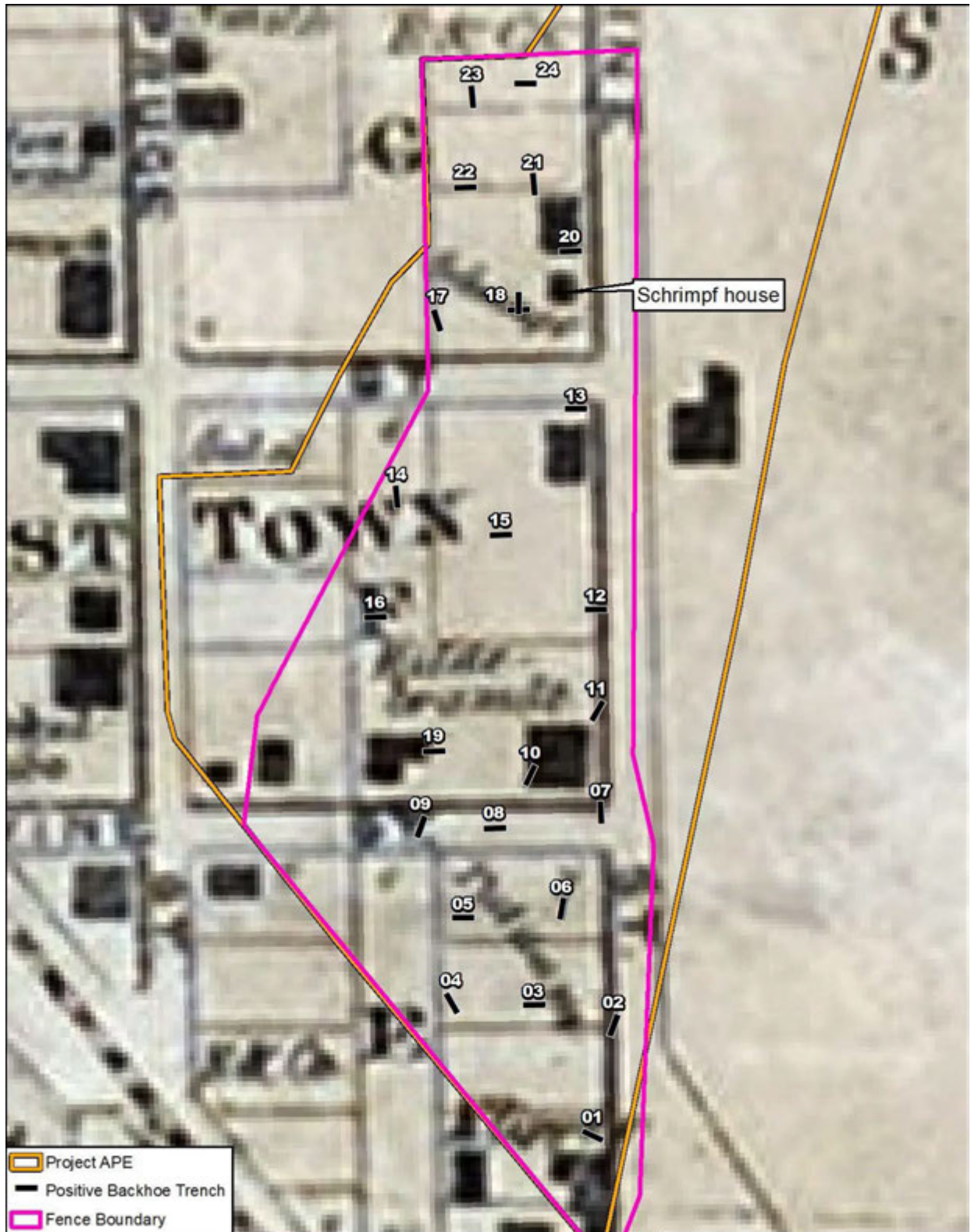


Figure 8
 Excavated Trench Locations referenced to
 Woods (1869) Map of Houston
 North Houston Highway Improvement Project

Data Sources: CMEC (2018)
 Base Source: Woods (1869)

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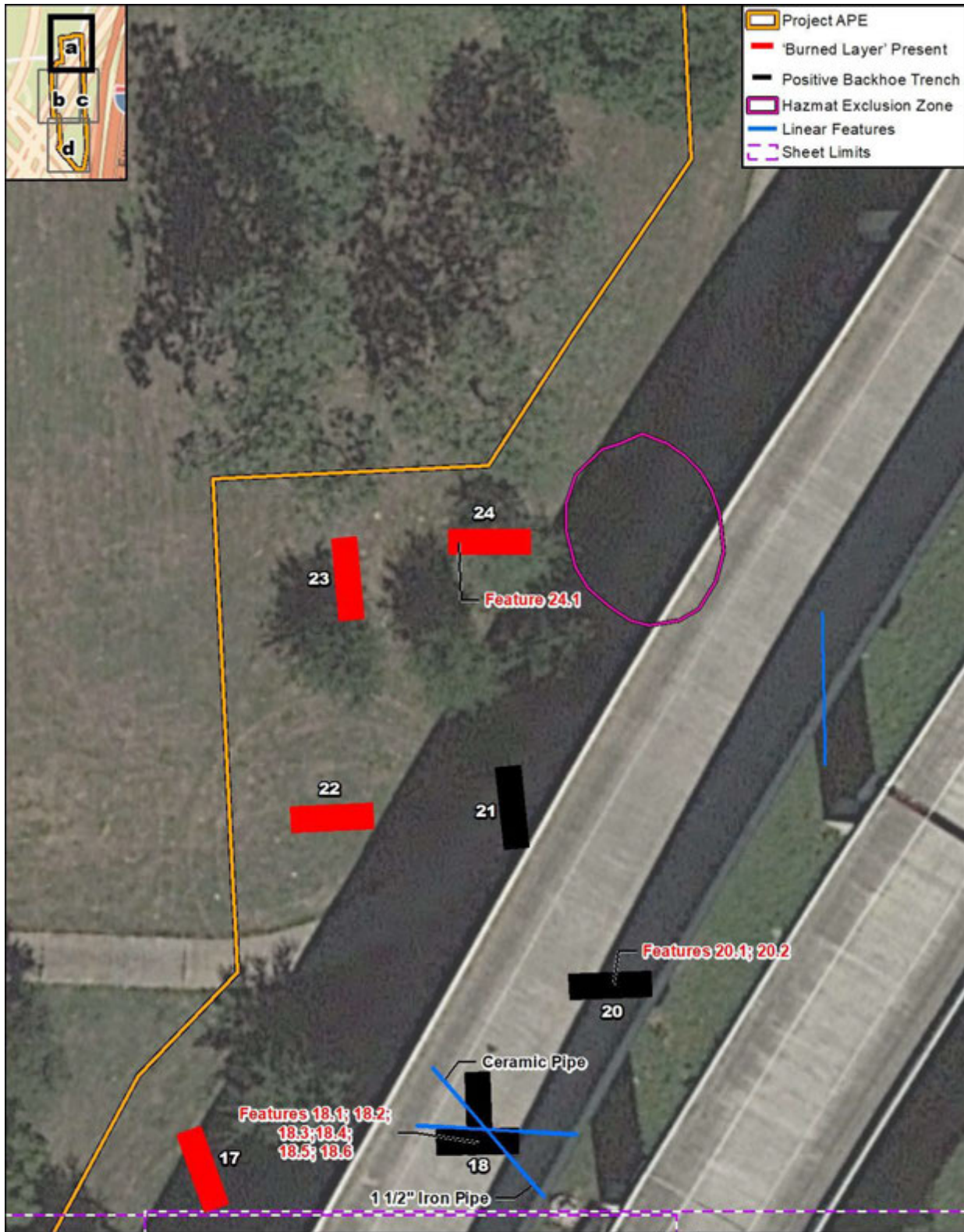


Figure 9a

Survey/Testing Results

North Houston Highway Improvement Project

Data Sources: CMEC (2018), THC (2018),
 TARL (2018), NHD (2018)
 Aerial Source: Goggle (2017)

	0	30 Feet
	0	10 Meters
Prepared for TxDOT	1 in = 30 feet	
CSJ: 0921-00-146	Scale: 1:360	
	Date: 1/23/2019	

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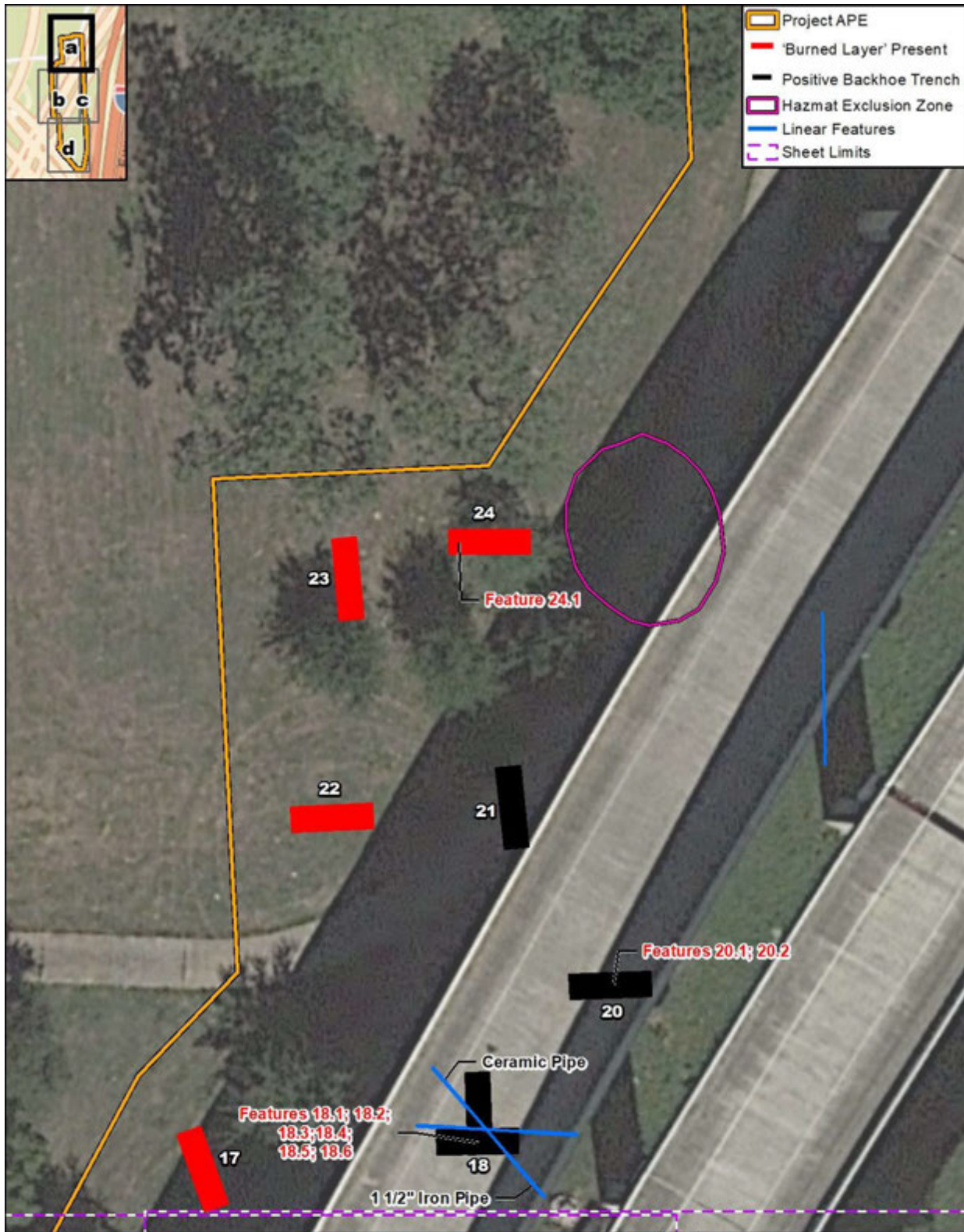


Figure 9a

Survey/Testing Results

North Houston Highway Improvement Project

Data Sources: CMEC (2018), THC (2018),
 TARL (2018), NHD (2018)
 Aerial Source: Goggle (2017)

	0 30 Feet
	0 10 Meters
Prepared for: TxDOT	1 in = 30 feet
CSJ: 0921-00-146	Scale: 1:360
	Date: 1/23/2019

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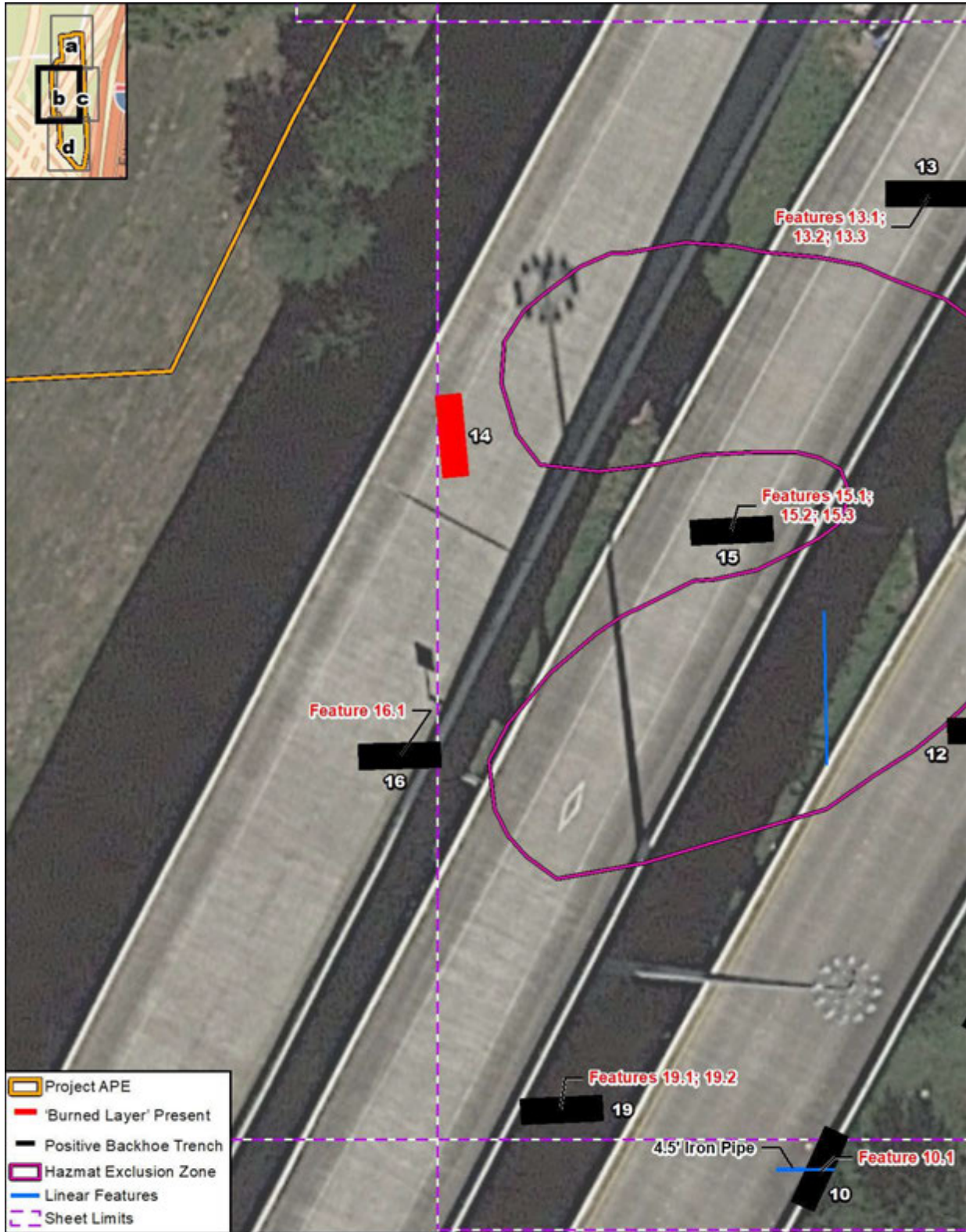


Figure 9b

Survey/Testing Results

North Houston Highway Improvement Project

Data Sources: CMEC (2018), THC (2018),
 TARL (2018), NHD (2018)
 Aerial Source: Goggle (2017)

	0	30 Feet
	0	10 Meters
Prepared for: TxDOT	1 in = 30 feet	
CSJ: 0921-00-146	Scale: 1:360	
	Date: 1/23/2019	

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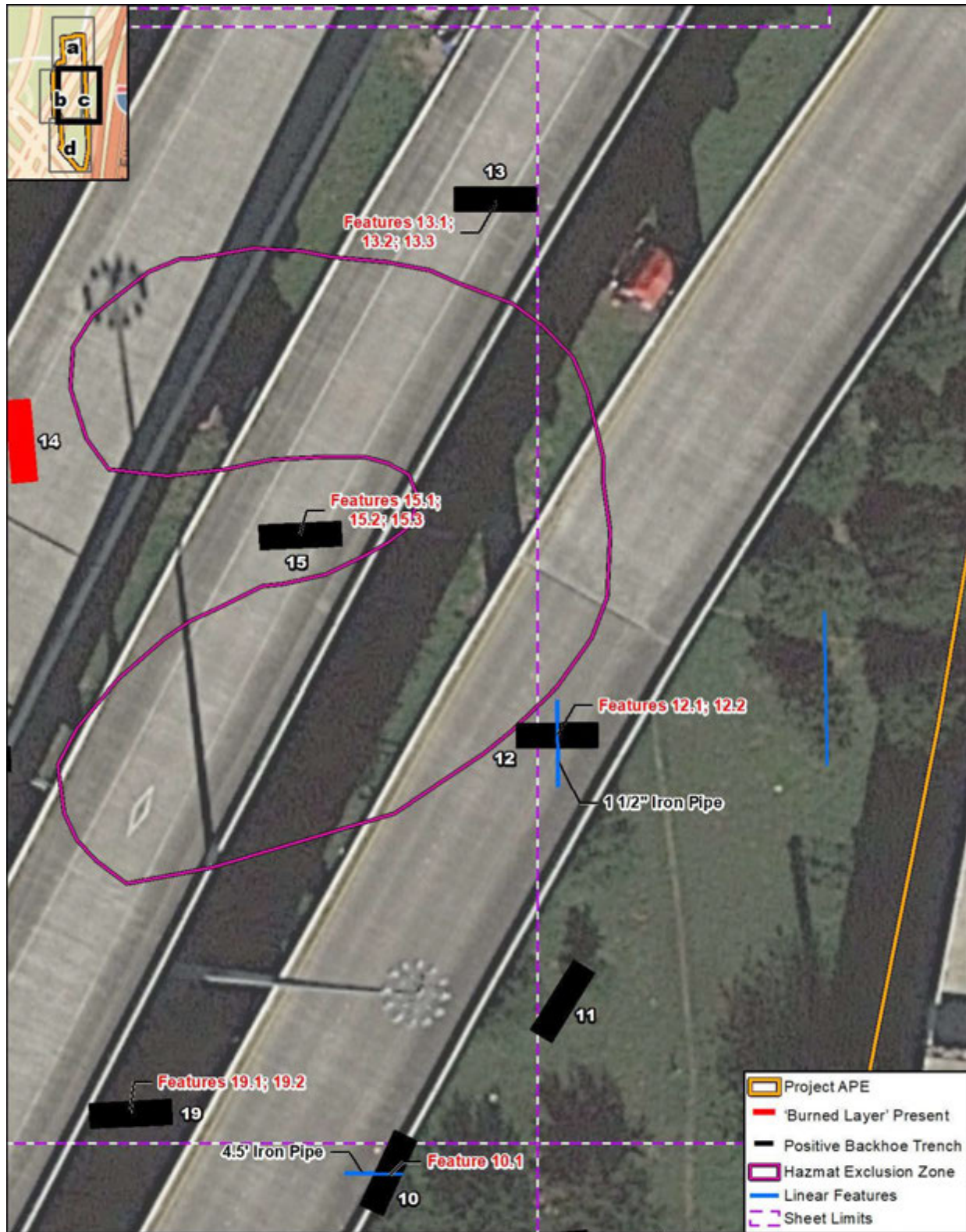


Figure 9c

Survey/Testing Results

North Houston Highway Improvement Project

Data Sources: CMEC (2018), THC (2018),
 TARL (2018), NHD (2018)
 Aerial Source: Goggle (2017)

	0 30 Feet
	0 10 Meters
Prepared for: TxDOT	1 in = 30 feet
CSJ: 0921-00-146	Scale: 1:360
	Date: 1/23/2019

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Figure 9d

Survey/Testing Results

North Houston Highway Improvement Project

Data Sources: CMEC (2018), THC (2018),
 TARL (2018), NHD (2018)
 Aerial Source: Goggle (2017)

	0 30 Feet
	0 10 Meters
Prepared for: TxDOT	1 in = 30 feet
CSJ: 0921-00-146	Scale: 1:360
	Date: 1/23/2019

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Soils

According to NRCS data the survey area is entirely underlain by extensively disturbed urban land (2018). This characterization is borne out in the stratigraphy encountered within the upper meter of trenches across the southern survey area, where stratigraphy was highly variable across exposed profiles. Within the southern and central portions of the southern survey area, evidence of intact historic features and artifacts was restricted to the upper meter of trench profiles and consisted of three primary zones: first, a variable-thickness modern Ap horizon that began at the surface and varied in thickness from 2 to 30 centimeters below surface (cmbs) or 0.8 to 11.8 inches below surface (inbs) across the project area; second, a zone of fill sediments with variable thicknesses that extended to 45 cmbs (17.2 inbs) and which showed no evidence of soil formation, but contained the majority of non-utility features; third, a weakly structured Bt horizon that was mostly sterile but contained most of the buried historic utility features (e.g., metal, ceramic, concrete pipelines; **Figures 10 and 11**). The second zone appears to represent truncated historic cultural deposits that were heavily disturbed by the construction of US 59 in the 1950s. Most non-utility features were encountered within this zone (between 10 and 30 cmbs [3.9 and 11.8 inbs]).



Figure 10. Idealized stratigraphy from the southern portion of the survey area



Figure 11. Trench 1, north wall profile

Within the northwestern portion of the survey area, the upper meter of trench profiles (especially Trenches 14, 17, 22, and 23) was heavily disturbed and consisted of carbonized matrix encapsulating a mixture of historic and modern debris (**Figures 12** and **13**). In Trench 14, for example, a single hand-made square nail was observed in this fill *above* four large rubber tires, thus indicating the degree of disturbance. This layer is consistent with the “burned layer” described by Boyd and colleagues (2005) and likely represents evidence from the burning and bulldozing of the residences in the area during the 1950s.

Below this fill, a 10-cm-thick (3.9-in-thick) layer of coarse sand was observed across all trenches where the “burned layer” was present (**Figure 12**). The initial hypothesis that this sand represented deposits from overbank flooding events was rejected because the sand layer appeared too regular and uniform in particle size for this to be the case. A second possibility was that demolition crews in the 1950s excavated the area and laid down a layer of sand fill prior to pushing demolished residential debris on top of it; however, there is no obvious reason why they would have taken this step. A third possibility, suggested by TxDOT archeologist Dr. Jason Barrett, was that the sand represents sterile fill imported and placed at the turn of the twentieth century

to help level the area for residential construction. Given the current evidence, this third possibility seems the most likely. If this is the case, then the bulldozing of structures in the 1950s would have removed all intact cultural features above the imported sand fill.

Below the 1-m threshold, stratigraphy across the entire survey area suggests a low-energy depositional environment consistent with a back swamp or low-lying riparian area. Observed strata consisted of a generally uniform sequence of clay deposits across the survey area; their significantly different colors suggest potentially different parent material but are consistent with published descriptions of the Beaumont Formation (USGS 2018). Beginning at approximately 3 m below surface (9.8 ft below surface), clays were either gleyed or hydric (e.g., formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions); both suggest environments where standing water was common and oxygen levels were reduced (e.g., a back swamp).

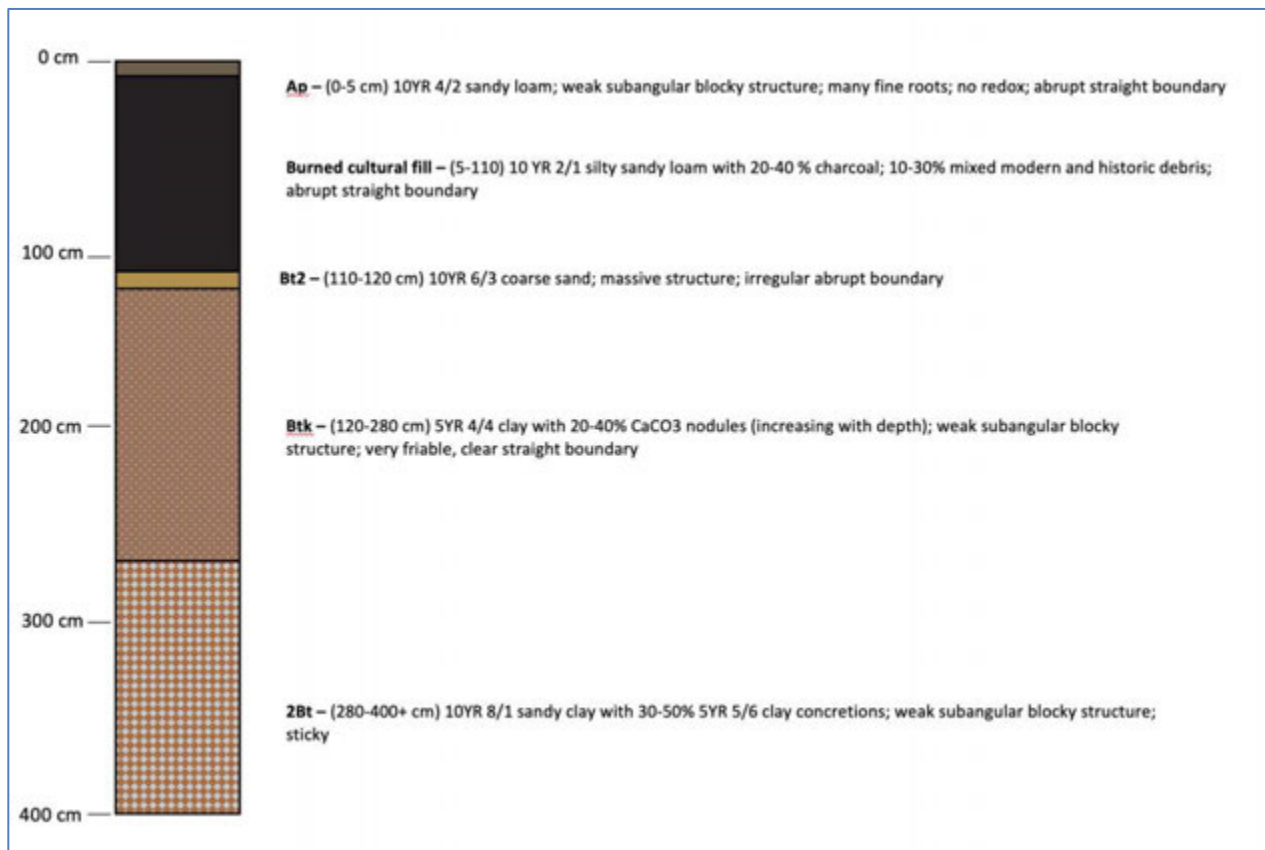


Figure 12. Idealized stratigraphy from northwestern portion of the survey area



Figure 13. Trench 21, east wall profile. The “burned layer” is evident in the upper meter of the profile.

One noteworthy geomorphic feature that was not identified during trenching was a suspected gully that may have crossed through the north/northwestern portion of the survey area (corresponding to Frost Town Blocks F and G). Early depictions of the Frost Town community show this block to be largely unoccupied (e.g., Girard 1839; Koch 1873; Woods 1866, 1869), and residential development within it only seems to occur after the turn of the twentieth century (Sanborn 1907). Excavations conducted by Prewitt and Associates, Inc. in adjacent Blocks C and F to the west of the current survey area uncovered stratigraphic evidence for a gully that was used for refuse disposal. Aulbach (2012) indicates that refuse disposal within gullies was not only common but actively encouraged by the City of Houston, and evidence for trash-filled gullies in the immediate vicinity are described historically and evident in archeological investigations associated with the Elysian Viaduct project (D. Boyd personal communication 2018).

Based upon trench placement, Trenches 2-9 were positioned in locations most likely to intersect gully deposits (see Figure 9d); however, trench profiles revealed no clear evidence of channel features or associated refuse, nor were any anthropogenic deposits (e.g. sterile sand construction fill) identified within trenches.

Features

In total, 28 subsurface features were identified and recorded during the investigation and are described individually below. The most common feature type was wooden posts (n=9), followed by metal pipelines (n=8), soil features / trash pits (n=7), and structural remains (n=4). It is not surprising that the two most well-represented classes of features were deeply buried and not as heavily impacted by ground disturbance related to the construction of US 59.

Features were numbered using the number of the trench in which they were identified followed by a sub-number for each feature in the sequence in which they were identified during excavations. For example, Feature 12.2 is the second feature identified within Trench 12. A condensed description and evaluation of all features may be found in **Appendix C**.

Feature 4.1 (Trash Pit)

Feature 4.1 is a trash pit consisting of non-diagnostic refuse, including broken glass bottle shards, ferrous cut nails, and fragments of Portland cement and concrete, that appears to date to the end of the residential occupation of Frost Town / El Barrio del Alacrán (**Figure 14**). Sediment in the feature was 10YR 2/1 clayey sand and was darker than the surrounding trench fill. The feature measured 57 cm (22.4 in) along its longest axis (north-northwest to south-southeast) and 37 cm (14.6 in) along the perpendicular axis. The feature was approximately 15 cm (5.9 in) deep and extended from 30 to 45 cm (11.8 to 17.8 in) below the ground surface. The top of the feature was truncated by an Ap-horizon stratum that contained mixed modern and historic artifacts within mottled fill.



Figure 14. Feature 4.1, plan view.

Feature 4.2 (Trash Pit / Soil Feature)

Feature 4.2 is an amorphous trash pit / soil feature consisting of non-diagnostic historic refuse, including broken glass bottle shards and fragments of Portland cement and concrete (Figure 15). Sediment in the feature was 10YR 2/1 clayey sand with 20 percent 7.5YR 5/6 clay and was mottled and darker than the surrounding trench fill. The feature extended approximately 140 cm (55.1 in) along the east trench wall and its maximum width extended 87 cm (34.3 in) into the trench. As with Feature 4.1, this feature had a depth of approximately 15 cm (5.9 in), and it extended from 30 to 59 cm (11.8 to 123.2 in) below the ground surface. Feature 4.2 was not as clearly defined as Feature 4.1. The top of the feature was truncated and disturbed by an Ap-horizon stratum that contained mixed modern and historic artifacts within mottled fill.



Figure 15. Feature 4.2, plan view.

Feature 5.1 (Trash Pit)

Feature 5.1 is a trash pit containing over 1,000 non-diagnostic domestic and personal artifacts, including bottle glass (approximately 95 percent of all artifacts), ferrous wire nails, and unidentified ferrous metal fragments (**Figure 16**). It also contained 15 temporally diagnostic glass bottle bases and bodies; these artifacts are described in the artifact analysis section below. The temporal range of artifacts was from 1910–1954, based on the analysis of maker’s marks and bottle styles. One artifact of note was an intact “Mit-che” soda bottle with production dates between 1927 and 1948; this type of bottle had not been recovered from the previous Frost Town excavation (L. Aulbach, personal communication 2018). The pit itself contained a matrix of 10YR 2/1 clayey sand and had maximum horizontal dimensions of 100 cm (39.4 in) from north to south and 70 cm (27.6 in) east to west; the feature extended into the east wall of the trench so its maximum horizontal extent is unknown. Vertically, the feature began at 30 cmbs (11.8 inbs), where it was truncated by mixed Ap fill, and extended to 57 cmbs (22.4 inbs).



Figure 16. Feature 5.1, plan view.

Feature 6.1 (Utility Pole)

Feature 6.1 is a truncated wooden utility pole with a diameter of approximately 6 in (15.2 cm) and a circumference of 18.8 in (47.85 cm) at its base and was first encountered approximately 10 cmbs (3.9 inbs) beneath a stratum of mixed historic / modern fill (**Figure 17**). The hole into which the pole was placed extended 230 cmbs (90.6 inbs), and the base of the utility pole rested on an approximately 1-in thick (2.5-cm thick) layer of 10YR 5/2 sand. The species of tree used to fashion the pole could not be determined in the field, and the condition of the post was very poor. Given its location within Block E of the Frost Town community, this feature may represent an informal transmission line utility pole that stood within a residential yard.



Figure 17. Features 6.1 and 6.2, plan view.

Feature 6.2 (Utility Pole)

Feature 6.2 is a truncated wooden utility pole with a diameter of 9 in (22.86 cm) and a circumference of 28.3 in (71.9 cm) at its base (**Figure 17**). Feature 6.2 was located approximately 25 cm (9.84 in) northwest of Feature 6.1 and was first encountered approximately 10 cmbs (3.9 inbs) beneath a stratum of mixed historic / modern fill. The hole into which the pole was placed extended 200 cmbs (78.7 inbs), and the base of the utility pole rested on an approximately 1-in thick (2.5-cm thick) layer of 10YR 5/2 sand. The species of tree used to fashion the pole could not be determined in the field. Given its location within Block E of the Frost Town community, the size of its circumference (larger than Feature 6.1), and its proximity to Feature 6.1, Feature 6.2 may represent a replacement transmission pole that was erected to replace the utility pole identified as Feature 6.1.

Feature 8.1 (Remodeled Concrete Sidewalk)

Feature 8.1 is a north-south-running concrete sidewalk that spans the entire width of Trench 8 and extends 134.6 cm (53 in) to the north of the trench and approximately 12.5 cm (4.9 in) to the south (**Figure 18**). The portions of the sidewalk that extended north and south of the trench were located at the surface and could be observed without any additional excavation. The sidewalk appears to have been informally constructed from concrete blocks tempered with repurposed

hand-made structural bricks and street pavers. Based on the presence of wire nails found on both sides of the pavement, one interpretation is that the concrete was poured into a wooden frame. The sidewalk measures 32 in (81.3 cm) in width with a variable thickness of 2 to 5.5 in (5 to 14 cm) over a 4.5-to-10.2-in-thick (12-to-26-cm-thick) base of 10YR 3/2 sandy loam with 60 percent crushed oyster shell. The sidewalk remnants appear to be mostly *in situ* but are broken into multiple concrete blocks. However, few of the cement fragments conjoin with each other in the manner one might expect of a sidewalk that was created as a single facility and then fractured. Instead, it more resembles a scavenged feature using displaced blocks and bricks that were chipped to roughly fit together and mimic the appearance of a flagstone walkway (J. Barrett, personal communication 2018). A metal pipe with an outside diameter of 1 ¼ in¹ crosses the trench immediately below the mixed sandy loam / oyster shell base and runs approximately east–west, perpendicular to the sidewalk. The featured was very shallowly buried (less than 2 cm throughout) and in some cases was partly observable on the surface.



Figure 18. Feature 8.1, plan view.

¹ All outside pipe diameter measurements are reported in English/Imperial units since this was the system used by manufacturers.

Feature 8.2 (Residential Pier)

Feature 8.2 is the truncated remnants of a residential pier comprising both brick / mortar and cement first encountered 1-2 cmbs (0.4-.8 inbs) and extended to 24 cmbs (9.5 inbs; **Figure 19**). The pier includes one course of 10YR 7/2-color bricks measuring $3\frac{3}{4} \times 3\frac{1}{2} \times 2\frac{3}{8}$ in (9.5 x 8.9 x 6.0 cm) arranged with two bricks running parallel to each other and a third running perpendicular to the first two; in plan view, the bricks form a rectangular pier that measures $10\frac{7}{8} \times 8\frac{1}{2}$ in (27.6 x 21.6 cm). Mortar between the bricks consists of Portland cement with sand temper and has a color of 10YR 7/1. This course of bricks is mortared to a square cement base that measures 14 x 14 x 5 in (35.6 x 35.5 x 12.7 cm). The entire pier is located within the builder's trench that extends 6.4 cm (2.5 in) from the pier in all directions. Matrix within the builder's trench was 10YR 3/1 clay loam. The pier is oriented with its long axis running north-south. Consultation with historian Louis Aulbach and Dr. Barrett revealed that combination brick / cement residential piers were not commonly encountered in other excavated areas of 41HR982.



Figure 19. Feature 8.2, plan view.

Feature 8.3 (Residential Pier)

Feature 8.3 is the truncated remnants of a residential pier comprising both brick / mortar and cement and likely represents part of the same structure as Feature 8.2. This pier was partially disturbed by demolition activities and was slightly moved out of its original position, but was

identified approximately 6 ft (1.8 m) west of Feature 8.2. It was first encountered 1-2 cmbs (0.4-.8 inbs) and extended to 13 cmbs (5.2 inbs); In other respects, the pier is identical to Feature 8.2 in composition and design.



Figure 20. Feature 18.3, facing east

Feature 9.1 (Concrete slab fragments)

Feature 9.1 consisted of nine broken fragments of a 4-in-thick (10.1-cm-thick) poured concrete slab located approximately 30-50 cmbs (11.8 to 19.7 inbs) It was initially thought to be *in situ* due to the fact that several fragments were lying horizontally within fill and was therefore recorded as a features. However, further excavation revealed that four fragments were positioned vertically within the trench. Moreover, the presence of mixed historic artifacts and modern trash surrounding the fragments indicates that it has been heavily disturbed.

Feature 10.1 (Ferrous Metal Pipe Sections)

Feature 10.1 consisted of two ferrous metal pipe sections with outside diameters of 6 ½ in connected by a flange that has an outside diameter of 8 in (**Figure 21**). The pipe was encountered at 110 cmbs and ran almost exactly east-west. Given its size and location, it is likely that this

pipeline was a water pipe that ran along side of, and directly south of, the former alignment of Vine Street (see **Figure 5**).

Feature 12.1 (Gas Pipeline)

Feature 12.1 is a threaded ferrous metal pipe with an outside diameter of 1 ½ in; it was encountered approximately 30 cmbs (11.8 inbs) and likely served as a residential gas line (**Figure 22**). The pipe traversed the entire length of Trench 12, but only followed an east–west trajectory from the western trench wall to a point 13.4 m (11 ft) to the east. At this point it curved irregularly to the north before terminating just before the eastern trench wall. This curve and termination are likely the result of post-depositional processes and disturbance rather than an indication of the original alignment. The pipe had a brass shut-off valve approximately 1.8 m (6 ft) east of the west trench wall and a brass regulator approximately 46 cm (18 in) to the east of that. The presence of these pipe features on the top of the pipe suggests that the straight portion of the pipeline is still generally in its original location. A possible builder’s trench was observed surrounding the pipe (10YR 3/1 sandy loam), but its boundary was irregular and difficult to ascertain in the field.



Figure 21. Feature 10.1, plan view.



Figure 22. Feature 12.1, overview looking east.

Feature 12.2 (Soil Feature)

Feature 12.2 was a rectangular soil feature measuring approximately 93 by 30 cm (36.6 by 11.8 in) and extending from 45 to 65 cmbs (17.7 to 25.6 inbs). The pit was identified 3 m (9.8 ft) east of the west trench wall and began 8 cm (3.2 in) south of the north wall (**Figure 23**). Sediment within the feature consisted of 10YR 3/1 sandy loam with approximately 10 percent oxidized iron fragments. Twelve non-diagnostic glass bottle and unidentified metal fragments were observed, but none were collected.



Figure 23. Feature 12.2, plan view.

Feature 13.1 (Structural Remains)

Feature 13.1 was the overturned remnants of a historic structure that included 31 whole bricks, approximately 40–50 brick fragments, and at least 4 large irregular masses of concrete (**Figure 24**). The feature measured 2.1 m (6.9 ft) east–west by 1.8 m (5.9 ft) north–south. The feature was delineated after Trench 13 was widened to 1.7 m (5.6 ft). It was first exposed at 5 cmbs (2.0 inbs) and extended to 32 cmbs (12.6 inbs). The bricks and concrete were initially thought to represent the remnants of a cistern cap, but further investigation revealed no evidence for a cistern and no diagnostic artifacts were found in association with the feature. The feature was very close to the surface and was embedded in 10YR 3/2 fill. It is likely that this feature represents the demolished remains of some historic-era structure, though the nature and size of the structure remain unknown.



Figure 24. Feature 13.1, overview.

Feature 13.2 (Gas Pipeline)

Feature 13.2 was a metal pipe with an outside diameter of 1 ½ in; it was coated with some sort of black-colored insulation (**Figure 25**). It was oriented approximately east–west and measured approximately 2 m (6.6 ft) in length. The pipe originated from the west wall of Trench 13 and terminated at a screwed connector in the middle of the trench. The feature was identified approximately 40 cmbs (15.8 inbs) and was located within a 40-cm-wide (15.8-in-wide) builder’s trench containing 10YR 3/1 sandy loam matrix.

Feature 13.3 (Sewer Pipe)

Feature 13.3 was a ribbed concrete pipe with an outside diameter of 6 ½ in; it extended the entire length of Trench 13 at approximately 70 cmbs (27.6 inbs) (**Figure 26**). This pipe was found along the same trajectory as Feature 13.2 but was 30 cm (11.8 in) lower. Five connecting joints were observed in the exposed portion of the pipe, and a makeshift joint was apparent in the pipe approximately 1 m (3.1 ft) east of the west wall. This joint included a hand-drilled hole in the top of the pipe that likely connected to a vertical pipe. The hole was surrounded by some sort of unidentifiable dark orange “attachment” material. The pipe is consistent with historic sewer pipes; the makeshift joint may have connected a residence to the sewer line.



Figure 25. Feature 13.2 overview looking east.



Figure 26. Feature 13.3 overview looking east.

Feature 15.1 (Utility Pole)

Feature 15.1 was a utility pole with an outside diameter of 8 in and a circumference of 50.2 in (**Figure 27**). It was identified 66 cm (26 in) south of the north wall and 2.02 m (6.7 ft) west of the east wall in Trench 15. The feature was first identified at approximately 14 cmbs (5.5 inbs) and extended to 50 cmbs (19.7 inbs). The feature was located in 10YR 6/3 sand matrix that extended across the entire trench from 30 to 75 cmbs (11.8 to 29.5 inbs). The condition of this feature was very poor, and the wood species was unidentifiable.



Figure 27. Features 15.1, 15.2, and 15.3 overview looking east.

Feature 15.2 (Utility Pole)

Feature 15.2 was a utility pole with an outside diameter of 7 in and a circumference of 44.0 in (**Figure 27**). It was identified 66 cm (26 in) south of the north wall and 1.8 m (5.9 ft) west of the east wall in Trench 15. The feature was first identified at approximately 14 cmbs (5.5 inbs) and extended to 50 cmbs (19.7 inbs). Feature 15.2 was located approximately 22 cm (8.7 in) east of Feature 15.1. The feature was located in 10YR 6/3 sand matrix that extended across the entire trench from 30 to 75 cmbs (11.8 to 29.5 inbs). The condition of this feature was very poor, and the wood species was unidentifiable.

Feature 15.3 (Soil Feature)

Feature 15.3 was an irregularly shaped soil feature that measured 32 cm (12.6 in) southwest to northeast by 7 cm (2.8 in) northwest to southeast; it was located immediately south of Feature 15.2 (**Figure 27**). The feature included 10YR 3/2 sandy loam matrix surrounding five unidentified oxidized metal fragments. The feature originated at 14 cmbs (5.5 inbs) and terminated at 22 cmbs (8.7 inbs). It was located in 10YR 6/3 sand matrix that extended across the entire trench from 30 to 75 cmbs (11.8 to 29.5 inbs).

Feature 16.1 (Soil Feature / Trash Pit)

Feature 16.1 was a soil feature or possible trash pit that measured 1.06 m (42 in) east to west by 0.97 m (38 in) north to south. The feature intersected the northern boundary of Trench 16, so it is likely that it extended farther to the north (**Figure 28**). The feature had 10YR 2/1 sandy loam matrix and extended from 15 to 32 cmbs (5.9 to 12.6 inbs). Three unidentified oxidized metal fragments and one undiagnostic bottle glass shard were observed within the feature but were not collected.



Figure 28. Feature 16.1 overview looking north.

Features 18.1–18.4 (Support Posts)

Features 18.1, 18.2, 18.3, and 18.4 were wood support posts encased in cement blocks in Trench 18. These posts were recorded separately since it was not immediately apparent that they were related. Taken together it appears that these posts and their casings supported a heavy elevated structure in the past, possibly an electrical transformer.

Feature 18.1 (Wood Post)

Feature 18.1 was a wood post with an outside diameter of 12 in and a circumference of 75.4 in; it was encased in an amorphous block of concrete (**Figure 29**). The feature was first encountered approximately 5 cmbs as pulpy wood fragments suspended in fill. This gave way to an intact post at approximately 14 cmbs (5.5 inbs), where it entered its concrete base. The feature's center point was located 45.7 cm (18 in) north of Feature 18.2, which was also encased in the same concrete block. The concrete casing was irregularly shaped and measured 1.1 m (43.3 in) north to south and 40 cm (16 in) east to west. The casing extended to 1.1 m (43.3 in) below the ground surface. No artifacts were found in association with it. Features 18.1 and 18.2 were recorded separately—when they were first identified there was no indication that they were connected. Features 18.1–18.4 may represent support posts for some elevated structure, possibly an electrical transformer.

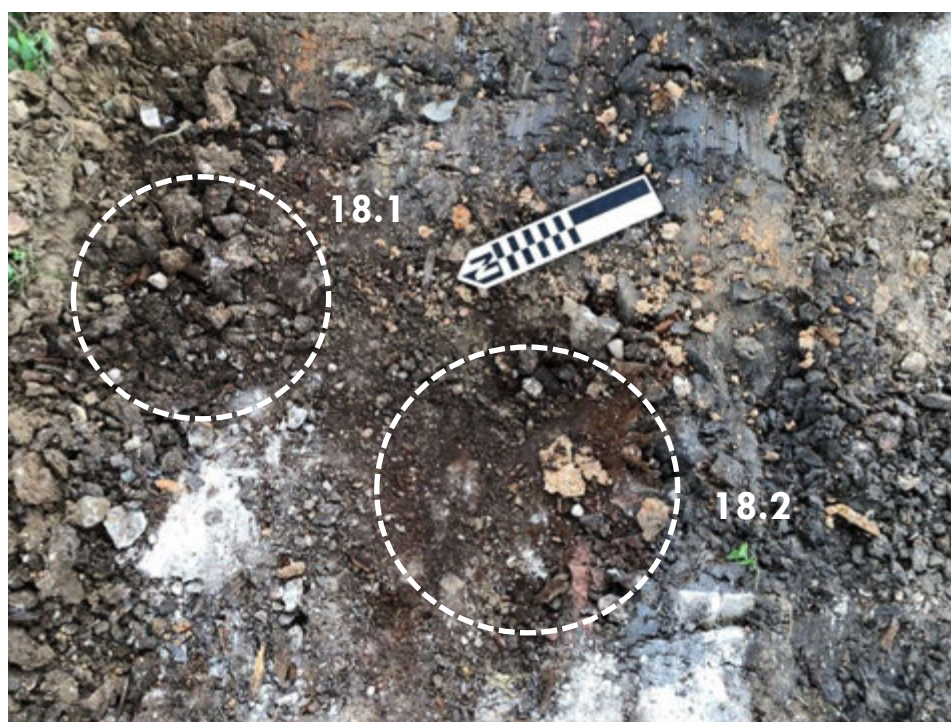


Figure 29. Features 18.1 and 18.2 plan view; both were heavily disturbed.

Feature 18.2 (Wood Post)

Feature 18.2 was a wood post with an outside diameter of 12 in and a circumference of 75.4 in; it was encased in an amorphous block of concrete (**Figure 29**). The feature was first encountered approximately 5 cmbs as pulpy wood fragments suspended in fill. This gave way to an intact post at approximately 14 cmbs (5.5 inbs), where it entered its concrete base. The feature's center point was located 45.7 cm (18 in) south of Feature 18.1, which was also encased in the same concrete block. The concrete casing was irregularly shaped and measured 1.1 m (43.3 in) north to south and 40 cm (16 in) east to west. The casing extended to 1.1 m (43.3 in) below the ground surface. No artifacts were found in association with it. Features 18.1 and 18.2 were recorded separately—when they were first identified there was no indication that they were connected. Features 18.1–18.4 may represent support posts for some elevated structure, possibly an electrical transformer.

Feature 18.3 (Wood Post)

Feature 18.3 was a wood post with an outside diameter of 12 in and a circumference of 75.4 in; it was encased in an amorphous block of concrete (**Figure 30**). The feature was first encountered approximately 5 cmbs as pulpy wood fragments suspended in fill. This gave way to an intact post at approximately 14 cmbs (5.5 inbs), where it entered its concrete base. The feature's center point was located 45.7 cm (18 in) south of Feature 18.4, which was also encased in the same concrete block. The concrete casing was irregularly shaped and measured 0.8 m (31.5 in) north to south and 40 cm (16 in) east to west. The casing extended to 1.1 m (43.3 in) below the ground surface. No artifacts were found in association with it. Features 18.3 and 18.4 were recorded separately—when they were first identified there was no indication that they were connected. Features 18.1–18.4 may represent support posts for some elevated structure, possibly an electrical transformer.



Figure 30. Features 18.3 and 18.4, plan view.

Feature 18.4 (Wood Post)

Feature 18.4 was a wood post with an outside diameter of 13 in and a circumference of 81.6 in; it was encased in an amorphous block of concrete (**Figure 30**). The feature was first encountered approximately 5 cmbs as pulpy wood fragments suspended in fill. This gave way to an intact post at approximately 14 cmbs (5.5 inbs), where it entered its concrete base. The feature's center point was located 45.7 cm (18 in) north of Feature 18.3, which was also encased in the same concrete block. The concrete casing was irregularly shaped and measured 0.8 m (31.5 in) north to south and 40 cm (16 in) east to west. The casing extended to 1.1 m (43.3 in) below the ground surface. No artifacts were found in association with it. Features 18.3 and 18.4 were recorded separately—when they were first identified there was no indication that they were connected. Features 18.1–18.4 may represent support posts for some elevated structure, possibly an electrical transformer.

Feature 18.5 (Gas Pipeline)

Feature 18.5 was a ferrous metal pipe with an outside diameter of 1 ½ in; it was first encountered in Trench 18 and further exposed in the Trench 18 Extension (**Figure 31**). The pipe was encountered 1.2 m (3.9 ft) below the ground surface, ran directly north–south, and was surrounded by a 22.9-cm-wide (9-in-wide) builder's trench with 10YR 3/1 sandy loam matrix. No artifacts were associated with the pipeline.

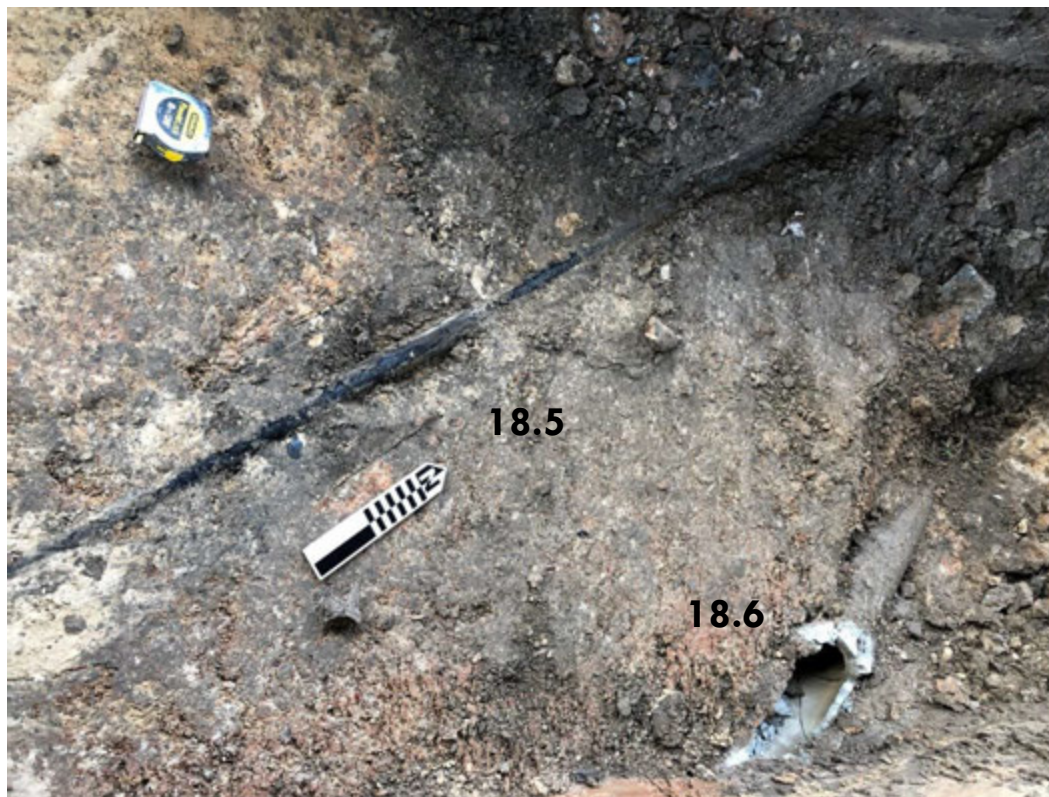


Figure 31. Features 18.5 and 18.6, plan view.

Feature 18.6 (Concrete Pipeline)

Feature 18.6 was a pipe with an outside diameter of 6 ½ in; it was encountered 1.2 m (3.9 ft) below the ground surface in Trench 18. The pipe sloped slightly down to a depth of 1.22 m (4.0 ft) where it exited the Trench 18 Extension to the north (**Figure 31**). The feature crossed underneath Feature 18.5 in the Trench 18 Extension and was oriented approximately 5 degrees west of north. This pipe likely represented a sewer line that emptied into Buffalo Bayou to the north.

Feature 19.1 (Possible Remodeled or Makeshift Sidewalk)

Feature 19.1 was a portion of an possible remodeled brick sidewalk or walkway that measured 2.29 m (7.5 ft) by 1.14 m (3.75 ft) and extended from 32 to 40 cmbs (12.6 to 15.8 inbs). The sidewalk appeared to be partially *in situ* (particularly on the west side), but most bricks had been displaced to some degree (**Figure 32**). The sidewalk was composed of 51 complete bricks of different provenance and approximately 21 partial brick fragments. All bricks were drawn, photographed, and described but none were collected. Many of the bricks had clear maker's marks and could be identified (**Table 5**). The variety of brick types and manufacturers indicates that this sidewalk was informally pieced together from available materials. Several artifacts were identified in context with the bricks, including broken clear and green glass shards, whiteware

fragments, and oxidized wire nails. Temporally, the feature post-dates 1961 (the earliest date for Houston House bricks). As a result, if this feature represents an informal sidewalk, it would have been created after the community had been mostly destroyed and could represent a transient community feature.



Figure 32. Feature 19.1 overview looking south.

Table 5. Whole Bricks Recovered from Feature 19.1						
Manufacturer	Count	Length (in)	Width (in)	Thickness (in)	Color	Date range
Coffeyville Vitrified Brick and Tile	7	8 7/8	3 3/4	3 3/8	7.5YR 5/2	1894-1930
Ferris House Brick	2	7 3/4	3 3/4	2 3/8	2.5YR 5/6	1901-1935
Houston House Brick	1	?	3 3/4	3 3/8	2.5YR 5/3	1961-present
Thurber Vitrified, top stamp	24	7 3/4	3 3/4	2 3/4	2.5YR 5/2	1903-1931
Thurber, top stamp	1	7 3/4	3 3/4	3	2.5YR 5/2	1903-1931
Vitrified with convex / concave edges	12	8 7/8	4 1/4	2 7/8	7.5YR 5/2	unknown
Vitrified (no markers)	4	8 1/2	4 1/2	3	2.5YR 4/4	unknown

Sources: Chamberlain (2018); Langston (2014)

Feature 19.2 (Gas Pipeline)

Feature 19.2 was a metal pipe with an outside diameter of 1 in; it was encountered 62 cmbs (24 inbs) within Trench 19 and followed an east-west trajectory across the entire trench (**Figure 33**). The pipeline was located within a 12.7-cm-thick (5-in-thick) builder's trench consisting of 10YR 7/4 clay. No artifacts were found in association with the pipeline.



Figure 33. Feature 19.2 overview looking north.

Feature 20.1 (Wood Post)

Feature 20.1 was a wood post with an outside diameter of 6 in and a circumference of 37.7 in; it was encountered 55 cmbs (21.7 inbs) and ended at 95 cmbs (37.4 inbs). The post was placed in a 10YR 6/2 clayey sand matrix with 20 percent crushed oyster shell, and its center point was located 60 cm (23.6 in) north of the south trench wall and 51 cm (20 in) east of the west trench wall (**Figure 34**). No artifacts were found in association with the feature.



Figure 34. Feature 20.1 plan view.

Feature 20.2 (Metal Pipe)

Feature 20.2 was a metal pipe with an outside diameter of 6 ½ in; it was exposed 177 cmbs (69.7 inbs) and followed an east–west trajectory (Figure 35). No evidence for a builder’s trench could be observed, but the pipe’s orientation and lack of evidence for disturbance around it suggests that it is still *in situ*. This was the most deeply buried feature encountered during the project.



Figure 35. Feature 20.2 plan view; trowel (approximately 17.8 cm long) is pointing north.

Feature 24.1 (Metal Pipe)

Feature 24.1 was a silver-colored metal pipe with an outside diameter of 1 in; it had a screwed connector and was oriented east–west. It was identified 130 cmbs (51.2 inbs) in Trench 24. The pipe was protruding from the south wall of the trench when it was first observed. One artifact, a steel grounding rod with an outside diameter of $\frac{1}{2}$ in with a segment of copper wire soldered to one end, was found in proximity to the feature. Taken together, the artifact and feature suggest that a historic residence was located nearby; however, no evidence of a structure was uncovered in the trench.

Test Unit

A single 0.5-by-0.5-m (1.64-by-1.64-ft) test unit was hand-excavated immediately south of Trench 8 (**Figure 9d**). The purpose of this unit was to identify a contiguous segment of a shallowly buried concrete pipeline that had been inadvertently removed by the first excavator scope within Trench 8. This unit, however, failed to reveal any intact evidence for the pipeline; instead, it contained multiple broken concrete fragments mixed into the fill. Four 10-cm-thick (3.9-in-thick) levels were hand excavated before encountering sterile Bt horizon clays where the excavation was terminated.

Artifact Analysis

In total, 33 artifacts were collected from intact feature contexts within the survey area; all collected artifacts had marks, numbers, or other temporally or culturally diagnostic characteristics. Given the large number of artifacts collected from the previous investigation within Frost Town, the goal of artifact collection for this project was to better determine the age of intact features within the survey area rather than comprehensively assess material culture within the community. Artifacts were initially cleaned and housed at the CMEC Houston office before being transferred to the Irving office for analysis by historic-age artifact specialist Melissa Green. Artifacts were first divided into material classes (ceramic, glass, and miscellaneous) and then individually studied to determine subclass, artifact type, decoration, production dates, and functional groups.

In all, 33 items were collected from the following function categories outlined in the methods section: domestic, indefinite use, personal, and structural (**Tables 6–8**).

Domestic Artifacts

The majority of artifacts (72.7 percent) are classified as domestic (n=24). This category included 3 ceramic sherds (1 stoneware, 1 whiteware, and 1 porcelain), 2 whole glass bottles, 19 glass bottle fragments, and 1 metal cocktail fork. A gray-tinted porcelain rim sherd with a light blue swag and medallion transfer print decorative motif and a rolled rim was found; this sherd probably dates from the 1880s to the 1920s. A transitional whiteware rim sherd with an annular ware decorative motif of bands consisting of a single thick blue band between two sets of two thin black bands on a bowl body was also recovered. Annular ware was popular from the 1770s into the early twentieth century and was found on both pearlware and whiteware refined earthenware bodies (Maryland Archaeological Conservation Laboratory [MACL] 2015).

A single stoneware sherd was collected. The sherd has a brown natural clay slipped exterior and a gray natural clay slipped interior. Natural, local clay slips were popularized by “Albany” clay, a finely siliceous calcium and iron-bearing clay dug from glacial beds in Albany, New York, that was discovered in the first quarter of the nineteenth century (Sweezy 1984). Although it is likely that some local potters were using the local clays in their regions earlier, the use of this glazing style became widespread when the railroads reached many parts of the United States in the 1870s and 1880s. Here in Texas, utilitarian wares with this surface treatment were being produced in a number of places across the state between the 1870s to the early 1900s (Lebo 1992).

The majority of the domestic glass collected comprised colorless (clear) bottle and jar bases with embossed letters and numbers, most of which could not be identified to specific glass makers and / or specific products and most of which were liquor bottles. Two amber liquor bottle body fragments were embossed with the bust of a mustached gentleman in an oval frame who wore a

broad rimmed, plantation-style hat and a string tie tied in a bow. Unfortunately, the brand of liquor was not determined.

Of those base sherds collected, all were made in Owens automated bottle machines (ABM), which perfected the previous semi-automated process of a two-mold pressing and then blowing bottle making process into a fully automated process by drawing the glass to blowing the bottle to the extraction of the bottles from the machine for moving to the annealing Lehr (i.e., temperature controlled kiln) without human assistance (Lindsey 2010) leaving a distinctive mark on the base known as an Owens ring. Although patented in 1906, the Owens automated bottle machine was not fully universal until nearly or right after 1910, and by 1917 about 95% of all bottles were fully automated (Lindsey 2010).

Several of the base sherds were found with embossed maker's marks including an "O" in a square attributed to the Owens Bottle Company of Toledo Ohio in 1911 to 1929; an "O" and "I" over a diamond attributed to the Owens-Illinois Glass Company of Toledo, Ohio and dates to 1929-1954; a "G" in a diamond attributed to the General Glass Company (part of Anchor Hocking Corporation between 1935 and 1937; and an "A. B. Co" mark attributed to the American Bottle Co of Chicago Illinois operating from 1905-1929 (Toulouse 1971). This particular American Bottle Co mark may be more refined as it is in an arched mark though to be from 1907 and the Belleville, Illinois plant of the company (Lockhart et al. 2007) and is on an emerald green beer bottle. At least two canning jar bases were identified by their marks: "Kerr Glass.../SAND S" around "PAT/AUG31/1915/8" is from the Kerr Glass Mfg. Co. which operated in Sand Springs, Oklahoma between 1903 and the 1920s (Toulouse 1977:96) and the words "...RFECT" and "Ball" in script and underlined on a slant, which is attribute to the Ball Perfect Mason style that dates post 1935 (Toulouse 1977:7).

Two complete and one partial soda bottles were identified. A green hobble skirt or Mae West-style Coca-Cola bottle base with "NEWTON/KANS." embossed on the base plate dates between 1923 and 1948. The original patent for the hobble skirt bottle shape occurred in 1915, but in 1923, the patent was renewed with the option to emboss the name of the city in which the drink was being bottled which was very popular until about 1948 (Petretti 1997) when embossing began to be replaced with enamel labeling. The second bottle is a colorless Dr. Pepper bottle, missing the lip finish, but embossed with a "GOOD FOR LIFE!" banner in a diagonal across one side of the round body and an embossed round, stippled clock with hands pointing to "10, 2, and 4" on the opposite side of the body. The numbers "6 ½ oz" are also embossed near the base, and "HOUSTON/TEX." on the base plate surrounding several numbers and letters. Based on the embossed style and wording, this bottle dates ca. 1930s-1940s.

Of particular note was a complete relief-molded "Mit-Che" soda bottle that was bottled in Houston. The bottle has a unique design that was patented in 1927 (Patent No. 714117). The neck is smooth from the Crown cap lip finish to the shoulders, which have "MIT-CHE/TRADE MARK REG." embossed around them. Directly below this name is "6 ½ FL. OZS./DESIGN PATENT NO 74117"

in smaller embossed letters. Below this the bottle is relief-molded in flutes. The base plate has an off-centered Owens ring and is embossed with “BRAND BOT. WORKS: HOUSTON” around the bottom with “TEXAS” in the center. Since Mit-Che soda production ceased in the 1940s, the date of the bottle is restricted to an approximately 20-year period (**Figure 36**). Unfortunately, no information was found about this bottling works or the soda the bottle contained.

Other glass bottle fragments all date between 1910 and 1954, with a plurality (34 percent) dating to the late 1930s and early 1940s. In contrast, all three recovered ceramic sherds date to the turn of the twentieth century, somewhat earlier than the date ranges for the glass artifacts. This is not unexpected, since glass bottles were probably discarded relatively soon after their production, while ceramics would have been kept and used by families until they broke or were no longer functional.

Two pieces of a small, silver-plated, 3-tined cocktail fork were collected. The front of the fork is highly corroded to ascertain the pattern and silver-plating continues to flake off of the original metal. “MISSOURI PACIFIC” is stamped into the back side of the fork handle indicating that this was a fork made for the rail company that is a direct descendant of one of the earliest lines west of the Mississippi (Missouri Pacific Historical Society 2018). An absolute date of use was not determined but can be attributed to the time when the company was incorporated under this name Missouri Pacific Railway in 1876 and carried passengers as well as freight; dining cars were an integral part of the train trip experience until the 1950s when air travel and interstate driving became faster and more popular (Conroy 1998).

Personal Artifacts

Four artifacts were assigned to the personal class. The personal use category includes a single porcelain Prosser process button (**Figure 37**), a colorless glass pill bottle (**Figure 38**), an ash-tinted Moroline jelly bottle jar (**Figure 39**), and a colorless glass perfume bottle base. The single, 4-holed, white porcelain button with a recessed center on the front is 5/8 inches across and has a recessed center on the front containing the fastening holes. Porcelain buttons were first produced in 1840 by the Prosser process, named for Richard Prosser, which used a very fine, dry powder rather than moist potter’s clay, that was placed in a steel die and compressed to about one-quarter of its original bulk before placing in a kiln (Lamm et al. 1970). This process was much quicker with less firing loss than previous ceramic button production.

Of particular interest was a small St. Joseph’s “MOROLINE” jar. The small, octagon-shaped St. Joseph’s Moroline petroleum jelly jar stands 2 ¹¹/₁₆ inches tall, is 1 ³/₄ inches wide, and has a continuous threaded lip finish. “MOROLINE” is embossed on four faces of the jar and the other four faces are smooth to accommodate a paper label. The base has an Owens ring, is embossed with “MOROLINE” twice with an “O” and “I” over a diamond maker’s mark. This mark is attributed to the Owens-Illinois Glass Company of Toledo, Ohio and used between 1929 and 1954 (Toulouse

1971). Moroline was in production from 1935 to 1948 as a hair tonic and sold by Plough Sales Corps of Memphis, Tennessee (Fike 1987). Moroline was physically identical to Vaseline in consistency and color and was used for skin and hair care to retain shine and moisture. This product has been found to fit the medical needs and expectations of African American consumers as a replacement for the fat-based ointments previously used (Wilkie 2000:174-175).

The small perfume bottle had pronounced zig-zag design on the body above the base; it postdates 1910; however, a narrower date range could not be determined.

Structural Artifacts

Three artifacts were assigned to the structural class. Structural artifacts include a 4-mm-thick plate glass fragment, a 6-mm-thick plate glass fragment, and an early electrical current tap with threaded copper metal casing and porcelain base. Modern plate glass has been in production since 1920 with the continuous thread production process was invented (Seeley 1996). A current tap is an adapter that mounts in a socket and also provides additional socket(s) as well as a receptacle for another attachment plug. These types of taps were manufactured as early as 1890s and are still made today (Tod 1977).

Indefinite Artifacts

The indefinite category includes two colorless bottle bases. One was round base with valve mark and embossed O in a square maker's mark of Owens Bottle Co. (Toledo, Ohio) used from 1911 to 1929, while the second was a rectangular base with various embossed numbers and letters "R 422/72 dot in a square/5" and DES PAT/PENDING"; portion of body is decorated with relief bubbles.

Table 6. Ceramic Artifacts Recovered from Features											
FN #	Trench	Fe/ Unit	Depth (cm)	Art #	Subclass	Type	Decoration / Description	Sherd Type	Dates	Quantity	Group
2018.005	8	Unit 1	10-20	1	Refined earthenware	Porcelain	Rolled rim; light blue swag and medallion transfer print	Rim	ca. 1880- 1920s	1	Domestic
2018.007	13	13.2	40-50	1	Prosser button	Porcelain	4-holed; 5/8 in with recessed center on front	Whole button	post-1840	1	Personal
2018.007	13	13.2	40-50	2	Refined earthenware	Whiteware	Mocha glaze with a thick blue band between thin black bands; bowl	Rim	ca. 1870s- ca. 1900	1	Domestic
2018.010	19	19.1	30-50	6	Stoneware	Stoneware	Clear glazed interior/natural clay slipped exterior	Body	1890- 1900	1	Domestic

Table 7. Glass Artifacts Recovered from Features											
FN #	Trench	Fe/ Unit	Depth (cm)	Art #	Type	Decoration / Description	Sherd Type	Color	Qty.	Dates	Group
2018.001	4	4.2	20-30	1	Bottle	Small, square, ABM medicinal (pill) bottle; 2 11/16 in tall and 15/16 in wide; with a Packer's squared ring lip finish; I in a diamond Illinois Glass Company (Alton, Illinois) maker's mark and "6" embossed in a slight concave inset ring on the base	Whole bottle	Colorless (clear)	1	1916- 1929	Personal
2018.003	5	5.1	10-30	1	Bottle	ABM; liquor; embossed with an oval portrait of mustached gentleman in a broad-brimmed hat and string tie	Body	Amber	2	post- 1910	Domestic
2018.003	5	5.1	10-30	2	Bottle	ABM; "Dr. Pepper" embossed in script with "GOOD FOR LIFE!" banner in a diagonal across body and embossed round, stippled clock with hands pointing to embossed "10, 2, 4" ; "6 1/2 oz. 15/4 L G W" embossed near base; "HOUSTON/34/LM GW/5/TEX." embossed in inset base; missing lip finish	Body/ base bottle	Colorless (clear)	1	ca. 1930s- 1940s	Domestic

Table 7. Glass Artifacts Recovered from Features											
FN #	Trench	Fe/ Unit	Depth (cm)	Art #	Type	Decoration / Description	Sherd Type	Color	Qty.	Dates	Group
2018.003	5	5.1	10-30	3	Bottle	ABM; Mae West shaped Coca-Cola base; "NEWTON/KANS." embossed on base	Base	Green	1	post-1916	Domestic
2018.003	5	5.1	10-30	4	Jar	ABM; St. Joseph's MOROLINE petroleum jelly jar; octagonal shape with continuous thread lip finish; MOROLINE embossed on four faces, the other four are smooth for a paper label; Moroline was in production from 1935 to 1948 as a hair tonic and sold by Plough Sales Corps of Memphis, TN; 2 11/16 in tall and 1 3/4 in wide; base has an Owens ring and is embossed with "MOROLINE/O-I over a diamond/MOROLINE" and 7 for plant number, 3 for year, and 6 for mold details around mark; maker's mark Owens Illinois Glass Company (Toledo, Ohio) made from 1929-1954	Whole jar	Ash tinted	1	1935-1948	Personal
2018.003	5	5.1	10-30	5	Bottle	ABM; round base with valve mark and embossed O in a square maker's mark of Owens Bottle Co. (Toledo, Ohio) used from 1911 to 1929	Base	Colorless (clear)	1	1911-1929	Indefinite
2018.003	5	5.1	10-30	6	Bottle	ABM; 3 1/4 in oval bases with Owen's ring and D-2 over 40-4 embossed on base; likely liquor bottles	Base	Colorless (clear)	2	post-1910	Domestic
2018.003	5	5.1	10-30	7	Bottle	ABM; round base with embossed O-I over a diamond maker's mark of Owens Illinois Bottle Co. (Toledo, Ohio) used from 1929-1954 in an inset; also has 9 for plant number, 2 for year, and 5 for mold details around mark	Base	Colorless (clear)	1	1929-1954	Domestic
2018.003	5	5.1	10-30	8	Bottle	ABM; oval with Owens ring and 5 2 5 embossed on base; likely liquor bottle	Base	Colorless (clear)	1	post-1910	Domestic
2018.003	5	5.1	10-30	9	Bottle	ABM; oval with Owens ring and various groupings of numbers "1075/67/R-241/53" embossed around a G in a diamond maker's mark attributed to the General Glass Company (Anchor Hocking Corp) between 1935-1937; likely liquor bottles	Base	Colorless (clear)	1	1935-1937	Domestic

Table 7. Glass Artifacts Recovered from Features											
FN #	Trench	Fe/ Unit	Depth (cm)	Art #	Type	Decoration / Description	Sherd Type	Color	Qty.	Dates	Group
2018.003	5	5.1	10-30	10	Jar	ABM; canning jar; embossed with "KERR GLASS.../SAND S...around PAT/AUG 31/1915/8"; attributed to Kerr Glass Mfg. Co., which operated from 1903 to the 1920s in Sand Springs, OK	Base	Ash tinted	1	1915-1920s	Domestic
2018.003	5	5.1	10-30	11	Bottle	ABM; rectangular with various embossed numbers and letters "R 422/72 dot in a square/5" and DES PAT/PENDING"; portion of body is decorated with relieved bubbles	Base	Colorless (clear)	1	post-1910	Indefinite
2018.003	5	5.1	10-30	12	Bottle	ABM; embossed "A. B. Co./X/...30N"; arched mark is from American Bottle Co. (Chicago, IL) from 1905-1929; likely a beer bottle; date of 1907 for the arched mark (according to Lockhart et al. 2007) and attributed to the Belleville, IL plant	Base	Emerald green	1	1905-1929	Domestic
2018.003	5	5.1	10-30	13	Bottle	ABM; embossed "...RFECT" attributed to Ball Perfect Mason canning jar with Ball written in script and underlined above Perfect Mason	Body	Colorless (clear)	1	post-1935	Domestic
2018.003	5	5.1	10-30	14	Bottle	ABM; embossed with "PER/...NI COC.../USATE/...VE..."	Body	Light olive	1	post-1910	Domestic
2018.003	5	5.1	10-30	15	Bottle	ABM; round, relief molded soda bottle; embossed "Mit-Che/TRADE MARK REG." across shoulder and "6 1/2 FL. OZS./ DESIGN PATENT NO. 74117" across skirt and "2" near the base; embossed "BRAND BOT. WORKS : HOUSTON" on the base with TEXAS/28 S" in the center; Crown Cap lip finish; very unusual shape	Whole bottle	Light aqua	1	1927-1948	Domestic
2018.004	8	1	20-30	1	Jar	Canning jar; stippled on base with embossed "233-16/7 S/Ball (in script)/2"	Base	Colorless (clear)	1	post-1940	Domestic
2018.006	12	12.2	30-45	1	Plate	Plate; 6 mm thick	Flat	Light aqua	1	post-1920	Structural

Table 7. Glass Artifacts Recovered from Features											
FN #	Trench	Fe/ Unit	Depth (cm)	Art #	Type	Decoration / Description	Sherd Type	Color	Qty.	Dates	Group
2018.006	12	12.2	30-45	2	Bottle	ABM; relief molded soda bottle; stippling on body; embossed on base with "PAT.NO.99839/6/Hires/keystone with dot in center 54A"	Base	Colorless (clear)	1	post-1910	Domestic
2018.008	15	15.1	20-30	1	Bottle	ABM; 6 1/2 in tall, 2 in wide, extract or medicinal; screw-top over ring lip finish with a ring on neck just above the shoulders; off-centered Owens ring on base with embossed "O-I over a diamond/ 7 3/11"; maker's mark Owens Illinois Glass Co. (Toledo, Ohio) made from 1929-1954; inset panel on front for paper label	Whole bottle	Colorless (clear)	1	1929-1954	Domestic
2018.009	18	18.3	30-65	1	Bottle/ jar	ABM; relief molded and stippled on base with embossed "53" in center; possible condiment bottle	Base	Colorless (clear)	1	post-1940	Domestic
2018.009	18	18.3	30-65	2	Table	Pitcher handle	Handle/ body	Colorless (clear)	1	post-1910	Domestic
2018.010	19	19.1	30-50	1	Table	Depression; bowl; starburst style base on flattened rolled foot.	Base	Pink	2	ca. 1920s-1950	Domestic
2018.010	19	19.1	30-50	2	Plate	Plate; 4 mm thick	Flat	Light green	1	post-1920	Structural
2018.010	19	19.1	30-50	3	Bottle	ABM; shoulder	Body	Colorless (clear)	1	post-1910	Domestic
2018.010	19	19.1	30-50	4	Bottle	ABM; rectangular with rounded sides; off-centered Owens ring; embossed "...116"	Base	Colorless (clear)	1	post-1910	Domestic
2018.010	19	19.1	30-50	5	Bottle	ABM; oval, relief molded in zigzag designs on body; possible perfume	Base	Colorless (clear)	1	post-1910	Personal
2018.001	4	4.2	20-30	1	Bottle	Small, square, ABM medicinal (pill) bottle; 2 11/16 in tall and 15/16 in wide; with a Packer's squared ring lip finish; I in a diamond Illinois Glass Co. (Alton, Illinois) maker's mark and "6" embossed in a slight concave inset ring on the base	Whole bottle	Colorless (clear)	1	1916-1929	Personal

Table 8. Miscellaneous Artifacts Recovered from Features								
FN #	Trench	Fe/ Unit	Art #	Subclass	Description	Quantity	Dates	Group
2018.001	19	19.1	7	Porcelain	Early electrical current tap with threaded copper metal casing and base	1	post-1890	Structural
2018.001	19	19.1	8	Metal	Small "cocktail" fork; pattern too corroded to identify; stamped "MISSOURI PACIFIC" on back of handle	1	ca. post-1880s	Domestic



Figure 36. "Mit-Che" relief-molded soda bottle circa 1927–1948.

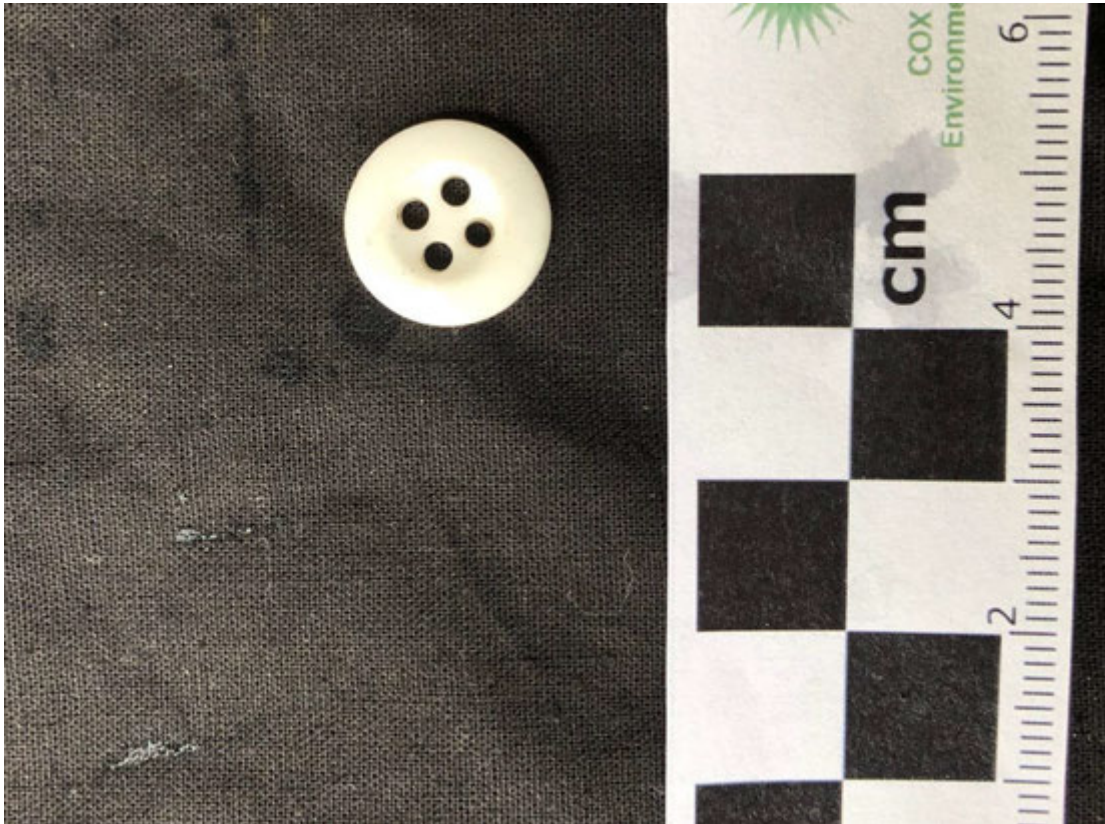


Figure 37. Prosser button, post-1840s.



Figure 38. Colorless glass medicinal (pill bottle) circa 1916–1929.



Figure 39. Moroline jelly ash-tinted jar circa 1935–1948.

It is also worth noting that a plurality of artifacts (n=15) came from a single feature, Feature 5.1, a truncated trash pit. Feature 5.1 was the most artifact-rich feature identified within the entire survey area and contained an estimated 1000+ glass and metal artifacts. The temporally diagnostic artifacts recovered from this feature were all glass and were classified as domestic (n=12), personal (n=2), or indefinite (n=1).

Of the 33 diagnostic artifacts collected, 17 (51.6 percent) were found between 10 and 30 centimeters below the ground surface in features that were truncated at 10 cmbs. Another 10 artifacts (30.3 percent) were recovered from depths of 30-50 cmbs, and the most deeply encountered artifact (diagnostic or otherwise) was located 65 cmbs. Although utility features were identified below this level, they were not associated with any artifacts.

The materials recovered during the present investigations suggest an early-to-mid-twentieth-century residential occupation and are largely consistent with artifacts collected during earlier excavations within the site. However, the “Mit-Che” soda bottle, dating from 1927 to 1948, represents a unique artifact that had not been found elsewhere within the site. This suggests that other, non-redundant artifacts, may still be present within unexcavated portions of the survey area.

Conclusions and Recommendations

In accordance with 36 CFR 800.4, CMEC archeologists made a reasonable and good-faith effort to evaluate the potential for the proposed undertaking to affect archeological historic properties (36 CFR 800.16.(1)) or State Antiquities Landmarks (13 TAC 26.12). This undertaking included the investigation of 24 mechanically excavated trenches and one 0.5-m-by-0.5-m (1.64-ft-by-1.64-ft) test unit and resulted in the discovery of 28 subsurface features and over 1,000 historic artifacts.

The survey area consisted of three non-contiguous locations totaling 2.3 ac (0.93 ha) located adjacent to both banks of Buffalo Bayou near downtown Houston that had been previously determined to have high archeological potential. The two locations north of Buffalo Bayou adjacent to Nance Street (parcels 7 and 24) exhibit evidence of substantial disturbance by utility installation and commercial development and were not subjected to mechanical trenching. CMEC recommends that no further archeological work be conducted in the parcels on the north side of Buffalo Bayou.

Two proposed trenches scheduled to be excavated within site 41HR1037 were abandoned due to utility and hazardous material conflicts. The presence of modern utilities within the portion of the project survey area that fall inside 41HR1037's site boundaries indicate that it has been significantly disturbed. CMEC recommends that no further archeological work be conducted within this area.

Results of CMEC's intensive survey/testing program within a portion of 41HR982 indicate that the project area was substantially disturbed by activities related to the construction of US 59 in the 1950s. This is especially true within the northern two-thirds of the southern survey area (e.g., north of the historic alignment for Vine/Bramble Street) where the upper one meter of sediment encountered consisted primarily of carbonized fill containing a mix of modern and historic debris. Since that time, the area has been further disturbed by utility line emplacements and most recently by an informal transient encampment.

Outside modern utility alignments, however, there is an approximately 20–35-cm-thick (7.9–13.8-in-thick) intact layer of historic cultural fill present within the southern one-third of the project area that still contains archeologically relevant deposits and features, including structural piers (whose combination brick/cement construction was not previously identified within other areas of site 41HR982) and unique artifacts (e.g., the “Mit-Che” glass bottle). Moreover, many of the historic utility lines that serviced the Frost Town / El Barrio del Alacrán community in the early-to-mid-twentieth century were in sediments below the zone of disturbance and are largely intact. Given that the community was not fully incorporated into the City of Houston's utility services until the end of its existence, this network of pipes presents a unique, if limited, perspective on the extemporaneous solutions that the community developed to meet their utility needs.

As a result, CMEC believes that evidence of preserved deposits with a moderate degree of integrity, associated with distinctive architectural and material culture styles, with the potential to yield data important to the study of preservation techniques and the past in general, and with potential attractiveness to relic hunters (13 TAC 26.10; 36 CFR 60.4) were found within the project area. As a result, CMEC has two major recommendations with respect to the southern high archeological probability survey area.

First, CMEC recommends the development of scope and research design for a limited program of data recovery excavation within the southern one-third of the southern survey area to better assess the extent and distribution of buried resources and to extract novel data from this part of 41HR982. CMEC anticipates that the excavations would consist of mechanical scraping between extant trench locations across an area measuring approximately 50 m (north-south) by 40 m (east-west) between the previous alignment for Vine Street and the current alignment for Runnels Street. Given the shallow depth at which most features were encountered in this part of the survey area, CMEC anticipates that scraping would generally be restricted to the upper 0.5-1.0 m (1.6 to 3.2 ft), resulting in an excavation with a maximum possible volume of 2,000 cubic meters. Given the presence of modern oak trees, buried utility lines, and highway support pillars in this area, however, the actual volume excavated would likely be 20-30 percent lower, or 1,400 to 1,600 cubic meters. CMEC anticipates that 70 to 90 percent of this volume would be mechanically excavated, with a maximum of 10 to 30 percent to be excavated by hand.

Second, CMEC recommends that the two trinomials for the Frost Town / El Barrio del Alacrán community (41HR982 and 41HR1037) be subsumed within the original trinomial: 41HR982. This step is recommended to consolidate information and reduce future researcher confusion. Both trinomials are associated with the Frost Town community, and the original number, 41HR982, was expressly meant to encapsulate the entire Frost Town community. Further, while a site form was filed for 41HR1037, no project report was ever produced for this site and information from the project in which it was first identified is limited and anecdotal.

In all, 33 artifacts were collected; these artifacts and all project records will need to be curated per 13 TAC 26.16 and 26.17 and will be housed at CAS at Texas State University.

If any unanticipated cultural materials or deposits are found at any stage of clearing, preparation, or construction, the work should cease in that area and TxDOT personnel should be notified immediately. During evaluation of any unanticipated finds and coordination between TxDOT and THC, clearing, preparation, and/or construction could continue in any other areas along the corridor where no such deposits or materials are observed.

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APPENDIX A: SOIL ANALYTICAL RESULTS (TRC/XENCO)

**Table 1 - Soil Analytical Results
North Houston Highway Improvement Project
Soil Investigation at Proposed Archeology Trenches**

All concentrations shown in mg/kg.

Sample ID	Sample Depth (feet bgs)	PAHs by Method 8270																
		Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)Pyrene	Naphthalene	Phenanthrene	Pyrene
TRRP Tier 1 Residential ^{Tot} Soil _{Comb} PCL (0.5-Acre Source Area)		3,000	3,800	18,000	41	4.1	42	1,800	420	4,100	4.0	270	2,300	2,300	42	220	1,700	1,700
SB-11 (T-18)	3.0 - 3.5	0.202	0.0735 J	0.62	2.43	2.30	3.32	1.46	1.05	2.43	0.285	0.0633 J	6.22	0.131	1.27	<0.0499	2.18	4.90
SB-13 (T-22)	1.0 - 1.5	0.00736	0.0372	0.06	0.158	0.167	0.327	0.0832	0.0959	0.177	0.0270	0.00877	0.306	0.00813	0.0688	0.0112 J	0.136	0.228
SB-15 (T-24)	0.0 - 0.8	0.00880 J	0.0333	0.05	0.17	0.182	0.297	0.0855	0.109	0.172	0.0408	0.00748 J	0.386	0.0128	0.0840	0.00872 J	0.162	0.272
SB-17 (T-27)	3.5 - 4.0	0.0258	0.0429	0.10	0.315	0.267	0.397	0.148	0.158	0.340	0.0507	0.0188	0.689	0.0271	0.124	0.00994 J	0.463	0.500
SB-22 (T-33)	0.0 - 0.5	0.00183 J	0.00691	0.01	0.0480	0.0419	0.0701	0.0292	0.0266	0.0483	0.0107	0.00151 J	0.0877	0.00171 J	0.0274	0.00190 J	0.0390	0.0678
SB-26 (T-37)	1.5 - 2.0	<0.002	<0.002	<0.002	0.00823	0.0133	0.0105	0.00457	0.00599	0.00701	0.00982	<0.002	0.00923	<0.002	0.0121	<0.002	0.00390 J	0.00780

Notes:

mg/kg = milligrams per kilogram

bgs = below ground surface

PAH = polycyclic aromatic hydrocarbons

^{Tot}Soil_{Comb} PCL = Texas Risk Reduction Program (TRRP) Tier 1 protective concentration level (PCL) for direct multi-route exposure to soil (Total-Soil-Combined).

J = Estimated value; concentration detected below the quantitation limit but above the detection limit.

Values in highlighted in red equal or exceed the TRRP Tier 1 Residential ^{Tot}Soil_{Comb} PCL for a 0.5 acre Source Area.

< = the analyte was analyzed but not detected above the laboratory's sample detection limit (SDL)

Table 2 - Soil Analytical Results
North Houston Highway Improvement Project
Soil Investigation at Proposed Archeology Trenches

All concentrations shown in mg/kg.

Sample ID	Sample Depth (feet bgs)	Metals by SW6020A							Mercury by SW7471B
		Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Silver	Mercury
TRRP Tier 1 Residential ^{Tot}Soil_{Comb} PCL (0.5-Acre Source Area)		24	8,100	52	33,000	500	310	97	8.3
SB-01 (T-8)	0.0 - 5.0	4.13	181	0.327 J	15.1	139	1.12 J	0.185 J	0.235
SB-02 (T-9)	0.0 - 5.0	4.06	212	1.23 J	13.1	70.3	1.82 J	<0.174	0.0365
SB-03 (T-10)	0.0 - 5.0	2.23	167	0.143 J	9.39	47.4	0.839 J	<0.169	0.159
SB-04 (T-11)	0.0 - 5.0	2.94	131	0.195 J	11.4	111	0.784 J	<0.182	0.158
SB-05 (T-12)	0.0 - 5.0	1.78 J	48.7	<0.130	11.2	11.9	0.836 J	<0.178	0.0205 J
SB-06 (T-13)	0.0 - 5.0	3.71	199	0.257 J	10.2	84.4	0.836 J	<0.169	0.166
SB-07 (T-14)	0.0 - 5.0	3.64	94.5	0.266 J	13.1	52.8	1.16 J	<0.162	0.238
SB-08 (T-15)	0.0 - 5.0	4.44	195	0.623 J	14	162	0.892 J	0.168 J	0.141
SB-09 (T-16)	0.0 - 5.0	5.66	179	0.625 J	9.65	83.3	0.695 J	<0.173	0.171
SB-10 (T-17)	0.0 - 5.0	3.94	211	1.33 J	14	373	<0.511	0.320 J	0.464
SB-11 (T-18)	3.0 - 3.5	4.71	504	6.12	25	2,070	0.561 J	0.930 J	0.495
SB-12 (T-19)	0.0 - 5.0	1.67 J	47.8	<0.123	8.04	19.2	0.777 J	<0.169	0.153
SB-13 (T-22)	1.0 - 1.5	2.06 J	80.1	0.252 J	6.77	107	0.533 J	0.164 J	0.794
SB-14 (T-23)	0.0 - 5.0	2.06 J	86.2	<0.121	6.93	23.7	0.742 J	<0.165	0.0608
SB-15 (T-24)	0.0 - 0.8	3.56	226	0.390 J	12.7	251	1.02 J	0.234 J	0.00561 J
SB-16 (T-26)	0.0 - 5.0	4.09	147	0.270 J	14.5	76.9	1.24 J	<0.158	0.0882
SB-17 (T-27)	3.5 - 4.0	3.24	195	1.27 J	14.3	423	<0.563	0.433 J	1.62
SB-18 (T-28)	0.0 - 5.0	2.53	47.3	<0.119	14.1	11.2	1.18 J	<0.163	<0.00440
SB-19 (T-29)	0.0 - 5.0	3.76	68.1	<0.125	8.53	26.5	<0.537	<0.172	0.109
SB-20 (T-31)	0.0 - 5.0	3.56	198	<0.121	12.1	23.6	0.728 J	<0.165	0.0409
SB-21 (T-32)	0.0 - 5.0	2.68	88.2	<0.125	12.2	19.3	0.772 J	<0.171	0.0436
SB-22 (T-33)	0.0 - 5.0	4.92	172	0.761 J	16.7	218	0.796 J	<0.168	0.171
SB-23 (T-34)	0.0 - 0.5	2.6	122	<0.140	14.8	10.3	0.927 J	<0.192	0.0123 J
SB-24 (T-35)	0.0 - 5.0	5.46	912	0.882 J	15.1	318	0.938 J	0.264 J	0.153
SB-25 (T-36)	0.0 - 5.0	5.33	128	<0.140	21.5	13.9	0.911 J	<0.192	0.0121 J
SB-26 (T-37)	1.5 - 2.0	3.03	74.6	<0.129	11.9	52.9	0.781 J	<0.177	0.0927
SB-27 (T-38)	0.0 - 5.0	5.54	203	<0.127	16	49.3	2.23	<0.174	0.0284
SB-28 (T-39)	0.0 - 5.0	4.39	142	<0.122	16.3	12.8	1.12 J	<0.168	0.00915 J
SB-29 (T-40)	0.0 - 5.0	5.07	185	<0.136	17.7	9.36	1.07 J	<0.187	0.00680 J
SB-30 (T-41)	0.0 - 5.0	3.08	33.2	<0.126	14.1	7.91	1.49 J	<0.172	0.0124 J
SB-31 (T-42)	0.0 - 5.0	2.77	26.5	<0.124	12.9	8.65	0.928 J	<0.170	0.0183 J
SB-32 (T-43)	0.0 - 5.0	3.45	80.6	0.241 J	11	92.9	0.760 J	<0.163	0.123
SB-33 (T-44)	0.0 - 5.0	4.58	116	0.206 J	15.1	91.6	0.867 J	0.264 J	0.0564
SB-34 (T-45)	0.0 - 5.0	2.68	45.2	<0.121	12.2	11.4	1.19 J	<0.165	0.00986 J

Notes:

mg/kg = milligrams per kilogram

bgs = below ground surface

^{Tot}Soil_{Comb} PCL = Texas Risk Reduction Program (TRRP) Tier 1 protective concentration level (PCL) for direct multi-route exposure to soil (Total-Soil-Combined).

J = Estimated value; concentration detected below the quantitation limit but above the detection limit.

Values in highlighted in red equal or exceed the TRRP Tier 1 Residential ^{Tot}Soil_{Comb} PCL for a 0.5 acre Source Area.

< = the analyte was analyzed but not detected above the laboratory's sample detection limit (SDL)

Table 3 - Soil Analytical Results
North Houston Highway Improvement Project
Soil Investigation at Proposed Archeology Trenches

Sample ID	Sample Depth	Fecal Coliform by SM9222D	E. Coli by SM 9223B
	(feet bgs)	(Reporting Limit 1,000 CFU/g)	(Reporting Limit 100 MPN/g)
SB-03 (T-10)	0.0 - 1.0	<1,000	520
SB-06 (T-13)	0.0 - 1.0	<1,000	<100
SB-12 (T-19)	0.0 - 1.0	<1,000	<100
SB-15 (T-24)	0.0 - 1.0	<1,000	520
SB-18 (T-28)	0.0 - 1.0	<1,000	100
SB-21 (T-32)	0.0 - 1.0	4,000	2,030
SB-23 (T-34)	0.0 - 1.0	<1,000	<100
SB-24 (T-35)	0.0 - 1.0	<1,000	<100
SB-26 (T-37)	0.0 - 1.0	<1,000	<100
SB-30 (T-41)	0.0 - 1.0	<1,000	<100
SB-33 (T-44)	0.0 - 1.0	17,000	<100
BG-1	0.0 - 1.0	<1,000	<100
BG-2	0.0 - 1.0	1,000	<100
BG-3	0.0 - 1.0	<1,000	<100

Notes:

bgs = below ground surface

< = the analyte was analyzed but not detected above the laboratory's reporting limit

BG = background

CFU/g = colony-forming units per gram

MPN/g = most probable number per gram

Detected concentrations shown in **bold**

APPENDIX B: MECHANICAL TRENCH EXCAVATION RESULTS

Table B.1: Backhoe Trench Excavation Results

Trench # and Length	Depth (cmbs*)	Description/Notes	Artifacts
1 5.1 m long; East/West orientation	0-60	Disturbed fill; mottled clay with dark gray (10YR 4/1 and 10YR 3/1) clay and brown (10YR 4/3) clay, no gravels; no structure; abrupt irregular boundary	Modern ceramics, brick, and metal throughout
	60-170	Pale olive (5Y 6/3) clay, no gravels; massive structure; clear straight boundary	None
	170-200	Light reddish brown (2.5YR 6/3) clay with 40-50% very pale brown (10YR 8/2) calcium carbonate (CaCO ₃) nodules	None
2 5 m long; North/South orientation	0-110	Disturbed fill; mottled brown (10YR 4/3), very dark gray (10YR 3/1) and dark gray (10YR 4/1) clay, no gravels	Modern ceramics, brick, and metal throughout
	110-200	Undisturbed reddish brown (2.5YR 5/4) clay with 40-50% very pale brown (10YR 8/2) calcium carbonate (CaCO ₃) nodules that had diameters ranging from 2 to 5 cm	Thurber vitrified street brick
3 5.1 m long; East/West orientation	0-12	Very dark grayish brown (10YR 3/2) sandy loam, no gravels	Several shards of whiteware, modern trash
	12-170	Undisturbed mottled light brown (7.5YR 6/4), light gray (10YR 7/2) and yellowish red (5YR 5/6) clay, no gravels	None
	170-230	Yellowish red (5YR 5/6) clay, light gray (10YR 7/2) clay, and 40-50% very pale brown (10YR 8/2) calcium carbonate	None
	230-250	Light gray (10YR 7/1) clay and yellowish red (5YR 5/6) clay, no gravels	None
	250-260	Yellowish red (5YR 5/6) clay, light gray (10YR 7/2) clay, and 40-50% very pale brown (10YR 8/2) calcium carbonate (CaCO ₃)	None
	260-350	Yellowish red (5YR 5/6) clay and light gray (10YR 7/2) clay, no gravels	None
4 5 m long; North/South orientation	0-29	Very dark grayish brown (10YR 3/2) sandy loam, no gravels	None
	29-170	Undisturbed yellowish brown (10YR 5/3) clay, no gravels; Features 4.1 and 4.2 both contained mottled black (10YR 2/1) and strong brown (7.5YR 5/6) clay sand, no gravels	Feature 4.1: trash pit between 30-45 cmbs; Feature 4.2: trash pit between 30-59 cmbs
	170-260	Very pale brown (10YR 7/2) sandy clay, no gravels	None
	260-270	Mottled light yellowish brown (10YR 6/4) clay and yellowish red (5YR 5/6) clay, no gravels	None

Table B.1: Backhoe Trench Excavation Results

Trench # and Length	Depth (cmbs*)	Description/Notes	Artifacts
5 5 m long; East/West orientation	0-10	Dark grayish brown (10YR 4/2) sandy loam, no gravels; straight, abrupt boundary	None
	10-30	Cultural fill	1500+ historic artifacts
	30-100	Very dark grayish brown (10YR 3/2) clay, no gravels; massive structure, straight, gradual boundary. Feature 5.1 contained black (10YR2/1) clay sand	Feature 5.1: trash pit and large concentration of glass between 30-57 cmbs
	100-170	Red (2.5YR 5/6) clay, no gravels; massive structure; straight, abrupt boundary	None
	170-260	Light reddish brown (2.5YR 6/3) clay with 40% calcium carbonate (CaCO ₃) nodules	None
	260-300	Yellowish red (5YR 5/6) clay with 30% pale brown (10YR 6/2) clay, no gravels; massive structure	None
6 5 m long; North/ South orientation	0-12	Very dark grayish brown (10YR 3/2) sandy loam	Feature 6.1: utility pole between 10-230 cmbs; Feature 6.2: utility pole between 10-200 cmbs
	20-40	Reddish brown (5YR 5/3) clay and yellowish red (5YR 4/6) clay, no gravels	
	40-170	Pale brown (10YR 4/6) clay with small amount of calcium carbonate (CaCO ₃)	See above
	170-190	Reddish brown (5YR 4/4) clay with 20% calcium carbonate (CaCO ₃)	See above
	190-200	Red (2.5YR 4/6) clay and light brownish gray (10YR 6/2) clay, no gravels	See above
	200-280	Light brown (5YR 4/4) clay with 40% calcium carbonate (CaCO ₃)	See above
	280+	Light gray (10YR 7/2) clay and yellowish red (5YR 4/6) clay, no gravels	None
7 5 m long; North/ South orientation	0-10	Very dark grayish brown (10YR 3/2) sandy loam, no gravels	None
	10-40	Light brownish gray (10YR 6/2) with 75% yellowish brown (10YR 5/6), no gravels	None
	40-270	Light gray (10YR 7/2) clay and 10 percent yellowish brown (10YR 5/4) clay with calcium carbonate (CaCO ₃) content increasing with depth	None
	270-320	Light gray (10YR 7/2) clay and dark reddish gray (5YR 4/2) clay, no gravels	None

Table B.1: Backhoe Trench Excavation Results

Trench # and Length	Depth (cmbs*)	Description/Notes	Artifacts
8 7.2 m long; East/West orientation	0-8	Very dark grayish brown (10YR 3/2) sandy loam, no gravels	Feature 8.1: whole oyster, oyster shell hash and Rangia shell ; Feature 8.2: pier; Feature 8.3: pier
	8-22	Dark brown (10YR 3/3) silty clay with 20% oyster shell whole and hash	Feature 8.2: pier; Feature 8.3: pier
	22-95	Brownish yellow (10YR 6/6) clay with 30% strong brown (7.5YR 5/6) clay, no gravels	None
	95-150	Mottled brown (7.5YR 5/2) clay and strong brown (7.5YR 4/6) clay, no gravels	None
	150-200	Brown (7.5YR 5/3) clay with calcium carbonate (CaCO ₃) increasing with depth	None
	200-250	Strong brown (5YR 4/6) clay with 30% calcium carbonate (CaCO ₃)	None
	250-260	Brown (7.5YR 5/4) clay with 10% strong brown (7.5YR 5/6) clay, no gravels	None
9 5.1 m long; North/South orientation	0-10	Very dark grayish brown (10YR 3/2) sandy loam, some rocks; subangular, blocky structure	None
	10-45	Brown (10YR 4/3) loamy clay with >10% charcoal inclusions, no gravels; straight abrupt boundary	Mixed historic / modern fill; Feature 9.1 (not <i>in situ</i>)
	45-120	Yellowish brown (10YR 5/6) clay, no gravels; massive structure, straight gradual boundary	None
	120-170	Grayish brown (10YR 5/2) clay with 20% yellowish brown (10YR 5/6) clay, no gravels; massive structure, straight clear boundary	None
	170-280	Yellowish red (5YR 5/6) clay with 40% calcium carbonate (CaCO ₃) nodules; massive structure, straight clear boundary	None
	280-300	Brown (10YR 5/3) clay with 10-20% yellowish brown (10YR 5/8) clay	None
10 5.0 m long; East/West orientation	0-15	Dark brown (10YR 3/3) sandy clay loam, no gravels, many roots	Modern trash
	15-35	50% very pale brown (10YR 7/4) with 20% light gray (10YR 7/2) sand clay with mixed deposits	Brick, tile, metal, glass, whiteware
	35-115	Disturbed brown (10YR 5/3) clay with 10% yellowish brown (10YR 5/8) clay, no gravels	Feature 10.1: pipe
11 5.2 m long; North/	0-30	Very dark grayish brown (10YR 3/2) sandy loam with a small amount of clay, no gravels	1.5 O.D. SCH 30 PVC Conduit with red and black wire
	30-90	Brown (7.5YR 5/4) clay with 15% dark red (2.5YR 3/6) clay, no gravels	None

Table B.1: Backhoe Trench Excavation Results

Trench # and Length	Depth (cmbs*)	Description/Notes	Artifacts
South orientation	90-110	Gray (10YR 6/1) clay and strong brown (7.5YR 4/6) clay, no gravels	None
12	0-10	Very dark grayish brown (10YR 3/2) sandy clay, no gravels	Modern trash
5 m long; East/West orientation	10-35	Mixed cultural fill in very dark gray (10YR 3/1) sandy clay with 10% charcoal	Historic artifacts; Feature 12.1: Gas pipe running east/west at 30 cmbs
	35-65	Very pale brown (10YR 7/3) clay with 30% yellowish brown (10YR 5/8 clay), no gravels	Feature 12.2: Dr. Pepper bottle, brick, glass, metal, wood at 45 cmbs
	65-140	Yellowish brown (10YR 5/4) clay with 10% yellowish red (5YR 5/8) clay, no gravels; massive structure	None
	140-210	Yellowish brown (10YR 5/4) clay with 10% calcium carbonate (CaCO ₃) nodules	None
	210-250	White (10YR 8/1) sand with 5% yellowish brown (10YR 5/6) clay, no gravels; stopped due to instability	None
13	0-5	Very dark grey brown (10YR 3/2) sandy clay loam, no gravels	Modern trash
5.8 m long; East/West orientation	5-10	(East side of trench) brown 7.5YR 4/3 clay, no gravels	Brick, glass
	5-40	(West side of trench) pale brown (10YR 6/3) sandy loam, no gravels	Feature 13.1: structural debris
	40-60	Pale brown (10YR 6/3) sand with 5% light grey (10YR 7/1) clay, no gravels; trenching stopped at 60 cmbs due to presence of Feature 13.3; further testing continued with bucket auger	Feature 13.2: east/west gas pipe at 40 cmbs; Feature 13.3: large cement pipe at 70 cmbs
	60-155	Yellowish brown (10YR 5/4) clay with 30% light gray (10YR 7/2) clay, no gravels; massive structure	None
14	0-15	Very dark grayish brown (10YR 3/2) sandy loam, no gravels; straight boundary	Modern trash throughout
5 m long; North/South orientation	15-75	Black (10YR 2/1) silty loam with 5% charcoal, no gravels; abrupt irregular boundary; disturbed fill	Modern and historic trash, mixed
	75-90	Dark reddish gray (5YR 4/2) silty loam with 10% yellowish brown (10YR 5/8) clay, no gravels	None
	90-160	Light reddish brown (5YR 6/3) and brown (7.5YR 4/4) clay, no gravels	None
	160-220	Pale brown (10YR 6/3) sandy clay with 5% yellowish red (5YR 4/6) and 20% calcium carbonate (CaCO ₃)	None
15	0-8	Very dark grayish brown (10YR 3/2) sandy loam, no gravels; straight abrupt boundary	Modern trash
5 m long; East/West orientation	8-30	Very dark grayish brown (10YR 3/2) silty sand with 5% yellowish brown (10YR 5/4) clay	Historic brick, glass, tile, complete glass bottle
	30-75	Pale brown (10YR 6/3) sand, no gravels	Features 15.1, 15.2, 15.3

Table B.1: Backhoe Trench Excavation Results

Trench # and Length	Depth (cmbs*)	Description/Notes	Artifacts
	75-120	Yellowish brown (10YR 5/6) clay with 20% yellowish brown (10YR 5/8) clay, no gravels; massive structure	None
	120-280	Pale brown (10YR 6/3) clay with 10% white (5YR 8/1) clay, no gravels	None
16	0-32	Very dark grayish brown (10YR 3/2) sandy loam	Feature 16.1: trash pit
5 m long; East/West orientation	32-120	Light brown (7.5YR 6/3) clay with 40% gray (7.5YR 6/1) clay	None
	120-300	Light gray (10YR 7/2) sandy clay with 10% yellowish brown (10YR 5/6)	None
17	0-110	Black (10YR 2/1) silty sand; subangular blocky structure; straight abrupt boundary	Mixed modern and historic trash
5.1 m long North/ South orientation	110-120	Yellowish brown (10YR 6/3) loamy sand with 10% gray (10YR 5/1) clay; many roots; massive structure; straight abrupt boundary	None
	120-280	Gray (10YR 8/1) sandy clay with 20% red (5YR 5/6) clay mottling; massive structure; straight gradual boundary	None
18	0-35	Very dark grayish brown (10YR 3/2) silty sandy loam, mixed with 10% very dark gray (10YR 3/1) silty loam and 5% white (10YR 8/1) silt clay	Mixed historic glass, brick, metal, and cloth
5 m long East/West orientation Trench has a 3m North/ South extension running north from the east side	35-40	Yellowish brown (10YR 5/6) clay with 20% yellowish red (5YR 5/8) clay; disturbed trash fill	Features 18.1, 18.2, 18.3, and 18.4: utility poles
	40-120	More disturbed trash fill; very dark gray (10YR 3/1) loam and dark grayish brown (10YR 4/2) silty loam	Features 18.5, 18.6
	120-130	Pale brown (10YR 6/3) sand (possible fill)	None
	130-270	Yellowish red (5YR 5/8) clay and pinkish gray (7.5YR 7/2) clay	None
	270+	Very pale brown (10YR 7/3) clay	None
19	0-30	Very dark grayish brown (10YR 3/2) sandy loam with 10% gravel and less than 5% shell; straight abrupt boundary	Modern trash and debris
5 m long East/West orientation	30-32	Brown (10YR 5/3) coarse sand; straight abrupt boundary	None
	32-80	Very dark brown (10YR 2/2) clay with 10% very pale brown (10YR 7/4) sandy clay and less than 5% charcoal; straight abrupt boundary	Feature 19.1: : brick sidewalk; Feature 19.2: gas pipeline
	80-180	Brown (10YR 5/6) clay with 20% light gray (10YR 7/2) clay Excavation stopped at 180 cmbs due to water pipe	
20	0-30	Very dark grayish brown (10YR 3/2) sandy clay, many roots, no gravels; straight abrupt boundary	Modern trash and debris

Table B.1: Backhoe Trench Excavation Results

Trench # and Length	Depth (cmbs*)	Description/Notes	Artifacts
4.5 m long East/West orientation	30-55	Very dark grayish brown (10YR 3/2) clay with 20% 7.5YR 5/8 clay mixed with light gray (10YR 7/2) clay with 10% yellowish brown (10YR 5/8) clay, no gravels	None
	55-60	(Lens) very dark brown (10YR 2/2) sandy loam, no gravels; straight abrupt boundary	Historic and modern
	55-95	Very dark gray (10YR 3/1) clay with 50% shell base and considerable charcoal (20-30%)	Feature 20.1: posts, granite chunk, brick
	95-150	Dark gray (10YR 4/1) clay with 10% 10YR 5/8 clay, no gravels; massive structure	Brick
	150-180	Gray (GLE Y1 6/5GY) clay with 20% calcium carbonate (CaCO ₃) Excavation stopped at 180 cmbs due to large pipe	Feature 20.2: pipe
21 4.8 m long North/South orientation	0-12	Very dark grayish brown (10YR 3/2) sandy loam, no gravels; many roots, straight abrupt boundary	Modern trash
	12-95	Very dark gray (10YR 3/1) and 30% dark yellowish brown (10YR 4/6) sandy loam with 20% charcoal, no gravels	Mixed historic and modern trash (1970s-1980s)
	95-120	Pale brown (10YR 6/3) sand, no gravels	None
	120-280	Light brownish gray (10YR 6/2) sandy clay with 40% red (2.5YR 5/8) clay, no gravels	None
	280-300	Greenish gray (GLE Y1 6/5GY) clay with 10% yellowish brown (10YR 5/8) clay, no gravels	None
22 5 m long East/West orientation	0-10	Very dark grayish brown (10YR 3/2) sandy loam, no gravels; straight, abrupt boundary	Modern trash
	10-120	Very dark brown (10YR 2/2) clay with 10% dark yellowish brown (10YR 4/6) sandy clay; disturbed	Mixed modern and historic trash
	120-210	Light yellowish brown (10YR 6/4) sand with 5% yellowish brown (10YR 5/8) clay	None
	210-290	Light brownish gray (10YR 6/2) sandy clay with 40% red (2.5YR 5/8) clay, no gravels; massive structure (hydric clays)	None
	290-310+	Greenish gray (GLE Y1 6/5GY) clay, no gravels; massive structure	None
23 5 m long North/South orientation	0-10	Very dark grayish brown (10YR 3/2) sandy loam, no gravels; straight abrupt boundary	Modern trash
	10-250	Mixed disturbed fill; very dark brown (10YR 2/2) clay loam with 30% light yellowish brown (10YR 6/4) clay, 5% shell, and 5% charcoal	Mixed modern and historic trash
	250-280	Pale brown (10YR 6/3) sand, no gravels; straight boundary	None
	280-350	Light brownish gray (10YR 6/2) sandy clay with 30% red (2.5YR 5/8) clay (hydric)	None

Table B.1: Backhoe Trench Excavation Results

Trench # and Length	Depth (cmbs*)	Description/Notes	Artifacts
24	0-4	Very dark grayish brown (10YR 3/2) sandy loam, no gravels; straight abrupt boundary	Modern trash
5 m long East/West orientation	4-130	Yellowish brown (10YR 5/4) sandy clay with 20% pale brown (10YR 6/3) sandy loam and 10% black (10YR 2/1) clay, no gravels	Mixed historic/modern debris, concrete, plastic
	130-180	Dark yellowish brown (10YR 4/4) silty clay loam with 5% charcoal	Feature 24.1: east/west gas pipe
	180-190	Pale brown (10YR 6/3) sand, no gravels; straight abrupt boundary	None
	190-330	Light gray (10YR 7/2) sandy clay with 30% red (2.5YR 5/8) clay	Possible ½-in-diameter ground rod sticking out of east wall at 195 cmbs

* Centimeters below surface

APPENDIX C: FEATURE TABLE

Table C.1: Feature Table									
Feature Number	Trench	Depth	Classification	Age Estimate	Horizontal Integrity	Vertical Integrity	Description	Research Potential	Notes
1 (4.1)	4	30-45 cmbs	Trash Pit	1950-1980	low	low	Mixed modern and historic artifacts in mottled fill.	low	
2 (4.2)	4	30-45 cmbs	Trash Pit / Soil Feature	1950-1980	low	low	Amorphous trash pit / soil feature consisting of non-diagnostic historic refuse, including broken glass bottle shards and fragments of Portland cement and concrete.	low	Early 20thC glass artifacts found mixed with modern-era trash.
3 (5.1)	5	30-57 cmbs	Trash Pit	1910-1954	moderate	low	Trash pit containing over 1,000 non-diagnostic domestic and personal artifacts, including bottle glass (approximately 95 percent of all artifacts), ferrous wire nails, and unidentified ferrous metal fragments. It also contained 15 temporally diagnostic glass bottle bases and bodies.	low-moderate	Glass artifacts ca. post 1910 to early 1950s. Feature TPQ = post 1940.
4 (6.1)	6	10-230 cmbs	Wooden Utility Pole	nd	high	low	Truncated wooden utility pole with a diameter of approximately 6 in (15.2 cm) and a circumference of 18.8 in (47.85 cm) at its base. May represent an informal transmission line utility pole that stood within a residential yard.	low	
5 (6.2)	6	10-210 cmbs	Wooden Utility Pole	nd	high	low	Truncated wooden utility pole with a diameter of approximately 9 in (22.86 cm) and a circumference of 28.3 in (71.9 cm) at its base. May represent a secondary utility pole erected to replace the Feature 6.1 pole.	low	
6 (8.1)	8	0-6 cmbs	Concrete Sidewalk	1950-1980	high	high	Informally constructed from concrete blocks tempered with repurposed hand-made structural bricks and street pavers.	low	Mixed late 19th/early 20th century and mid-20th century/modern artifacts noted.
7 (8.2)	8	1-24 cmbs	Residential Pier	1930-1960	high	high	Residential pier comprising both brick/mortar and cement. Mortar is Portland cement with sand temper.	moderate	

Table C.1: Feature Table									
Feature Number	Trench	Depth	Classification	Age Estimate	Horizontal Integrity	Vertical Integrity	Description	Research Potential	Notes
8 (8.3)	8	1-13 cmbs	Residential Pier	1930-1960	moderate	high	Truncated remnants of a residential pier comprising both brick/mortar and cement and likely represents part of the same structure as Feature 8.2.	low-moderate	
9 (9.1)	9	30-50 cmbs	Mixed Debris	post 1930	low	low	Nine broken fragments of a 4-in-thick (10.1-cm-thick) poured concrete slab.	low	
10 (10.1)	10	110 cmbs	Ferrous Metal Pipe	post 1890	high	high	Consisted of two ferrous metal pipe sections with outside diameters of 6 ½ in. Likely represents a water pipe that ran along side of, and directly south of, the former alignment of Vine Street.	low	
11 (12.1)	12	30-50 cmbs	Iron Gas Pipeline	nd (mid 20thC)	moderate	moderate	Threaded ferrous metal pipe with an outside diameter of 1 ½ in., likely to represent a residential gas line.	low	
12 (12.2)	12	45-65 cmbs	Soil Feature	nd	low	low	Rectangular feature defined by soil discoloration and containing twelve non-diagnostic glass bottle and unidentified metal fragments.	low	Post-1920 artifacts noted.
13 (13.1)	13	5-32 cmbs	Structural Remains	1930-1980	low	moderate	Overtured remnants of a historic structure that included 31 whole bricks, approximately 40–50 brick fragments, and at least 4 large irregular masses of concrete. Likely represents the demolished remains of a historic/modern-era structure from the late Alacran period.	low-moderate	
14 (13.2)	13	40 cmbs	Gas Pipeline	nd	low	low	Metal pipe with an outside diameter of 1 ½ in; it was coated with some sort of black-colored insulation.	low	Matrix contained late 19thC artifacts at 40-50 cmbs.
15 (13.3)	13	70 cmbs	Sewer Pipe	post 1930	moderate	moderate	Ribbed concrete pipe with an outside diameter of 6 ½ in.	low	
16 (15.1)	15	14-50 cmbs	Wooden Utility Pole	nd	high	low	Utility pole with an outside diameter of 8 in. and a circumference of 50.2 in.	low	Mid 20th century artifacts noted.
17 (15.2)	15	14-50 cmbs	Wooden Utility Pole	nd	high	low	Utility pole with an outside diameter of 7 in. and a circumference of 44 in.	low	

Table C.1: Feature Table									
Feature Number	Trench	Depth	Classification	Age Estimate	Horizontal Integrity	Vertical Integrity	Description	Research Potential	Notes
18 (15.3)	15	14-22 cmbs	Soil Feature	nd	moderate	moderate	The feature included 10YR 3/2 sandy loam matrix surrounding five unidentified oxidized metal fragments.	low	
19 (16.1)	16	15-55 cmbs	Trash Pit / Soil Feature	nd	low	low	Soil feature or possible trash pit that measured 1.06 m (42 in) east to west by 0.97 m (38 in) north to south. Three unidentified oxidized metal fragments and one undiagnostic bottle glass shard were observed within the feature.	low	
20 (18.1-2)	18	5-110 cmbs	Wood Post	post 1930	moderate	moderate	Four associated wood support posts encased in cement blocks. Taken together it appears that these posts and their casings supported a heavy elevated structure in the past, possibly an electrical transformer. The concrete casing was irregularly shaped and measured 1.1 m (43.3 in) north to south and 40 cm (16 in) east to west.	low	
21 (18.3-4)	18	5-110 cmbs	Wood Post	post 1930	moderate	moderate		low	Post-1940 artifacts noted.
22 (18.5)	18	120 cmbs	Gas Pipeline	post 1930	moderate	moderate	Ferrous metal pipe with an outside diameter of 1 ½ in. surrounded by a 22.9-cm-wide (9-in-wide) builder's trench.	low	
23 (18.6)	18	122 cmbs	Concrete Pipeline	post 1930	moderate	moderate	Pipe with an outside diameter of 6 ½ in; it was encountered 1.2 m (3.9 ft) below the ground surface. Likely to represent a sewer line that emptied into Buffalo Bayou to the north.	low	
24 (19.1)	19	32-40 cmbs	Remodeled or Makeshift Sidewalk	Post 1961	moderate	high	Portion of a possible remodeled brick sidewalk or walkway that measured 2.29 m (7.5 ft) by 1.14 m (3.75 ft) and extended from 32 to 40 cmbs (12.6 to 15.8 inbs). Sidewalk appeared to be partially in situ (particularly on the west side), but most bricks had been partially displaced. The sidewalk was composed of 51 complete bricks of different provenance and approximately 21 partial brick fragments. The variety of brick types	low	Stoneware body sherd identified at 30-50cmbs. Artifact fragments dating to early through mid 20thC intermixed in feature matrix.

Table C.1: Feature Table									
Feature Number	Trench	Depth	Classification	Age Estimate	Horizontal Integrity	Vertical Integrity	Description	Research Potential	Notes
							and manufacturers indicates that this sidewalk was informally pieced together from scavenged materials.		
25 (19.2)	19	62 cmbs	Gas Pipeline	nd	moderate	moderate	Metal pipe with an outside diameter of 1 in. The pipeline was located within a 12.7-cm-thick (5-in-thick) builder's trench. No associated artifacts found.	low	
26 (20.1)	20	55-95 cmbs	Wood Post	nd	moderate	moderate	Wood post with an outside diameter of 6 in and a circumference of 37.7 in. No artifacts were found in association with the feature.	low	
27 (20.2)	20	177 cmbs	Metal Pipe	nd	moderate	moderate	Metal pipe with an outside diameter of 6 ½ in.; represents most deeply buried feature encountered.	low	
28 (24.1)	24	130 cmbs	Metal Pipe	post 1920	moderate	moderate	Silver-colored metal pipe with an outside diameter of 1 in; it had a screwed connector and was oriented east-west. A steel grounding rod with an outside diameter of ½ in with a segment of copper wire soldered to one end, was found in proximity to the feature.	low	

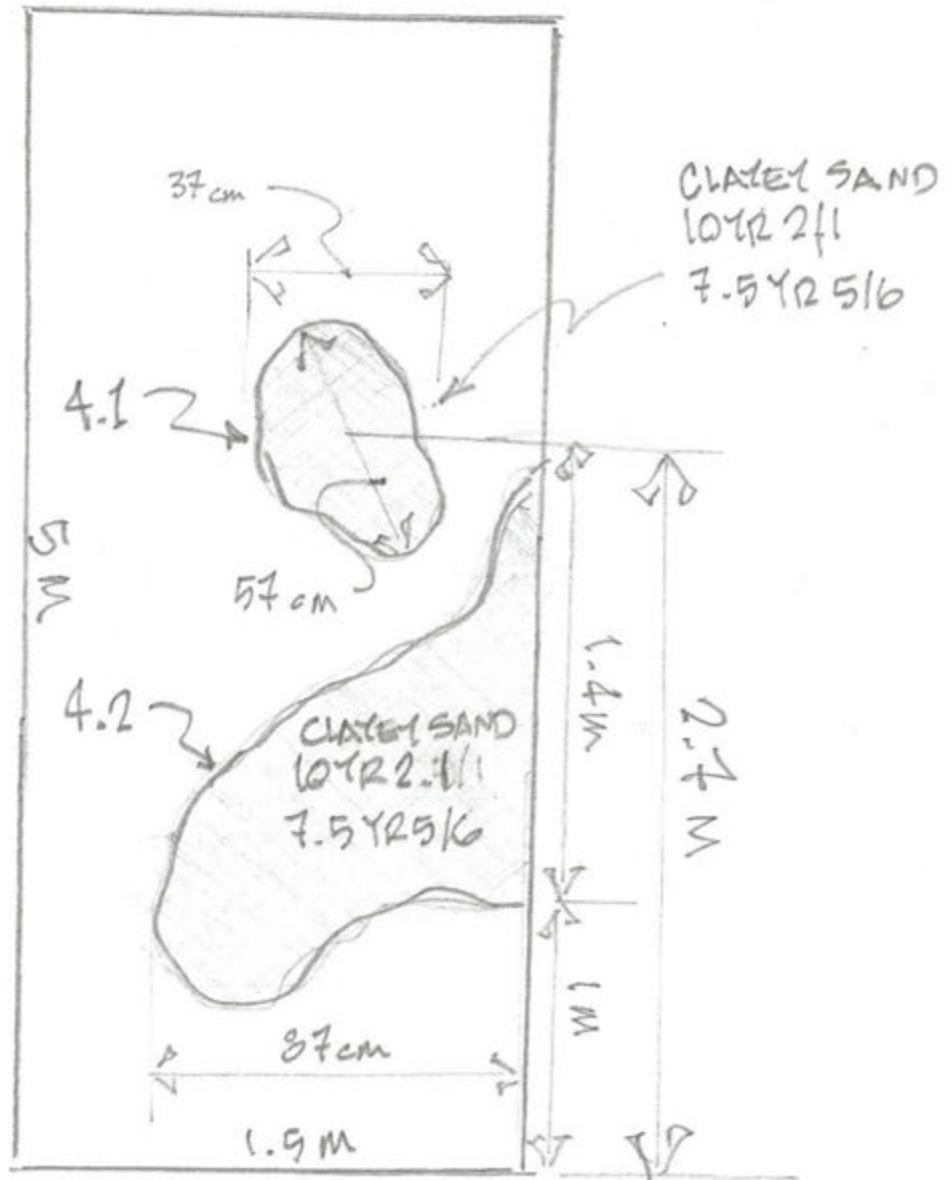
APPENDIX D: ORIGINAL FEATURE DRAWINGS

TRENCH #4

TRASH PITS # 4.1 & 4.2

PLAN
NOT TO SCALE

TRASH PITS
EXPOSED AT
300M DEPTH.
4.1 ENDED AT
45 CM.
4.2 ENDED AT
59 CM.



Cox/McCLAIN NHHIP
PROJECT # 091-003-003

11.27.18

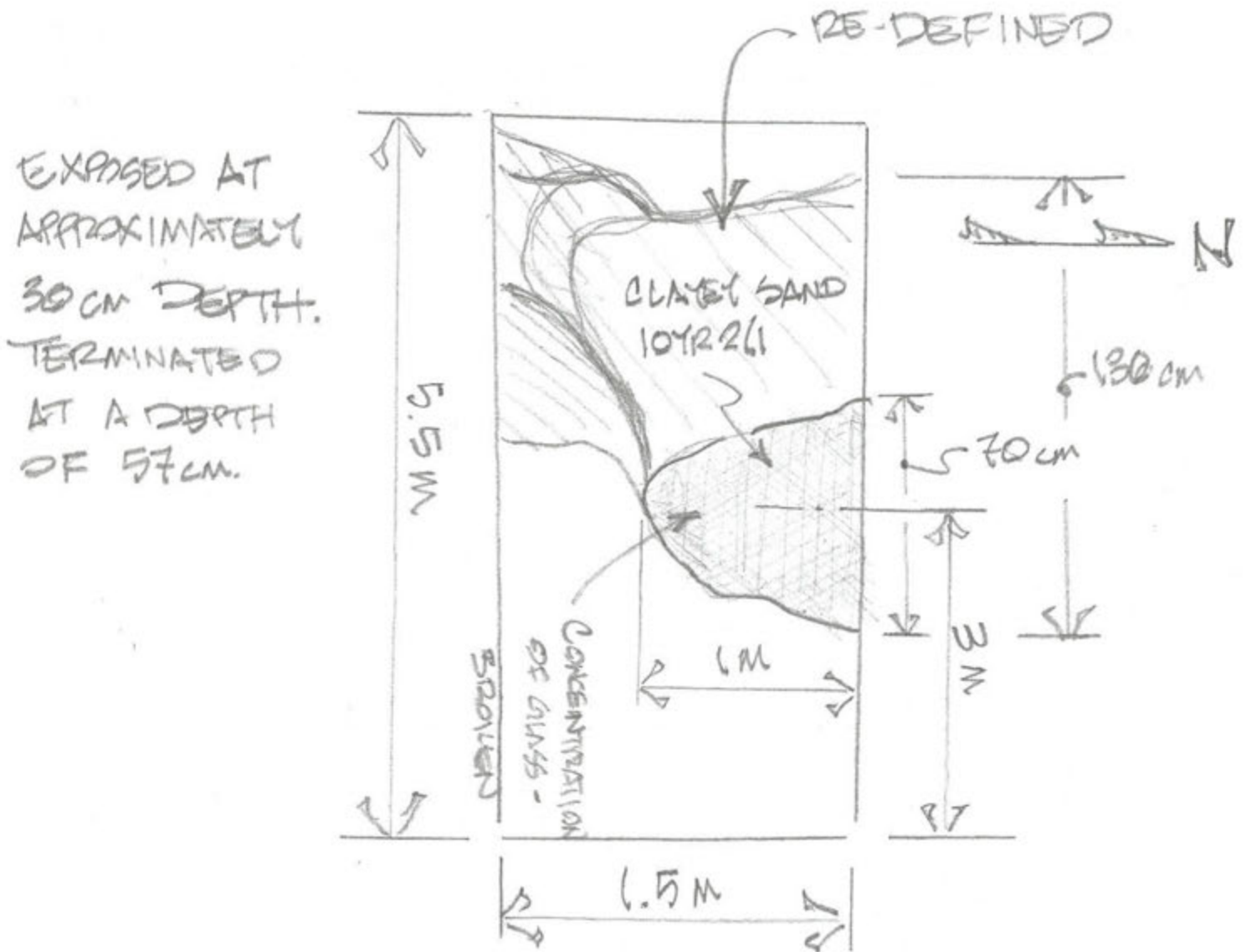
T. Nix

TRENCH #5

TRASH PIT #5.1

PLAN

NOT TO SCALE



COX/McCLAIN

PROJECT # 001-003-003

11-27-18

T.N.V.K.S.

TRENCH #6

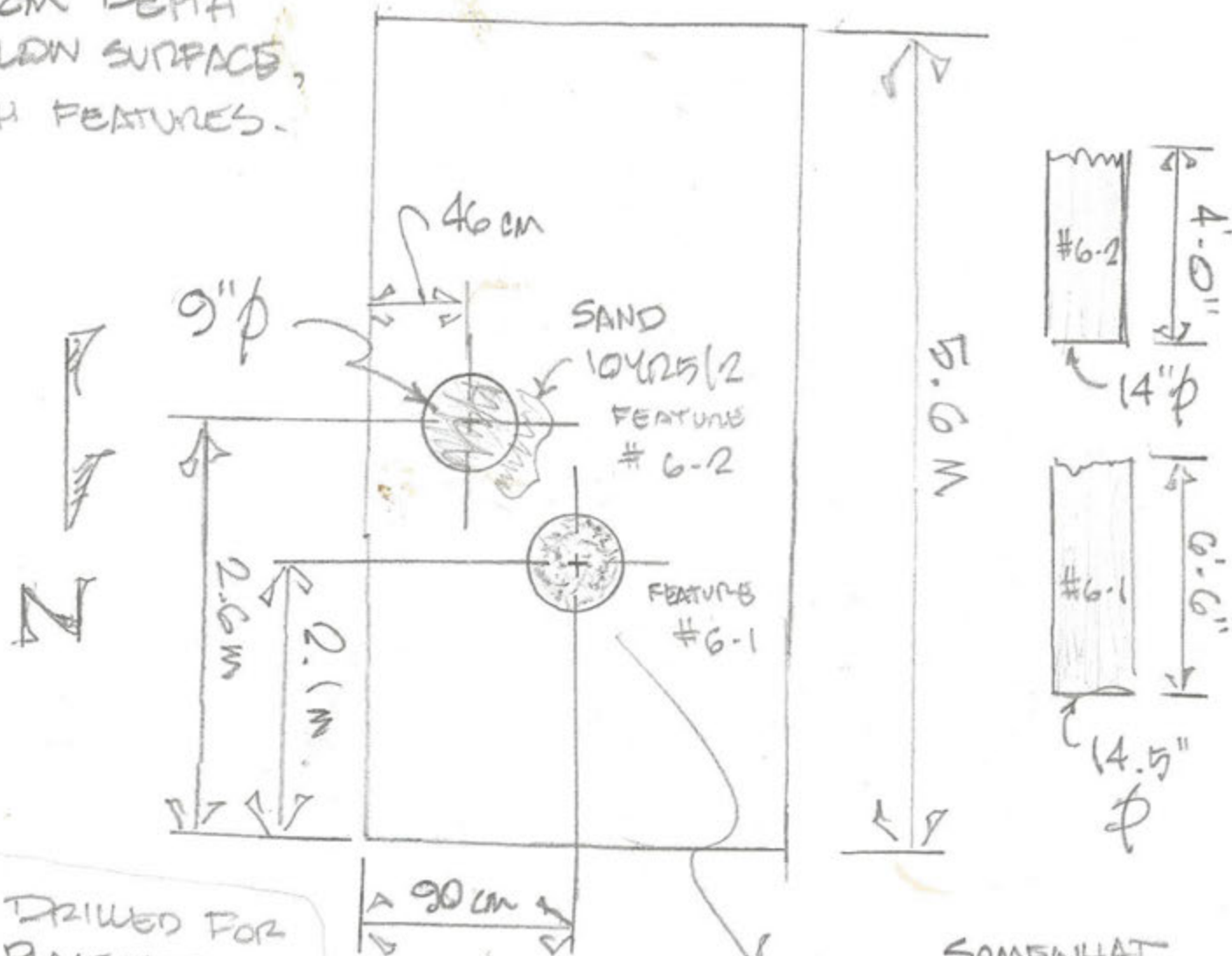
FEATURE #6-1 UTILITY POLE

↓ #6-2 ↓

PLAN

NOT TO SCALE

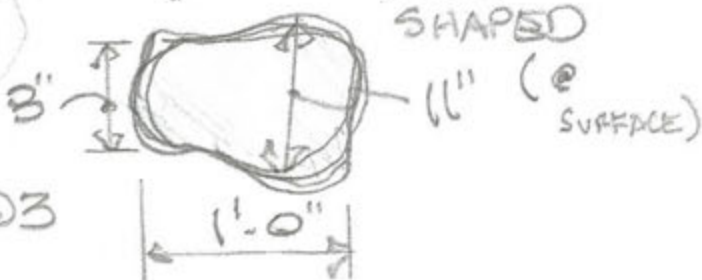
EXPOSED AT APPROXIMATELY 10 CM DEPTH BELOW SURFACE, BOTH FEATURES.



HOLE DRILLED FOR THE PLACEMENT OF THESE UTILITY POLES WAS 2M BELOW SURFACE FOR #6-2

CON (McCLAIN) 2.3 FOR #6-1.

SOMEWWHAT OVOID SHAPED



PROJECT # 091-003-003

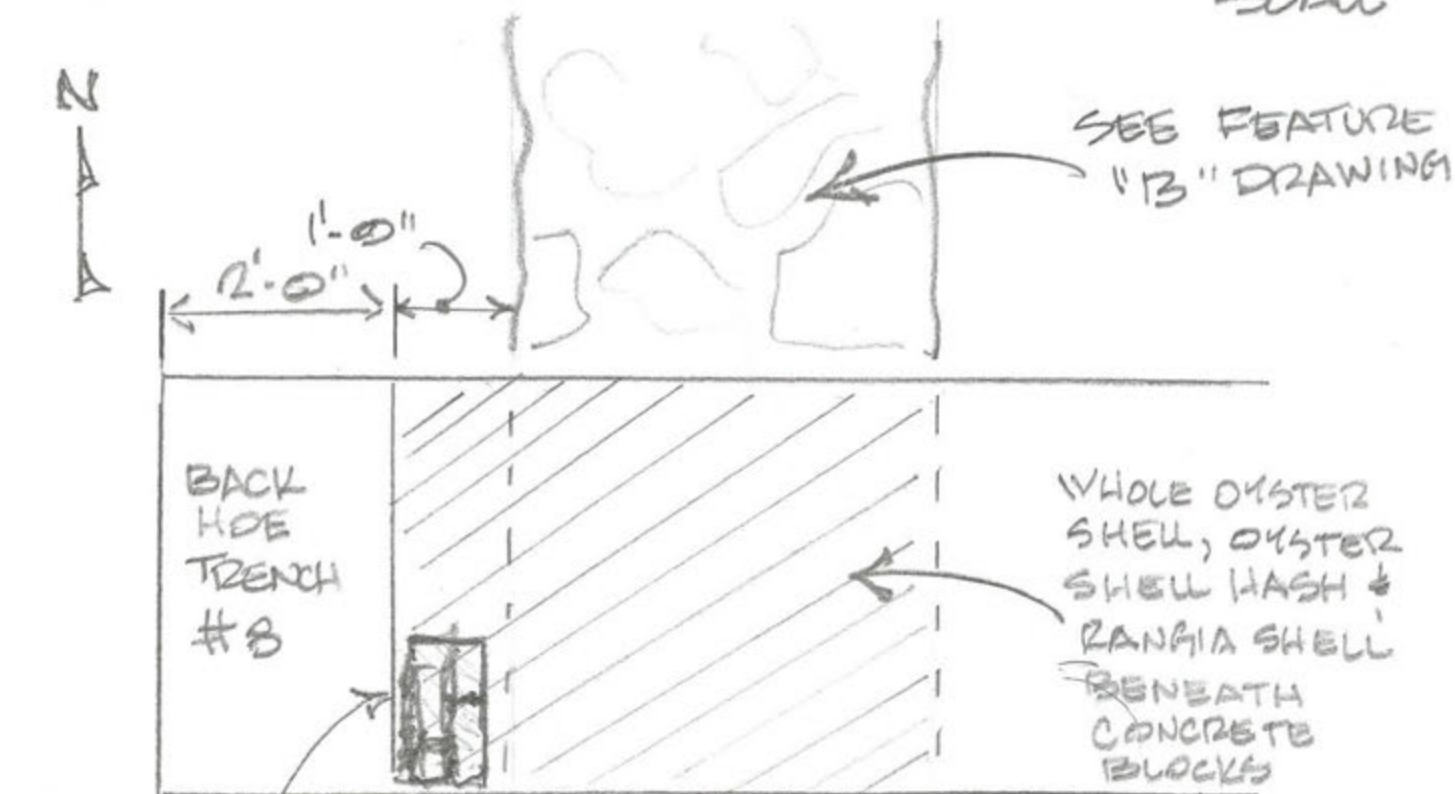
11-28-13

T. NUCKOLS

TRENCH #8

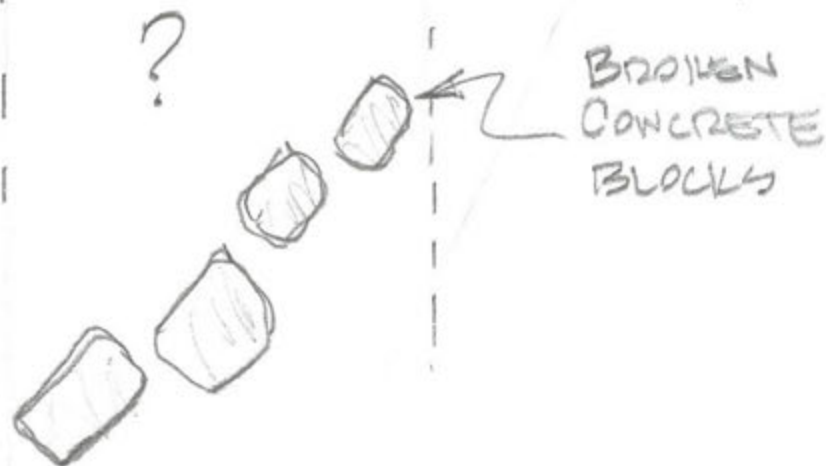
FEATURE "A"

PLAN
NOT TO
SCALE



3" x 11"

REPURPOSED?
BRICK STRUCTURE
LYING ON ITS
SIDE. BRICK
IS PINKISH,
WHITE 2.5 TR 3/2,
MORTAR IS GRAY.
FEATURE 8.2



COX/McCLAIN

PROJECT # 091-003-003

11-28-13

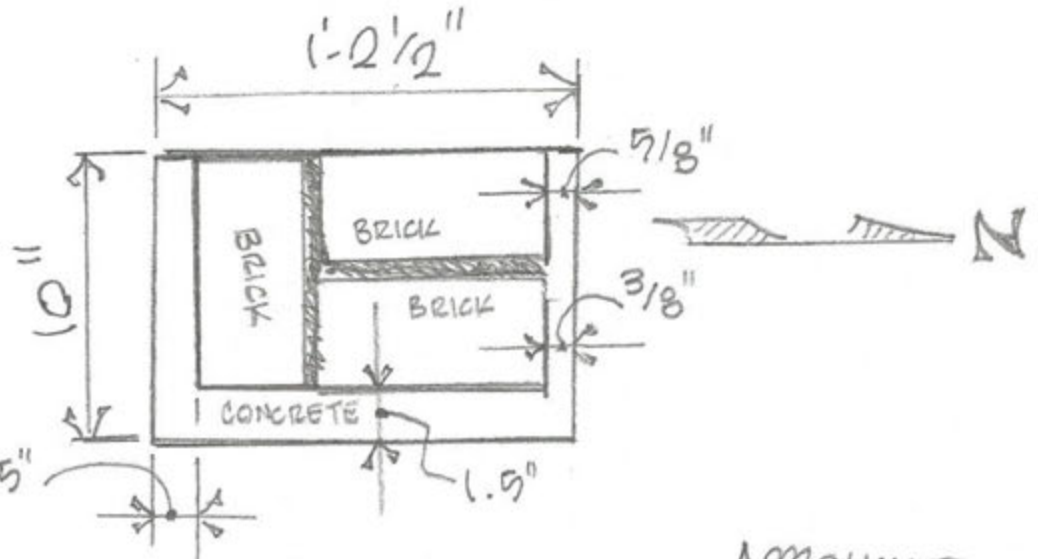
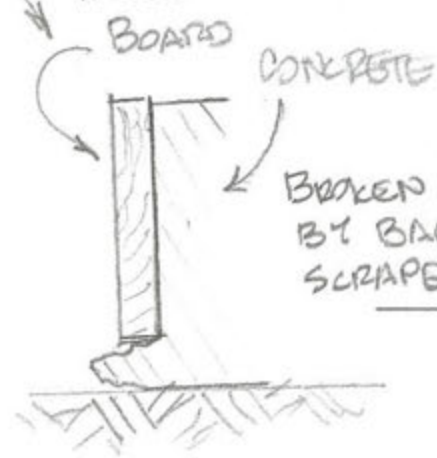
L. Tucker

TRENCH #8

HOUSE PIER

FEATURES 8.2

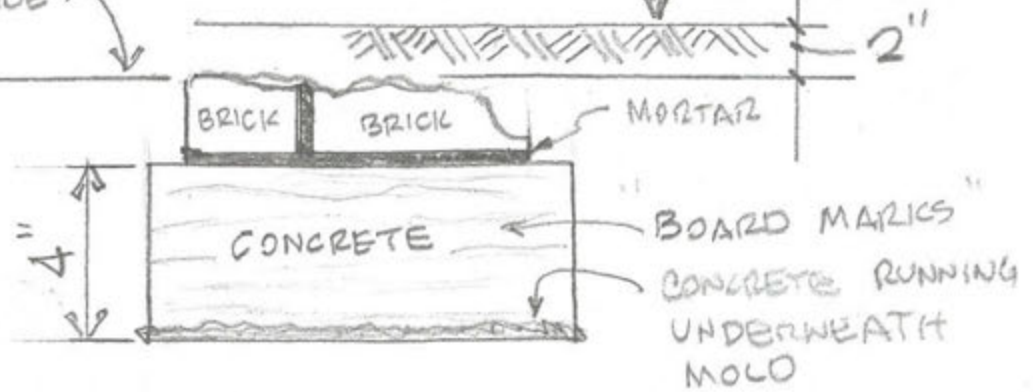
THIS CONCRETE BASE WAS POURED IN A WOODEN MOLD AS EVIDENCED BY "BOARD" MARKS ON WALLS AND CONCRETE FLOWING UNDERNEATH MOLD.



PLAN

NOT TO SCALE

APPROXIMATE PRESENT GROUND SURFACE



ELEVATION

LOOKING WEST

NOT TO SCALE

COX/MFLAIN

JOB # 001-003-003

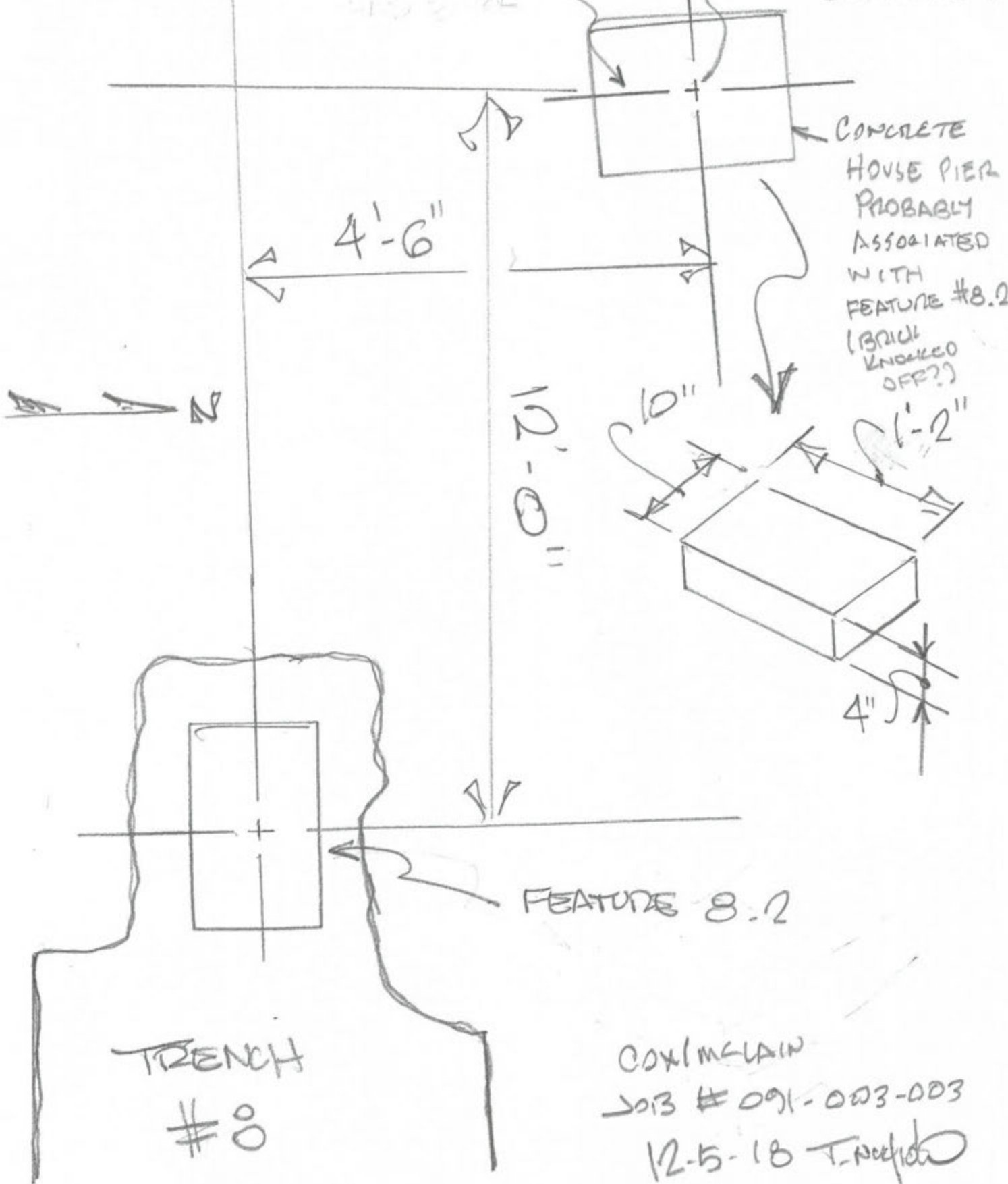
12-4-18 T. Hoekdyk

TRENCH #0

FEATURE 8.2

#0
CONC
TRENCH
SLIGHTLY OUT
OF ALIGNMENT

TOP OF
CONCRETE
@ 10" BELOW
SURFACE



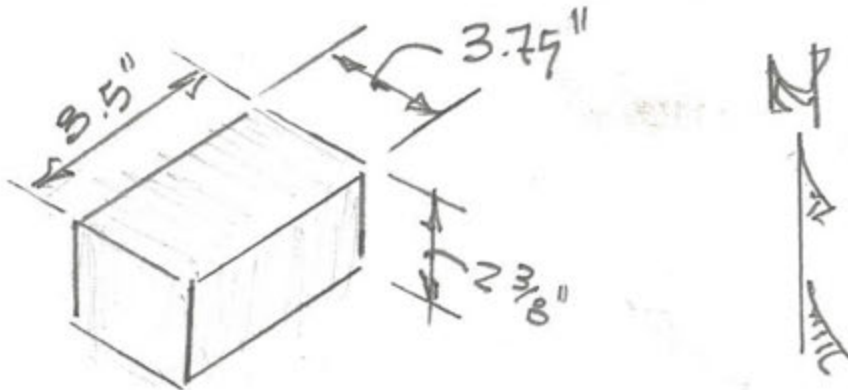
CONCRETE
HOUSE PIER
PROBABLY
ASSOCIATED
WITH
FEATURE #8.2
(BRICK
KNOCKED
OFF?)

FEATURE 8.2

TRENCH
#0

CON/MCLAIN
JOB # 091-003-003
12-5-18 T. [signature]

FEATURE 8.1



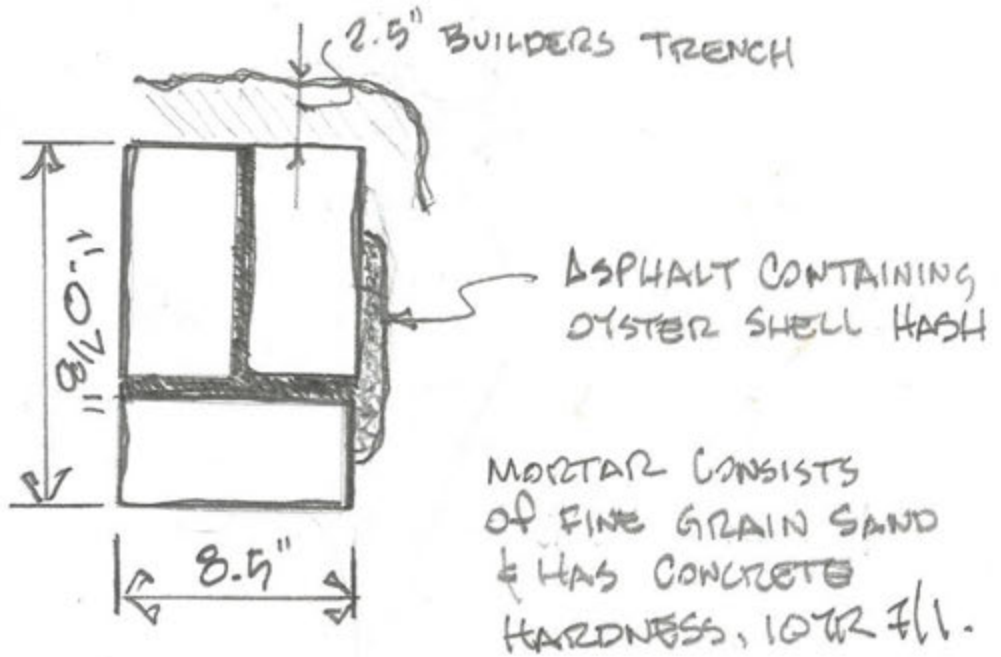
BRICK COLOR

10YR 7/2

WITH NUMEROUS
INCLUSIONS OF

7.5YR 6/4

CAN'T DISTINGUISH
IF BRICK IS
HAND OR
MACHINE MADE.



BRICK HOUSE

PIER

FEATURE 8.2

COX/McCLAIN

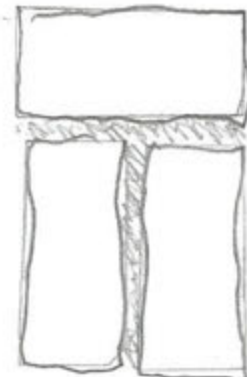
1ST TIER

JOB # 091-003-003

11-29-18

T. NUCKOLS

2ND TIER
DAMAGED
BY BACKLOG



2ND TIER

TRENCH #8

FEATURE "B"

PLAN

SIDEWALK?

N

2'-8"

~~TRUNCATED?~~ PROBABLY END POINT

WHITE WARE
RIM SHARD
SEE
BACK

FRAGMENT
of VITRIFIED
STREET
BRICK,
DARK REDDISH
BROWN
2.5 YR 3/4

1'-0"
SCALE

BROKEN
CONCRETE
BLOCKS,
4" TO 5"
THICK.

4-5"

NOTE:
CONCRETE
BLOCKS ARE
TEMPERED
WITH BROKEN
HAND MADE
& VITRIFIED
STREET
BRICK.

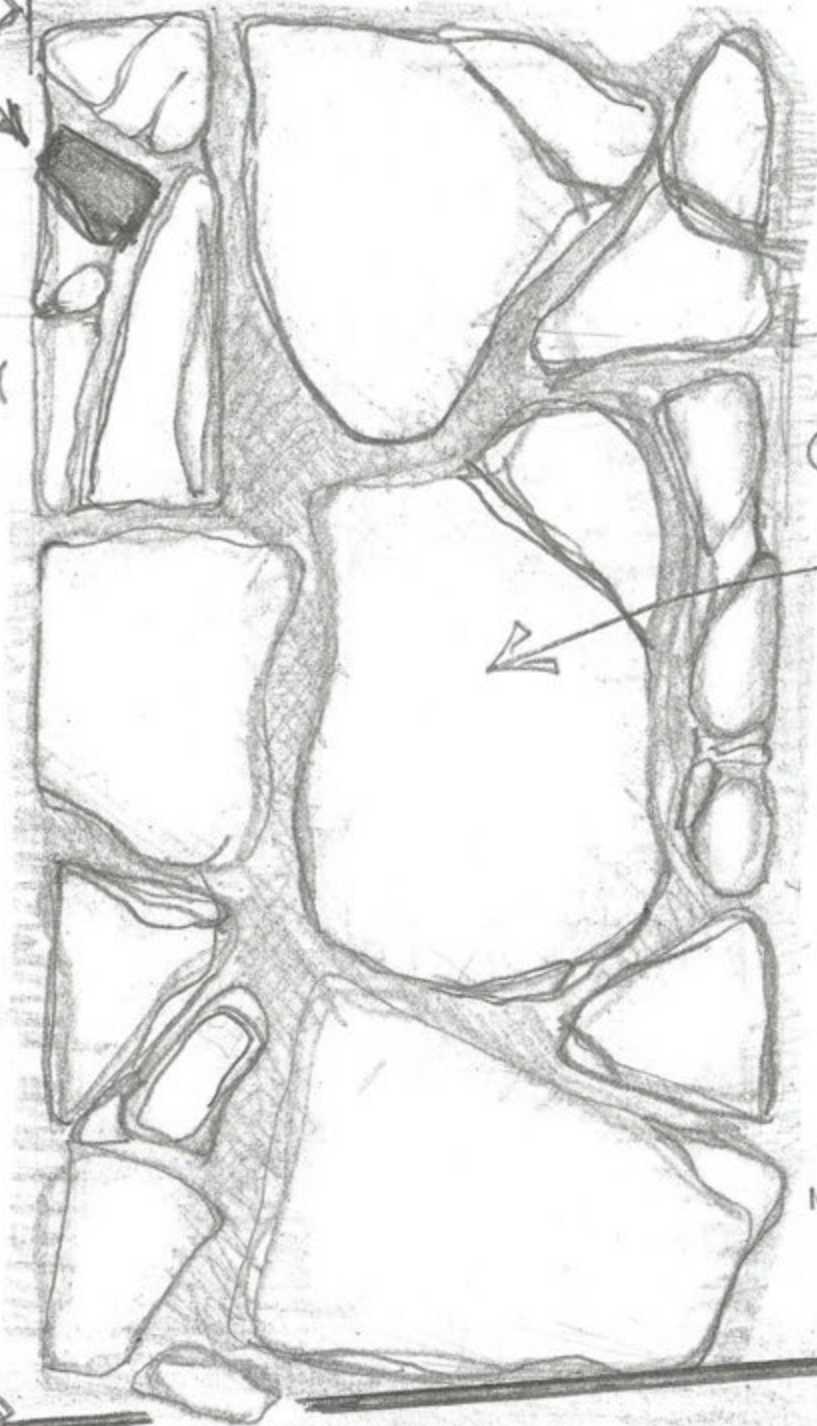
COX/McCLAIN
PROJECT
#091-003-
003
11-23-18
T. Nuckley

N
50

1.25"
O.D. METAL
PIPE

← BACKSIDE TRENCH #8 →

TOP of PIPE @ 10" BELOW TOP of CONCRETE.



Excavation Monitoring Form

Project:

Project No. _____

Client: _____

Date:

Form Completed by _____

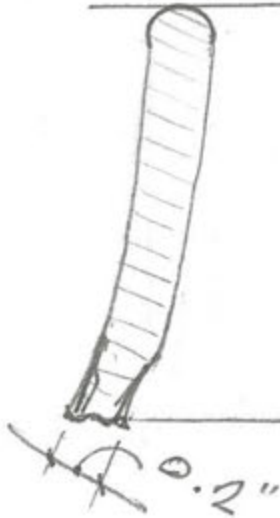
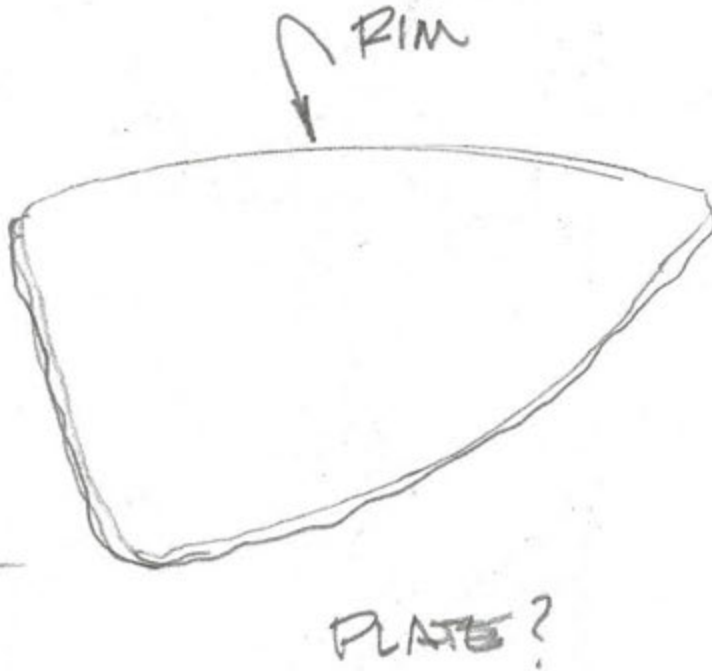
County: _____

Unit/Location: _____

Depth

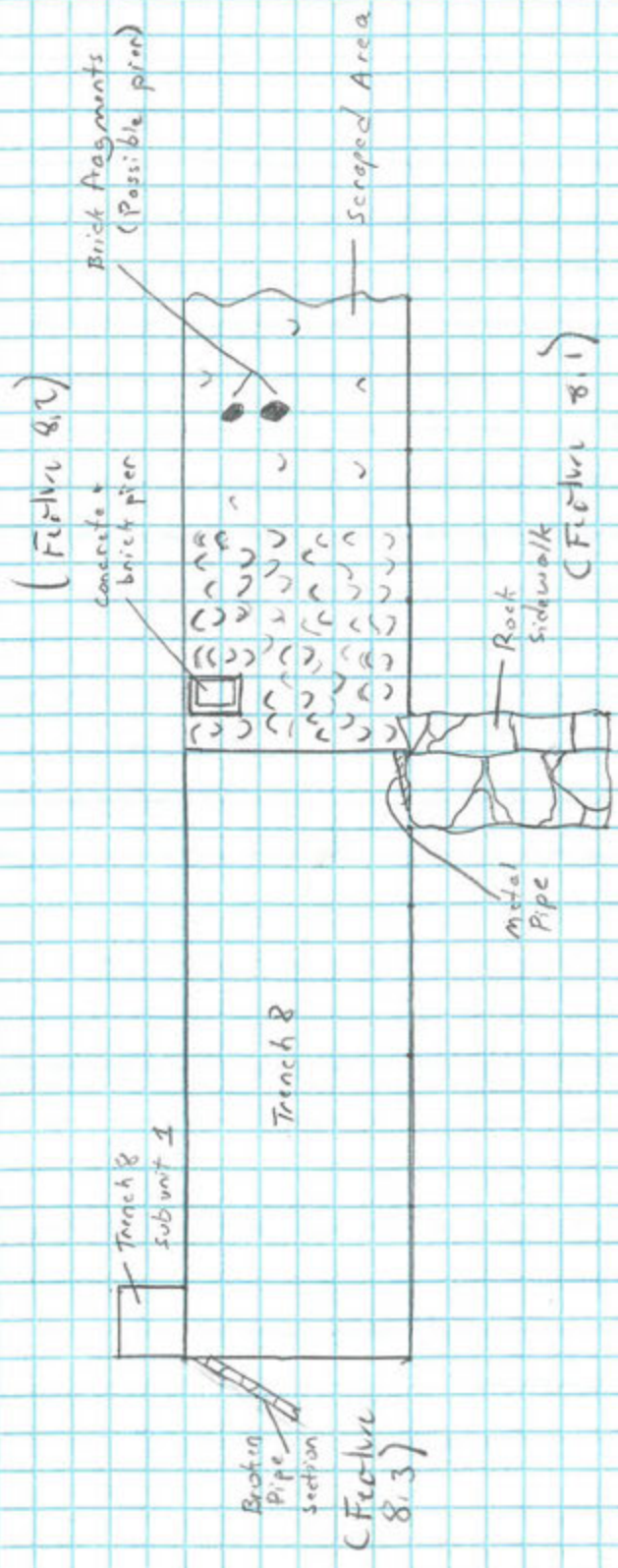
Observations/Description

Cultural Materials/Features

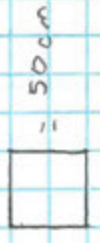


Brett Long
12-4-18

Trench 8 with Features



Legend
= shell pavement



NHHIP
0911-1103-003
41HR 937
11/28/18
S. Moore
Trench 5

West end
of trench 5

Feature 8.1 - Sidewalk



0 10 cm

10 yr 3/2 sandy loam w/ 50% shell

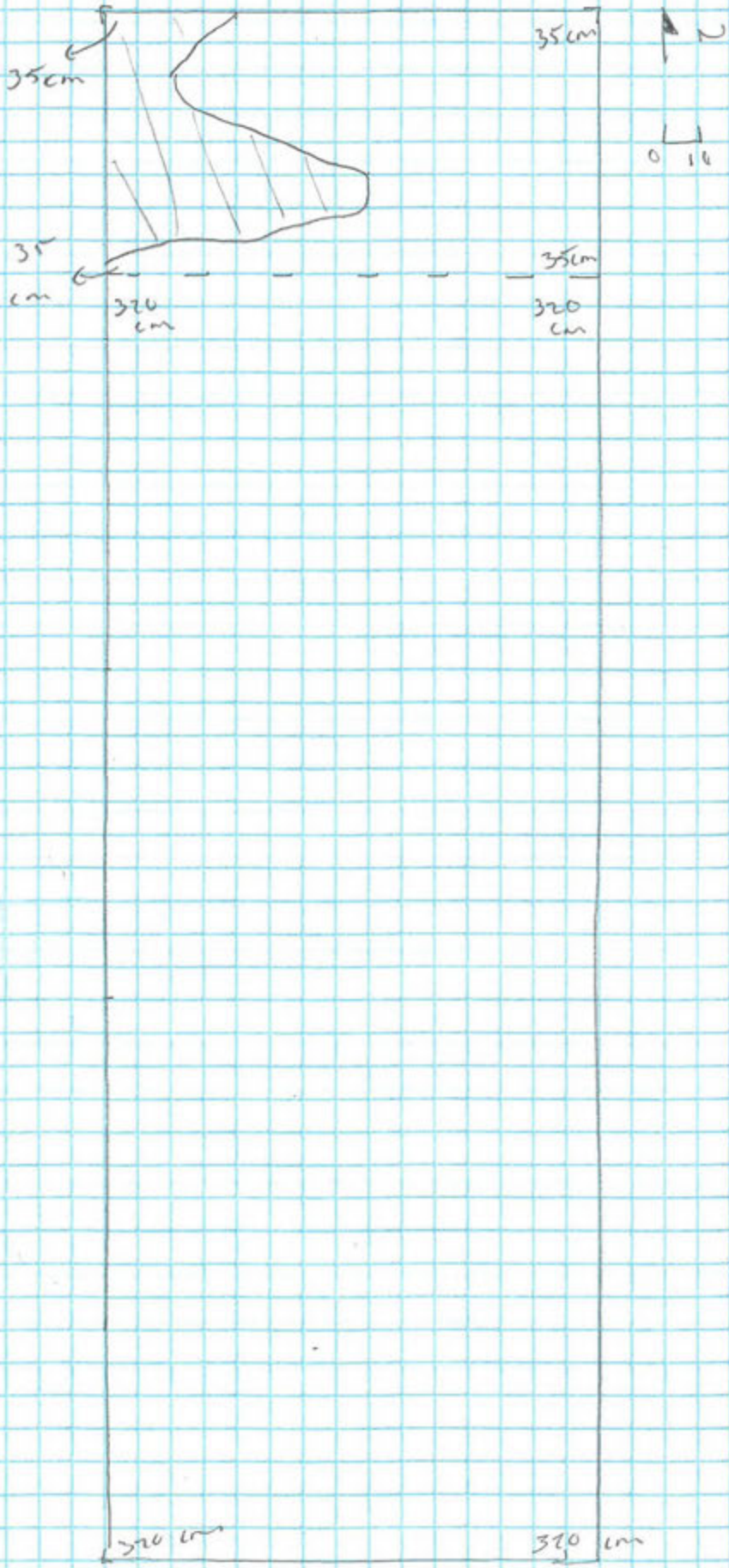
IRON PIPE 6 cm diameter (1 1/4" OD)

10 yr 6/4 w/ 20% 3.5 yr 4/6 clay
massive

photos: 3017 & 3018

Factor 9.1

NHHP
091-003-003
41 HR 937
Trench 9

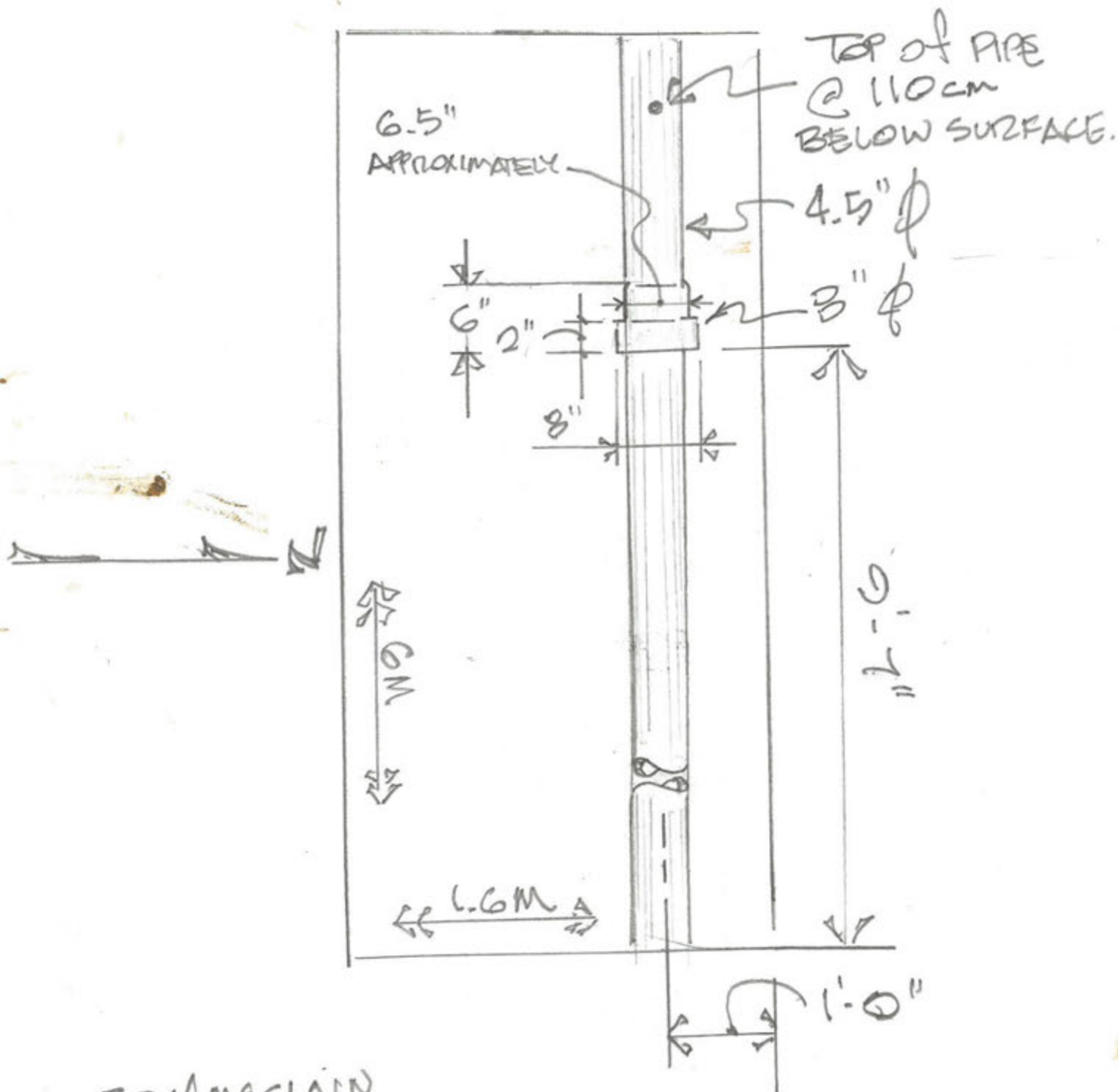


TRENCH #10

FEATURE #10.1

4.5" O.D. CAST
IRON PIPE

PLAN
NOT TO SCALE



CORC MACLAIN

JOB # 091-003-003

11-29-13

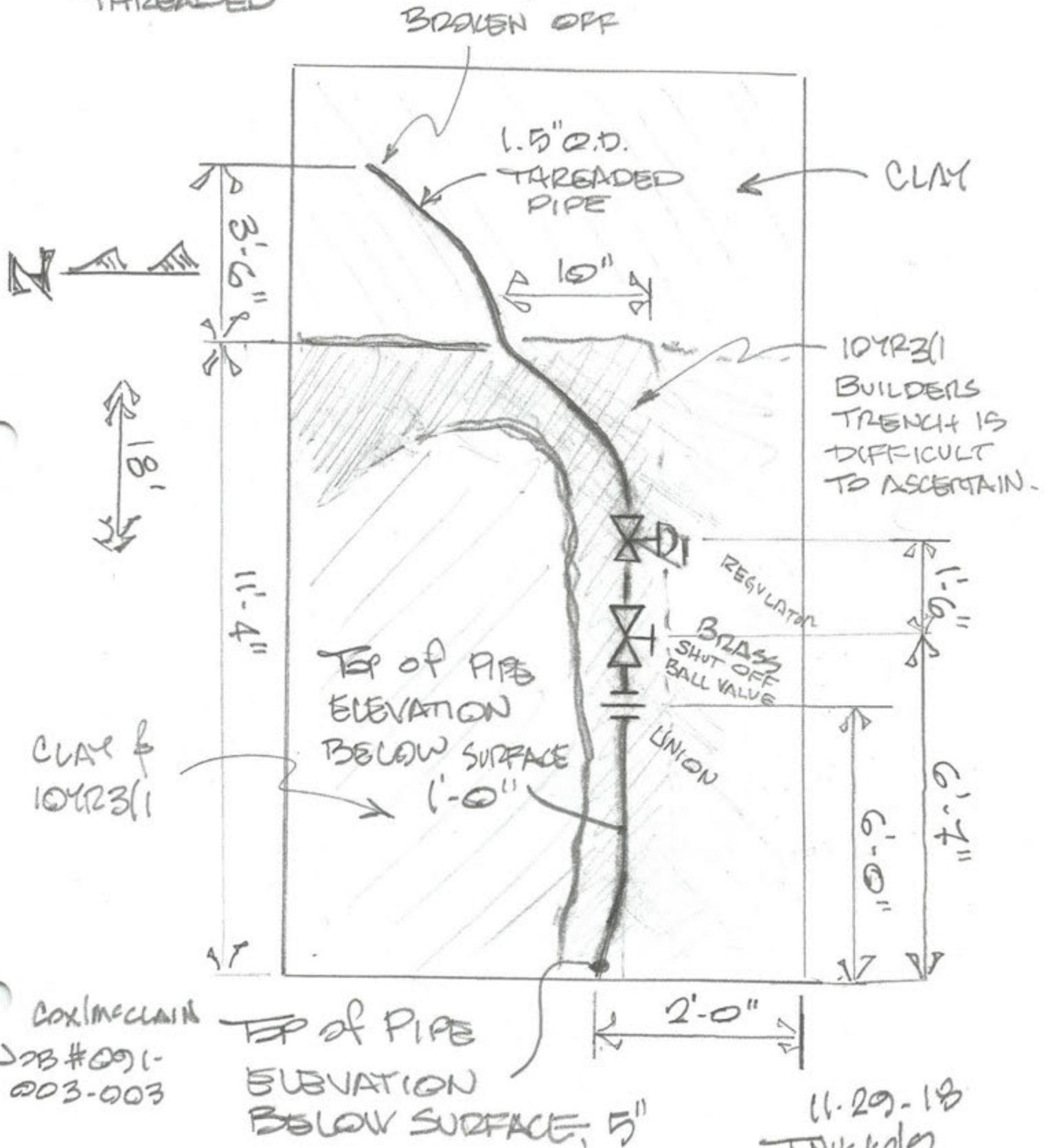
T. NUCKOLDY

TRENCH #12

FEATURE #12.1

GAS PIPE LINE, 1.5" O.D.
THREADED

PLAN
NOT TO SCALE

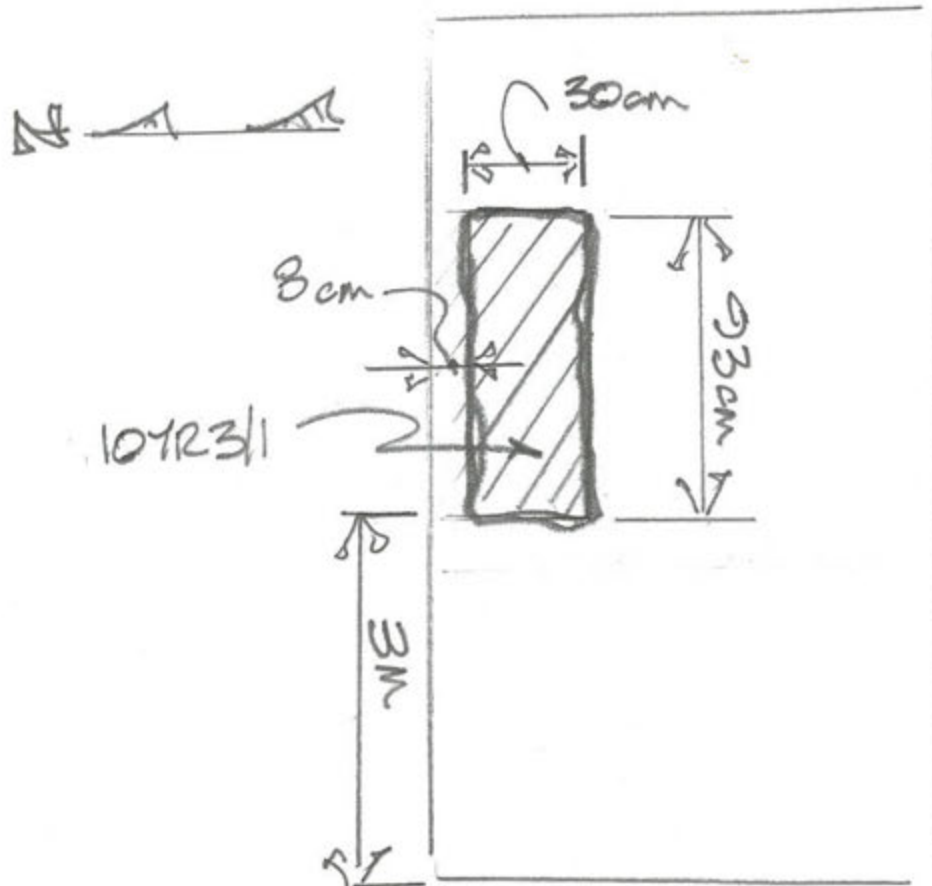


TRENCH #12

FEATURE #12.2

TRASH PIT

PLAN
NOT TO
SCALE



EXPOSED @
45cm BELOW
SURFACE.
FLAYS OUT
@ 65cm.

COX/MCCLELLAN

JOB # 091-003-003

11-29-18 T. NUCKIDA

TRENCH #13

FEATURE #13.3

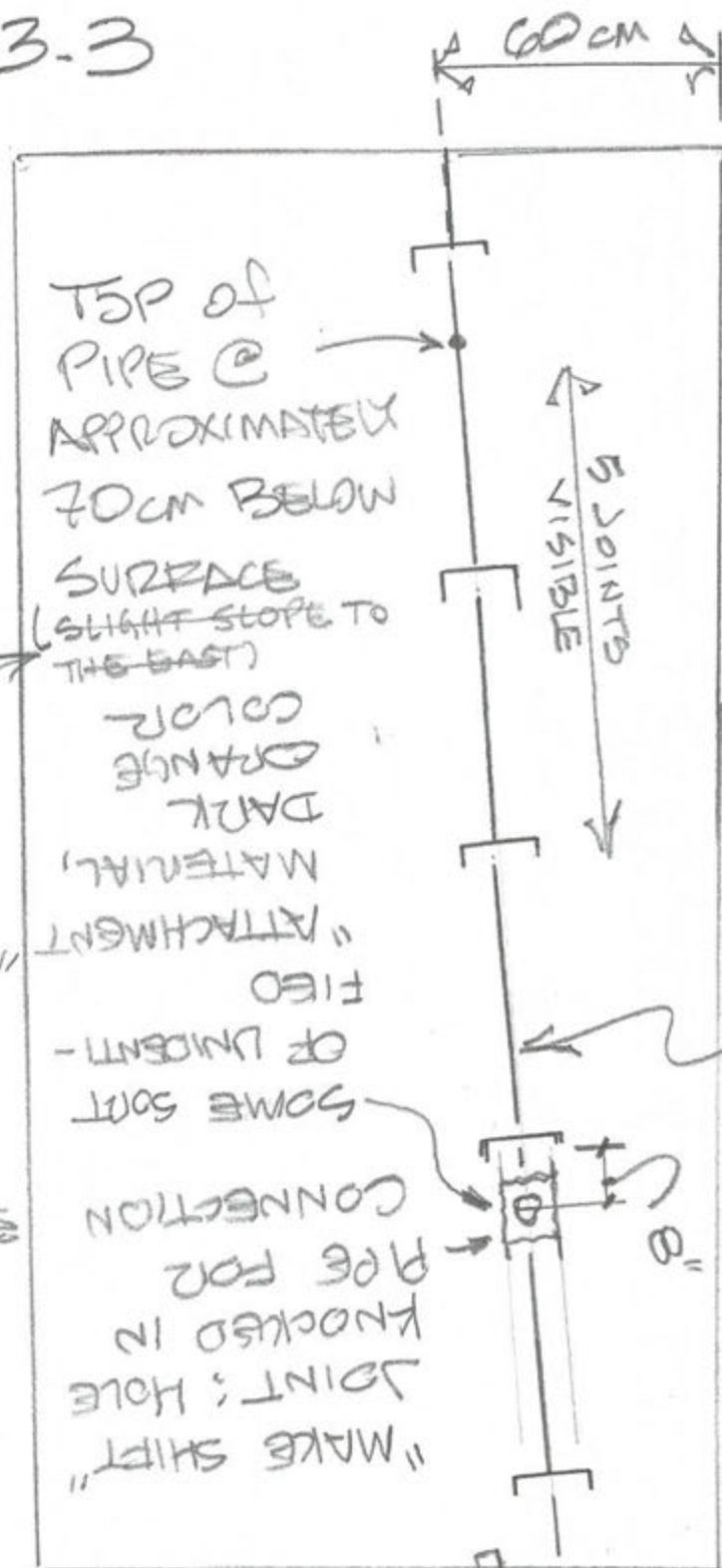
CONCRETE
SEWER
PIPE

PLAN
NOT TO
SCALE

SLIGHT SLOPE
DOWNWARD TO
THE EAST



NO DECEARNABLE
BUILDERS
TRENCH



16 CM (FEATURE #13.2) 26 CM

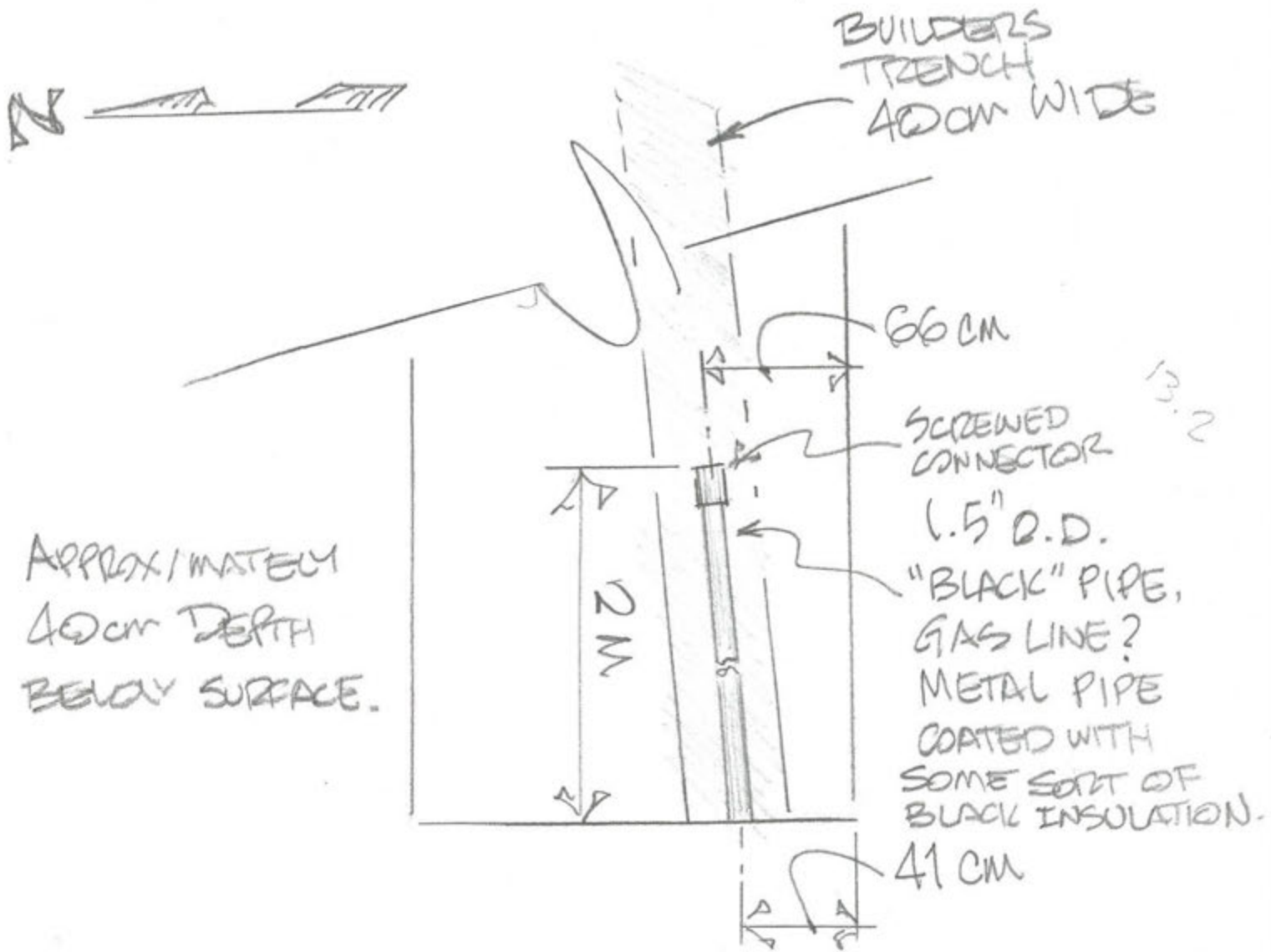
COX MCCLAIN
JOB # 091-003-003

12.4.13
T. NUCKOLS

TRENCH #13

FEATURE #13.2

PLAN
NOT TO SCALE



COX/MCLAIN

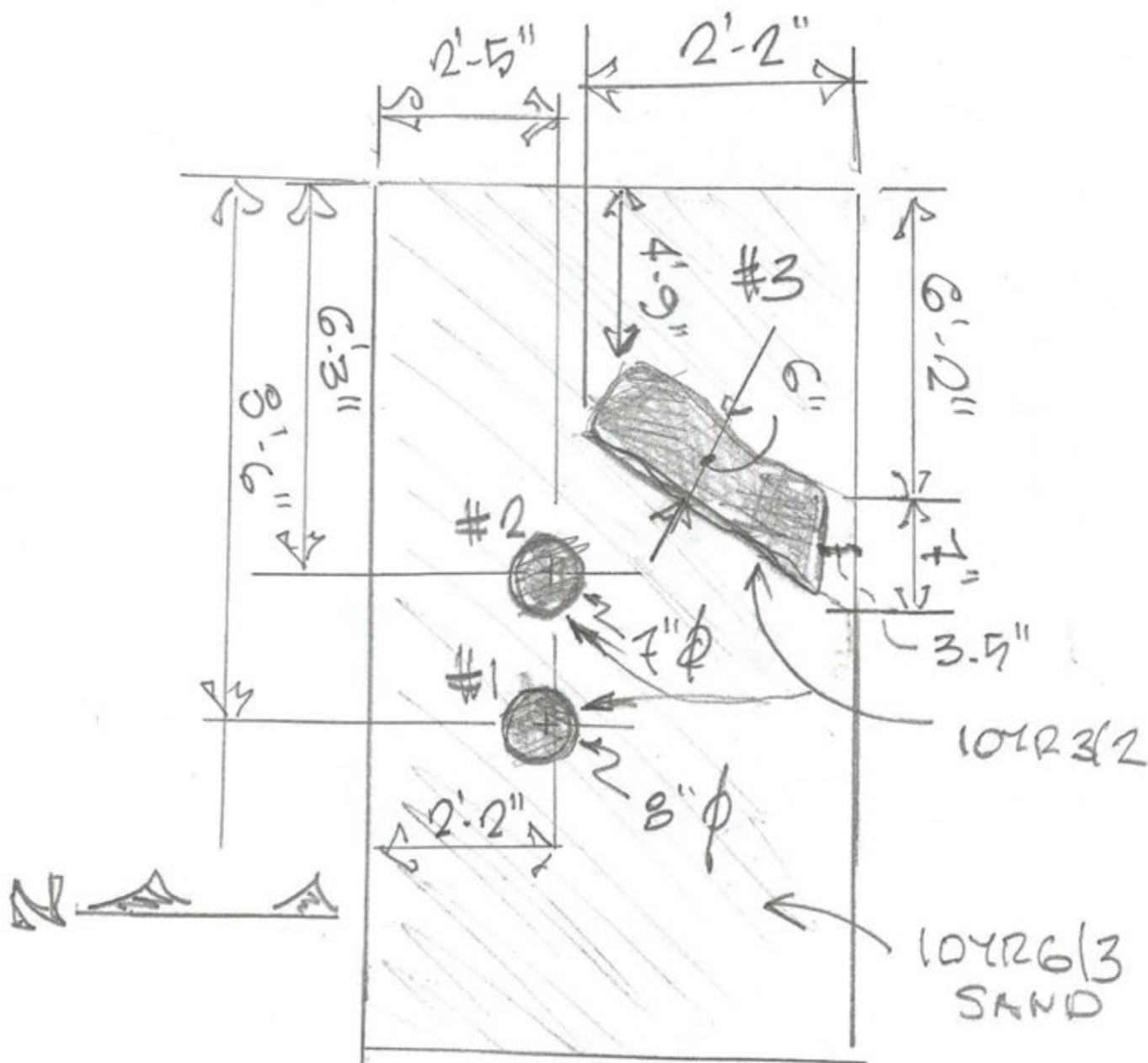
JOB # 001-003-003

12-4-18 - tracks

TRENCH # 15

FEATURES #15.1, 15.2 & 15.3

PLAN
NOT TO SCALE

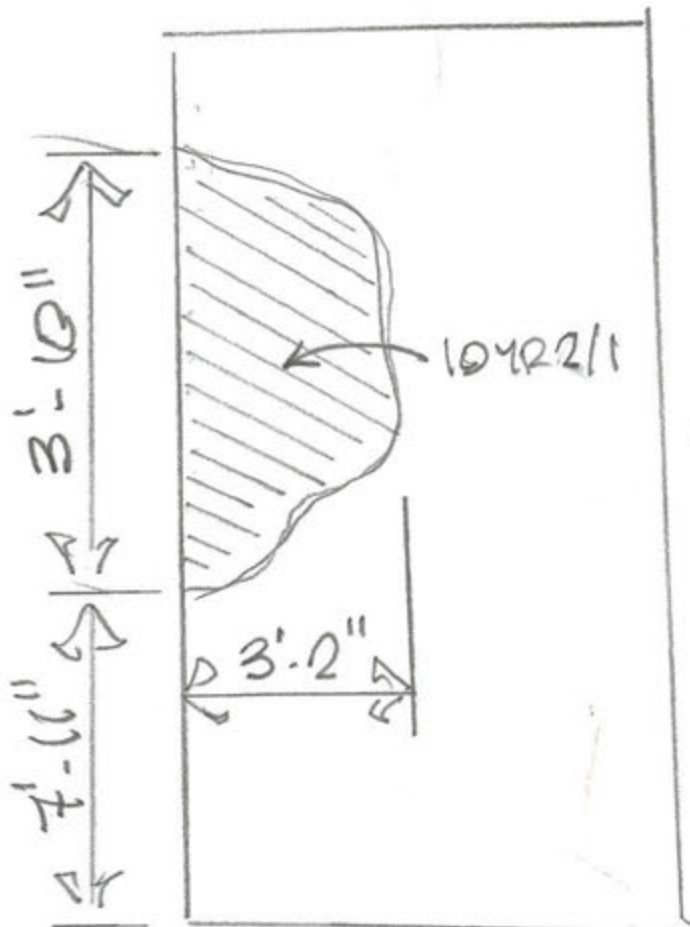


Cox/McClain
JOB #091-003-003
11-30-18
T. Nuckley

ALL THREE FEATURE
EXPOSED APPROXIMATELY
14 CM BELOW
SURFACE.

TRENCH #16
FEATURE #16.1
TRASH PIT

PLAN
NOT TO
SCALE



BOTTOM OF
TRASH PIT
IS @ 55 CM
BELOW SURFACE.



FEATURE
ENCOUNTERED
@ 15cm BELOW
SURFACE.

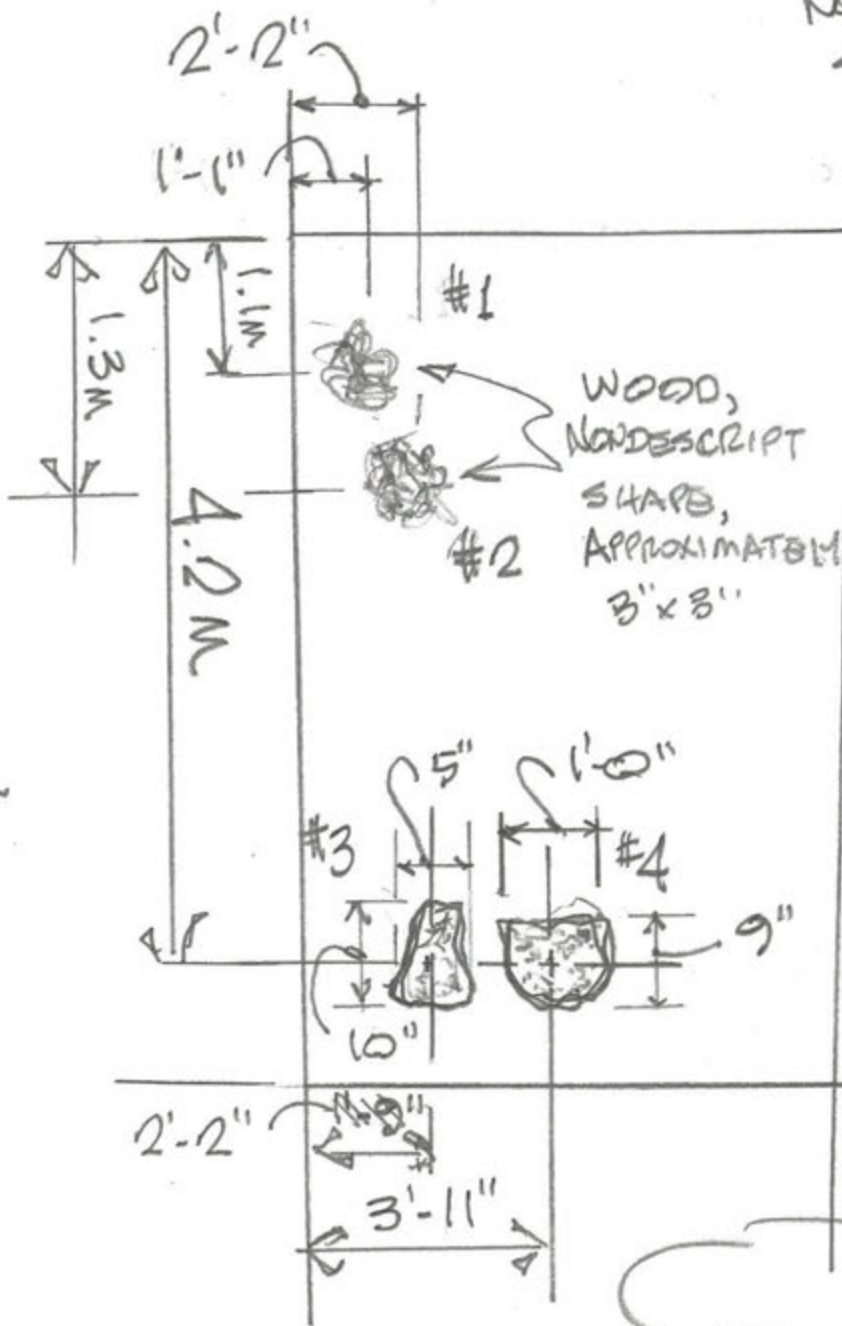
Cox/McCLAIN
JOB # 091-003-003
11-30-18 T. Nicks

TRENCH #18

FEATURES #1, 2, 3 & 4

WOOD POSTS/UTILITY POLES?

PLAN
NOT TO
SCALE



SHEET
1 of 4

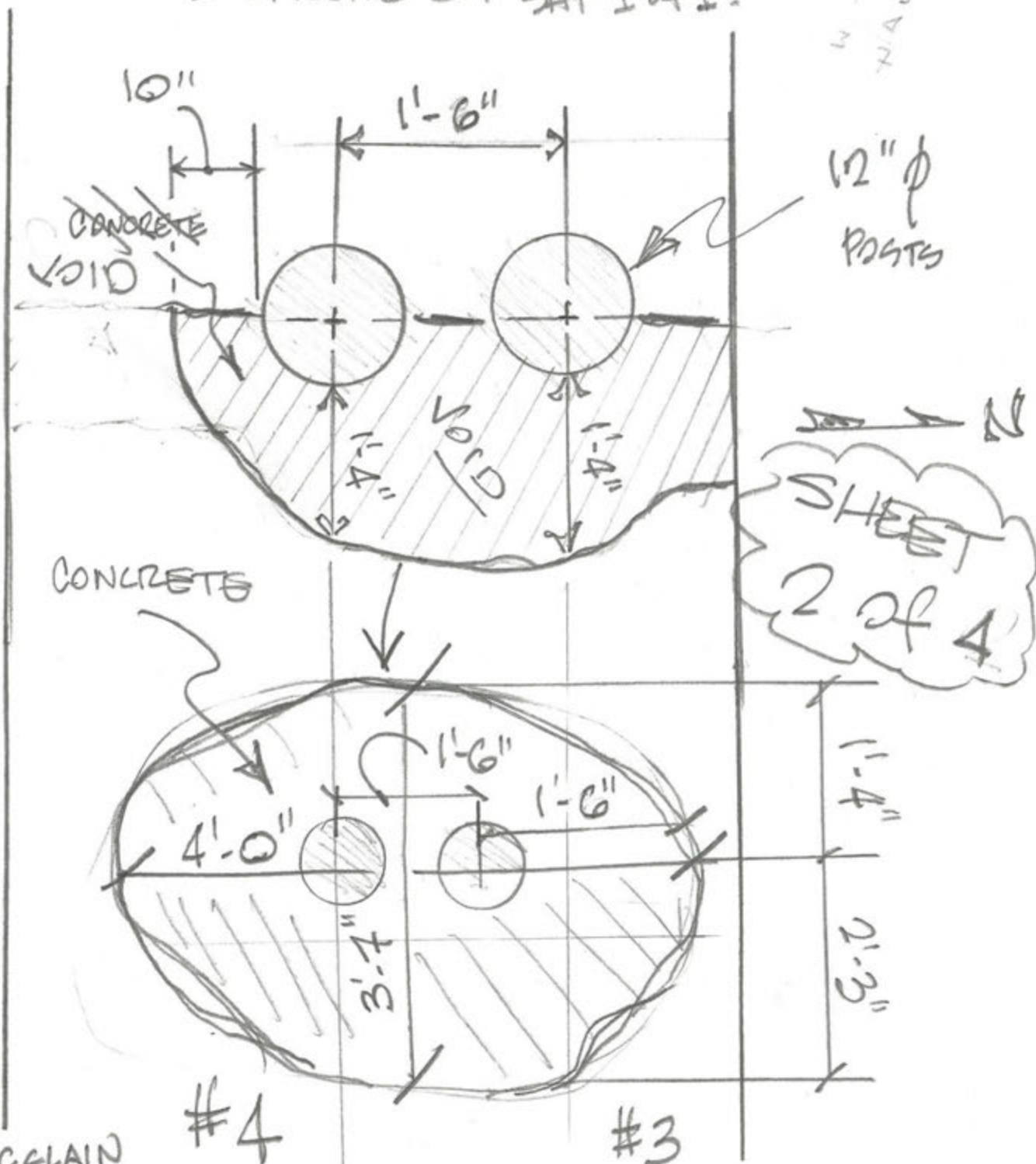
CONI MCCAIN
JOB # 091-033-033
11-30-18 T. Tucker

TRENCH #8

FEATURES # 3 & 4

PLAN
NOT TO
SCALE

THIS DNG (SHT 2 of 2)
IS OPPOSITE OF SHT 1 of 1.



CRA/MCCLELLAIN #4
JOB #091-033-033
T. NUCCIALI 11-30-18

TRENCH #18

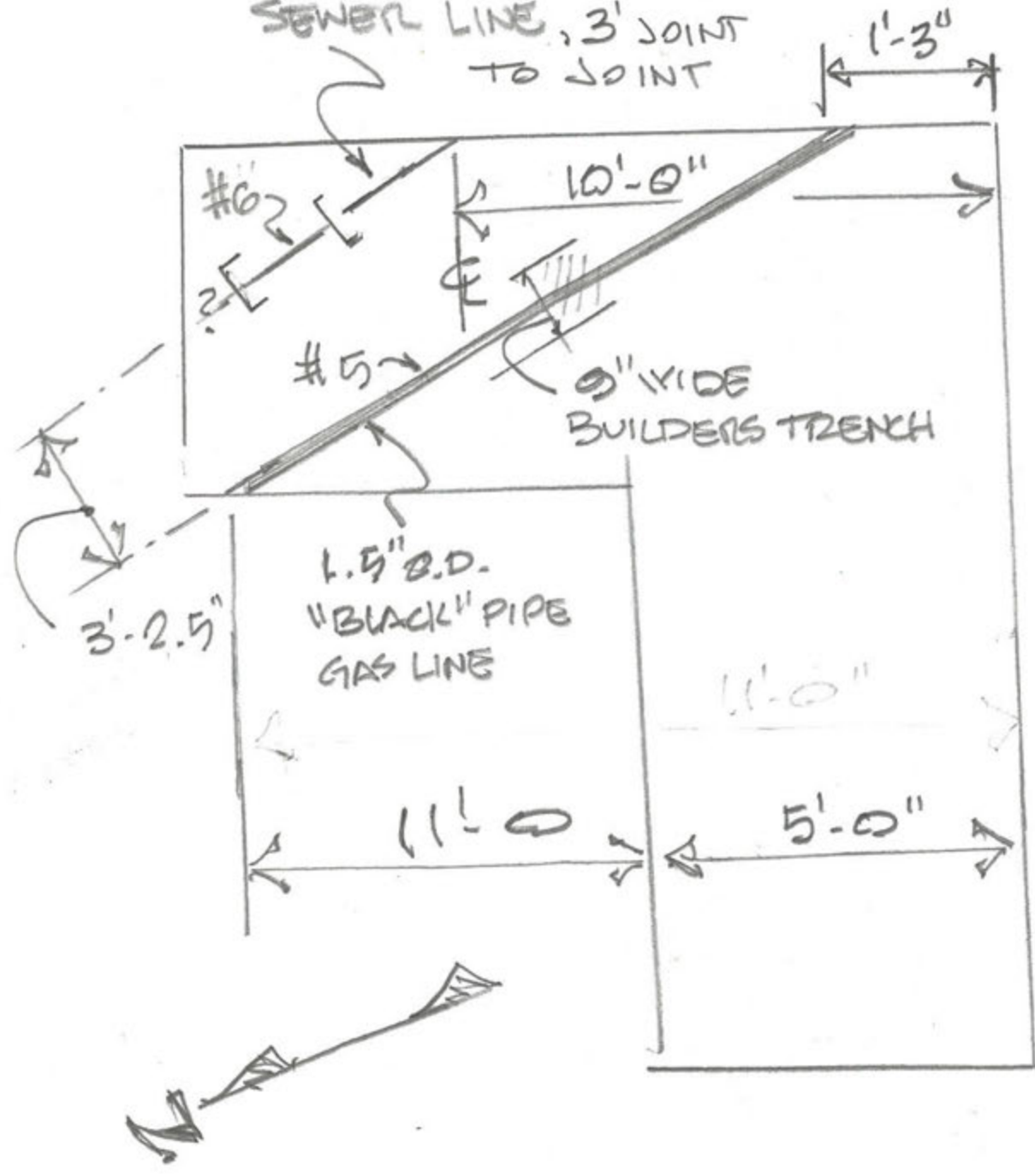
PLAN

FEATURES #5 & #6

NOT TO SCALE

NO DISCERNABLE BUILDERS
TRENCH FOR SEWER LINE.

6.5" O.D. CONCRETE
SEWER LINE, 3' JOINT
TO JOINT



SHEET
3 of 4

OX/MCLAIN

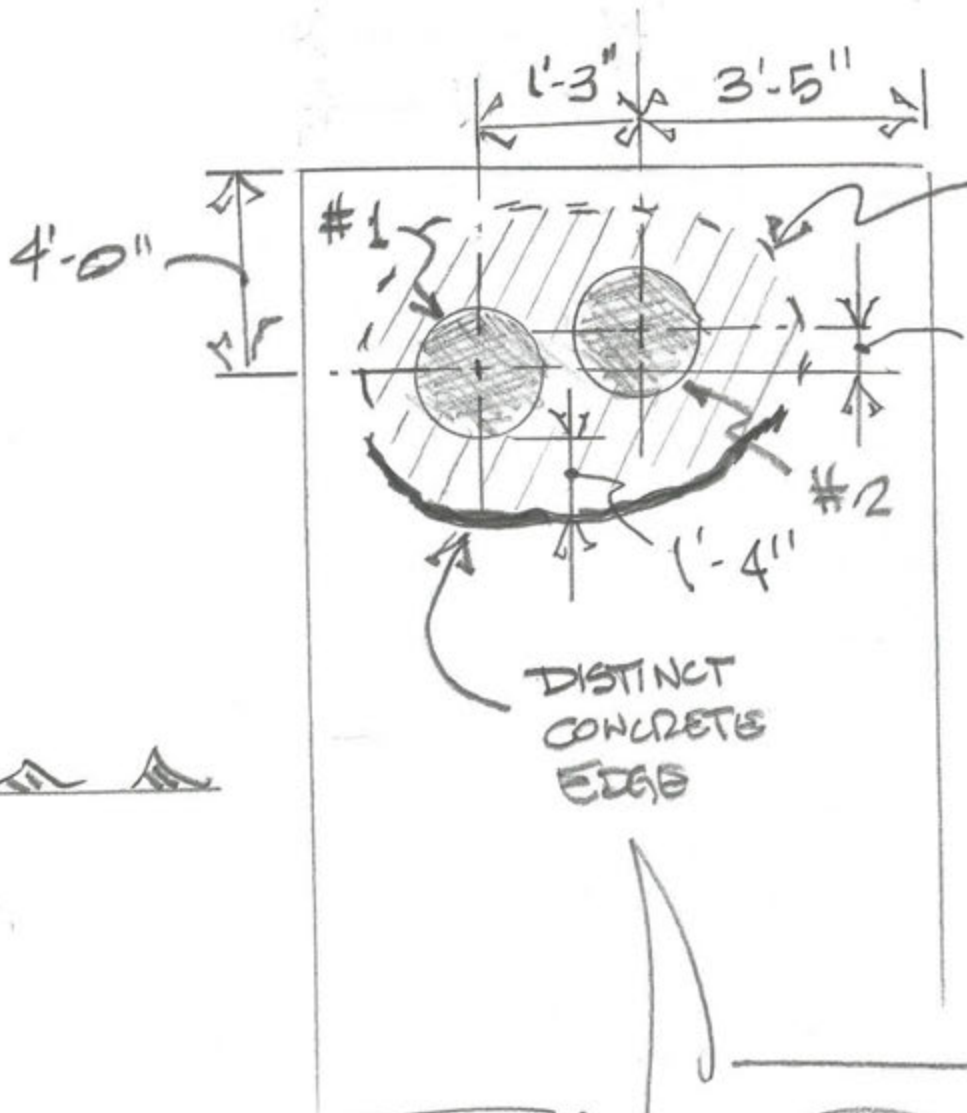
JTB # 201-033-033

11-30-18
ENK/ldg

TRENCH #18

FEATURES # 18.1 & 18.2
UTILITY POLES?

PLAN
NOT TO
SCALE



EXTENT OF
CONCRETE
SURROUNDING
UTILITY POLES
CANNOT BE
6" ASCERTAINED;
TOO MUCH DIRT
& BROKEN
CONCRETE.



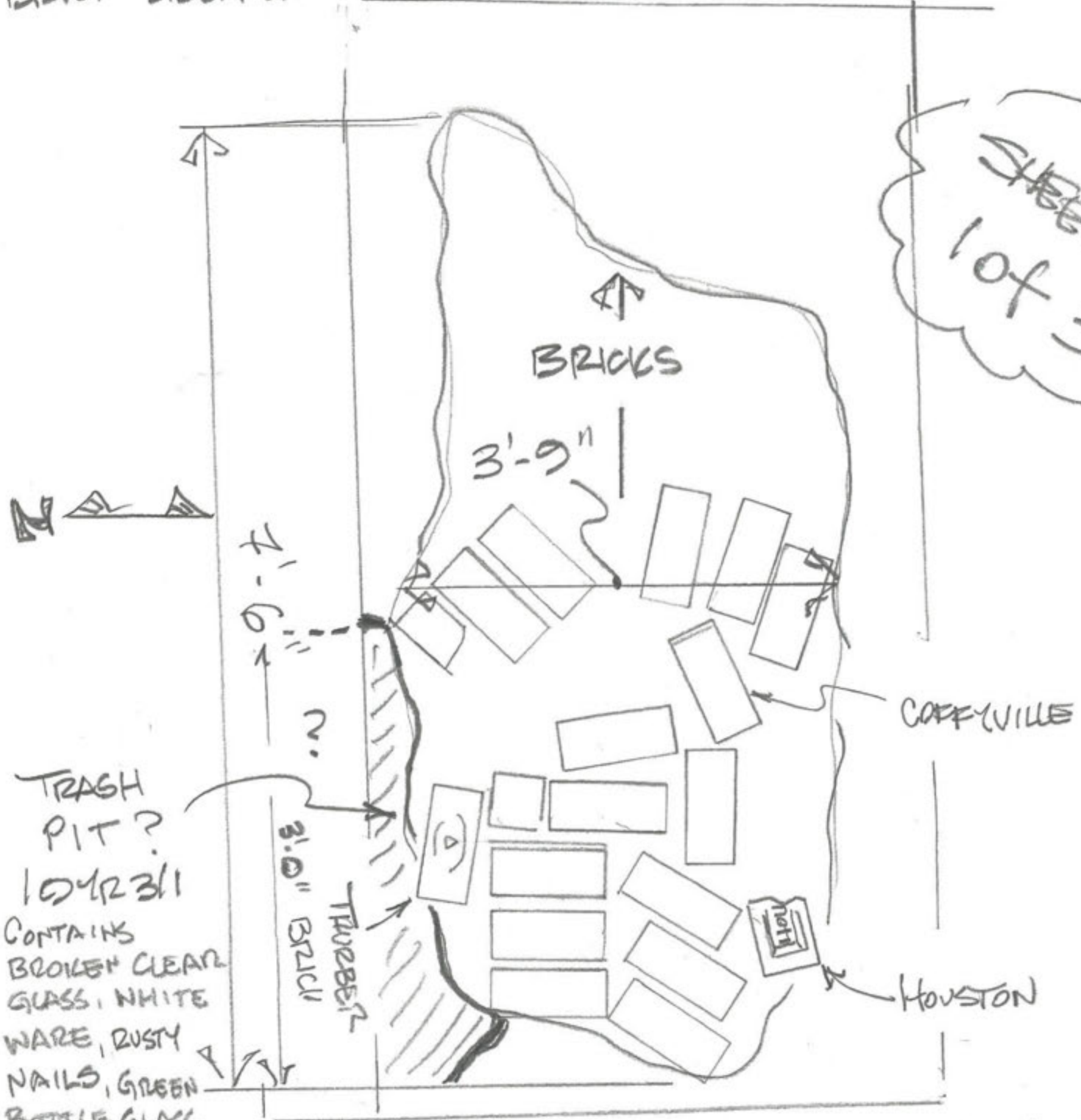
SHEET
4 of 4

ORR / MCCLAIN
JOB # 001-003-003
12-3-18 Trench

TRENCH #19

FEATURE #19.1
BRICK SIDEWALK

PLAN
NOT TO
SCALE



SHEET
1 of 3

TRASH
PIT?
104/23/1
CONTAINS
BROKEN CLEAR
GLASS, WHITE
WARE, RUSTY
NAILS, GREEN
BOTTLE GLASS
FRAGMENTS

NOTE: THERE ARE TOO MANY
BRICKS & BRICK FRAGMENTS
TO ACCURATELY DEPICT
THEM ALL VIA A PLAN
DRAWING.

COX/MC CLAIN

PROJECT # 091-003-003

12-3-18 T. Nickels

TRENCH #19

FEATURE #19.1
BRICK SIDEWALK

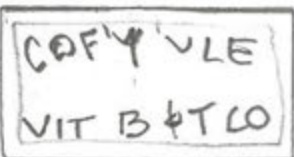
BRICK TYPES

SHEET
2 of 3

A  LUG
COFF'Y V'LE
VIT B & T CO
COFF'VILLE
VITRIFIED BRICK & TILE CO
COUNT: 5


B  THURBER
VITRIFIED
COUNT: 24 @ .5 (BROKEN IN HALF)

C  THURBER
BRICK
VITRIFIED
COUNT 1

D  COFF'Y V'LE
VIT B & T CO
NO LUGS
COUNT: 2 (BOTH BROKEN IN HALF)

E  HOU
HOUSTON
HOUSE BRICK
COUNT: .5 (BROKEN IN HALF)

F  VITRIFIED
WITH CONCAVE/
CONVEX EDGES
SEE
SHEET
3 of 3 FOR DIMENSIONS
COUNT: 12

G  FE
FERRIS
HOUSE
BRICK
COUNT: 2 (.25 @ .5)

TRENCH #19

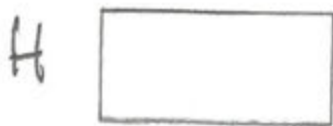
FEATURE #19.1

BRICK SIDEWALK

SHEET
3 OF 3

BRICK TYPES

2 DIFFERENT SIZES



H VITRIFIED
NO MARKERS
MARK

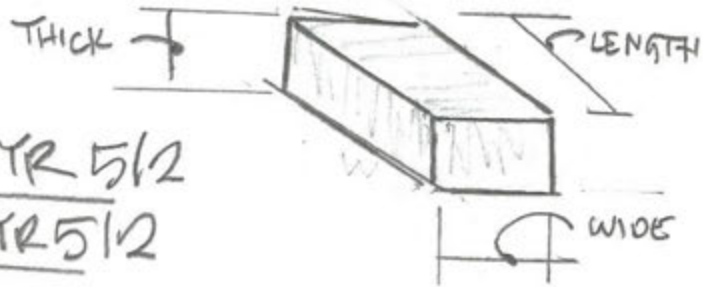
COUNT: $2 \times 2 = 4$

I PARTIAL BRICKS (.25, .5, .75)
VITRIFIED

COUNT: 20

SIZES

L, W, T



A. $8\frac{7}{8}$ ", $3\frac{3}{4}$ ", $3\frac{3}{8}$ " 7.5TR5/2

B. $7\frac{3}{4}$ ", $3\frac{3}{4}$ ", $2\frac{3}{4}$ " 2.5TR5/2

C. ?, $3\frac{3}{4}$ ", 3" 2.5TR5/2

D. $8\frac{1}{2}$ ", $3\frac{3}{4}$ ", $3\frac{3}{8}$ " 7.5TR5/2

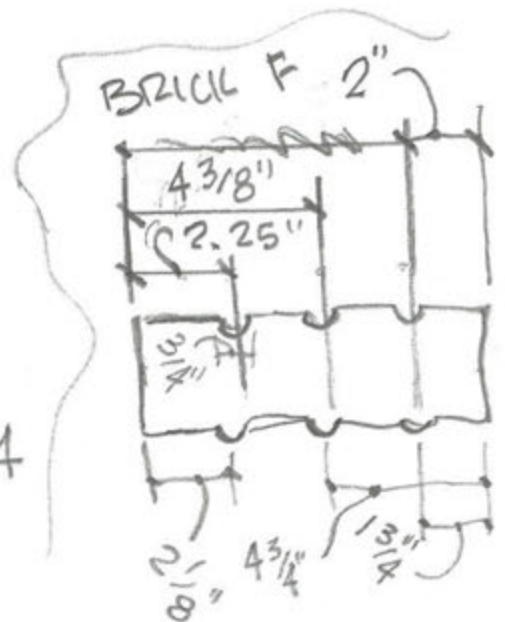
E. ?, $3\frac{3}{4}$ ", $2\frac{3}{8}$ " 2.5TR5/3

F. $8\frac{7}{8}$ ", $4\frac{1}{4}$ ", $2\frac{7}{8}$ " 7.5TR5/2

G. ?, $3\frac{3}{4}$ ", $2\frac{3}{8}$ " 2.5TR5/6

H. $8\frac{1}{2}$ ", $4\frac{1}{2}$ ", 3" (2)

$7\frac{3}{4}$ ", $3\frac{3}{4}$ ", $2\frac{3}{4}$ " (2) 2.5TR4/4



I

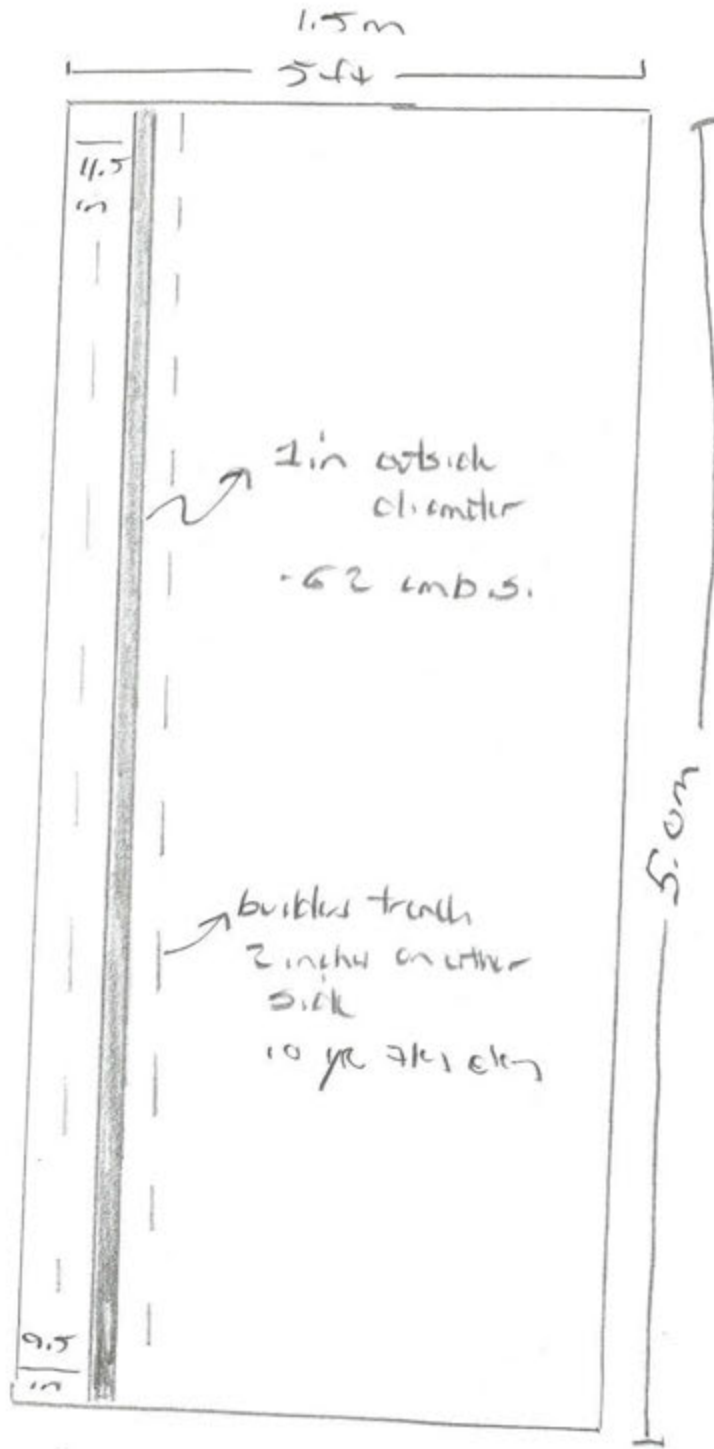
TRENCH 19
FEATURE 19.2

EAST-WEST GAS LINE

SM
12/3/18

N4HIP
0911-003-003

15 cm below
Feature 19.1



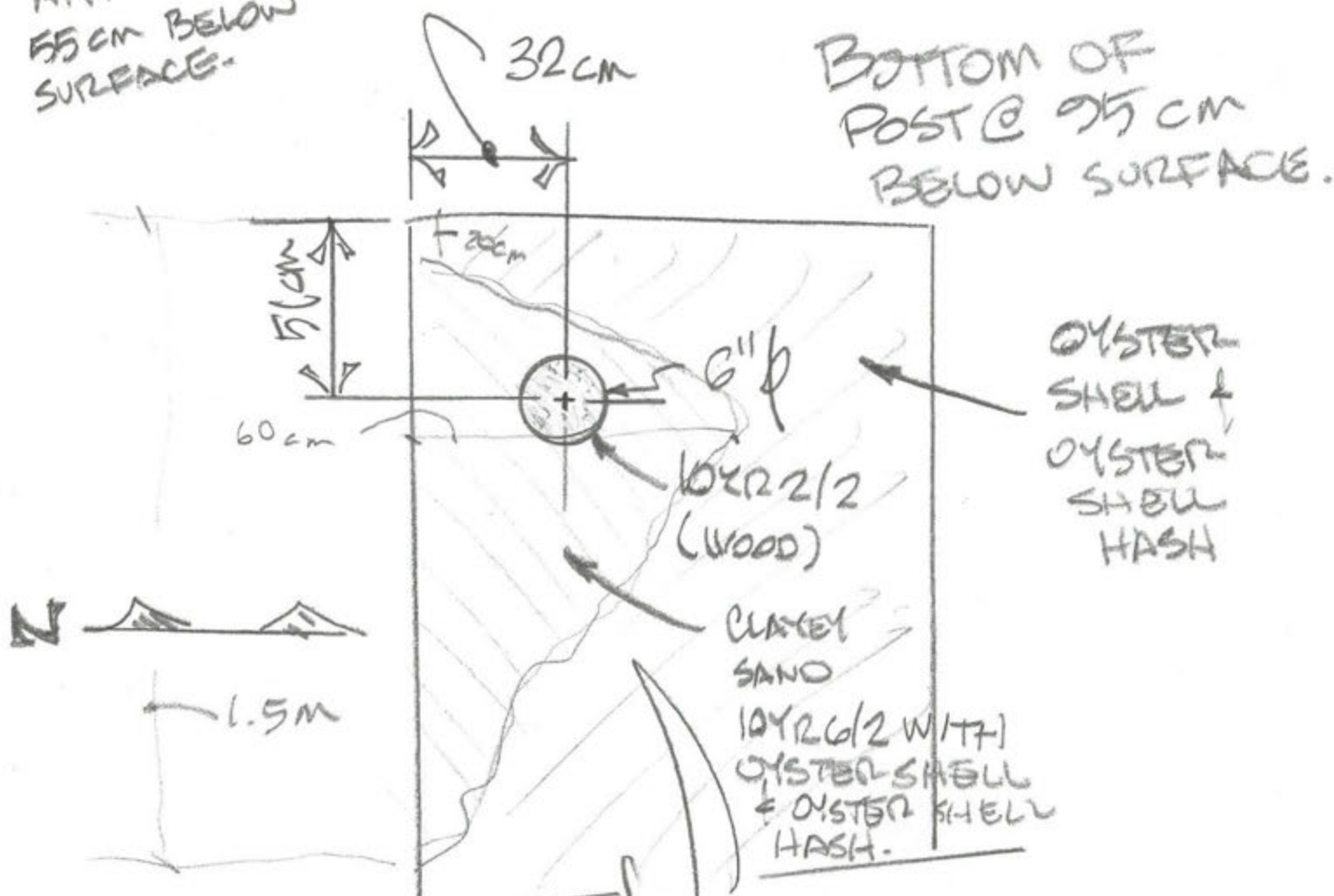
TRENCH #20

FEATURE # 20.1

WOOD POST?

ENCOUNTERED @
APPROXIMATELY
55 CM BELOW
SURFACE.

PLAN
NOT TO
SCALE



BOTTOM OF
POST @ 95 CM
BELOW SURFACE.

SHEET
1 of 2

NOTE:
THE TWO TYPES
OF SOIL MAT POSSIBLY
BE THE RESULT OF
MIXING BY THE
BACK HOE.

Cox/McClain

Job # 091-003-003

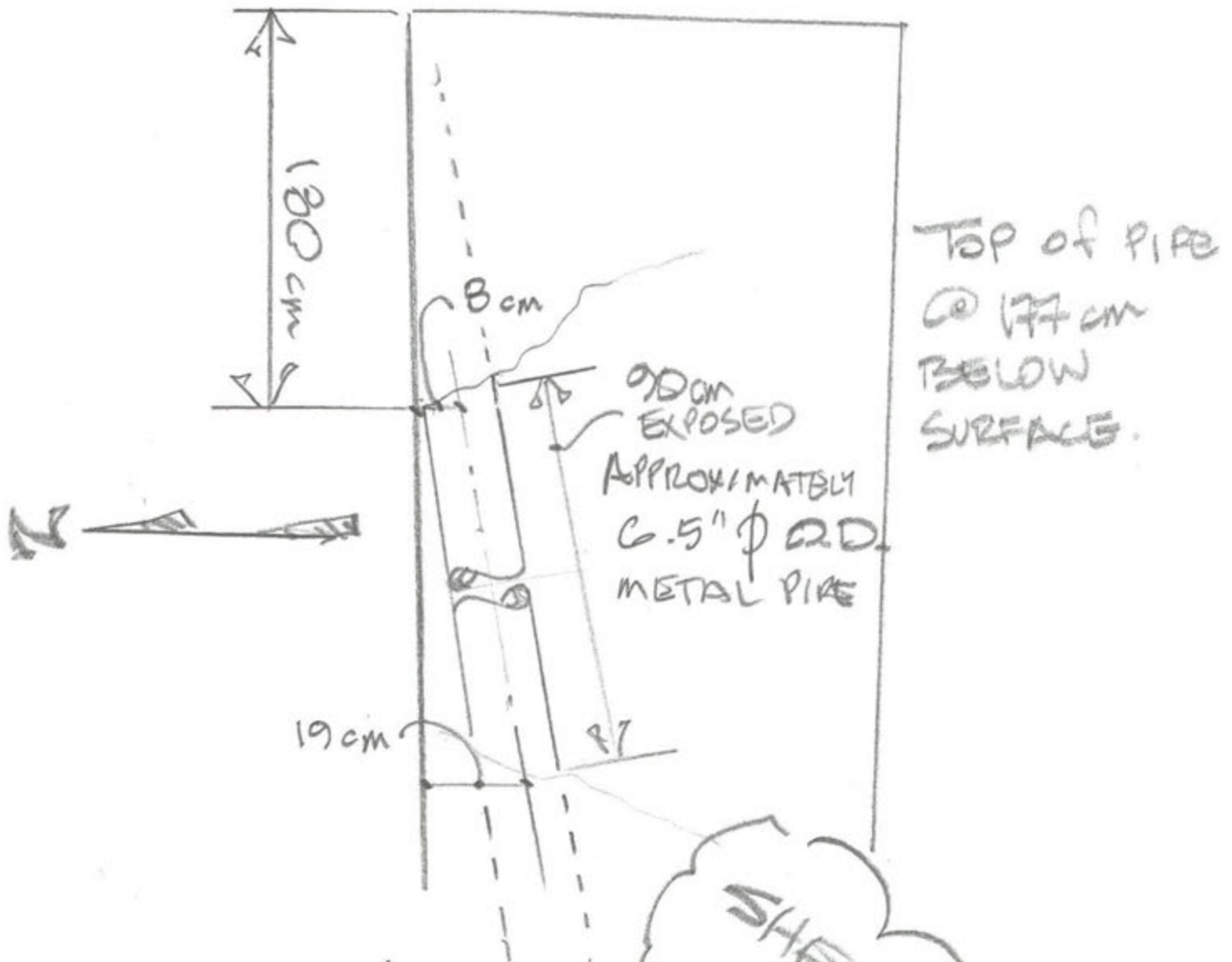
12-3-18 T. Nuckols

TRENCH #20

FEATURE #20.2

METAL PIPE

PARTIALLY EXPOSED
BY BACKHOE.



COX/MCCLEIN

JOB # 091-003-003

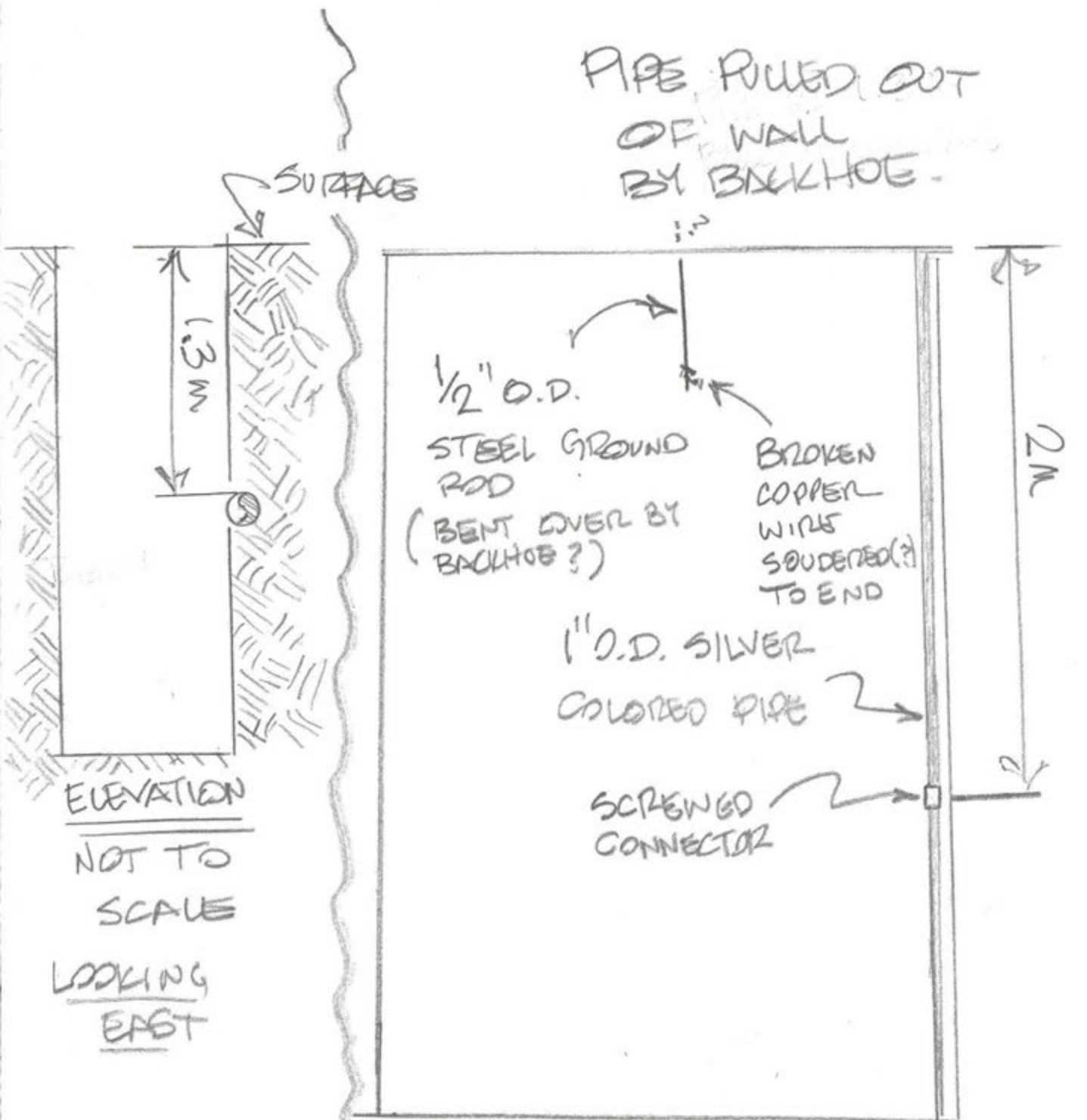
12.3.18 T. Nudala

SHEET
2 OF 2

TRENCH #24

FEATURE #24.1

1" O.D. SCREENED PIPE



COX McLEAN

JOB # 091-003-003

12.3.18 T.Nedds

PLAN

NOT TO SCALE

APPENDIX E: HEALTH AND SAFETY PLAN

SITE HEALTH AND SAFETY PLAN FOR ARCHEOLOGICAL ACTIVITIES

**North Houston Highway Improvement Project
Archeological Trenching at Sites 41HR982/41HR1037
(Schrimpf's Field/Moody Addition/Frost Town)
Houston, Texas**

Prepared for:

TxDOT Houston District



Prepared by:

Cox|McLain Environmental Consulting, Inc.

1710 S. Dairy Ashford Road

Suite 110

Houston, TX 77077

DATE: November 16, 2018

REVISION: 00

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APPENDIX F: HEALTH AND SAFETY PLAN – AFTER ACTION REPORT

NORTH HOUSTON HIGHWAY IMPROVEMENT PROJECT Health and Safety Plan After Action Report

1/7/2019

Prepared for TxDOT



COX | McLAIN
Environmental Consulting

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Project Summary

After-action report completion date: 1/7/2019

Project Description: CMEC conducted archeological survey and mechanical excavations within 1.8 acres of site 41HR982 in Harris County, Texas as part of the North Houston Highway Improvement Project. A total of 24 trenches averaging 3.0 meters in depth were excavated to identify buried cultural resources.

CSJ: 0912-00-146

Texas Archeological Permit: 8613

Fieldwork Dates: 11/26/18-12/5/18

Field Crew: Scotty Moore (Site Safety Officer; Project Archeologist)

Brett Lang (Crew Chief)

Tom Nuckols (Crew)

Francisco Ramirez (Crew – subcontractor)

Chris Dayton (Principal Investigator)

John Cho, Eduard Nguyen, Hanh Trinh (Frizell Group Security personnel)

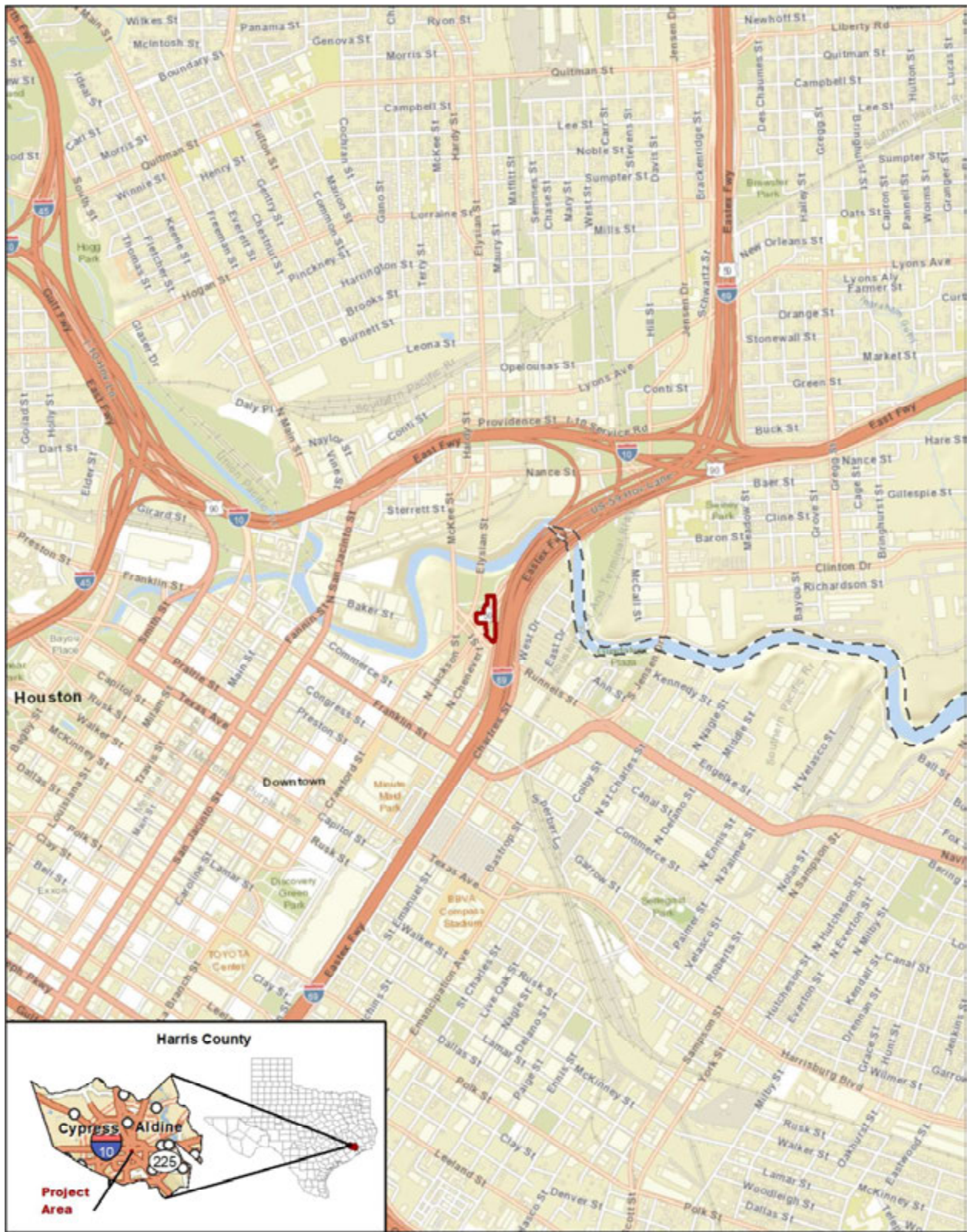



Figure 1
Project Location

North Houston Highway Improvement Project

 Project Location/APE

 0 2,000 Feet
600 Meters

Prepared for: TxDOT 1 in = 2,000 feet

Scale: 1:24,000
Date: 12/19/2018

Basemap Source: ESRI (2018)

CSJ: 0921-00-146

G:\Projects\TXDOT\Statewide_Planning\145_NHHIP\Arch_Survey_Figure 1_Project Location_20181214.mxd

HASP forms completed during fieldwork:

1. Job Hazard Analysis – reviewed by all crew and signed prior to commencement of fieldwork
2. Tailgate Safety Meeting Form – filled out daily by Site Safety Officer
3. Air quality Record form – filled out by Site Safety Officer for every open trench prior to ingress
4. Incident Report form – One form filled out on 11/28/18 by Site Safety Officer
5. Visitor Sign-In form – signed by all visitors upon arrival at the project area

Special notes:

1. On 11/28/18, the backhoe operator inadvertently disturbed a buried, unmarked electrical line that was enclosed in PVC pipe. Upon hitting the line, all work in the vicinity of the exposed line ceased and crew was directed away from the area. The Site Safety Officer contacted 8-1-1 and reported an emergency locate request. Representatives from CenterPoint Energy-Electrical, CenterPoint Energy-Gas, AT&T, and Windspear all visited the site and confirmed that the line did not belong to any of them. The line was reburied and an incident report form was filled out.

Subcontractor status:

1. JLM Backhoe – invoice paid in full 1/7/19
2. Frizell Group International – invoices submitted to Accounting on December 3, 2018 and December 10, 2018
3. United Site Services – invoice paid in full 12/5/18
4. Ajax Environmental – invoice paid in full 12/8/18

Primary Personnel Signatures:


Ashley McLain (CMEC Project Manager)

 (Signature)

Chris Dayton (CMEC Archeology Project Manager)

 (Signature)

Scotty Moore (CMEC Site Safety Officer)

 (Signature)

Morriss Barney (CMEC Office Safety Coordinator)

 (Signature)

Completed Forms

Job Hazard Analysis

Daily Tailgate Meeting Forms

Tailgate Safety Meeting Form

Project 091-003-003. North Houston Highway Improvement Project – Archeological Trenching at 41HR982/41HR1037

Date: 11/28/18 SCOTTY MOORE, BRETT LANG

Time: 1:00 pm

Field Team Leader (circle one): Scotty Moore other: _____

Topics Discussed (Refer to JHA):

- areas to avoid

- proper PPE

- read HAZOP/JHA

Tailgate Safety Meeting Form

Project 091-003-003. North Houston Highway Improvement Project – Archeological
Trenching at 41HR982/41HR1037

Date: 11/27/18 J Moore, B. Long, T. Nichols, F. Ramirez

Time: 8:00

Field Team Leader (circle one): Scotty Moore other: _____

Topics Discussed (Refer to JHA):

- avoid EC into special PPE

- wear all appropriate PPE

- watch for slip

Tailgate Safety Meeting Form

Project 091-003-003. North Houston Highway Improvement Project – Archeological Trenching at 41HR982/41HR1037

Date: 11/23/18

Time: 8:00 S. Moore, B. Long, T. Nuckid

Field Team Leader (circle one): Scotty Moore other: _____

Topics Discussed (Refer to JHA):

- wear gloves

- don't hit out. tools

- wear PPE

Tailgate Safety Meeting Form

Project 091-003-003. North Houston Highway Improvement Project – Archeological Trenching at 41HR982/41HR1037

Date: 11/25/18 J. Moore, T. Vukobratovic, B. Long, F. Roman

Time: 8:00

Field Team Leader (circle one): Scotty Moore other: _____

Topics Discussed (Refer to JHA):

- watch slip / trip / falls

- avoid EZ

- watch out for open trenches

Tailgate Safety Meeting Form

Project 091-003-003. North Houston Highway Improvement Project – Archeological Trenching at 41HR982/41HR1037

Date: 11/30

Time: 8:00 B. Long, T. Nuckols, S. Moore

Field Team Leader (circle one): Scotty Moore other: _____

Topics Discussed (Refer to JHA):

- avoid stepping on wet clay

- wash your hands

Tailgate Safety Meeting Form

Project 091-003-003. North Houston Highway Improvement Project – Archeological Trenching at 41HR982/41HR1037

Date: 12/3/18

Time: 8:00 T. Nuckels, B. Long, J. M. M.

Field Team Leader (circle one): Scotty Moore other: _____

Topics Discussed (Refer to JHA):

- watch out for open trenches

- look out for unmarked lines

Tailgate Safety Meeting Form

Project 091-003-003. North Houston Highway Improvement Project – Archeological Trenching at 41HR982/41HR1037

Date: 12/4/18

Time: 8:00 am S. Moore, T. Nuckels, B. Long

Field Team Leader (circle one): Scotty Moore other: _____

Topics Discussed (Refer to JHA):

- watch out for backhoe

- stay away from trench edges

Air Quality Record

[Visitor Sign-In](#)

Incident Report

Incident Report Form

(To be completed immediately after an injury, illness, incident, accident or significant near miss by Employee's Supervisor and Employee involved)

TO BE COMPLETED BY EMPLOYEE AND SUPERVISOR, AND SUBMITTED WITHIN 24 HOURS OF INCIDENT

Incident Category	
<input type="checkbox"/> Employee Injury/Illness <input checked="" type="checkbox"/> Near Miss/Loss <input type="checkbox"/> Property Damage <input type="checkbox"/> Vehicle Accident <input type="checkbox"/> Fire <input type="checkbox"/> Other	
1	Incident Location:
2	Site Identification/Project No.: <i>NHHP</i>
3	Site Address: <i>50 Spruce St</i>
4	Date Incident Occurred: <i>11/25/18</i>
5	Time Incident Occurred: <i>10:05 AM</i>
6	Date Incident Reported: <i>11/25/18</i>
7	Time Incident Reported: <i>10:15</i>
8	Was WorkCare Contacted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
9	Client: <i>TX DOT</i>
Employee Information	
10	Name: <i>N/A</i>
11	Office/Address:
12	Supervisor Name/Phone:
13	Employee Phone/Cell:
14	Title or Occupation:
15	Sector/Practice:
Type of Employee Injury or Illness	
16	<input type="checkbox"/> First Aid Only
17	<input type="checkbox"/> Medical Treatment Only
18	<input type="checkbox"/> Restricted Work-case
19	<input type="checkbox"/> Lost Workday
20	<input type="checkbox"/> Extended Time Away From Work (3 days or more)
21	<input type="checkbox"/> Fatality
22	<input checked="" type="checkbox"/> Other (specify): <i>exposed power line in backhoe trench</i>
23	Estimated Number of Days on Restricted Work:
24	Estimated Number of Days Away from Work:
Employee Injury or Illness Description	
25	Describe the Injury or illness: <i>exposed buried (unmarked) electrical line - no injury</i>
26	First Aid/Medical Treatment Administered: <i>N/A</i>
27	Name of Doctor's Office, Clinic, or Hospital: <i>N/A</i>
28	Address/Phone: <i>N/A</i>

Incident Report Form

(To be completed immediately after an injury, illness, incident, accident or significant near miss by Employee's Supervisor and Employee involved)

TO BE COMPLETED BY EMPLOYEE AND SUPERVISOR, AND SUBMITTED WITHIN 24 HOURS OF INCIDENT

Incident Description	
29	Equipment Involved: Volvo excavator (no damage)
30	Site Description: Recent lot work north U.S. 59 & Kendall St.
31	Task Being Performed at Time of Incident: backhoe excavation
32	Describe Incident in Detail: backhoe excavated electrical wire encased in PVC ~ 18 in below surface. This was an unmarked utility.
33	Conditions at Time of Incident (weather, lighting, etc.): clear, 50° F, daytime
34	Motor Vehicle Accident: N/A
35	Vehicle ID: N/A
36	Year/Make/Model: N/A
<input type="checkbox"/> DOT Regulated Vehicle <input type="checkbox"/> Towed From Scene <input type="checkbox"/> Airbag Deployed <input type="checkbox"/> Seatbelt in Use <input type="checkbox"/> TRC Fleet <input type="checkbox"/> Rental <input type="checkbox"/> Personal Vehicle	
37	Other Vehicle License Plate: N/A
38	Other Vehicle Year/Make/Model: N/A
39	Other Vehicle Driver Name: N/A
40	Other Vehicle Insurance: N/A
41	Other Injured Parties: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
42	Description of Other Injuries:
Subcontractor Involvement / Description of Incident	
43	Subcontractor Involved: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
44	Name of Company: JLM Backhoe
45	Address:
46	Contact Name and Phone Number: John McDonald 781-232-8846
47	Subcontractor Description of Incident:

Incident Report Form

(To be completed immediately after an injury, illness, Incident, Accident or Significant Near Miss by Employee's Supervisor and Employee involved)

TO BE COMPLETED BY EMPLOYEE AND SUPERVISOR AND SUBMITTED WITHIN 24 HOURS OF INCIDENT	Witness Involvement / Description of Incident	
	48	Witnesses to Incident: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	49	Name(s) and Address(es): <u>Scotty Moore, 1710 S. Dairy Ashford #110</u>
	50	Phone Number(s): <u>713.409.1110</u>
	51	Witness Description of Incident: <u>I saw the backhoe blade strike the power line and begin to pull it out of the ground. I ordered the operator to stop and for all crew to move away.</u>
	Personal Protective Equipment (PPE)	
	52	List PPE Required to Complete the Task (glasses, gloves, shoes, hard hat, respirator, hearing protection, etc.): <u>- closed safety utility protection, hearing protection, hard hat, steel-toe boots</u>
	53	List the PPE Employee Used at the Time of Incident: <u>all of the crew</u>
	Immediate Corrective Actions	
	54	Describe the Immediate Corrective Actions Taken: <u>- backhoe shut down - crew ordered away - 911 called for emergency locate</u>
Immediate Supervisor: <u>Scotty Moore</u> Signature: <u>[Signature]</u> Date: <u>11/30/18</u>		
Employee: _____ Signature: _____ Date: _____		

Incident Report Form

(To be completed immediately after an injury, illness, incident, accident or significant near miss by Employee's Supervisor and Employee involved)

Supervisor's Post-Incident Review and Recommendations									
Safety Violation				Yes	<input checked="" type="radio"/> No				
55	State the Company Safety Rule, OSHA Regulation, or Specific Training that was Violated:								
	N/A								
56	Describe the Training the Employee Received to Prevent this Violation:								
	N/A								
Root Cause Factors (RCF)									
#									
#1	Lack of skill or knowledge								
#2	In the past, did not follow procedures or acceptable practices, and no incident occurred (injury, product quality incident, equipment damage, regulatory assessment or production delay)								
#3	Doing the job according to procedures or acceptable practices takes more time/effort								
#4	Short-cutting procedures or acceptable practices are positively reinforced or tolerated								
#5	Lack of or inadequate operational procedures								
#6	Inadequate communication of expectations regarding procedures or acceptable practices								
#7	Inadequate tools or equipment (available, operable and safely maintained, proper task and workplace design)								
#8	External factors - <i>unmarked utility line</i>								
57	Root Cause(s)	Identified Root Cause(s):							
		#1	#2	#3	#4	#5	#6	#7	#8
A	<i>unmarked utility line</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

TO BE COMPLETED BY SUPERVISOR

Incident Report Form

(To be completed immediately after an injury, illness, Incident, Accident or Significant Near Miss by Employee's Supervisor and Employee involved)

TO BE COMPLETED BY SUPERVISOR

58 Conclusion: Why did the Incident Occur?

Because utility lines had not been adequately marked within the project area

59 Item No.	RCF No.	Recommended Corrective Action(s) How to Prevent Incident from Reoccurring	Responsible Person	Due Date	Completed (date)	Verified/Validated (date)
		call 811	J. Moran			

Supervisor: _____ Signature: _____ Date: _____

Safety Director Jetty Moran Signature: [Signature] Date: 1/24/18

February 08, 2019

Section 106 / Antiquities Code of Texas: Continuing Coordination
CSJ: 0912-00-146
Permit # 8613

RE: *Transmittal of Intensive Archeological Survey for the Proposed North Houston Highway Improvement Project, Including Portions of 41HR982 and 41HR1037, Harris County, Texas.*

Pat Mercado-Allinger
Division of Archeology, Texas Historical Commission
P.O. Box 12276
Austin, TX 78711

Dear Ms. Mercado-Allinger,

The above-referenced highway project is being considered for construction using funds from the Federal Highway Administration (FHWA). The project will also be constructed on state-owned right of way. In accordance with the terms of the Programmatic Agreement (PA) Among the Federal Highway Administration (FHWA), Texas State Historic Preservation Office, Advisory Council on Historic Preservation, and the Texas Department of Transportation (TxDOT); and the Memorandum of Understanding (MOU) Between the Texas Historical Commission and the Texas Department of Transportation, we are continuing consultation with your office regarding this undertaking.

Previously, Raba Kistner Environmental, Inc. (RKEI) completed an archeological survey of accessible portions of the APE in February 2016. That survey identified no archeological historic properties, but recommended that additional fieldwork be undertaken in several medium and high-probability areas once access was obtained. TxDOT received THC/SHPO concurrence with those findings on February 21, 2017.

TxDOT received revised schematics in 2018. These schematics contained changes to the right of way required for the project, so several of the high-probability areas identified by RKEI were found to fall outside the project's revised APE. These changes eliminated the high-probability areas identified near the Adath Israel Cemetery, the 1840 City Cemetery, and Freedmen's Town. TxDOT received THC/SHPO concurrence on May 25, 2018 for a recommendation that no further work was warranted for those previously identified high-probability parcels found to be outside the project's APE and for the low/no probability parcels identified in the 2016 RKEI survey report.

On October 19, 2018 your office issued Texas Antiquities Permit #8613 to Chris Dayton of Cox McLain Environmental Consulting, Inc. (CMEC) for the purpose of completing an archeological survey for two of the high-probability areas identified in the RKEI report. Those areas included two adjacent private property parcels along Nance Street (north of Buffalo Bayou) and within existing TxDOT right of way at the location of the historic Frost Town community, associated with trinomials 41HR982 and 41HR1037 (south of Buffalo Bayou).

TxDOT has recently completed its review of the intensive archeological survey report submitted by CMEC. TxDOT's review and the revised CMEC survey report are included with this letter for your consideration. CMEC found that the Nance Street properties did not warrant field investigations based on substantial previous disturbance related to buried utilities and commercial development.

CMEC excavated 24 machine trenches and one 50x50cm trench column within the Frost Town site boundaries. CMEC did not excavate trenches in portions of the Frost Town site due either to the nature and extent of utility impacts or to high levels of soil contamination. Within the area excavated, CMEC identified 28 subsurface features and over 1,000 artifacts. CMEC recovered 33 artifacts for further study and curation. While a number of 19th century artifacts were identified, recorded features were almost invariably associated with the later El Barrio del Alacrán period (post 1930; two features identified as utility pipes may date earlier). It is the opinion of CMEC that the substantial terrain impacts associated with construction of I-59 destroyed deposits associated with the 19th century Frost Town community falling within the proposed APE for the project. It is further the opinion of CMEC that deposits in the southern third of the survey area, which date to the post-1950 Alacrán period, exhibit a moderate degree of integrity, associate with distinct architectural and material culture styles, and thus represent data contributing to the significance of the historic community. Resulting from this assessment, CMEC has recommended that TxDOT undertake data recovery in this portion of the 41HR982. Finally, CMEC recommended that trinomial designation 41HR1037 be dropped in favor of using a single trinomial to represent the historic Frost Town / El Barrion del Alacrán community.

Upon review of the survey findings, TxDOT does not concur with most of CMEC's recommendations. The vast majority of features identified by CMEC were classified as anomalous soil stains, wooden posts and utility pole bases, highly disturbed trash pits, assorted pipe sections, and pockets of construction rubble. Only four of the identified features appear to retain enough integrity of location or workmanship to hold any research value. These include a partial brick sidewalk (post-1961), two residential house piers (post-1930s), and a walkway constructed of scavenged architectural fragments (post-1960). Each of those features, as well as the vast majority of the remaining 24 features believed to have no research potential, are associated with a small portion of the Alacrán community that remained settled for decades after US 59/IH 69 construction. While TxDOT agrees that the remnant post-1950s community is an important element of El Barrio del Alacrán's heritage, recent excavations by Prewitt and Associates, Inc. (PAI), associated with TxDOT's replacement of the Elysian Street Viaduct, have already excavated a substantial number of deposits from this period, many with greater overall integrity than those observed in the CMEC survey. Further, work by PAI includes a robust oral history component in which former Alacrán residents have provided first-hand accounts of the community through their personal experiences. Given this previous work, it is TxDOT's opinion that the archeological deposits identified by CMEC represent a redundant dataset incapable of yielding important new information. Thus, the deposits identified by CMEC do not contribute to the eligibility of site 41HR982. Finally, TxDOT agrees with the recommendation to abandon use of trinomial 41HR1037 in favor of using a single trinomial (41HR982) to represent the historic Frost Town / El Barrion del Alacrán community.

TxDOT recommends that no further work is warranted for the portion of the project reviewed under Texas Antiquities Permit #8631. This includes portions of archeological sites 41HR982 and 41HR1037, as well as the two highly disturbed parcels located on Nance Street. At this time, the State requests that the attached report be accepted in partial fulfillment of State Antiquities Permit #8631. Further, we request your explicit concurrence on the following points:

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- further field investigations are not warranted within the portion of the project's proposed APE that were reviewed under Texas Antiquities Permit #8631;
- the archeological deposits identified in CMEC excavations do not represent a contributing element to the eligibility of archeological sites 41HR982 and 41HR1037;
- the attached Archeological Intensive Survey Report, completed by CMEC on behalf of TxDOT, meets the minimum documentation and reporting requirements for allowing construction activities to proceed on the 2.3 acres surveyed;
- The remaining portions of the project's proposed APE that require further investigation and consultation are the medium probability areas defined in the RKEI report at the north end of the project, and the high probability area defined in the RKEI report at the location of Clayton Homes. Investigation and consultation for these areas shall be completed once assess is obtained; and
- Review requirements have been satisfied and construction activities may proceed in all other areas.

We look forward to receipt of your comments on the draft document so that we may complete our obligations under the Antiquities Code and the National Historic Preservation Act. If you have any questions, please contact me at (713) 802-5804.

Sincerely,



Jason W. Barrett, Ph.D.
Archeological Studies Program
Environment Affairs Division

cc w/o attachments: ECOS

Concurrence by:

For: Mark Wolfe, State Historic Preservation Officer



2/25/19
Date

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

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**DRAFT REPORT
ACCEPTABLE**
by William A. Thacker
for Mark Wolfe
Executive Director, THC
Date 2/25/19
Track# _____



Archeological Survey/Testing Report

Assessment of 2.3 Acres of High Archeological Probability, Including Portions of 41HR982 and 41HR1037, for the North Houston Highway Improvement Project, Harris County, Texas

CSJ: 0912-00-146

Principal Investigators: Chris Dayton, PhD, RPA
Scotty Moore, MA, RPA

Report Authors: Scotty Moore, MA, RPA
Melissa M. Green, MA, RPA
Brett Lang, MS, RPA
Tom Nuckols
Chris Dayton, PhD, RPA
Cox|McLain Environmental Consulting, Inc.

February 2019

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.