

# ANTIQUITIES PERMIT APPLICATION FORM

## ARCHEOLOGY

### GENERAL INFORMATION

#### I. PROPERTY TYPE AND LOCATION

Project Name (and/or Site Trinomial) Intensive Archeological Survey for Bagdad Road/County Road 279  
Improvements  
County (ies) Williamson County  
USGS Quadrangle Name Liberty Hill, Nameless  
UTM Coordinates (approximate) Zone 14 E 605103-603563 N 3388328-3392467  
Location Along Bagdad Road from Spivey Road to near Aynsworth Street in southwestern Williamson County  
Federal Involvement ☒ Yes ☐ No  
Name of Federal Agency TBD  
Agency Representatives \_\_\_\_\_

#### II. OWNER (OR CONTROLLING AGENCY)

Owner Williamson County  
Representative Bill Gravell, Jr., County Judge  
Address 710 South Main Street, Suite 101  
City/State/Zip Georgetown, Texas, 78626  
Telephone (include area code) 512-943-1550 Email Address \_\_\_\_\_

#### III. PROJECT SPONSOR (IF DIFFERENT FROM OWNER)

Sponsor \_\_\_\_\_  
Representative \_\_\_\_\_  
Address \_\_\_\_\_  
City/State/Zip \_\_\_\_\_  
Telephone (include area code) \_\_\_\_\_ Email Address \_\_\_\_\_

### PROJECT INFORMATION

#### I. PRINCIPAL INVESTIGATOR (ARCHEOLOGIST)

Name David Sandrock, MA, RPA  
Affiliation Cox|McLain Environmental Consulting, Inc.  
Address 8401 Shoal Creek Boulevard, Suite 100  
City/State/Zip Austin, Texas 78757  
Telephone (include area code) (512) 338-2223 Email Address davids@coxmcclain.com

(OVER)

## ANTIQUITIES PERMIT APPLICATION FORM (CONTINUED)

### II. PROJECT DESCRIPTION


Proposed Starting Date of Fieldwork August 18, 2021  
Requested Permit Duration 5 Years 0 Months (1 year minimum)  
Scope of Work (Provided an Outline of Proposed Work) survey with shovel testing and backhoe trenching (see attached research design)

### III. CURATION & REPORT

Temporary Curatorial or Laboratory Facility Cox|McLain Environmental Consulting, Inc.  
Permanent Curatorial Facility Center for Archeological Studies (CAS) at Texas State University

### IV. OWNER'S CERTIFICATION

I, Judge Bill Gravell, Jr., as legal representative of the Owner, Williamson County, do certify that I have reviewed the plans and research design, and that no investigations will be performed prior to the issuance of a permit by the Texas Historical Commission. Furthermore, I understand that the Owner, Co-owner, and Principal Investigator are responsible for completing the terms of this permit.

Signature  Date Aug 18, 2021  
Bill Gravell (Aug 18, 2021 08:13 CDT)

### V. SPONSOR'S CERTIFICATION

I, \_\_\_\_\_, as legal representative of the Sponsor, \_\_\_\_\_, do certify that I have reviewed the plans and research design, and that no investigations will be performed prior to the issuance of a permit by the Texas Historical Commission. Furthermore, I understand that the Owner, Sponsor, and Principal Investigator are responsible for completing the terms of the permit.

Signature \_\_\_\_\_ Date \_\_\_\_\_

### VI. INVESTIGATOR'S CERTIFICATION

I, David Sandrock, as Principal Investigator employed by Cox|McLain Environmental Consulting, Inc. (Investigative Firm), do certify that I will execute this project according to the submitted plans and research design, and will not conduct any work prior to the issuance of a permit by the Texas Historical Commission. Furthermore, I understand that the Principal Investigator (and the Investigative Firm), as well as the Owner and Sponsor, are responsible for completing the terms of this permit.

Signature  Date August 5, 2021

Principal Investigator must attach a research design, a copy of the USGS quadrangle showing project boundaries, and any additional pertinent information. Curriculum vitae must be on file with the Division of Antiquities Protection.

### FOR OFFICIAL USE ONLY

Reviewer \_\_\_\_\_ Date Permit Issues \_\_\_\_\_  
Permit Number \_\_\_\_\_ Permit Expiration Date \_\_\_\_\_  
Type of Permit \_\_\_\_\_ Date Received for Data Entry \_\_\_\_\_

Texas Historical Commission  
Archeology Division  
P.O. Box 12276, Austin, TX 78711-2276  
Phone 512/463-6096  
www.thc.state.tx.us



**TEXAS  
HISTORICAL  
COMMISSION**

*The State Agency for Historic Preservation*

**ARCHEOLOGICAL INTENSIVE SURVEY SCOPE**  
**Bagdad Road/County Road 279 Improvements, Williamson County, Texas**

**Project Description**

The purpose of the investigation described in this document is to identify cultural resources within the footprint of Williamson County's proposed Bagdad Road/County Road (CR) 279 Improvements project, which is located in southwestern Williamson County, Texas (**Figures 1, 2, and 3**). Williamson County is proposing roadway improvements along Bagdad Road/CR 279 from Spivey Road to approximately 244 meters (800 feet) southeast of the intersection of Bagdad Road and Aynsworth Street. These improvements include bridge replacement and realignment, as well as improvements to intersecting streets along the APE. The overall project footprint extends over a linear distance of approximately 4.48 kilometers (2.78 miles) and covers a total of 67.23 acres. The majority of this project footprint is located within areas that have been disturbed by previous roadway construction, nearby development, or utility installations.

The project is locally funded and no federal permitting requirements have been identified; therefore, the applicable regulatory framework for this project is the Antiquities Code of Texas. However, in order to take a conservative approach, the evaluation presented in this letter is intended to comply with Section 106 of the National Historic Preservation Act (NHPA), as well as the Antiquities Code of Texas, in the event that a federal nexus develops.

The area of potential effects (APE) for archeological resources consists of the entire 67.23-acre project footprint. The vast majority of this project footprint is located within areas that have been previously disturbed, but the project includes 31.83 acres of proposed right-of-way. The anticipated depth of impacts will generally be less than 1 meter (3.24 feet) below ground surface, but limited portions of the APE may see deeper impacts, including those associated with bridge footings.

**Background Information**

The APE is located near the intergrade of the Blackland Prairie and Edwards Plateau Natural Regions (Gould et al. 1960). The Blackland Prairie region extends from the Red River in northeast Texas to Bexar County in south-central Texas. The region is characterized by scattered deciduous trees, including honey mesquite, and dominant grasses such as little bluestem, switchgrass, big bluestem, and eastern gamagrass. The Edwards Plateau region is located in the Texas Hill Country in west-central Texas, and is characterized by dense Ashe juniper trees, oaks, and grasses, situated on a largely dissected limestone plateau that is hillier to the south and east (Griffith et al. 2004; Texas Parks and Wildlife Department [TPWD] 2011).

The APE is situated at elevations of approximately 280 to 314 meters (600 to 627 feet) above mean sea level in an upland, sparsely developed rural residential area between Leander and Liberty Hill. The APE intersects Lower South Fork San Gabriel River near the central portion of the alignment and Jinks Branch near the southern portion of the alignment; neither of these drainages are associated with deep Holocene-age deposits. Surface geology consists of Early Cretaceous-age Glen Rose limestone with limited areas of Walnut Clay (United States Geological Survey [USGS] 2021a; **Figure 4**). According to Natural Resources Conservation Service (NRCS) data, soils are mapped as Eckrant cobbly clay on 1 to 8 percent slopes, Fairlie clay on 1 to 2 percent slopes, moist Doss silty clay on 1 to 5 percent slopes, Denton silty clay on 3 to 5 percent slopes, Sunev silty clay loam on 1 to 3 percent slopes, frequently flooded and channelized Oakalla soils on 0 to 1 percent slopes, Brackett-Rock outcrop-Real complex on 8 to 30 percent soils, Eckrant stony clay on 0 to 3 percent slopes, and Brackett gravelly clay loam on 3 to 12 percent slopes (Soil Survey Staff 2021; see **Figure 4**). Of these soils, only the Oakalla series soils feature A horizons that extend more than 30 centimeters (1 foot) below surface, and none of these soils are likely to contain buried A horizons or paleosols more than 1 meter (3.24 feet) below ground surface.

A search of the Texas Archeological Sites Atlas (Atlas) maintained by the Texas Historical Commission (THC) and the Texas Archeological Research Laboratory (TARL) was conducted in order to identify archeological sites, historical markers (Recorded Texas Historic Landmarks or RTHLs), properties or districts listed on the National Register of Historic Places (NRHP), State Antiquities Landmarks (SALs), cemeteries, or other cultural resources that may have been previously recorded in or near the project area (THC 2021).

According to previous survey coverage data available in the Atlas, a portion of the southern end of the APE was subjected to previous archeological study during a 2017 survey conducted along Bagdad Road by SWCA for Williamson County. Previous archeological projects mapped within the 1-kilometer (0.62-mile) study area around the APE include:

- A 2002 linear survey along Stubblefield Lane, conducted by Cedar Valley Environmental Services, located west of the APE;
- A 2008 testing project conducted near the Whitehead Cemetery by Mercyhurst Archaeological Institute, located east of the APE;
- A 2013 areal project conducted by ARCADIS for AmeriSphere Multifamily Finance, LLC, located northeast of the APE;
- A 2017 areal survey conducted by ACI Consulting for Williamson County, located west of the APE (THC 2021).

According to Atlas data, no previously recorded archeological resources of any kind are mapped within or adjacent to the APE. All previously recorded resources mapped within the 1-kilometer study area around the APE are listed below in **Table 1** (THC 2021). No known sites or NRHP-/SAL-eligible resources will be impacted directly or indirectly by the proposed project.

No known archeological sites are located within or adjacent to the APE, but six archeological sites, three historical markers, and two cemeteries are mapped within the surrounding 1-kilometer study area. All resources mapped within 1 kilometer of the study area are listed below in **Table 1**. It is unlikely that any previously recorded cultural resources of any kind will be impacted directly or indirectly by the proposed project.

<b>Table 1. Previously Recorded Archeological Resources Within 1-Kilometer Study Area</b>			
<b>Name/Trinomial</b>	<b>Description</b>	<b>Location</b>	<b>NRHP/SAL Eligibility</b>
41WM142	Prehistoric-age burned rock midden containing lithic debitage, burned rock, and multiple diagnostic tools.	500 meters northeast of APE	NRHP-eligible, listed as a SAL
41WM1088	Multicomponent site containing prehistoric-age burned rock midden containing chert flakes and projectile points and historic-age ranch house.	750 meters east of APE	NRHP-eligible, listed as a SAL
41WM1090	Prehistoric-age burned rock midden containing lithic debitage, burned rock, and chert tools; associated with 41WM142.	480 meters northeast of APE	Undetermined
41WM1153	Prehistoric-age burned rock midden and buried, intact rock earth oven containing lithic debitage and burned rock.	650 meters east of APE	Undetermined, likely destroyed
41WM1356	Historic-age farmstead remains containing a possible well or burn pit, chimney remains, concrete slab, and scattered historic artifacts.	750 meters west of APE	Undetermined
41WM1357	Historic-age rock walls constructed for farming and ranching.	880 meters west of APE	Undetermined
Liberty Hill Masonic Hall	Historical marker for a historic-age meeting hall.	600 meters north of APE	Undetermined

Liberty Hill Methodist Church	Historical marker for a historic-age church.	580 meters north of APE	Undetermined
Stubblefield Building	Historical marker for a historic-age commercial building.	610 meters north of APE	Undetermined
Smith Family Cemetery	Cemetery with 10 interments dating from 1850 to 1896.	999 meters north of APE	Undetermined
Whitehead Cemetery	Cemetery with 41 interments dating from 1877 to 2015.	700 meters east of APE	Undetermined
Source: THC 2021			

Historic topographic maps and aerial imagery were also reviewed to examine how the project locale and surrounding area have been used over time. Reviewed materials include historic topographic maps from the years 1893, 1954, 1962, 1974, 1979, 1985, and 1986 and aerial imagery from the years 1962, 1964, 1966, 1981, 1985, 1995, 2004, 2008, 2010, 2014, 2016, and 2019 (National Environmental Title Research [NETR] 2021; USGS 2021b).

The earliest available topographic map for this area dates to 1893 and shows a single north-south roadway near (but potentially just west of) the current Bagdad Road alignment, as well as a railway east of the APE. The 1954 Austin map (1:250,000 scale) shows a similar roadway near the current APE, but this map is presented at too coarse of a scale to glean relevant information about development within the APE. The 1962 Liberty Hill and Leander maps (1:24,000 scale) show Bagdad Road largely in its current alignment, but no other forms of development are shown within or adjacent to the APE. The 1974 Austin map (1:250,000 scale) is presented at too coarse of a scale to glean relevant information about development within the APE. Subsequent maps from 1979, 1984, and 1987 all show a continued increase in residential development east of the APE, but no substantial changes are shown within or adjacent to the APE (NETR 2021; USGS 2021b).

The earliest available aerial imagery for this area (from 1962, 1964, and 1966) shows the APE in a largely unimproved condition, with only Bagdad Road and some minor intersecting roadways and expansive agricultural fields shown. Imagery from 1981 shows the beginnings of large expansions in residential development east of the APE, and nearby developments at Leander High School and New Hope Drive are shown under construction in the 1985 imagery. Imagery from 1996 also shows continued expansion of nearby residential development. Other than a continued expansion of development in areas near the APE, no significant changes are shown on subsequent imagery (2004, 2008, 2010, 2012, 2014, 2016, and 2019; NETR 2021; USGS 2021b). Known and perceived disturbances within the APE include those associated with agricultural pursuits, sparse rural residential development, and the installation of overhead and underground utilities.

Given the limited nature of development within and adjacent the APE, it is possible that unknown, undisturbed archeological resources of any age could exist in portions of the project area. Within the portions of the APE that have been subjected to previous disturbances, including the existing utility lines, residential properties, and roadways or any associated utility, wastewater, or stormwater improvements, it is unlikely that undisturbed resources of any age could occur. Generally, the proposed project area exhibits at least moderate potential to contain surficial prehistoric- or historic-age deposits and a low likelihood to contain deeply buried archeological deposits of any age.

## Research Design

CMEC will conduct intensive survey of the APE per Category 7 under 13 TAC 26.15 and using the definitions in 13 TAC 26.3. Field methods and strategies will comply with the requirements of 13 TAC 26.15, as established by the Council of Texas Archeologists (CTA) and approved by the THC.

This archeological survey would include the pedestrian survey of all areas within the project area and would be augmented by excavation of shovel tests throughout. All shovel tests will be excavated in natural levels or in 20-centimeter-thick (7.9-inch-thick) arbitrary levels (whichever is smaller) to subsoil or 100 centimeters (39.37 inches), whichever is encountered first. Excavated matrix will be screened through 0.635-centimeter (0.25-inch) hardware cloth as allowed by moisture and clay content, which may require that the removed sediment be crumbled/sorted by hand, trowel, and/or shovel point. Deposits will be described using conventional texture classifications and Munsell color designations. Radial shovel tests will be placed at 5-meter (16-foot) intervals around each shovel test containing cultural material until two negative units have been established in each cardinal direction, within the project limits. All components of the CTA standards approved in April 2020 will be rigorously followed.

Based upon a geomorphic review of the project area, alluvial terrace deposits deeper than one meter may be present within the APE along the banks of the South Fork San Gabriel River. As a result, CMEC proposes the excavation of trenches to a minimum length of 4 meters (13 feet) and a minimum depth of 2.1 meters (7 feet or to bedrock) using a backhoe with a flat-bladed bucket 61 centimeters (24 inches) wide. Trenches will be excavated in 5-centimeter (1.97-inch) increments; sediment will then be placed in piles to be observed and documented by professional archeologists. At least one five-gallon-bucket's worth of matrix from every third excavated bucket load will be screened through 0.635-centimeter (0.25-inch) hardware cloth as allowed by moisture and clay content, which may require that the removed sediment be crumbled/sorted by hand, trowel, and/or shovel point. Trench side walls will be scraped and analyzed by professional archeologists; profiles will be photographed and described using conventional texture, consistency, and color designations. Following the completion of analysis, trenches will be backfilled and compacted. At this time, it is unclear how many trenches will be able to be excavated within the APE, but CMEC estimates at least five or six trenches will be required. Regardless, CMEC will make a good-faith effort to excavate trenches in a fashion that would provide a sufficient sample to determine if deeply buried and/or intact archeological deposits are present within the three-dimensional APE.

The project has a low probability of encountering human burials; however, if burials or potential human remains are found, work will stop immediately, and Williamson County and THC personnel will be notified immediately. All requirements of 9 TNRC 191, 13 TAC 2, and 8 THSC 711 will be followed.

Artifacts identified in shovel tests, trenches, and surface contexts will be noted, described, photographed, and returned to their original contexts by archeologists who meet or exceed the Secretary of Interior's qualifications for professional archeologists. Descriptions will include, at minimum: artifact dimensions, artifact material type(s), artifact functional class (if apparent), Munsell colors, and provenience. All descriptions will be approved in field by the Project Archeologist. Following their description, all artifacts will be photographed from the maximum number of sides available (e.g., five for an intact bottle) prior to being returned to their original contexts. Additional in-field analysis will depend on particular artifact classes: for example, a historic-age bottle with incised markings that are not easily photographable may be sketched or drawn.

Any site recorded during the investigation will be assigned an identifying number in the form of a field site (or FS) designation, followed by a consecutively assigned number that will indicate the order in which the sites were discovered (e.g., FS-01, FS-02, etc.). This number is a temporary field number to be superseded by a formal site trinomial obtained following the completion of fieldwork (see below). CMEC defines an archeological site on the basis of content and extent. When a shovel test yields cultural material, additional shovel tests are excavated in a cruciform pattern at 5-meter intervals around the initial test, until two sterile shovel tests are encountered. A prehistoric site is defined as five or more cultural items (e.g., prehistoric stone tool manufacturing debris of different raw materials, or manufacturing debris in combination with stone tools) or one or more stationary and immovable objects – such as firepits or posthole molds – within a 20-meter (65.6-foot) square; for historic sites,

a site is defined as five or more cultural items from at least two material types or artifact classes, or one or more stationary and immovable objects and at least one cultural item within a 20-meter (65.6-foot) square. A site's boundary is then defined within the extent of positive shovel tests and/or surface remnants.

Conversely, isolated finds of individual artifacts or small groups of similar non-diagnostic artifacts (for example, fewer than five flakes composed of the same material) not meeting the above site definition criteria will be recorded as an "Isolated Find" and given an Isolated Find number but not assigned a locus number or considered for listing in the NRHP. Likewise, a stationary and unmovable object – such as brick piers, etc. – with no associated cultural materials and not meeting the above definition criteria will be designated a "Locality," and as with Isolates, given a Locality number but not considered for eligibility in the NRHP. The locations of both Isolates and Localities will be recorded. All encountered cultural resources will be treated as potential sites until proven otherwise.

CMEC personnel will keep a complete record of field notes with observations including (but not limited to) identified sites, 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. The field notes will be supplemented by digital photographs.

## **Reporting and Curation**

Relevant field observations for any new sites discovered during these investigations will be transferred to TexSite forms and submitted to TARL for official recording and integration into the trinomial system. An analysis of recorded materials and site characteristics will be performed, and the results will be presented in a clear and concise manner. These data will be used to formulate a preliminary evaluation of the NRHP and/or SAL eligibility of each site, as well as a recommendation for further work or no further work, supported by explicit justifications (13 TAC 26.3; 13 TAC 26.10; 13 TAC 26.16). Data, sites recorded, and NRHP/SAL eligibility assessments will be presented in a standard draft survey report to be submitted to the County and THC for review and comment. Comments on the draft report will be incorporated into a final version to be submitted (with the number and format of copies to be determined based on client preferences) to the County and 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.

Upon completion of the fieldwork and reporting, CMEC will make all materials and forms generated by this project available to future researchers through curation at the Center for Archeological Studies (CAS) at Texas State University in San Marcos, Texas per 13 TAC 26.16 and 26.17. A curation form filed at both CAS and THC will accompany the collections.

## **References**

- Gould, F. W., G. O. Hoffman, and C. A. Reenthin  
1960 *Vegetational Areas of Texas*. Texas A&M University, Texas Agricultural Experiment Station Leaflet No. 492.
- Griffith, G. E., S. A. Bryce, J. A. Comstock, A. C. Rogers, B. Harrison, S. L. Hatch, and D. Bezanson  
2004 *Ecoregions of Texas*. United States Geological Survey. Available at [ftp://ftp.epa.gov/wed/ecoregions/tx/tx\\_front.pdf](ftp://ftp.epa.gov/wed/ecoregions/tx/tx_front.pdf). Downloaded April 15, 2021.

Nationwide Environmental Title Research (NETR)

- 2021 *Historic Aerials Database*. Nationwide Environmental Title Research. Available at <http://historicalaerials.com>. Accessed April 15, 2021.

Soil Survey Staff, Natural Resources Conservation Service (NRCS)

- 2021 SSURGO and STATSGO soil data viewed through SoilWeb KMZ interface for Google Earth, Available at <http://casoilresource.lawr.ucdavis.edu/soilweb/>. U.S. Department of Agriculture and California Soil Resource Laboratory, University of California, Davis. Accessed April 15, 2021.

Texas Historical Commission (THC)

- 2021 *Texas Archeological Sites Atlas*. Texas Archeological Research Laboratory and the Texas Historical Commission. Available at <https://atlas.thc.texas.gov/>. Accessed April 15, 2021.

Texas Parks and Wildlife (TPWD)

- 2011 *Gould Ecoregions of Texas*. Texas Parks and Wildlife Department. Compiled from Gould et al. 1960. Available at [https://tpwd.texas.gov/publications/pwdpubs/media/pwd\\_mp\\_e0100\\_1070ab\\_24.pdf](https://tpwd.texas.gov/publications/pwdpubs/media/pwd_mp_e0100_1070ab_24.pdf). Accessed April 15, 2021.

U.S. Geological Survey (USGS)

- 2021a *Texas Geology Map Viewer*. United States Geological Survey. Available at <http://txpub.usgs.gov/dss/texasgeology/>. Accessed April 15, 2021.
- 2021b *Historical Topographic Map Viewer*. United States Geological Survey. Available at <http://historicalmaps.arcgis.com/usgs/index.html>. Accessed April 15, 2021.

## Figures

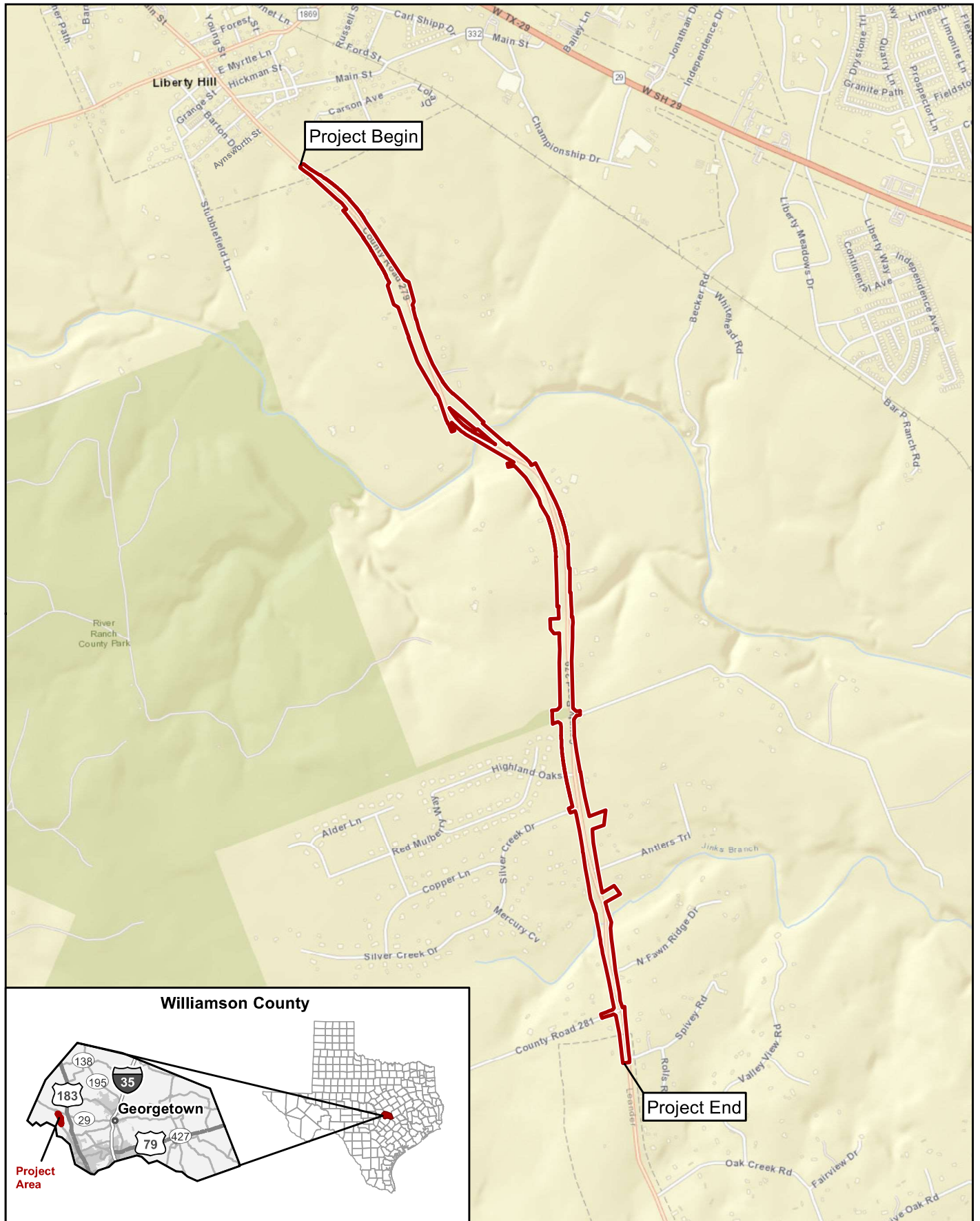
Figure 1. Project Location

Figure 2. Location of Archeological APE (Topographic Base)

Figure 3. Location of Archeological APE (Aerial Base)

Figure 4. Project Area Soils and Geology





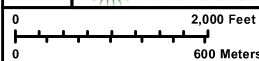
**Figure 1.**  
**Project Location (Road Base)**

**Bagdad Road - CR 279**

 Project Location

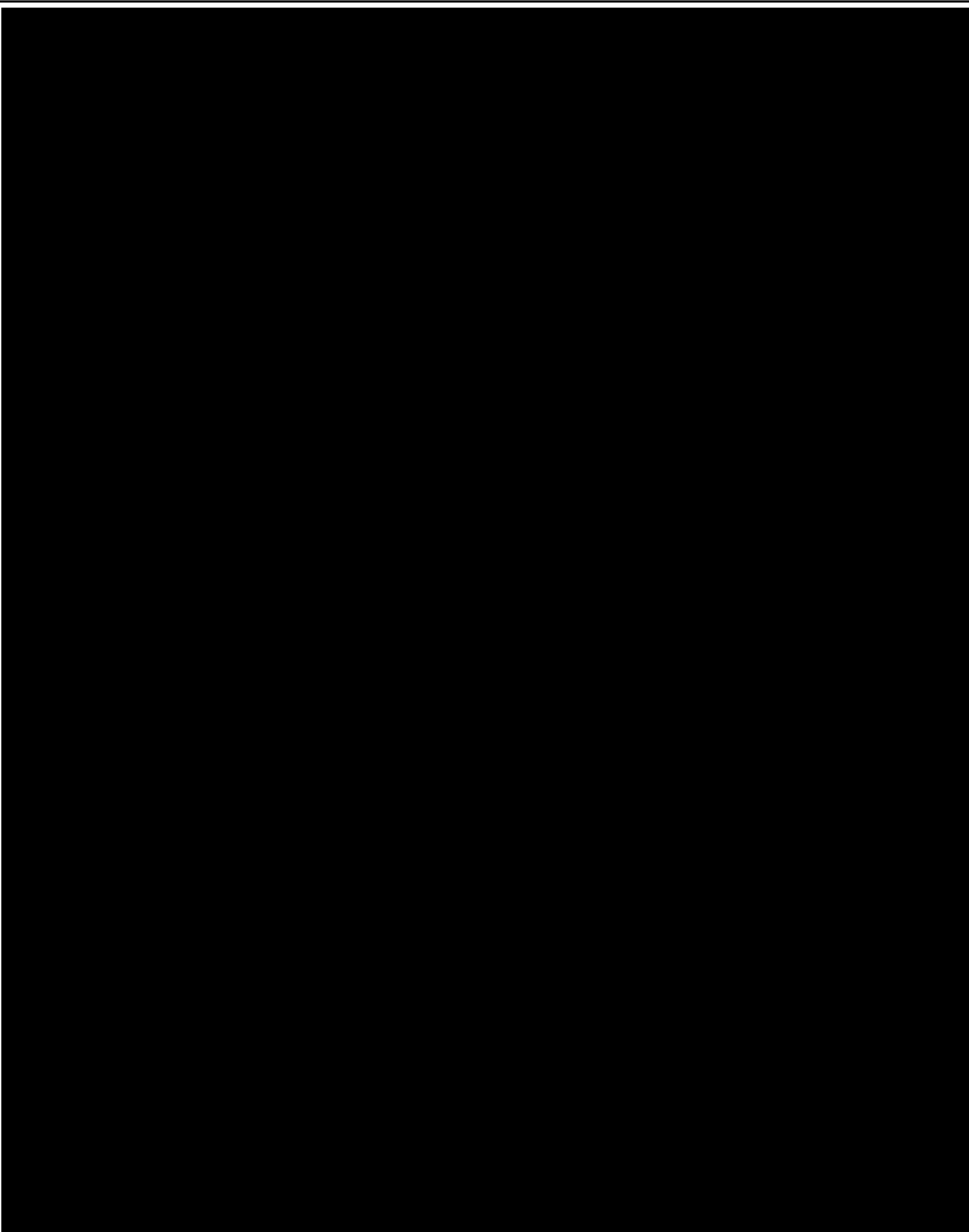


**COX | McLAIN**  
**Environmental Consulting**



1 in = 2,000 feet  
Scale: 1:24,000  
Date: 6/8/2021

Basemap Source: Esri (2021)



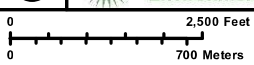
**Location of Archeological APE**

**Bagdad Road - CR 279**

Data Sources: THC (2021),  
TARL (2020), NHD (2020)  
Topographic Source: USGS (2021)  
USGS 7.5' Quadrangles: Liberty Hill, Nameless

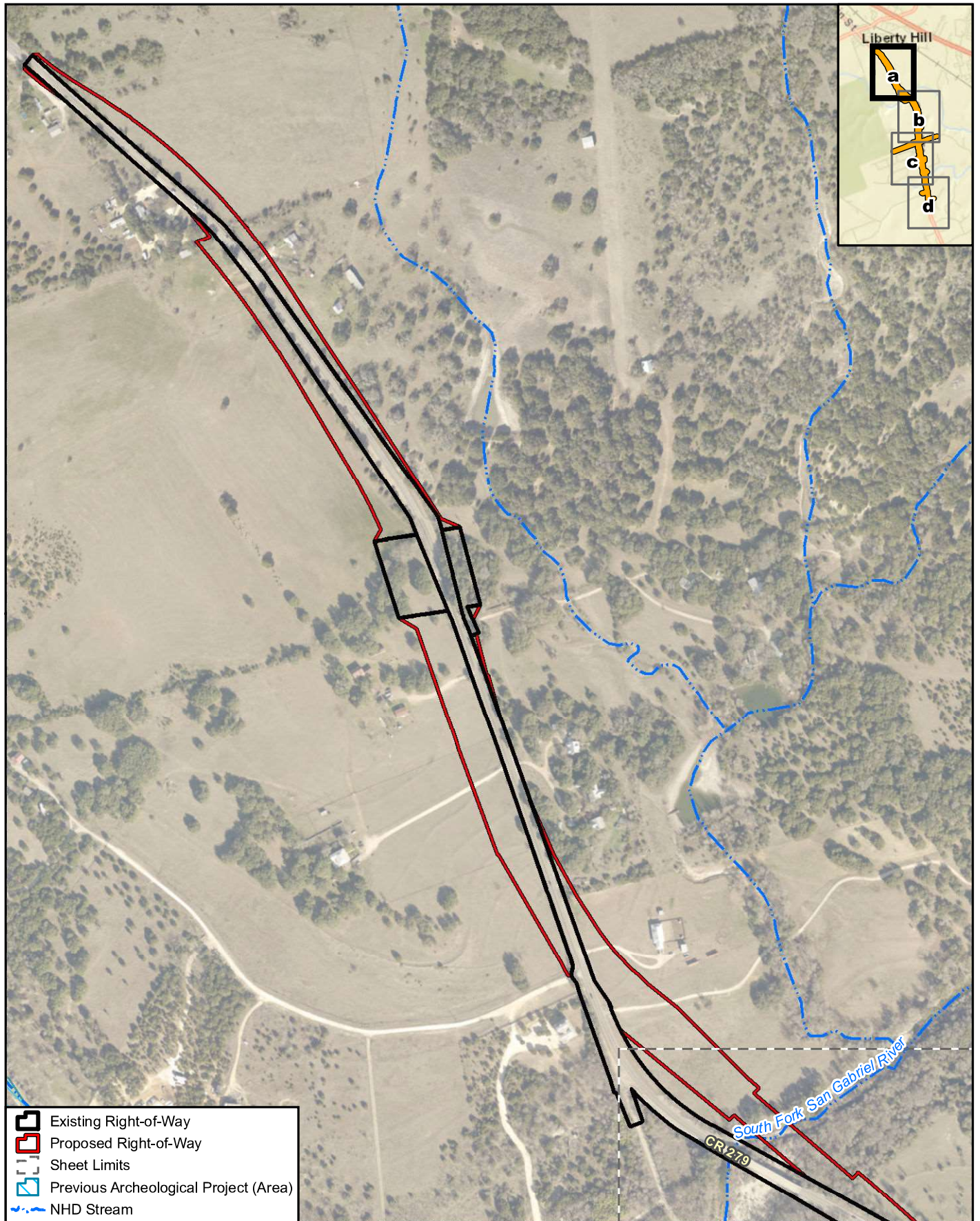


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1 in. = 2,500 feet
Scale: 1:30,000
Date: 5/3/2021





**Figure 3a.**  
**Project APE Detail (Aerial Base)**

**Bagdad Road - CR279**

G:\Projects\Williamson\_County\Bagdad\_Road\_CR279\CR\_279\_Arch\_Figure 3\_APE Detail\_20210503\_slh.mxd

Data Sources: TARL (2020),  
THC (2021), NHD (2020)  
Aerial Source: Maxar (2019)

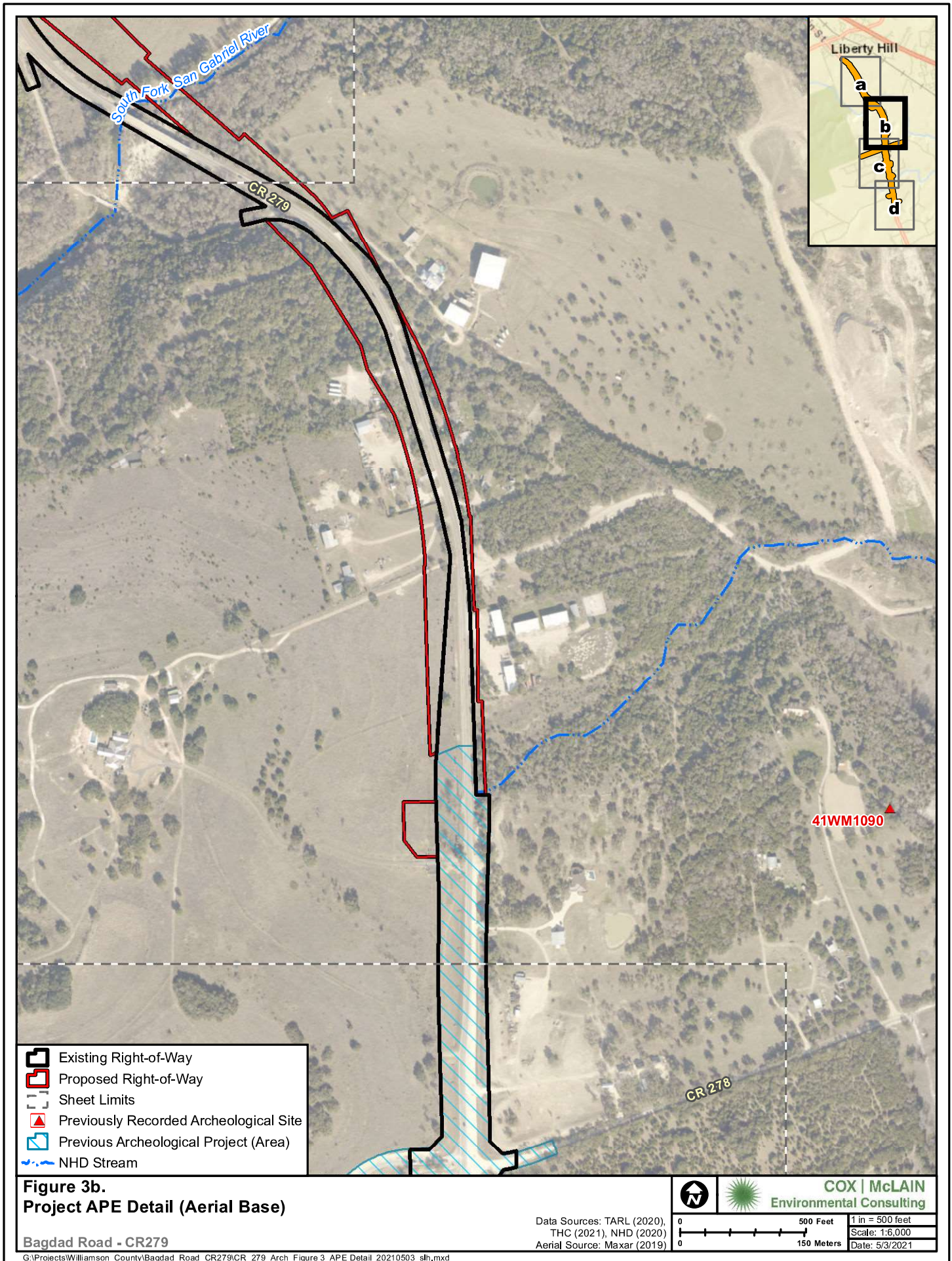


**COX | McLAIN**  
**Environmental Consulting**

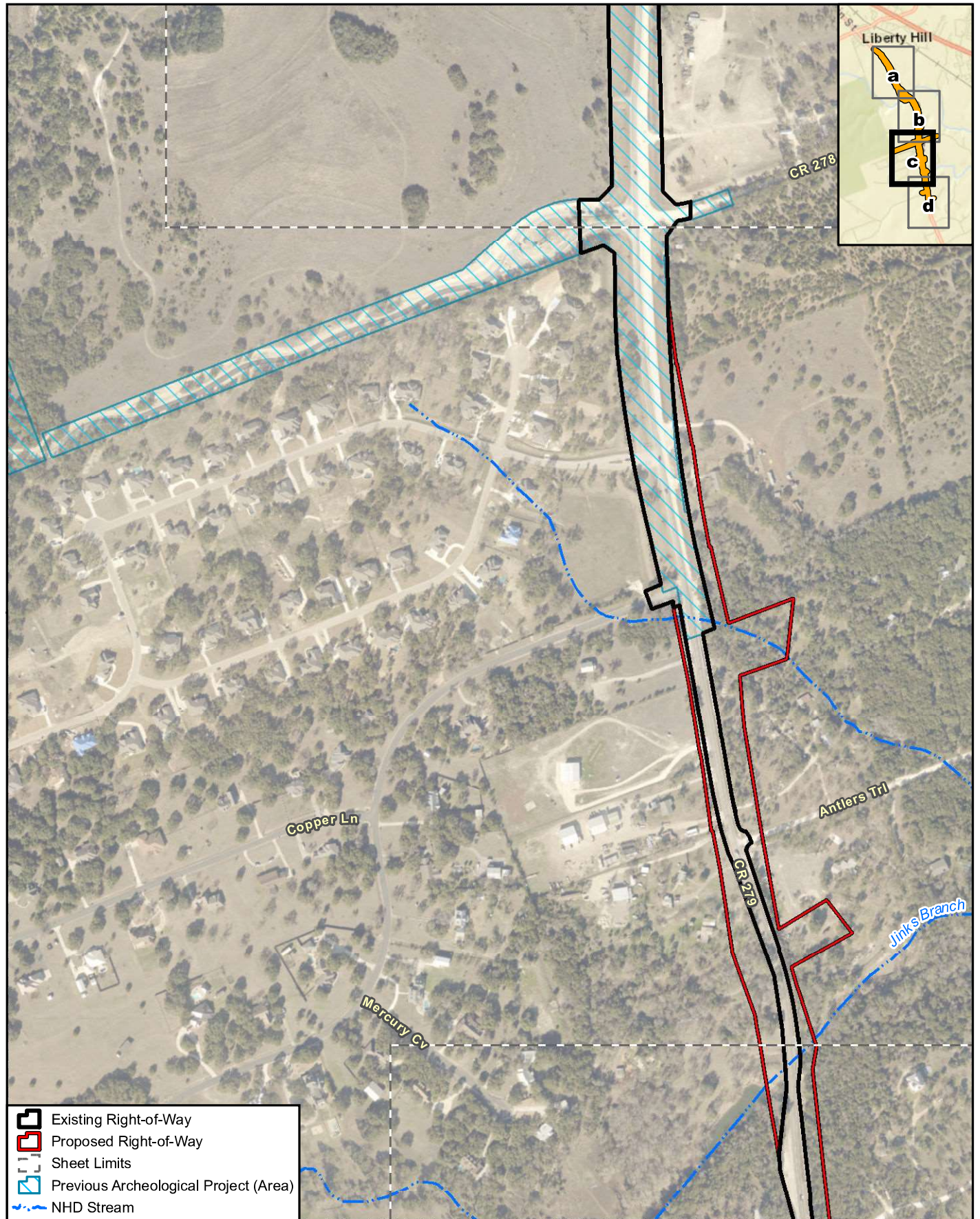
0 500 Feet  
0 150 Meters

1 in. = 500 feet  
Scale: 1:6,000  
Date: 5/3/2021









**Figure 3c.**  
**Project APE Detail (Aerial Base)**

**Bagdad Road - CR279**

G:\Projects\Williamson County\Bagdad\_Road\_CR279\CR\_279\_Arch\_Figure 3\_APE Detail\_20210503\_slh.mxd

Data Sources: TARL (2020),  
THC (2021), NHD (2020)  
Aerial Source: Maxar (2019)

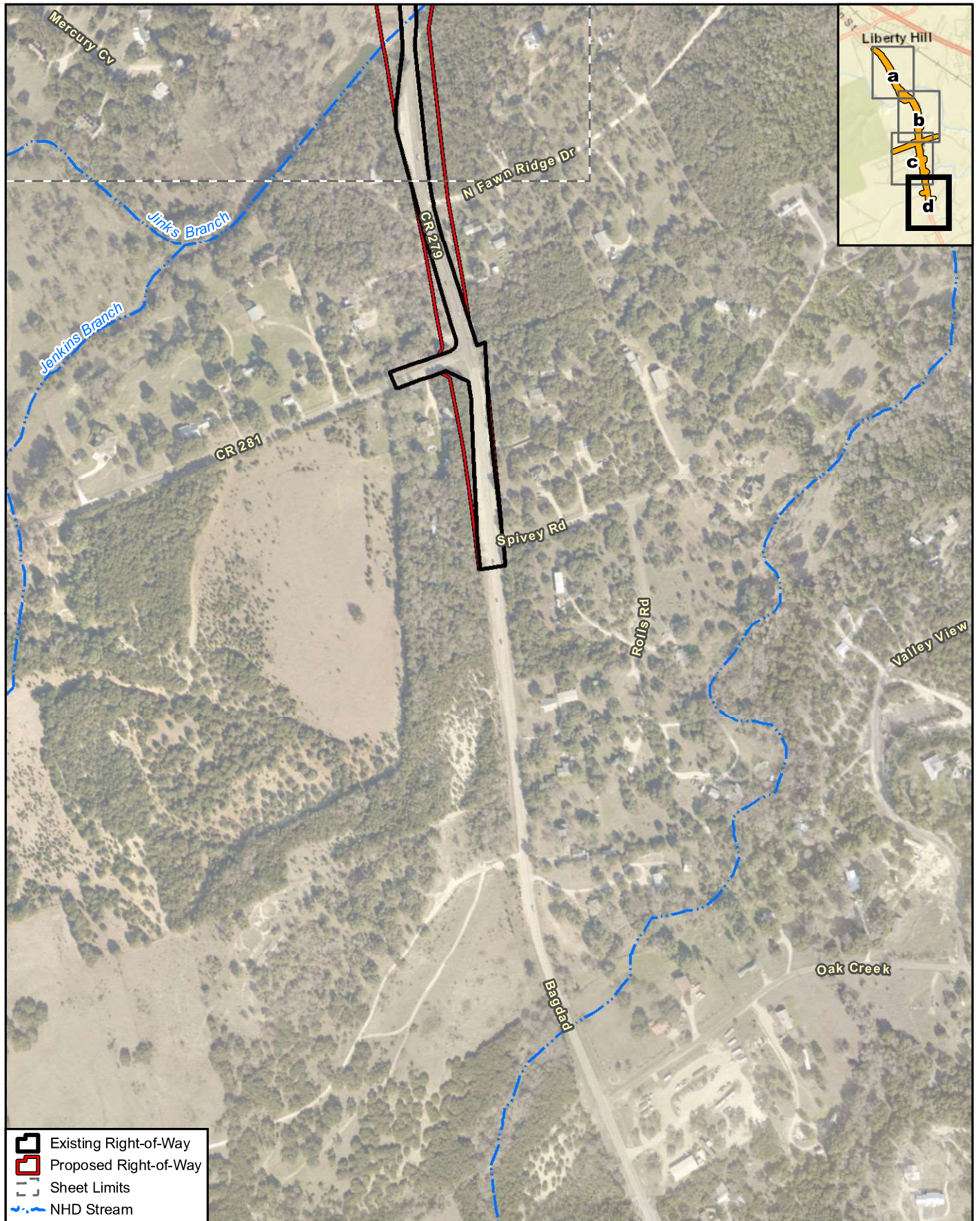


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**Environmental Consulting**

0 500 Feet  
0 150 Meters

1 in. = 500 feet  
Scale: 1:6,000  
Date: 5/3/2021





**Figure 3d.**  
**Project APE Detail (Aerial Base)**

**Bagdad Road - CR279**

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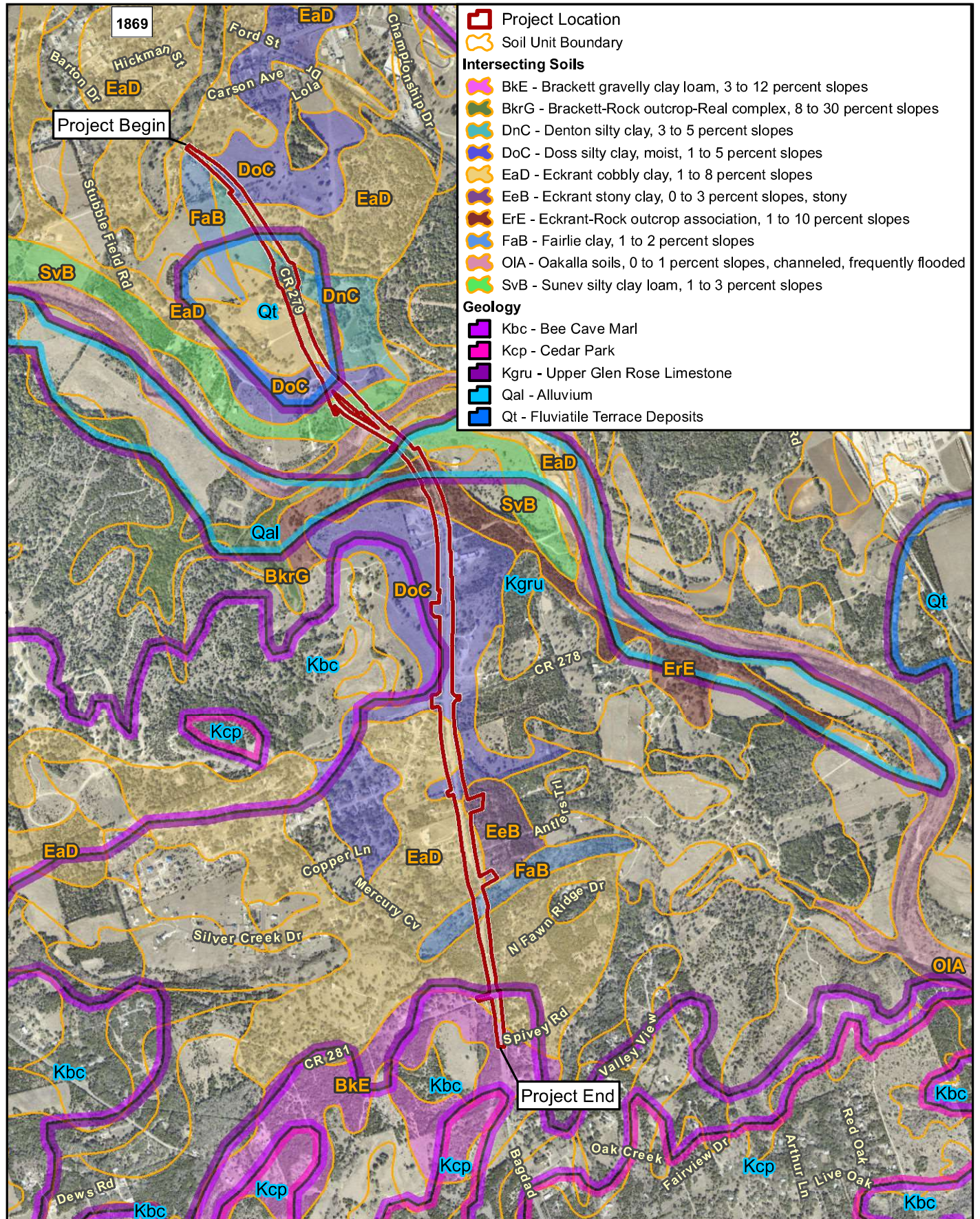
Data Sources: TARL (2020),  
THC (2021), NHD (2020)  
Aerial Source: Maxar (2019)



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0 500 Feet 1 in. = 500 feet  
0 150 Meters Scale: 1:6,000  
Date: 5/3/2021





**Figure 4.**  
**Project Area Soils and Geology**

**Bagdad Road - CR 279**

G:\Projects\Williamson County\Bagdad\_Road\_CR279\CR\_279\_Arch\_Figure 4\_Soils\_Geology\_20210714\_sjh.mxd

Data Sources: NRCS (2020),  
 Geologic Database of Texas (2007),  
 Geologic Atlas of Texas Austin Sheet (1981)  
 Aerial Source: Williamson County (2020)

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 Environmental Consulting

0 2,000 Feet 1 in = 2,000 feet  
 0 600 Meters Scale: 1:24,000  
 Date: 7/14/2021