



Archeological Resources Background Study

SH 114 from FM 1938 to Dove Road
Tarrant County

CSJ: 0353-03-100

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.

ARCHEOLOGICAL INFORMATION FOR TxDOT-ENV COORDINATION:
State Highway 114 from Farm-to-Market Road 1938 to Dove Road
Tarrant County, Texas
CSJ: 0353-03-100

Project Description

The Fort Worth District of the Texas Department of Transportation (TxDOT) proposes to add continuous two-lane frontage roads along State Highway (SH) 114 from Farm-to-Market Road (FM) 1938 (Davis Boulevard) to Dove Road located in the City of Southlake, Town of Westlake, and Town of Trophy Club, Tarrant County, Texas, in order to increase connectivity along this travel corridor (**Figure 1**). Additionally, the proposed project includes the reversal of the existing entrance and exit ramps from the "Diamond Configuration" to a "X Configuration" to increase mobility and safety along the SH 114 mainlanes and frontage roads. Along with these improvements, U-Turn lanes will be added along SH 114 for both eastbound and westbound directions at Kirkwood Boulevard and on the west side of Dove Road.

Additional right-of-way will be needed along certain areas of the project, and it is anticipated that the needed right-of-way will be dedicated by the City of Southlake. In other areas, the project will be designed such that no additional right-of-way will be needed. In total, the proposed project is located on 113.23 acres (ac; 45.8 hectares [ha]) of existing right-of-way, 4.64 ac (1.8 ha) of proposed right-of-way, and 5.70 ac of temporary construction easements. The archeological area of potential effects (APE) is the entire 2.28-mile (mi, or 3.67-kilometer [km]) footprint, which covers a combined 123.57 ac (50.0 ha). Typical roadway construction would occur within 3 feet (ft, or 0.91 meters [m]) of the ground surface, with deeper impacts up to 30 ft (9.1 m) deep for bridge footings at Kirkwood Branch.

Highways/County/District

SH 114/Tarrant/Fort Worth

CSJ

0353-03-100

Environmental Ready-to-Let (RTL) Date

January 2022

Letter of Authority (LOA) Date

Mid November 2021

Funding

Local, State, and Federal

Consulting Parties

TxDOT, Texas Historical Commission (THC), Tarrant County Historical Commission

Project Length

Approximately 2.28 mi

Project Width

Varies between approximately 235 and 1505 ft

Project Acreage

Approximately 123.57 ac

Maximum Depth of Impacts

Typical roadway construction would occur within 3 ft of the ground surface with deeper impacts up to 30 ft deep at bridge.

Existing ROW

Approximately 113.23 ac

New ROW

Approximately 4.64 ac

Existing Easements

None known

New Temporary or Permanent Easements

Approximately 5.70 ac for temporary easement

Project-Specific Locations

None known

Background Information

The 123.57-ac (50.0-ha) APE for the project alignment ranges in elevation from 582 to 650 ft (177.4 to 198.1 m) above mean sea level. The project is situated in the Eastern Cross Timbers subregion of the Cross Timbers ecoregion of Texas, an area that was once prairie to the west and forested low mountains or hills to the east (Griffith et al. 2004). The area is located in the Post Oak Woods, Forest and Grassland Mosaic vegetation types/cover, as mapped by the Bureau of Economic Geology (2000) and derived from McMahan et al. (1984). SH 114 runs through recently developed land resulting from the rapid growth of Southlake, Trophy Club, and Westland, with only small areas of undeveloped land still observed.

Geologically, the APE is underlain by the Late Cretaceous-age Woodbine Formation (USGS 2018a). This formation is composed of various interlensing sequences of non-marine, brackish water, and marine beds of sand, clay, sandstone, and shale. According to Natural Resources Conservation Service (NRCS) data, the soils mapped within the APE are part of the Gasil-Callisburg-Birome-Aubrey Association (NRCS 2018). Gasil soils are very deep but with a shallow Ap horizon over an E horizon at 20 centimeters (8 inches [in]) below surface (cmbs), are formed in weathered loamy residuum derived from sandstone, and are found on nearly level to strongly sloping uplands. Callisburg soils are deep with a shallow A horizon over a B_{21t} horizon at 15 cmbs (6 in) that are derived from beds of clay and shale and found on uplands. Birome soils are moderately deep with a very shallow A horizon over an E horizon at 8 cmbs (3 in) that formed in iron-enriched loamy and clayey sediments and are found on low hills and ridges. Similar to Callisburg soils, the Aubrey soils are moderately deep that formed from acid clay shales and are found on gently sloping to moderately steep erosional uplands; the A horizon extends to 15 cmbs (6 in) to an underlying B_{t1} horizon (NRCS 2018).

There is a data gap between the North Central Texas Hybrid Potential Archeology Liability Map (HPALM) for the Fort Worth District (Abbott 2011) and data for the Denton District in that there is incomplete coverage data for the Denton District. However, the available HPALM data indicates that 95.4 ac, or 77.20 percent of the project APE, falls within zones (Map Units 0 and 1) that exhibit negligible or low potential for surficial or subsurface archeological deposits (**Figures 2a-2e**). Approximately 17.17 ac, or 13.89 percent of the APE, occur in Map Unit 4 where there is a moderate shallow and low deep potential for deposits. Only a small portion (9.73 ac or 0.078 percent) of the APE falls in areas where there is moderate, high shallow and moderate deep, or high potential for archeological deposits (Map Units 5, 8, and 9 respectively).

A search of the *Texas Archeological Sites Atlas* (Atlas) maintained by the THC and the Texas Archeological Research Laboratory was conducted in order to identify archeological sites, historical markers (Recorded Texas Historic Landmarks), properties or districts listed on the National Register of Historic Places, State Antiquities Landmarks, cemeteries, or other cultural resources that may have been previously recorded in or near the APE, as well as previous surveys undertaken in the area. A larger 1-km (0.62-mi) study area around the APE was also examined.

According to the Atlas search, the entire APE was surveyed prior to widening in 1991 by TxDOT (THC 2018). In addition to this survey, there are three additional surveys and two recorded archeological sites mapped in the 1-km study area. These resources and surveys are shown in **Figure 3**. The additional surveys include a survey along Kirkwood Creek northwest of the APE (no additional information available), a small areal survey conducted for the Federal Highways Administration in 1987 that crosses the APE just north of Solana Boulevard, and a large areal survey conducted along Kirkwood Creek for the United States Army Corps of Engineers in 1997, presumably in association with development on the creek and near Grapevine Lake (THC 2018). No resources were identified in or near the APE during these surveys.

Sites 41DN365 and 41TR284 are located north and east of FM 1938, respectively. Site 41DN365 was recorded in 1981 as part of the survey for the development of the Trophy Club golf course and consisted of the extinct community of Medlin. At the time of the survey, only two houses and various small sheds were standing; no recommendation assessment was recorded. Site 41TR284 was recorded

in 2014 as a low-density historic surface and subsurface scatter comprised of a single whiteware sherd, some asbestos shingles, and unidentifiable insulation. No additional work was recommended at the site.

A review of available historic aerial photos and topographic maps on Google Earth™ Pro, the United States Geological Service (USGS) Historical Topographic Maps website, and the Nationwide Environmental Title Research (NETR) website was also undertaken to determine how the proposed corridors have been utilized over time. Available aerial photographs reviewed include those from 1956, 1963, 1968, 1970, 1979, 1990, 1995, 2001, 2004 to 2005, 2007 to 2009, and 2011 to 2018. According to the earliest aerial photograph (1956), SH 114, FM 1938, and Dove Road were extant and surrounded by undeveloped and agricultural land by this time. The 1963, 1968, and 1970 imagery shows no major differences other than some minor residential development north of Dove Road and just west of SH 114. By the 1979 aerial imagery, development of Trophy Club with the golf course is underway along SH 114 near the northern terminus of the APE. By 1990, development in the southeast quadrant of FM 1938 and SH 114, including Solana Boulevard, along with some development immediately east of SH 114 in the same vicinity. Additionally, a short segment of Kirkwood Boulevard within Trophy Club (as an extension of Solana Boulevard in Southlake) is extant. There are no changes until the 2001 imagery, when the extension of Kirkwood Boulevard is under construction. In 2004, Kirkwood Boulevard is complete and some development in the northeast quadrant of Dove Road and SH 114 is evident. In the 2014 imagery, development has been initiated in the northwest quadrant of Dove Road and SH 114 along with development in the southeast quadrant of FM 1938 and SH 114 that is also shown in the 2015 imagery. By the 2018 aerial imagery, development in the southeast corner of FM 1938 and SH 114 is shown as ongoing (Google Earth™ Pro 2018; NETR 2018).

Historic topographic maps (1894, 1954, 1958, 1959, 1960, 1964, 1968, 1969, 1973, 1974, 1981, 1982, 1985, 1992, 2012, and 2016) were also examined. Dove Road and the Dallas Pacific & Southeastern Railroad, the alignment of which the current SH 114 occupies, are the only features shown on the 1894 map. By the topographic maps of the 1950s, SH 114, FM 1938, and Dove Road are extant, and the railroad alignment is no longer present. Three structures are shown on the 1959 map; this number increases to five on the 1960 map before going back to three on the 1964 map, and finally down to one by the 1968 map depiction. No changes are noted on subsequent maps until 2012 when the development of Trophy Club and the area at the southeast quadrant of the intersection of SH 114 and FM 1938 are drawn (NETR 2018; USGS 2018b).

Known and perceived disturbances in the APE include those associated with existing road construction and maintenance, recent development for industrial complexes, buried and overhead utility installation, oil and gas development, and agricultural practices. These types of impacts were observed during an initial environmental constraints study field visit.

Recommendation

Based on the available data, the archeological potential for historic and prehistoric archeology in the APE is considered extremely low. Available HPALM data indicate that approximately 77 percent of the APE occurs in areas that have a negligible or low potential for archeological deposits. The existing right-of-way of SH 114 was previously surveyed, resulting in no archeological deposits identified, and recorded disturbances from buried utilities, road maintenance, and recent development along the

existing right-of-way that have impacted any potential intact archeological deposits. Likewise, the deep impacts at the bridge over Kirkwood Branch would occur inside of the existing right-of-way where the alignment is already disturbed. Therefore, no additional archeological investigations are recommended prior to construction of these proposed improvements.

References

Abbott, J. T.

- 2011 *Geoarcheology of North-Central Texas, A Framework for Archeological Investigation, Interpretation, and Cultural Resource Management in the Fort Worth Highway District*. Texas Archeological Studies Program Report 130. Department of Transportation, Environmental Affairs Division. Austin.

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- 2000 *Vegetation/Cover Types of Texas*. Bureau of Economic Geology, The University of Texas at Austin.

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- 2018 *Texas Archeological Sites Atlas*. Texas Archeological Research Laboratory and the Texas Historical Commission. Available at <http://nueces.thc.state.tx.us>. Accessed 20 November 2018.

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2018a *Texas Geology Map Viewer*. Available at <http://txpub.usgs.gov/dss/texasgeology/>. Accessed 20 November 2018.

2018b *USGS Historical Topographical Map Explorer*. Available at <http://historicalmaps.arcgis.com/usgs/index.html>. Accessed 26 November 2018.

Attachments

Figure 1. Project Location

Figures 2a-e. HPALM Map

Figures 3. Location of Archeological APE

Appendix A. Project Area Photographs

Appendix B. Project Design Documents

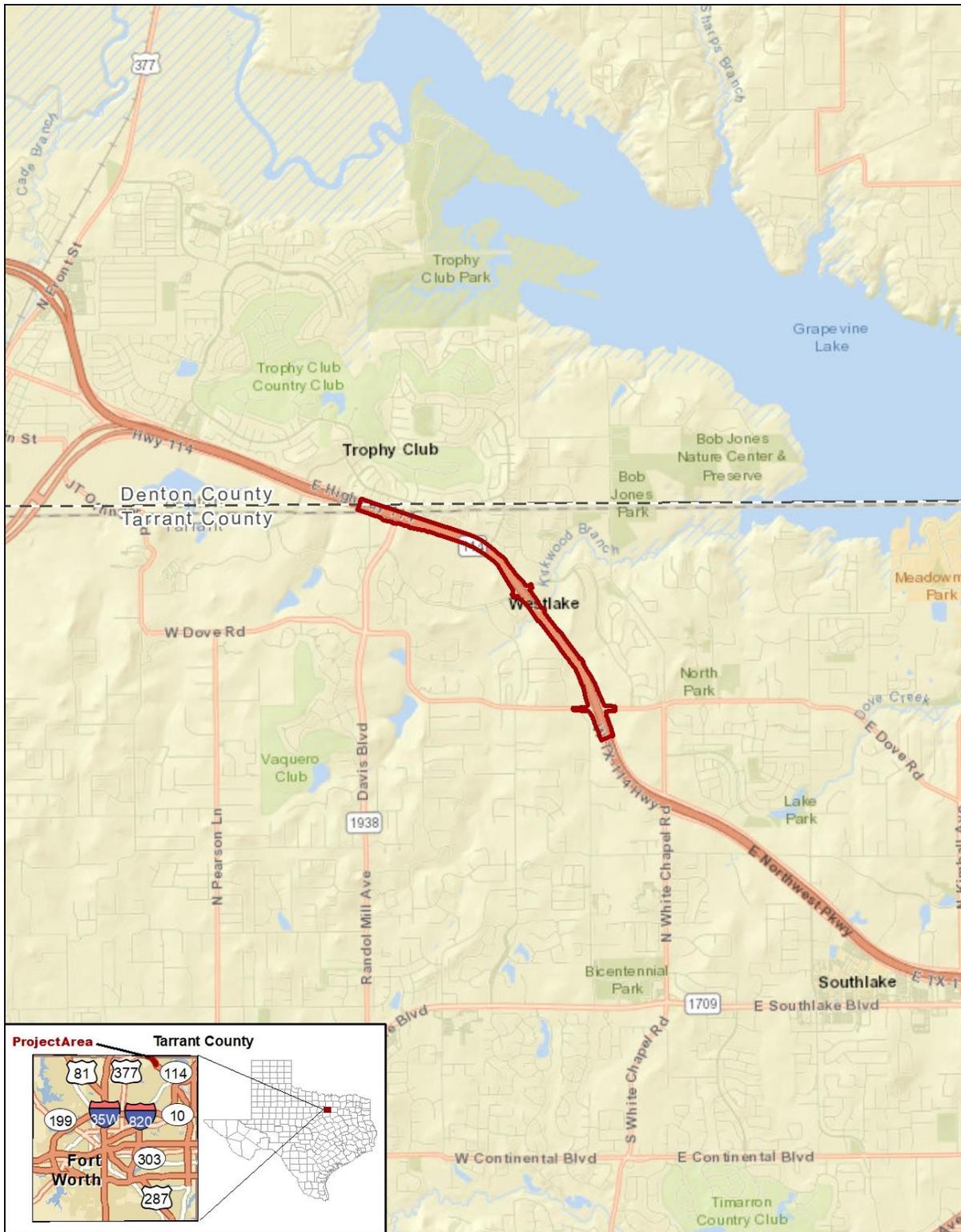


Figure 1
Project Location

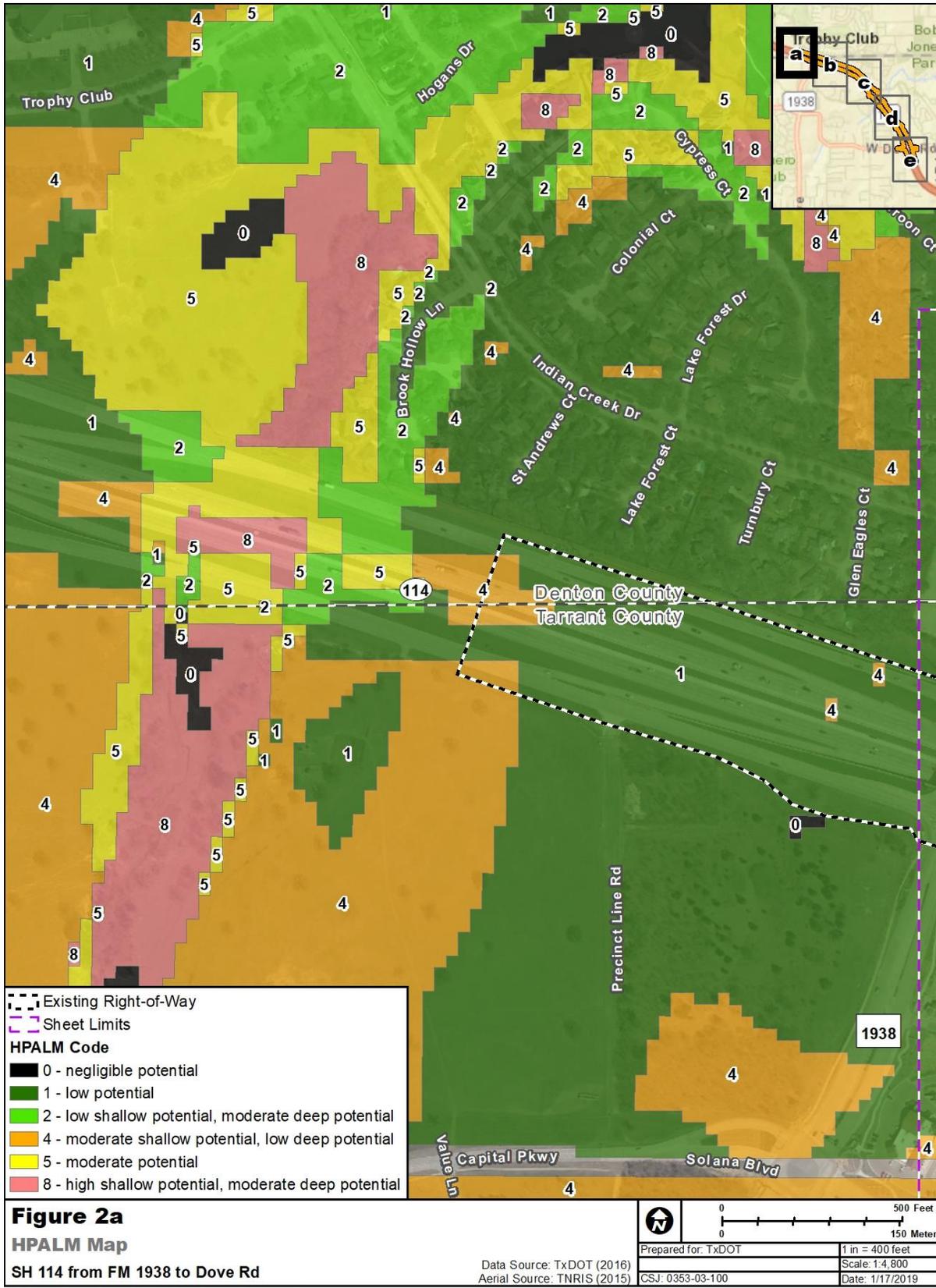
SH 114 from FM 1938 to Dove Rd

Project Location/APE

| | |
|---------------------|------------------|
| | |
| | |
| Prepared for: TxDOT | 1 in = 1 mile |
| CSJ: 0353-03-100 | Scale: 1:63,360 |
| | Date: 12/11/2018 |

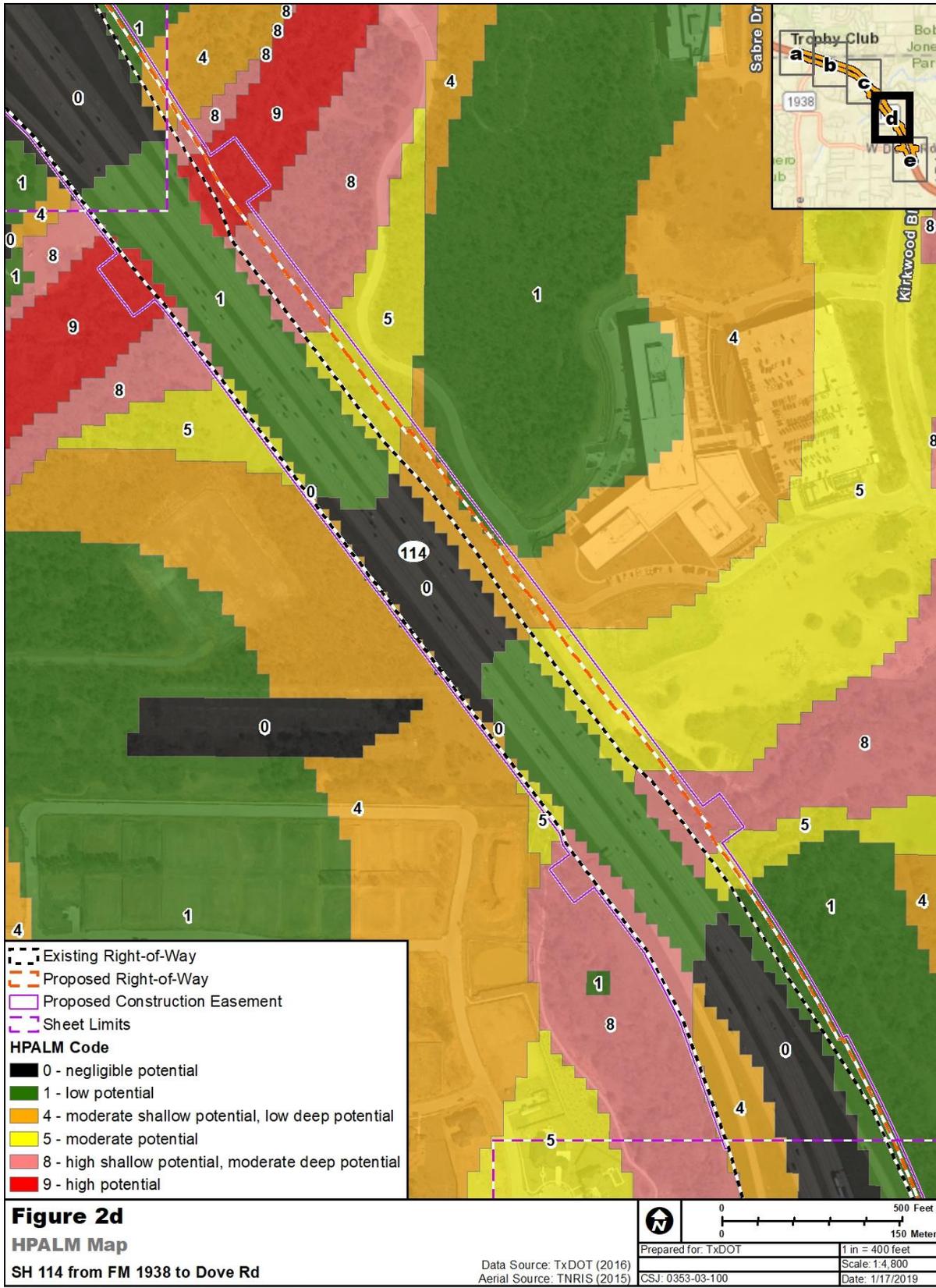
Basemap Source: ESRI (2018)

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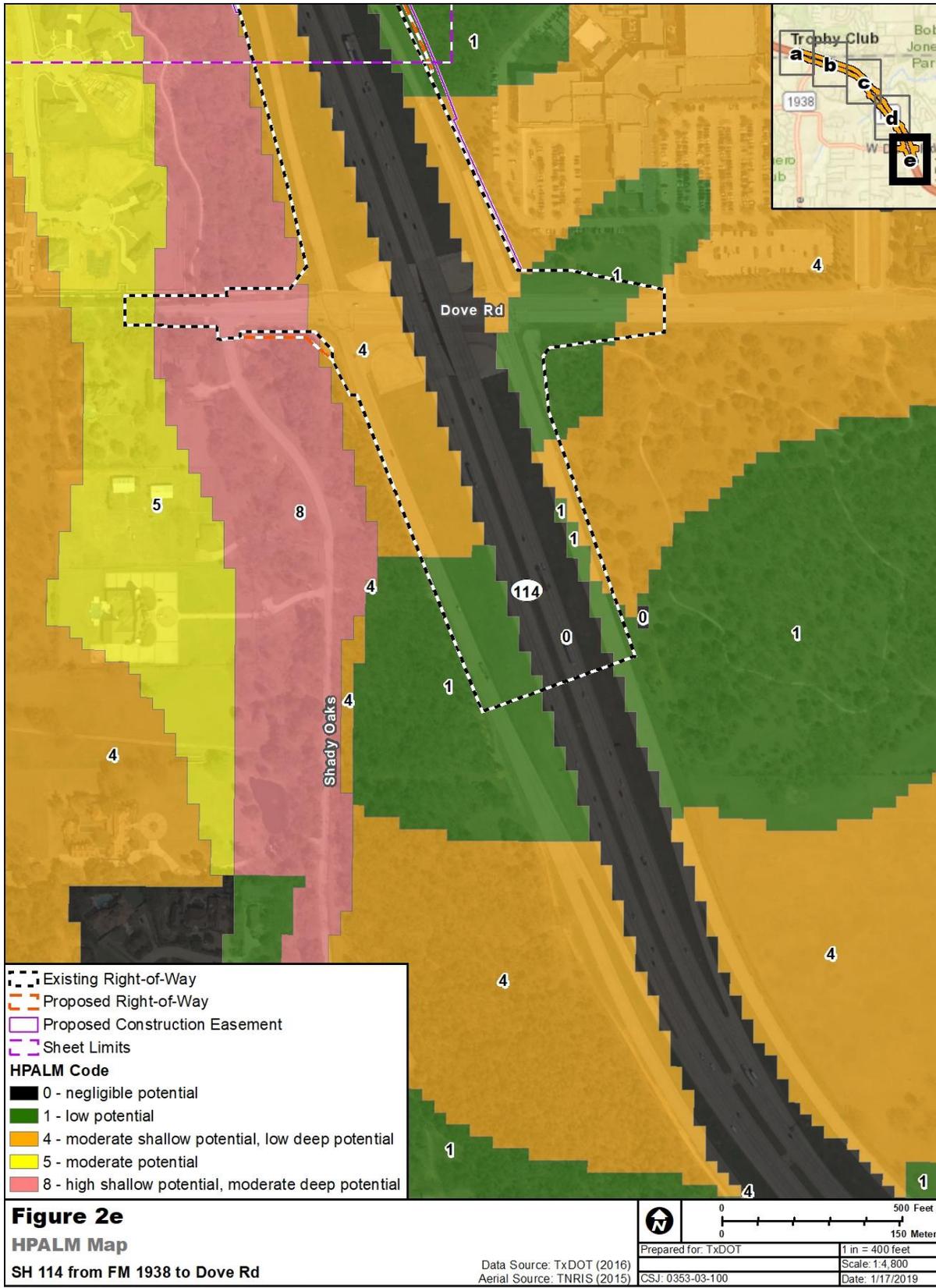








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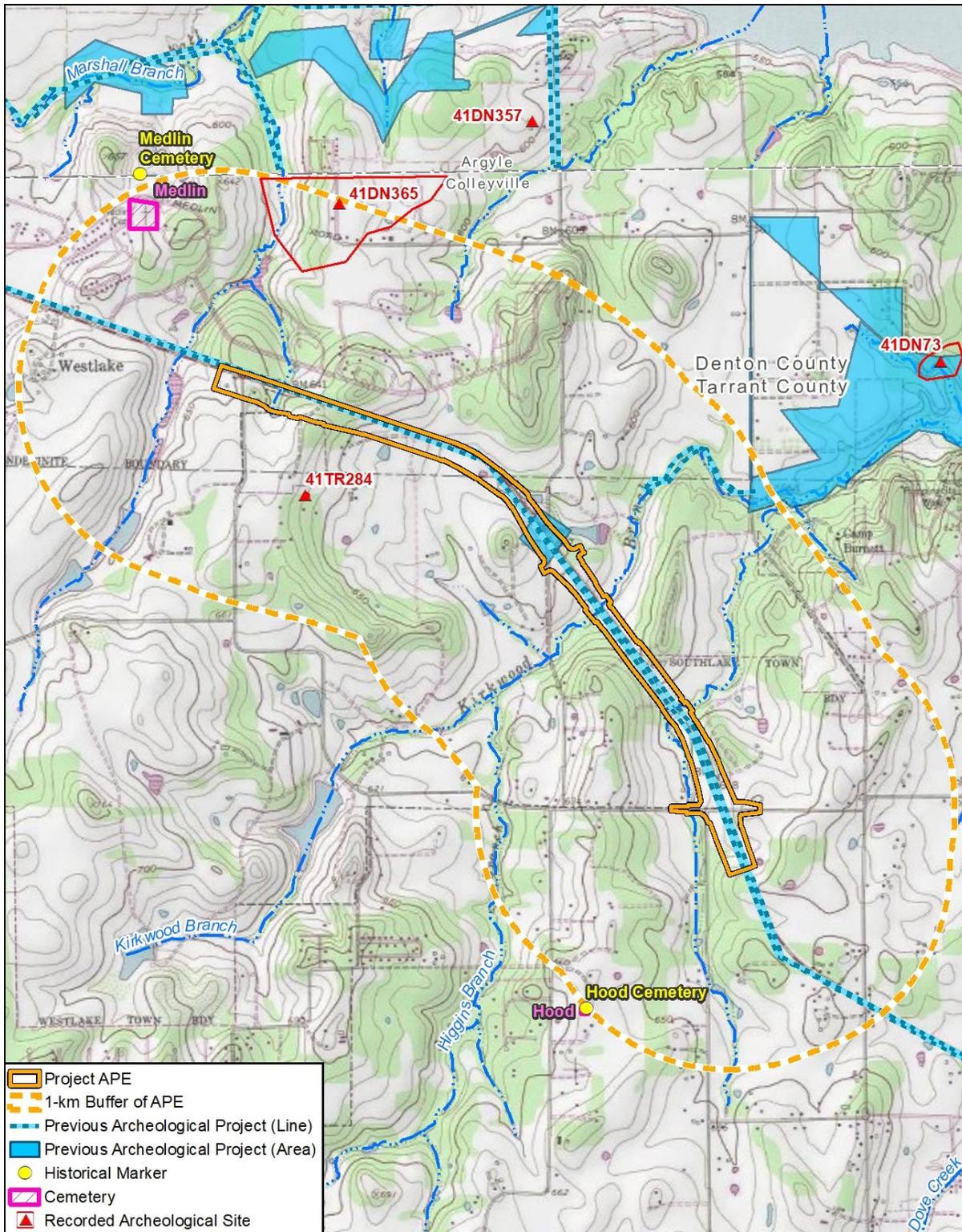


Figure 3
Location of Archeological APE
SH 114 from FM 1938 to Dove Rd

Data Sources: THC (2018), TARL (2018), NHD (2018)
 Topographic Source: USGS Argyle and Colleyville 7.5' Quadrangles (1973, 1981)

| | |
|---|-------------------|
|  | 0 2,000 Feet |
| | 0 500 Meters |
| Prepared for: TxDOT | 1 in = 2,500 feet |
| CSJ: 0353-03-100 | Scale: 1:30,000 |
| | Date: 12/14/2018 |

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Appendix A—Project Area Photographs



Photo 1. South terminus from Dove Road along the northbound access road; view northwest.



Photo 2. Intersection of Dove with SH 114 at northbound lanes; view west.



Photo 3. Looking toward unnamed creek crossing Dove Road west of SH 114; view west.



Photo 4. Downstream along unnamed creek at Dove Road; view north.



Photo 5. Culvert over unnamed creek at Dove Road; view southwest.



Photo 6. Riparian vegetation between Dove Road and Kirkwood Branch; view north.



Photo 7. Downstream of unnamed tributary to Kirkwood Branch; view east.



Photo 8. Downstream along unnamed tributary to Kirkwood Branch; view southwest.



Photo 9. Kirkwood Branch between north and southbound lanes; view southwest.



Photo 10. Upstream along Kirkwood Branch; view southwest.



Photo 11. SH 114 overpass at Kirkwood Boulevard in the City of Southlake looking toward Solana Boulevard in the Town of Westlake; view west southwest.



Photo 12. SH 114 overpass at Solana Boulevard in the Town of Westlake looking toward Kirkwood Boulevard in the City of Southlake; view east northeast.



Photo 13. Typical open undeveloped area in APE, note utilities; view northwest.



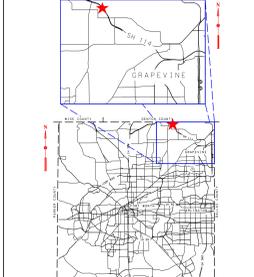
Photo 14. New construction in southwest quadrant of FM 1938 and SH 114 in the Town of Westlake; view south.



Photo 15. North terminus at FM 1938 intersection; view northwest.

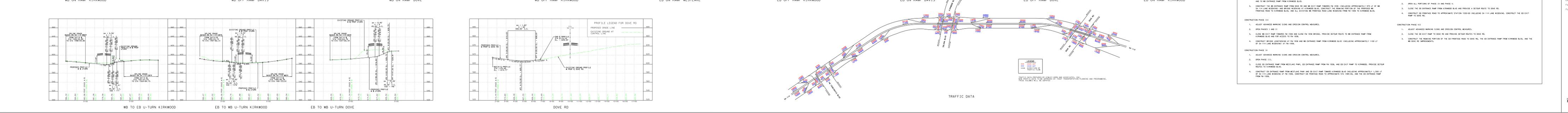
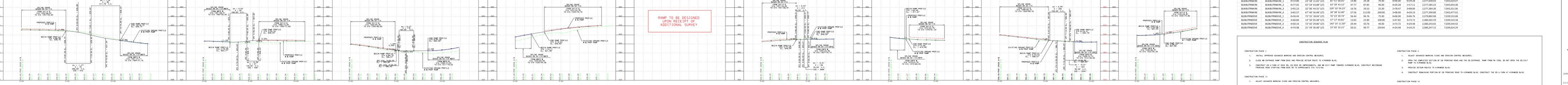
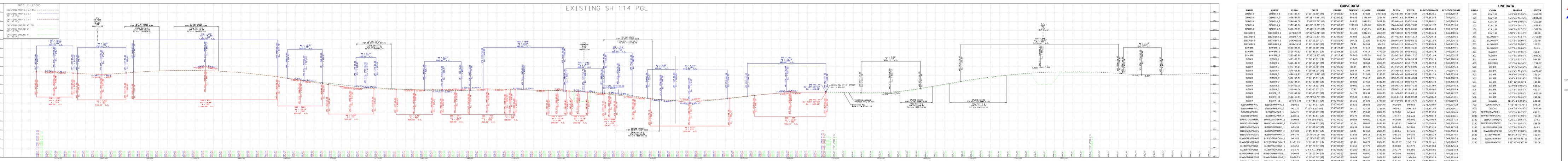
Appendix B – Project Design Documents

SH 114
 FROM FM 1938 (DAVIS BLVD)
 TO DOVE ROAD
 PROJECT LENGTH = 2.00 MILES
 ROADWAY = 2.00 MILES
 TARRANT COUNTY
 CONSTRUCTION OF EB FRONTAGE ROAD FROM FM 1938 TO SOLAIA/KIRKWOOD
 AND WB AND SB FRONTAGE ROADS FROM SOLAIA/KIRKWOOD
 TO DOVE
 CONSISTING OF: GRADING, PAVING, BRIDGE STRUCTURES, SIGNING AND
 PARKING MARKINGS AND ITS

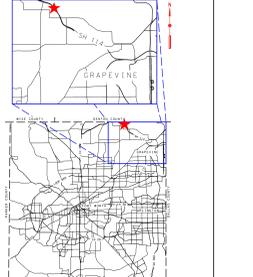


FUNCTIONAL CLASS
 SH 114 MAINLINE AND FRONTAGE ROADS
 SOLAIA/KIRKWOOD BLVD MAJOR COLLECTOR
 DOVE ROAD MINOR COLLECTOR
 DESIGN SPEED
 SH 114 MAINLINE: 50 MPH
 FRONTAGE ROADS: 45 MPH
 RAMP: 55 MPH
 FM 1938 (DAVIS BLVD) 45 MPH
 SOLAIA/KIRKWOOD BLVD: 35 MPH
 DOVE ROAD: 35 MPH

PLAN LEGEND
 WIDENING ALONG MAJOR LINES
 BRIDGE
 FRONTAGE ROAD
 RAMP
 U-TURN
 SOLE AND SHOULDER
 LOCAL ROAD IMPROVEMENT
 EXISTING PAVEMENT
 EXISTING BRIDGE
 FUTURE MAINLINE
 FUTURE SHOULDER
 FUTURE BRIDGE
 SHEET INDEX
 ROLL 11 PLAN - SH 114 MAINLINE AND FRONTAGE ROADS
 PROFILE - SB 114 WESTBOUND FRONTAGE ROAD (WBSP)
 PROFILE - SB 114 WESTBOUND FRONTAGE ROAD (WBSP)
 ROLL 21 PROFILE - SH 114 MAINLINE
 PROFILE - RAMP AND U-TURN
 ALIGNMENT GEOMETRIC DATA
 TRAFFIC DATA
 CONSTRUCTION PHASING
 NOT FOR CONSTRUCTION
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 TEXAS NUMBER 67832 DATED JULY 16, 2018
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 BIDDING OR PERMIT PURPOSES
 HORIZONTAL GRAPHIC SCALE
 VERTICAL GRAPHIC SCALE
 AERIAL IMAGE DATE: OCTOBER 2017



SH 114
 FROM FM 1938 (DAVIS BLVD)
 TO DOVE ROAD
 PROJECT LENGTH = 2.00 MILES
 ROADWAY = 2.00 MILES
 TARRANT COUNTY
 CONSTRUCTION OF EB FRONTAGE ROAD FROM FM 1938 TO SOLAIA/KIRKWOOD
 AND WB AND SB FRONTAGE ROADS FROM SOLAIA/KIRKWOOD
 TO DOVE
 CONSISTING OF: GRADING, PAVING, BRIDGE STRUCTURES, SIGNING AND
 PARKING MARKINGS AND ITS



FUNCTIONAL CLASS
 SH 114 MAINLINE AND FRONTAGE ROADS
 SOLAIA/KIRKWOOD BLVD MAJOR COLLECTOR
 DOVE ROAD MINOR COLLECTOR
 DESIGN SPEED
 SH 114 MAINLINE: 50 MPH
 FRONTAGE ROADS: 45 MPH
 RAMP: 55 MPH
 FM 1938 (DAVIS BLVD) 45 MPH
 SOLAIA/KIRKWOOD BLVD: 35 MPH
 DOVE ROAD: 35 MPH

PLAN LEGEND
 WIDENING ALONG MAJOR LINES
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