

**ANTIQUITIES PERMIT APPLICATION FORM
ARCHEOLOGY****GENERAL INFORMATION**

I. PROPERTY TYPE AND LOCATION

Project Name (and/or Site Trinomial) Proposed Reconstruction of the Great Oaks Drive Bridge at Brushy Creek
County (ies) Williamson
USGS Quadrangle Name and Number Round Rock
UTM Coordinates Zone 14 E 621339 N 3377286

Location Great Oaks Drive and Brushy Creek, Williamson County, Texas
Federal Involvement Yes No
Name of Federal Agency Fort Worth District – United States Army Corps of Engineers
Agency Representative James E. Barrera

II. OWNER (OR CONTROLLING AGENCY)

Owner (Controlling Agency) Williamson County
Representative Dan A. Gattis, County Judge
Address 710 South Main St., 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 same as above
Representative _____
Address _____
City/State/Zip _____
Telephone (include area code) 512.943.1550 Email Address _____

PROJECT INFORMATION

I. PRINCIPAL INVESTIGATOR (ARCHEOLOGIST)

Name Steven Ahr, Ph.D.
Affiliation AECOM
Address 13355 Noel Road, Fourth Floor
City/State/Zip Dallas, TX 75240
Telephone (include area code) 830.355.7932 Email Address steve.ahr@aecom.com

(OVER)
ANTIQUITIES PERMIT APPLICATION FORM (CONTINUED)

II. PROJECT DESCRIPTION

Proposed Starting Date of Fieldwork August 20, 2018
Requested Permit Duration 4 Years 0 Months (1 year minimum)
Scope of Work (Provided an Outline of Proposed Work) see attached research design

III. CURATION & REPORT

Temporary Curatorial or Laboratory Facility AECOM, Dallas
Permanent Curatorial Facility Texas Archeological Research Laboratory - University of Texas

IV. LAND OWNER'S CERTIFICATION

I, Dan A. Gattis, County Judge, as legal representative of the Land 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, Sponsor, and Principal Investigator are responsible for completing the terms of the permit.
Signature _____ Date _____

V. SPONSOR'S CERTIFICATION

I, same as above, as legal representative of the Sponsor, same as above, do certify that I have review 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 Sponsor, Owner, and Principal Investigator are responsible for completing the terms of this permit.
Signature _____ Date _____

VI. INVESTIGATOR'S CERTIFICATION

I, Steven Ahr, as Principal Investigator employed by AECOM (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 [Signature] Date August 8, 2018

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

FOR OFFICIAL USE ONLY

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

RESEARCH DESIGN

**ARCHAEOLOGICAL SURVEY FOR THE
PROPOSED RECONSTRUCTION OF THE GREAT OAKS DRIVE BRIDGE AT
BRUSHY CREEK
WILLIAMSON COUNTY, TEXAS**

Prepared by:

AECOM
Steven W. Ahr, Principal Investigator

August 2018

1. PROJECT DESCRIPTION

AECOM has been selected by Williamson County, Texas (County) to provide professional environmental planning services to aid in the proposed reconstruction of the Great Oaks Drive Bridge over Brushy Creek (Project), located in the City of Round Rock Extra-Territorial Jurisdiction and the Brushy Creek Municipal Utility District (**Exhibit 1**).

The Project involves modifications to sections of roadways intersecting Great Oaks Drive in the general Project area: Brushy Creek Road/Hairy Man Road to the south of the bridge, and Oak Ridge Drive to the north. Our current understanding is that the bridge will be shifted east by approximately 34 feet (ft) and widened from 32.5 ft to 76 ft to accommodate future traffic needs and mitigate flood risk associated with the existing bridge. The relocation of the bridge to the east (downstream in Brushy Creek) will position the roadway to more closely align with a disconnected section of Great Oaks Drive to the north. This realignment would allow the two roadway sections to potentially be connected as part of a separate project in the future. At the intersection of Great Oaks Drive and Brushy Creek Road/Hairy Man Road, the following improvements are currently proposed:

- Left and right turn lanes on northbound Great Oaks Drive to facilitate north to west and north to east traffic movements;
- Left turn lane on Hairy Man Road (westbound) to facilitate west to south movements;
- Left and right turn lanes on eastbound Brushy Creek Road to facilitate east to north and east to south movements

Under Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and in accordance with Advisory Council on Historic Preservation regulations pertaining to the protection of historic properties (36 Code of Federal Regulations [CFR] 800), prior to permit issuance or funding, federal agencies are required to locate, evaluate, and assess the effects of their undertaking on historic properties. Historic properties are defined as those properties that are included in, or eligible for inclusion in the National Register of Historic Places (NRHP). It is anticipated that United States Army Corp of Engineers-Fort Worth District (USACE-Fort Worth) permitting would be required for this project. As such, the Project would constitute a federal undertaking subject to review requirements under Section 106. In addition, because the Project is being developed by the County on lands owned by the Brushy Creek and Fern Bluff Municipal Utility Districts, which are political sub-entities of the State of Texas, it falls within the purview of the Antiquities Code of Texas, which requires the Texas Historical Commission (THC) to review actions that have the potential to disturb prehistoric or historic sites within the public domain. Therefore, AECOM is submitting this Antiquities Permit application and Research Design in order to conduct an intensive archaeological survey of the Project, which will enable the County to meet applicable cultural resources compliance requirements of the NHPA and the Antiquities Code of Texas.

AECOM is currently evaluating an approximately 13-acre Area of Potential Effect (APE) for archaeological resources. The depth of impacts is unknown at this time, but once engineering schematics are finalized, it is anticipated that two or more meters (m) of vertical alluvial deposits could be disturbed at the crossing.

2. BACKGROUND REVIEW

Geology

The APE is underlain by Lower Cretaceous Edwards Limestone (Ked), which contains limestone, dolomite, and chert. The limestone is fine grained, massive to thin bedded, and medium gray to grayish brown. Chert nodules are common throughout this formation (Bureau of Economic Geology [BEG] 1974). Holocene-age alluvium (Qal) is mapped within the Brushy Creek channel, extending from County Road 174, across the Brushy Creek channel, to approximately 60 m south of Oak Ridge Drive. These deposits consist of clay, silt, sand, and gravel and are also present on low terraces. Fluvial morphological features preserved in these deposits may include point bars, oxbows, and abandoned channel segments, which may have been ideal settings for prehistoric use (BEG 1974).

Soils

Soils in the APE are shown in **Exhibit 2** and summarized in **Table 1**. The Eckrant-Rock outcrop association, 1 to 10 percent slopes (ErE), makes up approximately 27.5 percent of the APE, and is found on the uplands on the south side of Brushy Creek. The Eckrant soils consist of well-drained, moderately slowly permeable soils that are very shallow (<30 centimeters [cm]) over limestone bedrock, exhibiting an A1-A2-R horizon sequence. These nearly level to very steep soils formed in residuum weathered from limestone, and as such, exhibit little to no potential to contain buried and intact cultural materials. These soils closely parallel the Brushy Creek channel and contain 15 to 20 percent limestone cobbles and gravels within the clayey matrix (Natural Resources Conservation Service [NRCS 2018]).

Oakalla soils, 0 to 1 percent slopes (OC), make up approximately 57.4 percent of the APE and are channeled and frequently flooded within the floodplain of the project. The Oakalla series consist of very deep well drained soils that formed in loamy alluvium of recent (Holocene) age. These soils are on nearly level to gently sloping floodplains, and exhibit a generalized Ap-Ak1-Ak2-Bk1-Bk2 horizon sequence to a minimum recorded depth of 200 cm (NRCS 2018). As such, these soils exhibit a relatively high potential to contain buried and intact archaeological materials.

Queeney clay loam soils, 1 to 5 percent slopes (QuC), comprise approximately 3.9 percent of the APE and are found on the north side of Brushy Creek. This series consist of very shallow (<30 cm) and well drained soils over a petrocalcic horizon, and are located on ancient terraces. These formed in loamy sediments over sand and gravel deposits, and exhibit a generalized A-Bkkm-Ck-2C horizon sequence. Soil series data suggest the depths to the petrocalcic (indurated) horizon are as little as nine inches below the surface (NRCS 2018). Based on the proximity to Brushy Creek, which has the potential for periodic flooding, it is possible that thin overbank sediment veneers containing shallow buried cultural materials could be present within the APE. Any such buried archaeological deposits would possibly be within the range of standard shovel test depths.

Sunev silty clay loam, 1 to 3 percent slopes (SuB), comprises approximately 11.2 percent of the APE and these soils are found on alluvial terraces located on the north side of Brushy Creek (NRCS 2018). These soils consist of very deep, well drained soils that formed in loamy alluvium, and exhibit a generalized Ap-A-Bk1-Bk2-Bk3 horizon sequence to a recorded depth of 183 cm. The age of the terrace deposits is currently unknown. Given the proximity to the creek, the potential for deeply buried and intact archaeological deposits is considered high.

Table 1. Soils and Archaeological Potential within the APE (NRCS 2018)

Map Unit Symbol	Map Unit Name	Acres	Percent of APE	Parent Material	Setting	Archaeological Potential
ErE	Eckrant-Rock outcrop association, 1 to 10 percent slopes	3.6	27.5	Residuum weathered from limestone	Ridges, footslope, summit, shoulder	Low
Oc	Oakalla soils, 0 to 1 percent slopes, channeled, frequently flooded	7.6	57.4	Loamy alluvium	Floodplains	High
QuC	Queeney clay loam, 1 to 5 percent slopes	0.5	3.9	Gravelly alluvium	Paleoterraces	Moderate
SuB	Sunev silty clay loam, 1 to 3 percent slopes	1.5	11.2	Loamy alluvium	Terraces	High

Potential Archeological Liability Mapping

Based on a review of Texas Department of Transportation’s (TxDOT’s) Austin District Hybrid Potential Archeological Liability Mapping (Austin-HPALM) model, the APE exhibits 62 percent high integrity potential, and 20 percent moderate integrity potential, for intact sites at depths deeper than one meter. Approximately 25 percent of the APE exhibits moderate shallow potential, and 23 percent exhibits low shallow potential (**Table 2; Exhibit 3**).

Table 2. HPALM Archaeological Integrity Potential in APE (After Abbott and Pletka [2015])

Integrity Value	Description	Percent of Study Area
1	Low Potential	16
2	Low Shallow Potential, Moderate Potential at Depth (>1 m)	7
4	Moderate Shallow Potential, Low Potential at Depth	2
5	Moderate Potential	13
6	Moderate Shallow Potential, High Potential at Depth	12
9	High Potential	50

Texas Archeological Sites Atlas Review

A background review of the Texas Archeological Sites Atlas (TASA) indicates that six previous archaeological surveys have been conducted within 1,000 m (3,280 ft) of the APE (**Table 3; Exhibit 4**). Three of these previous surveys intersect and encompass a majority of the APE. However, details about the intensity of the previous investigations within the APE could not be determined from the TASA.

Three previously recorded archaeological sites were identified within 1,000 m of the APE (**Table 4; Exhibit 4**). Two sites (41WM166 and 41WM167) contain historic ranch components. Site 41WM1062 lacks site data and therefore has an unknown cultural affiliation. The eligibility of all three sites is currently undetermined. None of the previously recorded sites are located within the APE (TASA 2018).

Table 3. Previous Archaeological Investigations within 1,000 m of the APE

Type	Date	Antiquities Permit No.	Agency/Firm	Description	Distance from APE
Survey	1987	N/A	USACE Fort Worth District	Survey for the Brushy Lake Creek Interceptor	0
Survey	1998	N/A	City of Cedar Park	Linear survey	820 m west
Survey	2000	2490	Brush Creek PUD / Hicks and Company, Inc.	Survey for proposed hike and bike trail and 26 acre park in Round Rock. Project cleared to proceed.	0
Survey	2000	2508	Texas Parks and Wildlife Department	Survey of section of Fern Bluff Municipal Utility District in Williamson County. One site found. Project cleared to proceed.	550 m east
Survey	2002	2723	Texas Parks and Wildlife Department / Fern Bluff Municipal Utility District (MUD) ACS Group	Survey of Glen Canyon and Montana Falls Parks Improvement project. No sites found. Project cleared to proceed.	200 m southeast
Survey	2002	2768	USACE Fort Worth District / Brushy Creek MUD / Paul Price Associates, Inc.	152-acre survey of proposed Brushy Creek Surface Water Supply System, Williamson County. Project cleared to proceed.	0

Source: TASA (2018)

Table 4. Previously Recorded Archaeological Sites within 1,000 m of the APE

Site	Cultural Period(s)	Site Description	Recommendation	Distance from APE
41WM166	Historic (Phinney) Ranch	1.5 story rock structure consisting of either milk house or spring house	Eligibility undetermined. Testing was recommended.	550 m southwest
41WM167	Historic (Phinney) Ranch	Old house site with possible fireplace foundation and stone fences.	Eligibility undetermined	260 m east
41WM1062	No data	No data	No data	670 m west

Source: TASA (2018)

Prehistoric archaeological sites within Williamson County commonly include campsites, lithic procurement sites, and burned rock middens (Fields et al. 1996). These sites are found most frequently along streams, stream confluences, and in upland margins and terraces. Sites in floodplain settings can be deeply buried, while sites located in upland contexts are typically found at or near the surface. Historic archaeological sites and cemeteries are usually located near historic transportation routes in upland settings, and often consist of aboveground structures, structural elements, and/or buried (archaeological) historic deposits. Historic sites generally exhibit greater surface visibility, either because they are not buried as deeply as prehistoric sites or they were not buried at all. Within Williamson County, common historic sites include early settlement sites, farmsteads, ranches, cemeteries, stone walls, mills, lime kilns, and industrial sites. Given the above observations, as well as the occurrence of numerous historic and prehistoric archaeological sites in the surrounding region, the APE exhibits a high potential for containing unrecorded prehistoric and historic sites.

3. SURVEY METHODS

Field Methods

AECOM proposes to conduct an intensive archaeological survey of the APE. All field investigations would conform to THC's Archeological Survey Standards for Texas, and all archaeological investigations would be supervised by an archaeological professional meeting the United States Secretary of the Interior's Professional Qualification Standards for Archeology and Historic Preservation, and professional qualification requirements for Principal Investigator (13 Texas Administrative Code [TAC] 26.4). Components of the survey may include pedestrian reconnaissance, stream cutbank recording, shovel testing and/or mechanical subsurface testing, artifact inventories, site recording, and impact assessment. All exposed ground surfaces in the APE would be examined for evidence of archaeological resources. Manual excavation of shovel tests would be done on a judgmental basis and would be conducted where the APE exhibits potential to contain buried archaeological deposits. Shovel tests would be 30 centimeters (cm) in diameter and would be excavated to the bottom of Holocene deposits, if possible. Shovel tests would be dug in 20-cm levels and all excavated soil screened through ¼ inch hardware cloth. Location, depth, soil strata, and presence/absence of cultural materials would be recorded for each shovel test. All shovels tests would be backfilled upon completion.

Backhoe trenches may be required if portions of the APE exhibit potential for containing deeply buried archaeological and intact deposits (i.e., greater than 1 m). The need for backhoe trenches would be evaluated during the pedestrian survey and shovel testing phases of fieldwork. If deemed necessary, and once approved by the landowner(s), backhoe trenches would be approximately 4 m in length, 1 m wide, and 1 to 3 m deep, depending on the depth of Holocene deposits. In accordance with the Texas Utility

Code, at least 48 hours of prior notification would be given to Texas Excavation Safety System (Texas811) damage prevention service before any trench excavations occurred. Trench walls would be closely inspected for cultural materials and subjected to detailed soil descriptions. Entry into trenches would be conducted in accordance with Occupational Safety and Health Administration trench safety standards. Standard soil descriptions would include horizon, color, texture, structure, roots, consistence, percentage of coarse fragments, carbonate abundance, type and morphology, and cultural inclusions (Schoenberger et al. 2002). Trenches would be photographed and then immediately backfilled to the original level.

Site Recording

If archaeological deposits are identified in the APE, site boundaries would be delineated either by the surficial extent of artifacts, and/or by shovel testing. The location of all shovel tests, trenches, features, and other salient features of the site would be recorded. A temporary field designation would be assigned to each site, and a TexSite form would be completed and submitted to the Texas Archeological Research Laboratory (TARL) for assignment of a trinomial.

Site Assessment

All newly discovered sites would be evaluated for NRHP eligibility and whether they meet the criteria to merit designation as a State Antiquities Landmark (SAL). In general, for a site to be considered eligible for the NRHP or to merit SAL designation, the site must be able to contribute important information for understanding prehistory or history, and the site must retain integrity.

4. REPORT

AECOM will prepare and submit a draft technical report that summarizes the findings of the survey. The report would provide recommendations for further work or no further work, with appropriate justifications, and would conform to the Council of Texas Archeologists' guidelines for cultural resources management reports. Following a period of review and comment, the draft report would be submitted to the THC for review. After addressing any THC comments, AECOM will submit a final report to the client. AECOM will also furnish the THC with one printed copy of the final report, which shall be an unbound copy that contains at least one map with the plotted location of any and all sites recorded, and two copies of a tagged PDF format of the report on an archival quality CD or DVD. One of the tagged PDFs would include the plotted location of any and all sites recorded, and the other would not include the site location data.

5. CURATION

Pursuant to 13 TAC 26.17, and after acceptance of the final report by the THC, all field records, photographs, and collected artifacts will be prepared for permanent curation at an approved Texas curatorial facility.

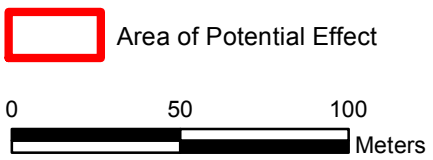
REFERENCES


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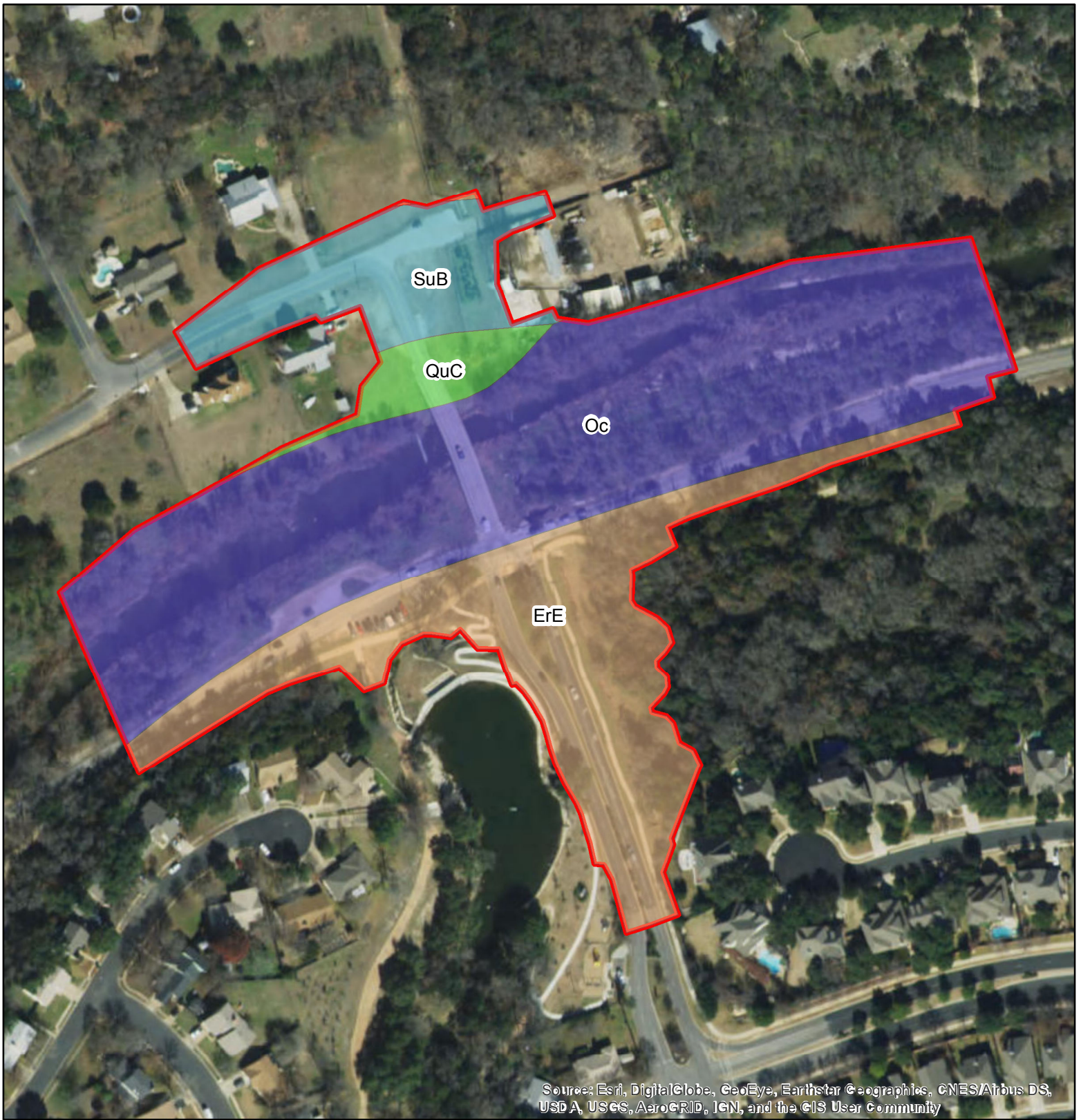
Great Oaks Drive at Brushy Creek

Exhibit 1: Study Area




 Area of Potential Effect

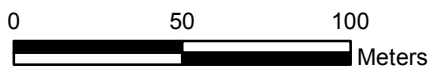








Great Oaks Drive at Brushy Creek

Exhibit 2: Study Area Soils

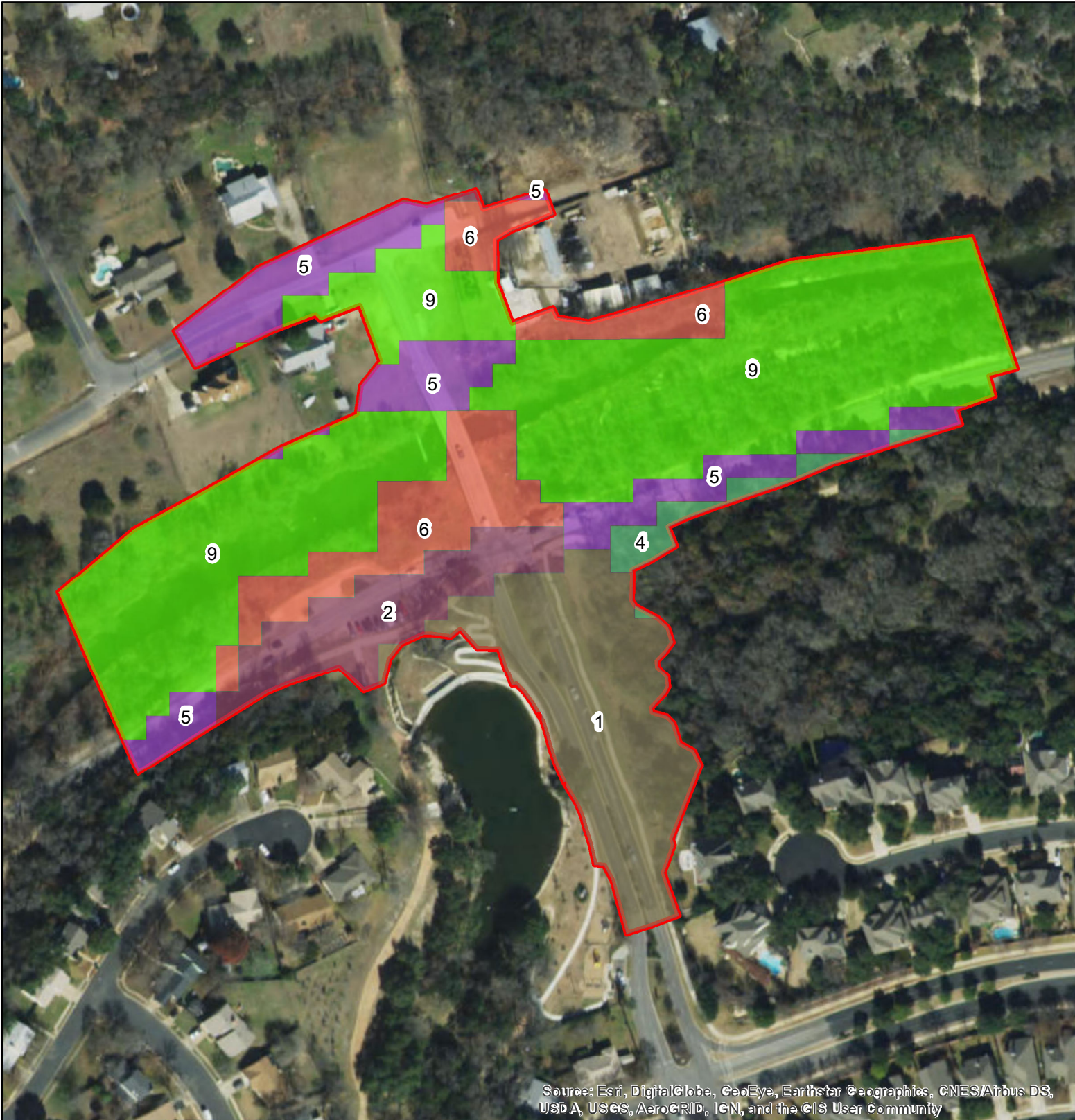
 Area of Potential Effect



Soils


-  ErE - Eckrant Rock outcrop
-  Oc - Oakalla
-  QuC - Queeney clay
-  SuB - Sunev silty clay

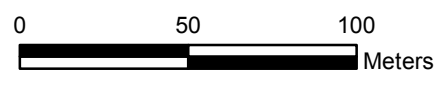










Great Oaks Drive at Brushy Creek

Exhibit 3: HPALM Data

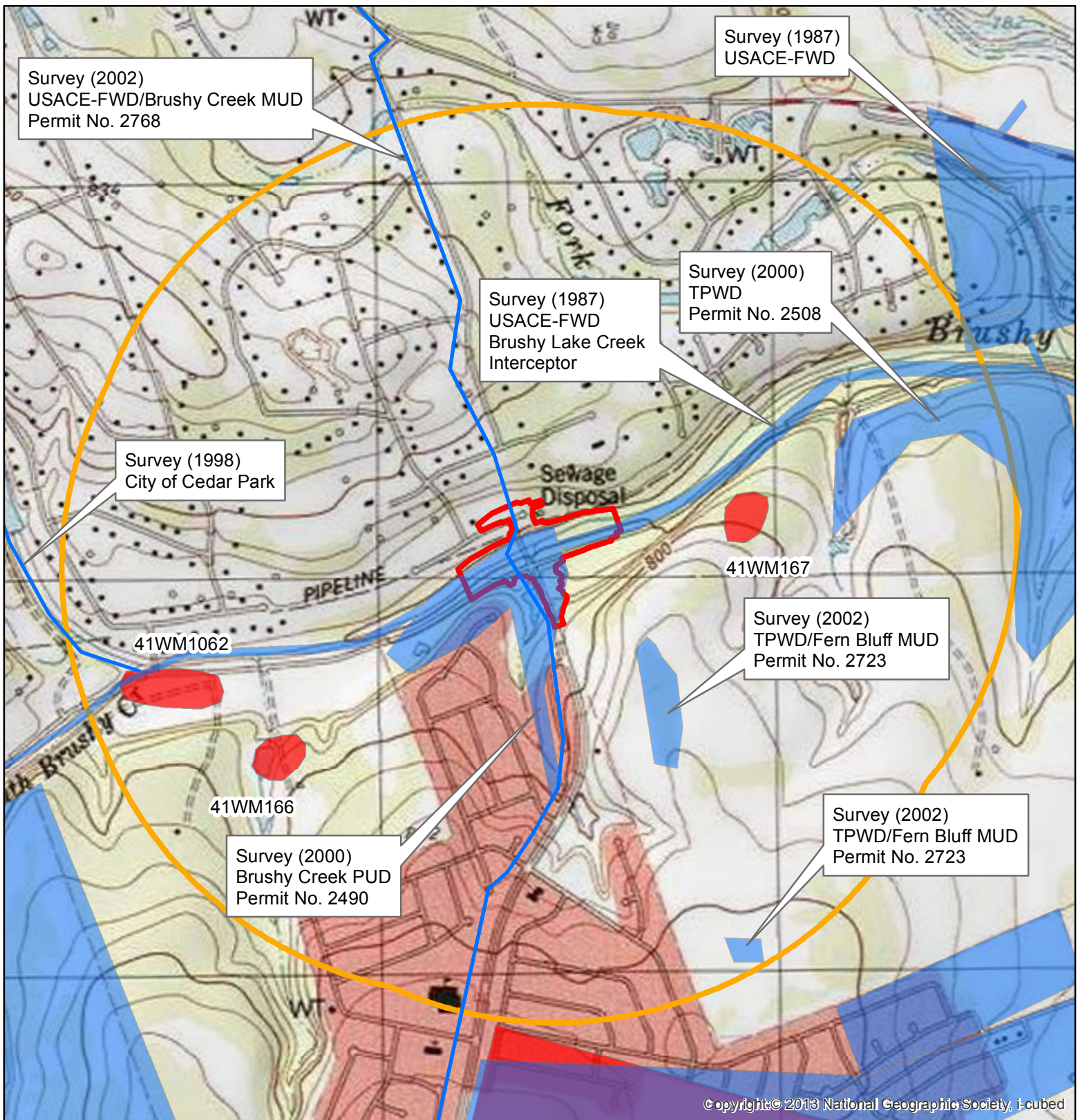
 Area of Potential Effect



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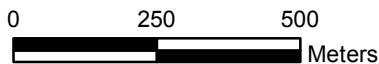




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Great Oaks Drive at Brushy Creek Exhibit 4: Previous Sites and Surveys

-  Area of Potential Effect
-  1,000-Meter Site File Search Area
-  Previous Survey
-  Archaeological Site



Williamson County

Base Map: Round Rock, Tex. 7.5-minute topographic quadrangle