U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE

I. ADMINISTRATIVE INFORMATION

Completion Date of Approved Jurisdictional Determination (AJD): 17-SEP-2020
ORM Number: SWF-2020-00161
Associated JDs: N/A
Review Area Location[1]:
State/Territory: TX City: San Antonio County/Parish/Borough: Bexar County
Center Coordinates of Review Area: Latitude: 29.550622 Longitude: -98.726217

II. FINDINGS

A. Summary: Check all that apply. At least one box from the following list MUST be selected. Complete the corresponding sections/tables and summarize data sources.

- ☐ The review area is comprised entirely of dry land (i.e., there are no waters or water features, including wetlands, of any kind in the entire review area). Rationale: N/A or describe rationale.
- ☐ There are "navigable waters of the United States" within Rivers and Harbors Act jurisdiction within the review area (complete table in section II.B).
- ☐ There are "waters of the United States" within Clean Water Act jurisdiction within the review area (complete appropriate tables in section II.C).
- ☒ There are waters or water features excluded from Clean Water Act jurisdiction within the review area (complete table in section II.D).

B. Rivers and Harbors Act of 1899 Section 10 (§ 10)[2]

§ 10 Name	§ 10 Size	§ 10 Criteria	Rationale for § 10 Determination
N/A	N/A	N/A	N/A

C. Clean Water Act Section 404

Territorial Seas and Traditional Navigable Waters ((a)(1) waters)[3]

(a)(1) Name	(a)(1) Size	(a)(1) Criteria	Rationale for (a)(1) Determination
N/A	N/A	N/A	N/A

Tributaries ((a)(2) waters):

(a)(2) Name	(a)(2) Size	(a)(2) Criteria	Rationale for (a)(2) Determination
N/A	N/A	N/A	N/A

Lakes and ponds, and impoundments of jurisdictional waters ((a)(3) waters):

(a)(3) Name	(a)(3) Size	(a)(3) Criteria	Rationale for (a)(3) Determination
N/A	N/A	N/A	N/A

Adjacent wetlands ((a)(4) waters):

(a)(4) Name	(a)(4) Size	(a)(4) Criteria	Rationale for (a)(4) Determination
N/A	N/A	N/A	N/A

[1] Map(s)/Figure(s) are attached to the AJD provided to the requestor.
[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where independent upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD form.
[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps Districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

D. Excluded Waters or Features

Excluded waters ((b)(1) – (b)(12))[4]:

Exclusion Name	Exclusion Size	Exclusion[5]	Rationale for Exclusion Determination
SWF-2020-00161 Government Canyon	3634 feet	(b)(1) Surface water channel that does not contribute surface water flow directly or indirectly to an (a)(1) water in a typical year	No hydrologic soils or vegetation present. Surface water flows only in direct response to precipitation; does not meet the definition of an (a)(1) through (a)(4) waters.
SWF-2020-00161 Government Canyon Trib A	10169 feet	(b)(1) Surface water channel that does not contribute surface water flow directly or indirectly to an (a)(1) water in a typical year	No hydrologic soils or vegetation present. Surface water flows only in direct response to precipitation; does not meet the definition of an (a)(1) through (a)(4) waters.
SWF-2020-00161 Government Canyon Trib B	3738 feet	(b)(1) Surface water channel that does not contribute surface water flow directly or indirectly to an (a)(1) water in a typical year	No hydrologic soils or vegetation present. Surface water flows only in direct response to precipitation; does not meet the definition of an (a)(1) through (a)(4) waters.

III. SUPPORTING INFORMATION

A. Select/enter all resources that were used to aid in this determination and attach data/maps to this document and/or references/citations in the administrative record, as appropriate.

__X__ Information submitted by, or on behalf of, the applicant/consultant: *Wetlands & Waters of the United States Investigation, Frost GeoSciences, Inc. Project No.: FGS-E19199, Dated: August 6, 2019).* This information *is* sufficient for purposes of this AJD.
Rationale: *N/A*

___ Data sheets prepared by the Corps: *N/A*

__X__ Photographs: *See above report.*

___ Corps Site visit(s) conducted on: *N/A*

___ Previous Jurisdictional Determinations (AJDs or PJDs): *N/A*

__X__ Antecedent Precipitation Tool: *provide detailed discussion in Section III.B.*

___ USDA NRCS Soil Survey: *N/A*

___ USFWS NWI maps: *N/A*

___ USGS topographic maps: N/A

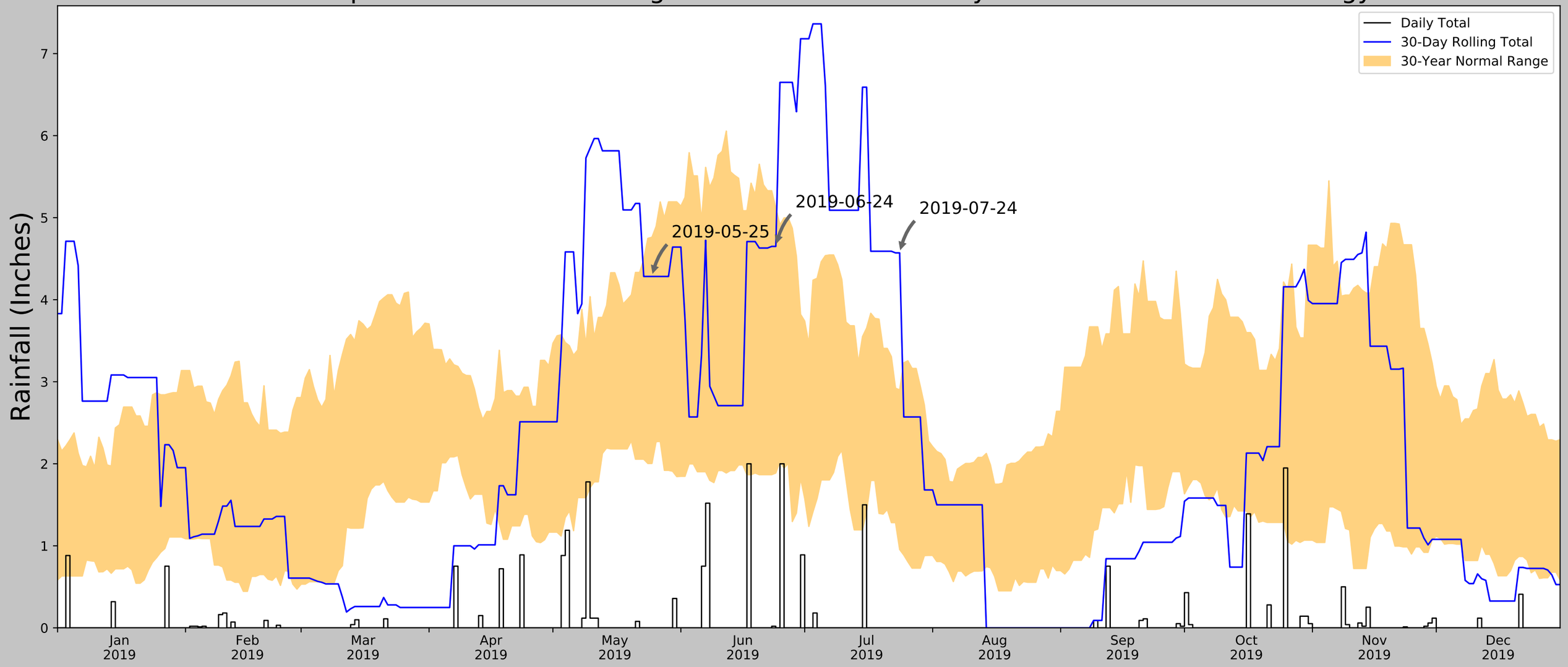
Other data sources used to aid in this determination:

Data Source (select)	Name and/or date and other relevant information
USGS Sources	N/A.
USDA Sources	N/A.
NOAA Sources	N/A.
USACE Sources	N/A.
State/Local/Tribal Sources	N/A.
Other Sources	N/A.

B. Typical year assessment(s): See attached. The APT tool shows that the site was in wetter than normal in drought conditions. There was more rainfall during the dry season (April 2019-June 2019) that affected the 30-day rolling total on the date of the site visit (24 July 2019).

C. Additional comments to support AJD: Supporting information within the administrative record shows maps, delineations, and photographs supporting that aquatic resources on site are non-jurisdictional.

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	29.550622, -98.726217
Observation Date	2019-07-24
Elevation (ft)	1054.98
Drought Index (PDSI)	Normal
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2019-07-24	0.954724	2.9	4.570866	Wet	3	3	9
2019-06-24	1.887402	5.115748	4.649606	Normal	2	2	4
2019-05-25	2.003543	4.761811	4.283465	Normal	2	1	2
Result							Wetter than Normal - 15

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days (Normal)	Days (Antecedent)
BULVERDE	29.7383, -98.4522	1080.053	20.95	25.073	9.953	10521	88
HELOTES 1.9 SSW	29.5414, -98.6998	979.987	1.711	74.993	0.898	36	0
HELOTES 2.0 S	29.5393, -98.6969	1002.953	1.928	52.027	0.968	34	2
HELOTES 4.5 WSW	29.5493, -98.7645	1020.013	2.303	34.967	1.117	128	0
HELOTES 1.3 NNW	29.5853, -98.7011	1083.005	2.832	28.025	1.354	110	0
HELOTES 1.0 ENE	29.572, -98.678	1053.15	3.253	1.83	1.47	62	0
HELOTES 3.4 SSE	29.5219, -98.6741	948.163	3.709	106.817	2.065	11	0
HELOTES 3.7 SSE	29.517, -98.675	935.039	3.857	119.941	2.198	1	0
SAN ANTONIO/SEAWORLD	29.4508, -98.7028	939.961	7.039	115.019	3.977	450	0

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Wetlands & Waters of the United States Investigation

DAVIS RANCH 580 TRACT
+/- 580 ACRES
BEXAR COUNTY, TEXAS 78254

FROST GEOSCIENCES, INC. PROJECT NO.: FGS-E19199
AUGUST 6, 2019

Prepared exclusively for

Pulte Group
1718 Dry Creek Way, Suite 120
San Antonio, Texas 78259

Frost GeoSciences
Geotechnical ▪ Construction Materials
Geologic ▪ Environmental

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TBPG Firm Registration # 50040

August 6, 2019

Pulte Group
1718 Dry Creek Way, Suite 120
San Antonio, Texas 78259
Attn: Mr. Sean Miller, Director of Land Acquisition

SUBJECT:
Wetlands & Waters of the U.S. Investigation
Davis Ranch 580 Tract
+/- 580 Acres
Bexar County, Texas 78254
FGS Project Nº FGS-E19199

Dear Sir:

Frost GeoSciences, Inc., (FGS) is pleased to submit the enclosed Waters of the U.S. Investigation Report conducted for the above referenced Site. This work is based on the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (1987), the recent U.S. Supreme Court decision in *Rapanos/Carabell,* and its SWANCC decision in 2001, and the USACE Regulatory Guidance Letter 07-01, and an on-site field inspection. Our team has observed the standard of care generally exercised by the profession under similar circumstances and conditions to complete this Waters of the U.S. Investigation.

Reliance

This report is intended for the use of our client, Pulte Group, and is subject to the contractual terms agreed to for this report. Reliance on this document by any other party is prohibited without the express written consent of FGS and the client. Information accumulated for this assessment will be retained with your project file. The report and information in your file are considered confidential and will not be released without your authorization.

We appreciate the opportunity to perform these services. Please contact the undersigned if you have questions regarding this report.

Respectfully submitted,
Frost GeoSciences, Inc.

Mr. Michael McMahan, G.I.T.
Project Manager

Mr. Steve Frost, C.P.G., P.G.
President, Senior Geologist

Copies Submitted:
(2) Mr. Sean Miller; Pulte Group
(1) Electronic (PDF)

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EXECUTIVE SUMMARY

This executive summary is provided for convenience and should not substitute for review of the complete report, including all attachments and appendices. Frost GeoSciences, Inc. (FGS) performed a Waters of the U.S. Investigation using the USACE Wetland Delineation Manual (1987), the recent U.S. Supreme Court decision in *Rapanos/Carabell,* and its SWANCC decision in 2001, and the USACE Regulatory Guidance Letter 07-01 as a guide. Any exceptions to, or deletions from the USACE Wetland Delineation Manual (1987) standard practice and authorized Scope of Services are described in the Limitations and Deviations Section of this report.

This report consists of the evaluation of three (3) drainage features located on an approximately 508 acre tract of land known as Davis Ranch 580 Tract located along and northeast of Galm Road in San Antonio, Texas. According to the information provided by the client, FGS has determined that the project Site is located at N29° 32' 38.60" Latitude and W98° 44' 25.42" Longitude (NAD83).

In summary, our findings are:

- The project Site consists of approximately 17,542 linear feet of drainage located on an approximately 580-Acre ranch located along and north of Galm Road.

- Government Canyon Creek, a named creek, is considered a Jurisdictional Waters of the U.S. and is present along the southern boundary of the Site. This drainage segment exhibited a clear bed, bank and ordinary high water mark (OHWM). The creek enters the Site from the western site boundary beginning at approximately N29° 32' 14.97" Latitude and W98° 44' 50.10" Longitude (NAD83). This on-site, approximately 3,634 foot segment of Government Canyon Creek exhibits obvious visual indications of a significant nexus. However, this drainage segment did not exhibit any obligate wetland vegetation, exhibited no indications of hydric soils, was not given a wetland designation in the National Wetlands Inventory (NWI) map and would not be considered a jurisdictional wetlands.

- Government Canyon Tributary A was observed as a north-south trending ephemeral tributary that fallows the eastern site boundary. This drainage segment exhibited a clear bed, bank and OHWM. The tributary enters the Site from the northern site boundary beginning at approximately N29° 33' 20.12" Latitude and W98° 43' 37.87" Longitude (NAD83). This on-site, approximately 10,169 foot segment of Government Canyon Tributary A exhibits obvious visual indications of a significant nexus. However, this drainage segment did not exhibit any obligate wetland vegetation and no indication of hydric soils were noted and would not be considered a jurisdictional wetlands.

- Government Canyon Tributary B was observed as a northwest-southeast trending ephemeral tributary that intersects the south-central portion of the Site. This drainage segment exhibited a clear bed, bank and OHWM. The tributary enters the Site from the western site boundary beginning at approximately N29° 32' 49.92" Latitude and W98° 44' 32.45" Longitude (NAD83).

This on-site, approximately 3,738 foot segment of Government Canyon Tributary B exhibits obvious visual indications of a significant nexus. However, this drainage segment did not exhibit any obligate wetland vegetation, exhibited no indications of hydric soils, was not given a wetland designation in the National Wetlands Inventory (NWI) map and would not be considered a jurisdictional wetlands.

- Three additional unnamed north to south trending tributaries were observed draining to Government Canyon Tributaries A and B. These features exhibited an intermittent bed, bank and ordinary high water mark. No significant nexus were noted along these tributaries. These drainage segments did not exhibit obligate wetland vegetation and no indication of hydric soils were noted. Given the aforementioned criteria, FGS is of the opinion that these unnamed tributaries do not meet the standards to be considered Jurisdictional Wetland Areas or Waters of the U.S.

- On the basis of our field investigations, FGS is of the opinion that there are three (3) drainage segments on the project site that would fall under the jurisdiction of the USACE and be subject to Section 404 permitting. These features include: Government Canyon Creek and Government Canyon Tributaries A and B. A Notable Features Map is included as Figure 1 displaying on-site potential wetlands and Waters.

Should the user of this report wish to discharge dredged or fill material into areas determined by the USACE to be Jurisdictional Waters of the U.S., Section 404 Permitting is required.

FGS assumes no responsibility for inaccurate information that is not otherwise obvious in light of information for which FGS has actual knowledge. FGS' site observations are of the conditions observed at the time of the Waters of the U.S. Investigation.

This executive summary is provided for convenience and should not substitute for review of the complete report, including all attachments and appendices.

1.0 INTRODUCTION AND SCOPE OF SERVICE

1.1 Authorization for Waters of the United States Investigation

In general accordance with the signed proposal by Mr. Sean Miller with Pulte Group, FGS was authorized to perform a Wetlands and Waters of the U.S. Investigation on approximately 508 acres in Bexar County, Texas.

1.2 Purpose of Services Provided

The purpose of this Wetlands and Waters of the U.S. Investigation is to identify the potential for jurisdictional waters to exist at the Site. A Waters of the U.S. Investigation includes both a Wetland Determination and a Waters of the U.S. Stream Determination.

An area is considered a Wetland Area only if all three of the wetland criteria are met as designated by the USACE Wetland Delineation Manual (1987). The evaluation of these criterion includes a determination as to: 1) whether the soils are considered hydric or waterlogged, 2) whether the soils show demonstrable evidence of hydrologic conditions associated with flooding or ponding of water for more than two weeks per year, and 3) whether 50% of the dominant plants found growing on the site are those commonly found in wetlands. Areas that fail to satisfy any one of the three wetland criterion are not considered Jurisdictional Wetland Areas as designated by the United States Army Corps of Engineers (USACE) Wetland Delineation Manual (1987). Wetland areas are under the Jurisdictional of the USACE if the wetland areas occur along areas determined to be waters of the U.S. or immediately adjacent to those areas.

Changes to EPA enforcement of the Clean Water Act were released in 2015 but are currently entangled in pending litigation and the EPA website for Waters of the United States (WOTUS) rulemaking states the EPA and the Corps are working to restore pre-2015 guidance for WOTUS.
The 2015 clarification of the Clean Water Act (CWA) guidelines state the following areas are considered waters of the U.S:

1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2) All interstate waters, including interstate wetlands;
3) The territorial seas;
4) All impoundments of these waters;
5) All tributaries of the aforementioned waters. Tributaries are defined as a water that contributes flow, either directly or through another water (including an impoundment), to a water of the U.S. that is characterized by the presence of the physical indicators of a bed and banks and an ordinary high water mark. These physical indicators demonstrate there is volume, frequency, and duration of flow sufficient to create a bed and banks and an ordinary high water mark, and thus to qualify as a tributary. A tributary can be a natural, man-altered, or man-made water and includes waters such as rivers, streams, canals, and ditches (not including waste treatment ponds, lagoons or systems designed to meet the requirements of the CWA, prior converted cropland, ditches with ephemeral flow that are *not* a

relocated/excavated tributary or which drain wetlands, ditches that do not flow directly or indirectly into a water of the U.S as defined above, artificially irrigated areas which would revert to dry land without irrigation, artificially constructed lakes/ponds in dry land such as stock tanks, irrigation ponds, settling basins, flooded fields, log cleaning ponds, or cooling ponds, artificial reflecting/swimming pools, small ornamental waters, water-filled depressions incidental to mining or construction activity on dry land, erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of tributary, non-wetland swales, and lawfully constructed grassed waterways, puddles, groundwater, stormwater control features in dry land, and wastewater recycling structures constructed in dry land). A water that otherwise qualifies as a tributary under this definition does not lose its status as a tributary if, for any length, there are one or more constructed breaks (such as bridges, culverts, pipes, or dams), or one or more natural breaks (such as wetlands along the run of a stream, debris piles, boulder fields, or a stream that flows underground) so long as a bed and banks and an ordinary high water mark can be identified upstream of the break. A water that otherwise qualifies as a tributary under this definition does not lose its status as a tributary if it contributes flow through a water of the United States that does not meet the definition of tributary or through a non-jurisdictional water to a water of the U.S. as defined above.

6) All waters adjacent to (generally within 100 feet of) a water of the U.S., including wetlands, ponds, lakes, oxbows, impoundments, and similar waters. This includes the headwaters of water of the U.S. but does not include waters being used for established normal farming, ranching, and forestry activities. If any portion of a water is located within 100 feet of a water of the U.S., the entire water is considered adjacent;
7) All of the following, as determined on a case-specific basis:
    a. Prairie potholes,
    b. Carolina bays and Delmarva bays,
    c. Pocosins, i.e. - upland swamps,
    d. Western vernal pools, and
    e. Texas coastal prairie wetlands.
8) All waters located within the 100-year floodplain (and not more than 1,500 feet of the OHWM) of a water of the U.S. and all waters located within 4,000 feet of the high tide line or ordinary high water mark of a water identified in numbers 1 through 5 above where they are determined on a case-specific basis to have a significant nexus to a water identified in numbers 1 through 3 above.

The 2015 CWA guidelines define the term “significant nexus” to mean that a water, including wetlands, either alone or in combination with other similarly situated waters in the watershed, significantly affects the chemical, physical, or biological integrity of a water identified in numbers 1 through 3 above. Factors considered when evaluating significant nexus are defined as follows:

- Sediment trapping,
- Nutrient recycling,
- Pollutant trapping, transformation, filtering, and transport,
- Retention and attenuation of flood waters,
- Runoff storage,

- Contribution of flow,
- Export of organic matter,
- Export of food resources, and
- Provision of life cycle dependent aquatic habitat (such as foraging, feeding, nesting, breeding, spawning, or use as a nursery area) for species located in a water identified in numbers 1 through 3 above.

Bearing in mind the effects of any federal Executive actions or ruling(s) made on pending court case(s) as to the enforcement of the new guidelines, 2008 guidelines for determining if an area falls under the jurisdiction of the United States Army Corps of Engineers (USACE) have been utilized for this evaluation and are outlined below:

The U.S. Army Corps of Engineers (USACE) has authority to permit the discharge of dredged or fill material in Waters of the United States under Section 404 of the Clean Water Act (CWA), and permit work and the placement of structures in navigable Waters of the United States under Section 9 and 10 of the Rivers and Harbors Act of 1899 (RHA).

According to CWA regulations (33 CFR 328.3(a)) Waters of the United States include:

1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2) All interstate waters including interstate wetlands;
3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
4) All impoundments of waters otherwise defined as waters of the United States under the definition;
5) Tributaries of waters previously identified;
6) The territorial seas, and
7) Wetlands adjacent to previously defined waters of the United States

The RHA regulations (33 CFR Part 329.4) define the term "navigable waters of the United States" to include all those waters that are subject to the ebb and flow of the tide, and/or presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

The limits of the USACE jurisdiction regarding Waters of the United States for non-tidal waters are defined by the presence of an ordinary high water mark (OHWM). The OHWM is defined as the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

In 2006, the Supreme Court addressed the jurisdictional scope of Section 404 of the CWA; specifically, the term "the Waters of the United States" in *Rapanos v. United States* and in *Carabell v.*

United States (hereafter referred to as *Rapanos*). The decision produced two new standards for determining whether non-traditional navigable water bodies are jurisdictional:

1) If the water body is relatively permanent, or if the water body is a wetland that directly abuts a relatively permanent water body, and
2) If a water body, in combination with all wetlands adjacent to that water body has a significant nexus with a navigable water body.

The USACE issued a Memorandum Regarding Clean Water Act Jurisdiction Following *Rapanos v. U.S.* The Memo states that the USACE can assert jurisdiction over the following categories of water bodies:

1) Traditional navigable waters,
2) All wetlands adjacent to traditional navigable waters,
3) Non-navigable tributaries of traditional navigable waters that are relatively permanent, and wetlands that directly abut such tributaries.
4) Every water body that in not a permanent water body if that water body is determined to have a "significant nexus" with a traditional navigable water body.

According to the Memo, a "significant nexus" exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or an insubstantial effect on the chemical, physical, and/or biological, integrity of a traditional navigable water body. The USACE states that the principle considerations when evaluating a "significant nexus" includes the volume, duration, and frequency of the flow of water in the tributary and the proximity of the tributary to a traditional navigable water body, plus the hydrologic, ecologic, and other functions performed by the tributary and all of its adjacent wetlands. The process for determining a "significant nexus" is described in 33 CFR 328.3(a).

Swales or erosional features (e.g. gullies, small washes characterized by low volume, infrequent, or short duration flow), ditches (including roadside ditches) that do not carry a relatively permanent flow of water are generally not waters of the United States because they are not tributaries or they do not have a significant nexus to downstream traditional navigable waters.

1.3 Services Provided

The services provided for the Wetlands & Waters of the U.S. Stream Determination include the following tasks:

1) Review of U.S.G.S. 7.5 Minute Topographic Maps, Flood Insurance Rate Maps, National Wetland Inventory Maps, and available aerial photographs to determine if any potential stream channels appear on the project site.
2) Visual reconnaissance of the property to evaluate potential for Jurisdictional Stream Channels and adjacent wetlands.
3) Determine if stream channels and adjacent wetlands qualify using the USACE criteria for the presence of an ordinary high water mark (OHWM) and the potential for a significant nexus.

1.4 Report

This report is intended to identify potential jurisdictional waters and adjacent wetlands located on the Site. A copy of the local street map indicating the location of the project site is included on Figure 2.

2.0 LIMITATIONS AND DEVIATIONS

Frost GeoSciences, Inc. is of the opinion that there were no significant Limitations or Deviations during the course of our investigation of the property.

3.0 SITE DESCRIPTION

3.1 Location of Site

In summary, our findings are:

The project site consists of approximately 508 acres located along and northeast of Galm Road in San Antonio, Texas. According to the information provided by the client, FGS has determined that the Site is located at N29° 32' 38.60" Latitude and W98° 44' 25.42" Longitude (NAD83). The Site is situated on a gradually sloping landscape located below the Edwards Plateau uplands. The topography is a sloping and eroded edge of the Balcones escarpment and is ranch land. The property is incised by a deep canyon of Government Canyon Tributary A along the western boundary. Government Canyon Creek is located along the southern boundary and Government Canyon Tributary B intersects the south-central portion of the Site. Government Canyon Tributaries A and B converge with Government Canyon Creek near the southern site boundary. No obvious visual indications of standing or flowing water were observed within these ephemeral drainage systems. No obvious visual indications of wetland plant species or hydric soils were noted on-site. All three drainage features noted above were observed to exhibit clear beds, banks and OHWMs. Therefore, Government Canyon Creek and Government Canyon Tributaries A and B exhibit significant nexus and are considered jurisdictional Waters of the United States (WOTUS).

On the basis of our field investigations, FGS is of the opinion that these three (3) drainage segments on the project site that would fall under the jurisdiction of the USACE and be subject to Section 404 permitting. However, FGS is of the opinion that the potential on-site features do not meet the standards to be considered Jurisdictional Wetland Areas. A Notable Features Map is included as Figure 1 displaying on-site potential wetlands and Waters. A copy of the local street map indicating the location of the project site is included on Figure 2.

4.0 REVIEW OF AVAILABLE MAPS

4.1 Topography

According to the Helotes, Texas 7.5 minute USGS Topographic Quadrangle Map (1992), the Site is located between 945 and 1060 feet above mean sea level. The Site is located on a slight topographic south facing slope. Government Canyon Creek and two of its tributaries, A and B, are

indicated on the Site. Government Canyon Creek is present along the southern Site boundary. Tributary A is depicted crossing through the southwestern portion of the Site before joining Government Canyon Creek in the southern portion of the Site. Tributary B is depicted crossing the northeastern portion of the Site, and then following the eastern Site boundary down to join with Government Canyon Creek in the southern portion of the Site. The general direction of area runoff drains northwest to southeast along the unnamed tributaries and into Government Canyon Creek. The topographic map depicts the Site as a mixture of wooded land and agricultural fields. A copy of the above mentioned USGS Topographic map is included as Figure 3.

4.2 Soil Conditions

According to the United States Department of Agricultural (USDA) Natural Resources Conservation Service (NRCS) Soil Survey of Bexar County (1966), the Site is located on the following soils:

- **The Lewisville Silty Clay, 0 to 1 percent slopes (LvA)** consists of moderately deep, dark colored, nearly level alluvial soils. These soils occur mainly on terraces bordering the San Antonio and Medina Rivers and their main tributaries. The surface layer is very dark grayish brown to brown silty clay and is about 24 inches thick. It has fine subangular blocky or blocky structure, and is firm and crumbly when moist. This layer contains a few fine concretions of lime carbonate. The subsurface layer is brown silty clay and is about 20 inches thick. It has fine, subangular blocky or blocky structure and is very firm but crumbly when moist. This layer is limy. The underlying material is reddish yellow silty clay. It has weak, blocky structure, is very firm when moist, and contains large amounts of lime. Beneath this layer there may be deep beds of water rounded limestone gravel. Lewisville soils have slow or medium surface drainage and medium internal drainage. Permeability is slow to moderate. The capacity to hold water is good. Natural fertility is high. The hazard of water erosion is serious on the more sloping parts but is very slight on the nearly level areas.

- **Lewisville silty clay, 1 to 3 percent slopes (LvB)** consists of moderately deep, dark colored, nearly level alluvial soils. These soils occur mainly on terraces bordering the San Antonio and Medina Rivers and their main tributaries. The surface layer is dark grayish brown and is about 20" thick. It has fine subangular blocky or blocky structure, and is firm and crumbly when moist. This layer contains a few fine concretions of lime carbonate. The subsurface layer is limey brown clay and is about 17" thick. It has fine, subangular blocky or blocky structure and is very firm but crumbly when moist. Lewisville soils have slow or medium surface drainage and medium internal drainage. Permeability is slow to moderate. The capacity to hold water is good. Natural fertility is high. The hazard of water erosion is serious on the more sloping parts but is very slight on the nearly level areas.

- The **Patrick Soils, 1 to 3 percent slopes (PaB)** consist of shallow, dark colored nearly level and gently sloping soils. These soils occur as terraces along streams that drain the limestone prairies of the county. Typically, the surface layer is clay loam, gravelly clay loam, silty clay, or light clay and is about 12 inches thick. The subsurface layer, which is about 5 inches thick, is brown clay loam, loam, or light clay. This layer also has a granular structure. Permeability is

moderate. Natural fertility is moderately high. In the more sloping parts, these soils are susceptible to water erosion.

- The Tarrant Association, gently undulating, 1 to 5 percent slopes (TaB) consists of stony soils that are very shallow, dark colored, and gently undulating to steep. The Tarrant Association occurs on the limestone prairies in the northern third of the county. The surface layer is very dark grayish brown, calcareous clay loam and is about 10" thick. It has moderate, fine, sub-angular blocky structure. This layer is crumbly and friable when moist. Limestone fragments that range from a ¼ inches to 24 inches in diameter cover about 35 percent of the surface. The subsurface layer, about 8" thick, is hard fractured limestone. The cracks and spaces are filled with dark grayish brown clay loam. The bedrock is hard limestone. Tarrant soils have rapid surface drainage and good internal drainage. Water erosion is a hazard. The capacity to hold water is low. Natural fertility is high.

A copy of the 1959 Aerial Photograph from the USDA indicating the investigated area and the soil types is included on Figure 4.

4.3 Floodplain Information

The majority of the Site is not designated a special flood hazard area according to the FEMA National Flood Insurance Program *Flood Insurance Rate Map*, Panel 215 of 785, for incorporated areas of Bexar County, Texas, Community Panel Number 48029C0215G, effective September 29, 2010. The majority of the Site is located within Zone X (unshaded), which is defined as areas determined to be outside the 0.2% annual chance floodplain. However, areas of the Site along Government Canyon Creek in the south and its Tributaries A and B are located in Zone AE. According to the map legend, Zone AE is defined as an area with the Special Flood Hazard Area subject to inundation by the 1% annual chance flood where base flood elevations have been determined to be between 951 feet and 1043 feet. A copy of the above mentioned FEMA flood map is included as Figure 5.

4.4 National Wetland Inventory Review

According to the National Wetland Inventory Map, Helotes, Texas Sheet (1994), there are three intermittent drainage features crossing the Site. However, these features are not given wetland classifications. No potential wetland areas are located directly on the Site. No obvious visual indications of standing or flowing water were observed within the tributary at the time of the field reconnaissance. No obvious visual indications of wetland plant species or hydric soils were noted on-site. A copy of the National Wetland Inventory Map, Helotes, Texas Sheet (1994) indicating the location of the project site is included as Figure 6.

4.5 Aerial Photographs

Reasonably available aerial photographs were reviewed to identify possible waters of the U.S. and areas prone to wetland development and are summarized below. The information obtained from the evaluation of aerial photographs depends upon their scale and quality, and seasonal variations in precipitation. Copies of noteworthy aerials are provided in Figures 7 through 10 in Appendix B.

1995 Aerial Photograph – United States Geologic Survey – 1"=800'

The Site appeared as a mix of wooded and agricultural land with moderate vegetative cover. Agricultural fields were visible in the southern portion of the Site. Government Canyon Tributary A was visible crossing the northeastern portion of the Site, continuing along the eastern site boundary and joining with Government Canyon Creek near the southeast site corner. Government Canyon Tributary B was visible in the southern portion of the Site, joining with Government Canyon Creek near the southeastern site corner. Government Canyon Creek can be seen following the southern site boundary and continuing south. A homestead and several accompanying agricultural structures were visible in the southeastern portion of the Site. The surrounding areas to the north, northeast, and west appeared as undeveloped wooded land. Present-day Galm Road was visible to the south of the Site. An unimproved road was visible running north and east from Galm Road to the homestead. Residential development was visible to the east of the Site. See Figure 7 in Appendix B.

2004 Aerial Photograph – United States Department of Agriculture – 1"=800'

The bed of Culebra Creek tributary F appeared to be visible through the dense vegetative cover in the eastern section of the project site at this time. No indications of standing or flowing water were visible. The remainder of the Site appeared reasonably unchanged from the previous aerial photograph. Sunset Hills Road was visible as a wide dirt road in the eastern section of the aerial at this time. The remaining surrounding properties appeared reasonably unchanged from the previous aerial. See Figure 8 in Appendix B.

2015 Aerial Photograph – United States Department of Agriculture – 1"=800'

The project Site appears reasonably unchanged from the previous aerial photograph. Residential development was present to the east of the Site. The remainder of the surrounding properties appeared reasonably unchanged from the previous aerial. See Figure 9 in Appendix B.

2018 Aerial Photograph – Google Earth – 1"=800'

Obvious clearing on-site had occurred by this time. Surrounding properties appeared reasonably unchanged from the previous aerial photograph. See Figure 10 in Appendix B.

5.0 PRIOR REPORTS

5.1 Prior Reports

FGS was not provided with previous reports pertinent to this evaluation for review as part of this assessment.

6.0 FIELD DELINEATIONS

Mr. Steve Frost, C.P.G., P.G.. Mr. Michael McMahan, G.I.T., and Ms. Madison Gargaro of FGS performed a site inspection of the property on July 24, 2019 with guidance from the USACE Regulatory Guidance Letter dated June 5, 2007, and based on the absence/presence of an OHWM for "waters of the U.S. as defined in the CWA Regulations 33. CFR 328.3(a).

The project site consists of approximately 508 acres located along and northeast of Galm Road in San Antonio, Texas. According to the information provided by the client, FGS has determined that the Site is located at N29° 32' 38.60" Latitude and W98° 44' 25.42" Longitude (NAD83). The Site is situated on a gradually sloping landscape located below the Edwards Plateau uplands. The topography is sloping and eroded edge of the Balcones escarpment and is ranch land.

The property is incised by a deep canyon of Government Canyon Tributary A along the western boundary. Government Canyon Tributary A drains the adjacent uplands to the north, crosses the northeastern portion of the Site, continues along the eastern site boundary and joins with Government Canyon Creek near the southeast site corner. Government Canyon Tributary A appears to be an ephemeral tributary with flowing water only after heavy rains. This well-defined drainage channel contains banks as high as 10 feet in the northern portion of the Site and large depositional gravel and point bars can be observed throughout the length of the channel. The width of the channel varies from 16 to 20 feet wide. Based on the clearly defined bed, bank and OHWM, FGS is of the opinion that Government Canyon Tributary A exhibits significant nexus and would fall under the jurisdiction of the USACE and be subject to Section 404 permitting. However, because this drainage segment did not exhibit obligate wetland vegetation, no indication of hydric soils were noted and was not given a wetland designation in the NWI map, FGS is of the opinion that Government Canyon Tributary A does not meet the standards to be considered a Jurisdictional Wetland Area.

A short 320 feet drainage feature (Unnamed Tributary 1) was observed converging with Government Canyon Tributary A near the northeast corner of the Site. This ephemeral unnamed tributary exhibited an intermittent bed, bank and ordinary high water mark. No significant nexus were noted along this tributary. This drainage segment did not exhibit obligate wetland vegetation and no indication of hydric soils were noted. Given the aforementioned criteria, FGS is of the opinion that Unnamed Tributary 1 does not meet the standards to be considered Jurisdictional Wetland Areas or Waters of the U.S.

Government Canyon Creek was observed along the southern site boundary. Government Canyon Creek drains the adjacent uplands to the northeast. No obvious visual indications of standing or flowing water was observed within the channel. The western upstream 1,270 foot segment appeared to have been improved with pushed soil berms along the banks. The last 300 foot on-site segment of Government Canyon Creek appears to have been modified into an improved grassy drainage swale that flows through concrete box culverts under the adjacent Galm Road. Government Canyon Creek appears to be an ephemeral tributary with flowing water only after heavy rains. This named creek is a wide, deeply insized, well-defined drainage channel with large depositional gravel and point bars observable throughout. The width of the channel varies from 18 to 22 feet. Based on the named creek having a clearly defined bed, bank and OHWM, FGS is of the opinion that Government Canyon Creek exhibits significant nexus and would fall under the jurisdiction of the USACE and be subject to Section 404 permitting. However, because this drainage segment did not exhibit obligate wetland vegetation, no indication of hydric soils were noted and was not given a wetland designation in the NWI map, FGS is of the opinion that Government Canyon Creek does not meet the standards to be considered a Jurisdictional Wetland Area.

Government Canyon Tributary B intersects the south-central portion of the Site and converged with Government Canyon Creek in the southeast portion of the Site. Government Canyon Creek drains the adjacent uplands to the northeast. No obvious visual indications of standing or flowing water was observed within the channel. Government Canyon Tributary B appears to be an ephemeral tributary with flowing water only after heavy rains. This named creek is a wide, deep well-defined drainage channel with large depositional gravel and point bars observable throughout. The width of the channel varies from 10 to 14 feet. Based on the named creek having a clearly defined bed, bank and OHWM, FGS is of the opinion that Government Canyon Tributary B exhibits significant nexus, would fall under the jurisdiction of the USACE and be subject to Section 404 permitting. However, because this drainage segment did not exhibit obligate wetland vegetation, no indication of hydric soils were noted and was not given a wetland designation in the NWI map, FGS is of the opinion that Government Canyon Tributary B does not meet the standards to be considered a Jurisdictional Wetland Area.

Two unnamed north to south trending tributaries were observed draining to Government Canyon Tributary B. These features exhibited an intermittent bed, bank and ordinary high water mark. No significant nexus were noted along these tributaries. These drainage segments did not exhibit obligate wetland vegetation and no indication of hydric soils were noted. Given the aforementioned criteria, FGS is of the opinion that the potential on-site features do not meet the standards to be considered Jurisdictional Wetland Areas or Waters of the U.S.

In summary, on the basis of our field investigations, FGS is of the opinion that Government Canyon Creek and Government Canyon Tributaries A and B are WOTUS, would fall under the jurisdiction of the USACE and be subject to Section 404 permitting. However, FGS is of the opinion that the potential on-site features do not meet the standards to be considered Jurisdictional Wetland Areas.

6.1 Stream and Wetland Determination

Field investigations were performed across the project site to observe if any areas of concentrated drainage flow were noted. Drainage across the project Site appears flow to the southeast along Government Canyon Creek.

The findings are summarized below:

ORDINARY HIGH WATER MARK SUMMARY					
ID #	Stream ID	OHWM (ft)	Location (NAD 83)		Notes
			Latitude	Longitude	
1	Government Canyon Tributary A	18	29°32'53.01"	-98°43'49.83"	Ephemeral stream. Well defined OHWM. No indication of standing or flowing water, or of hydric soils. No wetlands vegetation.

ORDINARY HIGH WATER MARK SUMMARY					
ID #	Stream ID	OHWM (ft)	Location (NAD 83)		Notes
			Latitude	Longitude	
2*	Government Canyon Creek	20	29°32'10.87"	-98°44'35.24"	Ephemeral stream. Well defined OHWM. No indication of standing or flowing water, or of hydric soils. No wetlands vegetation.
3	Government Canyon Tributary B	12	29°32'24.81"	-98°44'29.82"	Ephemeral stream. Well defined OHWM. No indication of standing or flowing water, or of hydric soils. No wetlands vegetation.

*Indicates areas that are not in a native state.

WATERS OF THE U.S. DELINEATION SUMMARY						
Stream ID	Classification*	Length (ft)	Mean OHWM (ft)	Area (ft^2)	Area (acres)	Quality**
1	E	10,169	18	183,042	4.20	2
2	E	3,634	20	72,680	1.67	3
3	E	3,738	12	44,856	1.03	2

***Classification:**
TNW: Traditional navigable water body
(P) Perennial Stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water from stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

(I) Intermittent Stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

(E) Ephemeral Stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

****Quality**
1: Lowest; narrow and non-varying width OHWM, few pools and riffles, substrate uniform, low sinuosity/meanders-mostly straight channel, high degree of channel erosion, poor water quality (turbid), few downed trees, branched of tree roots in the channel, low plant species diversity, high degree of human disturbance

5: Highest; Wide and variable OHWM, frequent pools and riffles, variable substrate (gravel, sand, clay), high sinuosity/meanders, non-eroding banks, good water quality, high level of downed trees and branches, tree roots in the channel, high plant species diversity, minimal human disturbance

7.0 FINDINGS AND CONCLUSIONS

Frost GeoSciences, Inc. (FGS) has conducted this Wetlands & Waters of the U.S. Investigation in general accordance with the Scope of Services described in our proposal. Any exceptions to, or

deletions from the Scope of Services are described in the Limitations and Deviations Section of this report.

7.1 Potential Jurisdictional Waters of the United States

The project Site consists of approximately 17,542 linear feet of drainage located on an approximately 580-Acre ranch located along and north of Galm Road in San Antonio, Texas. There was evidence of a significant nexus on the site. On the basis of our field investigations, FGS is of the opinion that Government Canyon Creek and Government Canyon Tributaries A and B would fall under the jurisdiction of the USACE and be subject to Section 404 permitting. However, there was no evidence of wetlands vegetation or of hydric soils associated with these feature. FGS is of the opinion that the potential on-site features do not meet the standards to be considered Jurisdictional Wetland Areas.

8.0 RECOMMENDATIONS

Frost GeoSciences, Inc. is of the opinion that permitting by the USACE will be required for this project. Should the user of this report wish to discharge dredged or fill material into areas not investigated as part of this report and determined by the USACE to be Jurisdictional Waters of the U.S., Section 404 Permitting will be required.

9.0 STANDARD OF CARE

The services performed by Frost GeoSciences, Inc., (FGS) on this project have been conducted with that level of care and skill ordinarily exercised by reputable members of the profession, practicing in the same locality, under similar budget and time constraints. We declare that to the best of our knowledge one or more of the parties involved in the preparation of this report meet the definition of environmental professional as defined in §312.10 of 40 C.F.R. 312 and 12.13.2. One or more of the parties involved in the preparation of this report have the specific qualifications base on education, training, and experience to assess a property of the nature, history, and setting of the Site. We have developed and performed the all appropriate inquiries in conformance with the standards and practices as set forth in 40 C.F.R. Part 312. No other warranty is expressed or intended.

This report is exclusively for the use and benefit of those listed on the title page of this report and may not be relied upon by any other person or entity without written permission from FGS.

PREPARED BY:
Frost GeoSciences, Inc.

Mr. Michael McMahan
Project Manager

Steve Frost, C.P.G., P.G.
President, Senior Geologist

10.0 REFERENCES

USACE LITERATURE

Corps of Engineers Wetlands Delineation Manual (1987), Prepared by Environmental Laboratory, Wetlands Research Program Technical Report Y-87-1

RGL 07-01 Practices for Documenting Jurisdiction under Section 404 of the Clean Water Act (CWA) and Sections 9 & 10 of the Rivers & Harbors Act (RHA) of 1899

U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook, May 30, 2007

Memorandum for the Field: Coordination on JDs under CWA Section 404 in Light of *SWANCC* and *Rapanos* Supreme Court Decisions

Memorandum Regarding Clean Water Act Jurisdiction Following Rapanos v. U.S.

OTHER

Microsoft Streets and Trips, 2013

USGS - 7.5 Minute Topographic Quadrangle of Helotes Texas, 1992

Soil Survey Online Resource - http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx; United States Department of Agriculture Soil Conservation Service

USDA Natural Resources Conservation Service (NRCS), Soil Survey for Bexar County, Texas (1966),

Federal Emergency Management Agency, Federal Insurance Administration, National Flood Insurance Program, Flood Insurance Map, Community Panel Number 48029C0215G, effective September 29, 2010.

USFWS National Wetlands Inventory Map Helotes, Texas Sheet (1994)

National List of Plant Species that Occur in Wetlands (2012)

Aerial Photographs – United States Geologic Survey

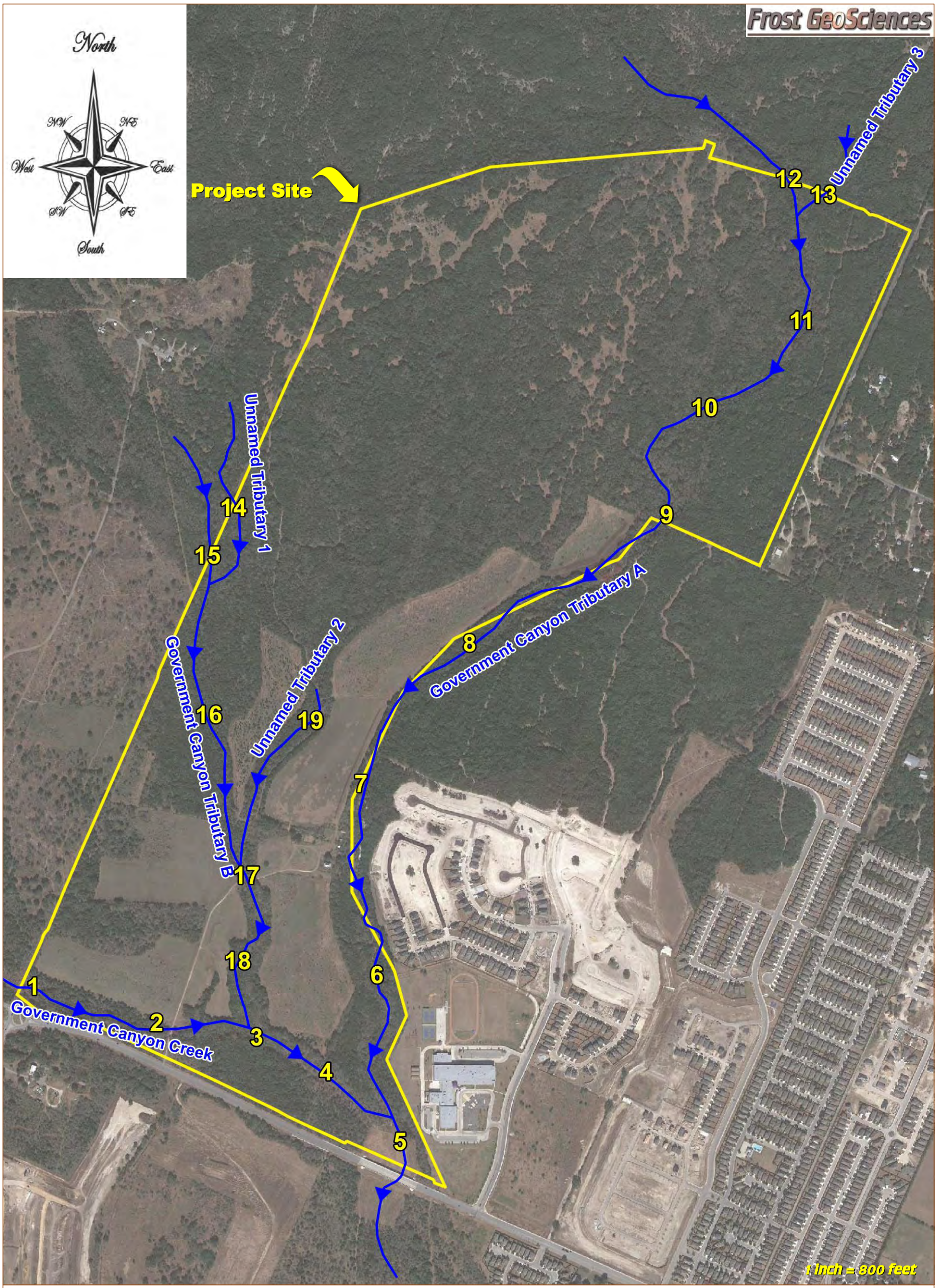
Aerial Photographs – United States Department of Agriculture

Aerial Photographs – Google Earth

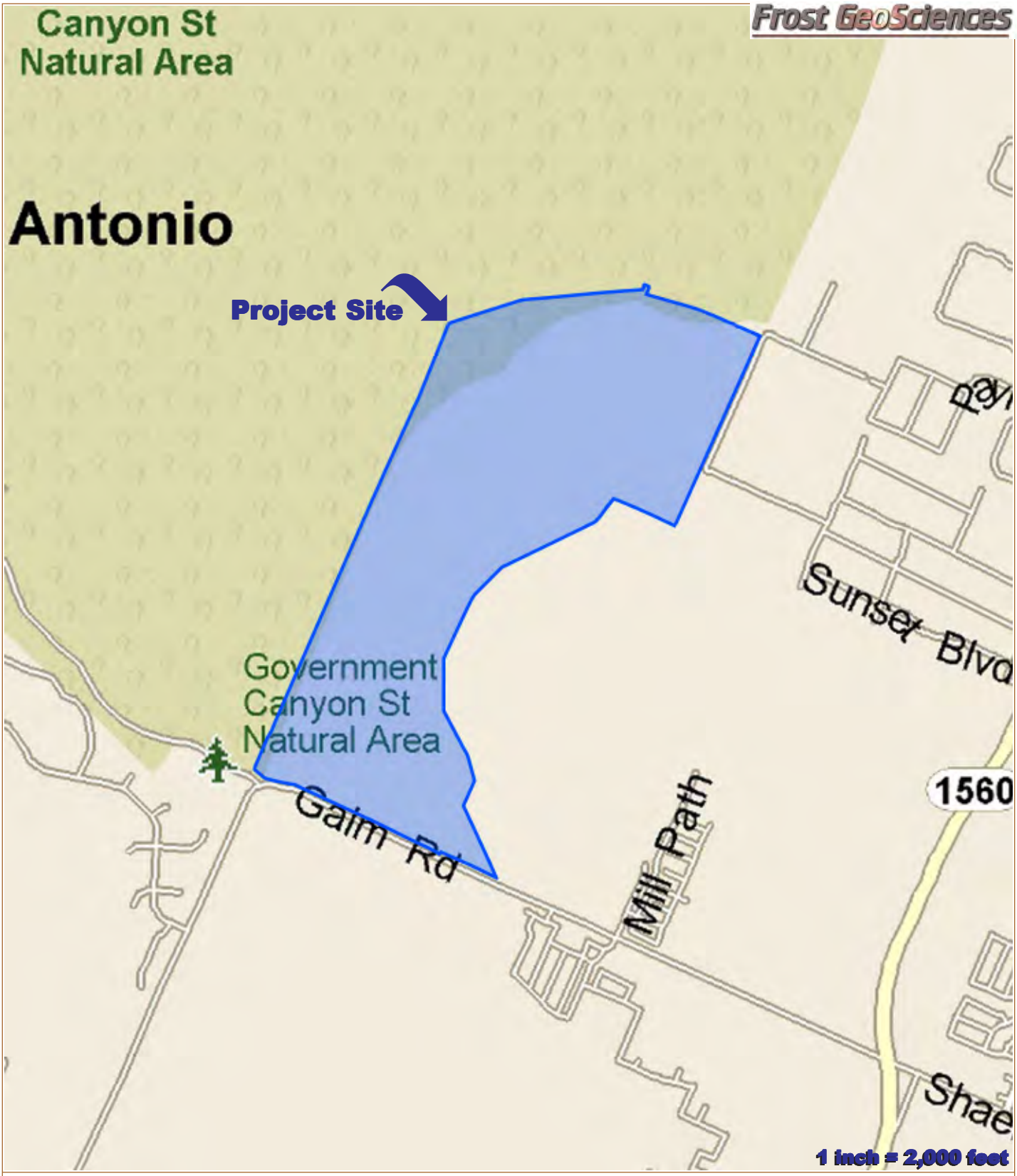
11.0 DEFINITIONS AND ACRONYMS

CFR	Code of Federal Regulations
CWA	Clean Water Act
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
IH	Interstate Highway
NAIP	National Agricultural Imagery Program
OHWM	Ordinary High Water Mark
RGL	USACE Regulatory Guidance Letter
RHA	Rivers and Harbors Act of 1899
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

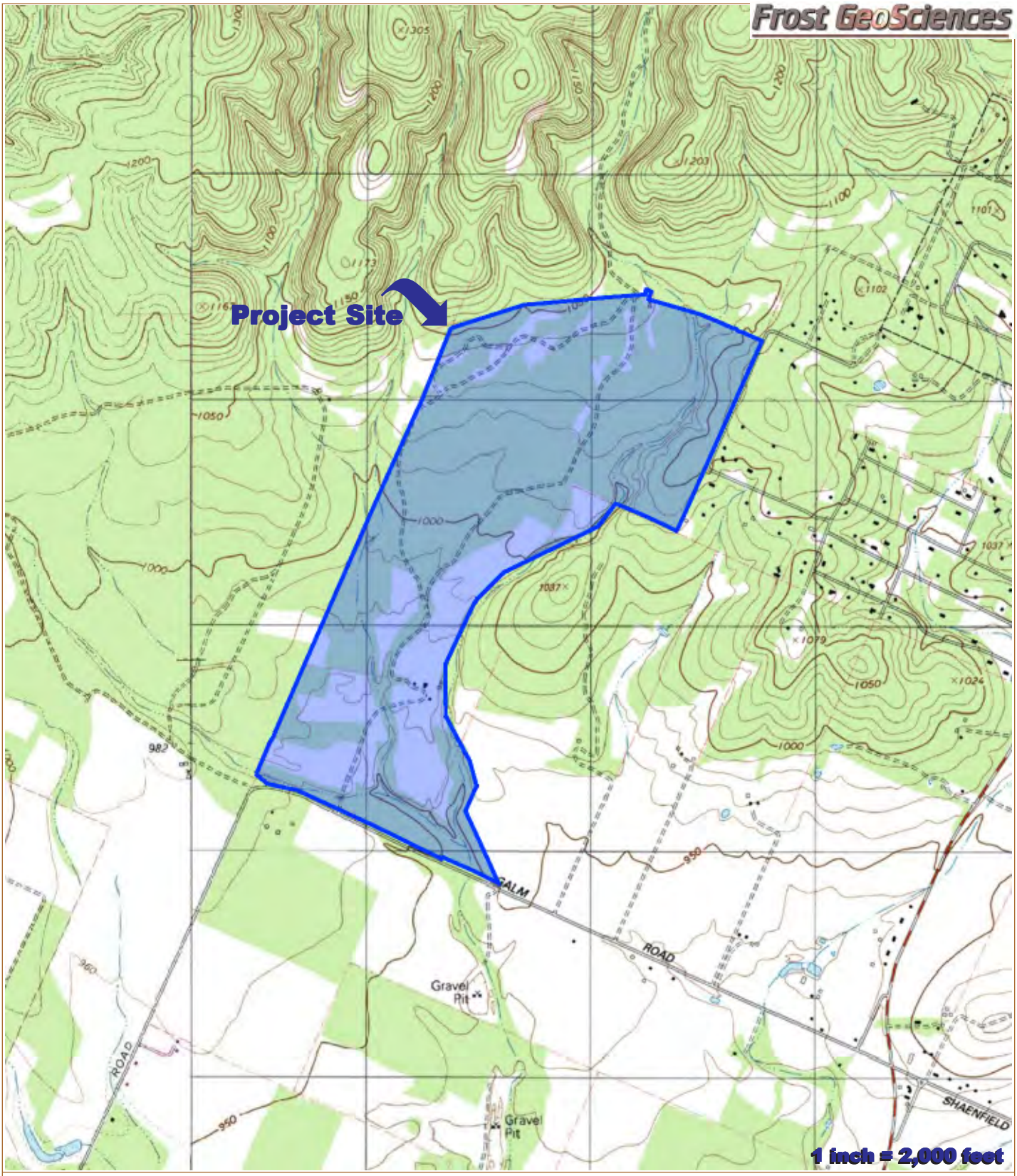
FIGURES



PROJECT NAME:	Notable Features Map	
Wetlands & Waters of the U.S. Investigation Davis Ranch 580 Tract +/- 580 Acres Bexar County, Texas	PROJECT No.: FGS-E19199	DATE: August 6, 2019



PROJECT NAME:	Street Map	
Wetlands & Waters of the U.S. Investigation Davis Ranch 580 Tract +/- 580 Acres Bexar County, Texas	PROJECT NO.: FGS-E19199	DATE: August 6, 2019



PROJECT NAME:

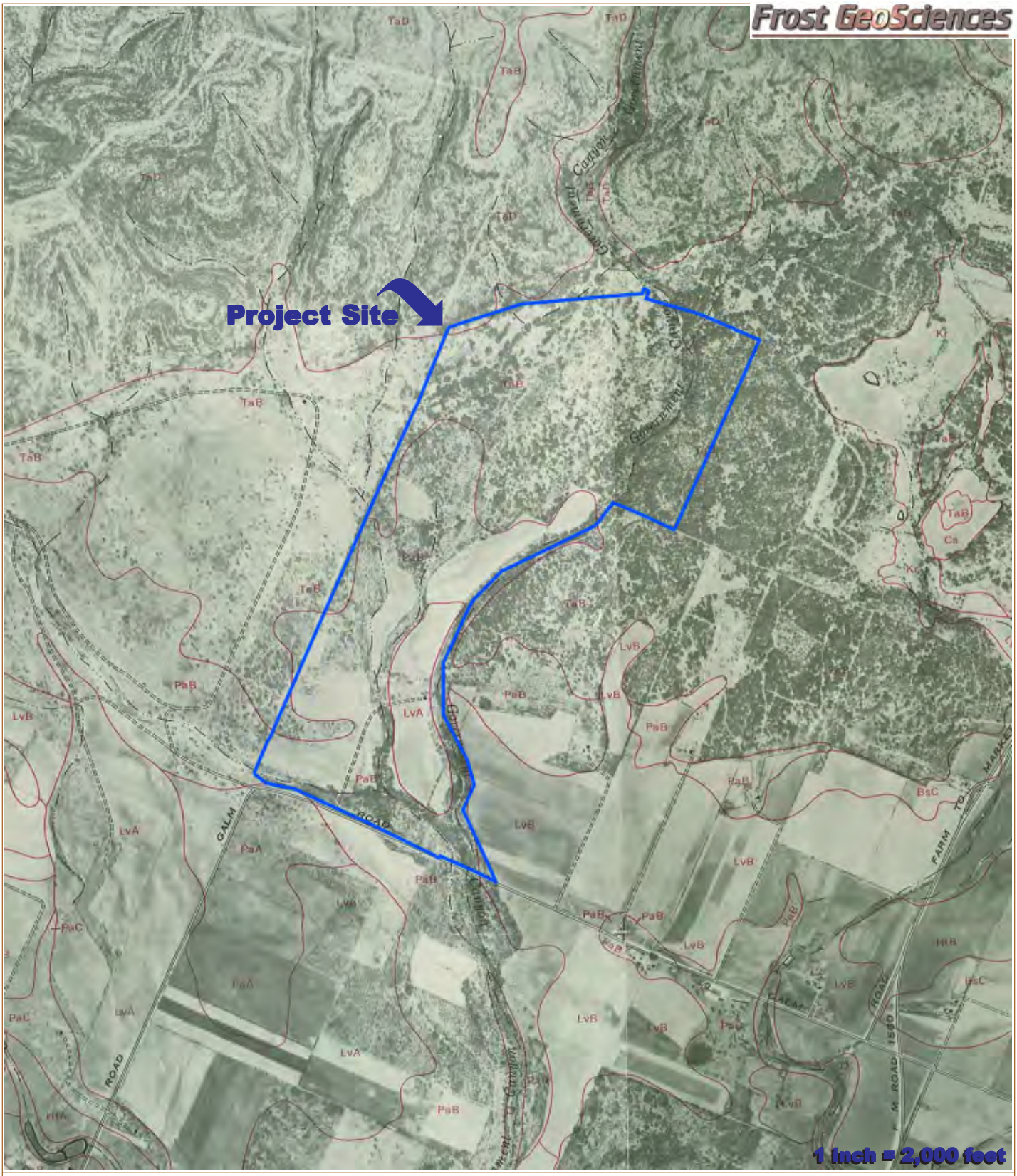
Wetlands & Waters of the U.S. Investigation
Davis Ranch 580 Tract
+/- 580 Acres
Bexar County, Texas

U.S.G.S. 7.5 Minute Quadrangle Map
Helotes, Texas Sheet (1992)

PROJECT NO.: FGS-E19199

DATE: August 6, 2019

Frost GeoSciences



PROJECT NAME:

Wetlands & Waters of the U.S. Investigation
Davis Ranch 580 Tract
+/- 580 Acres
Bexar County, Texas

United States Department of Agriculture
Soil Survey of Bexar, County Texas, 1966

PROJECT NO.: FGS-E19199

DATE: August 6, 2019

PROJECT NAME:

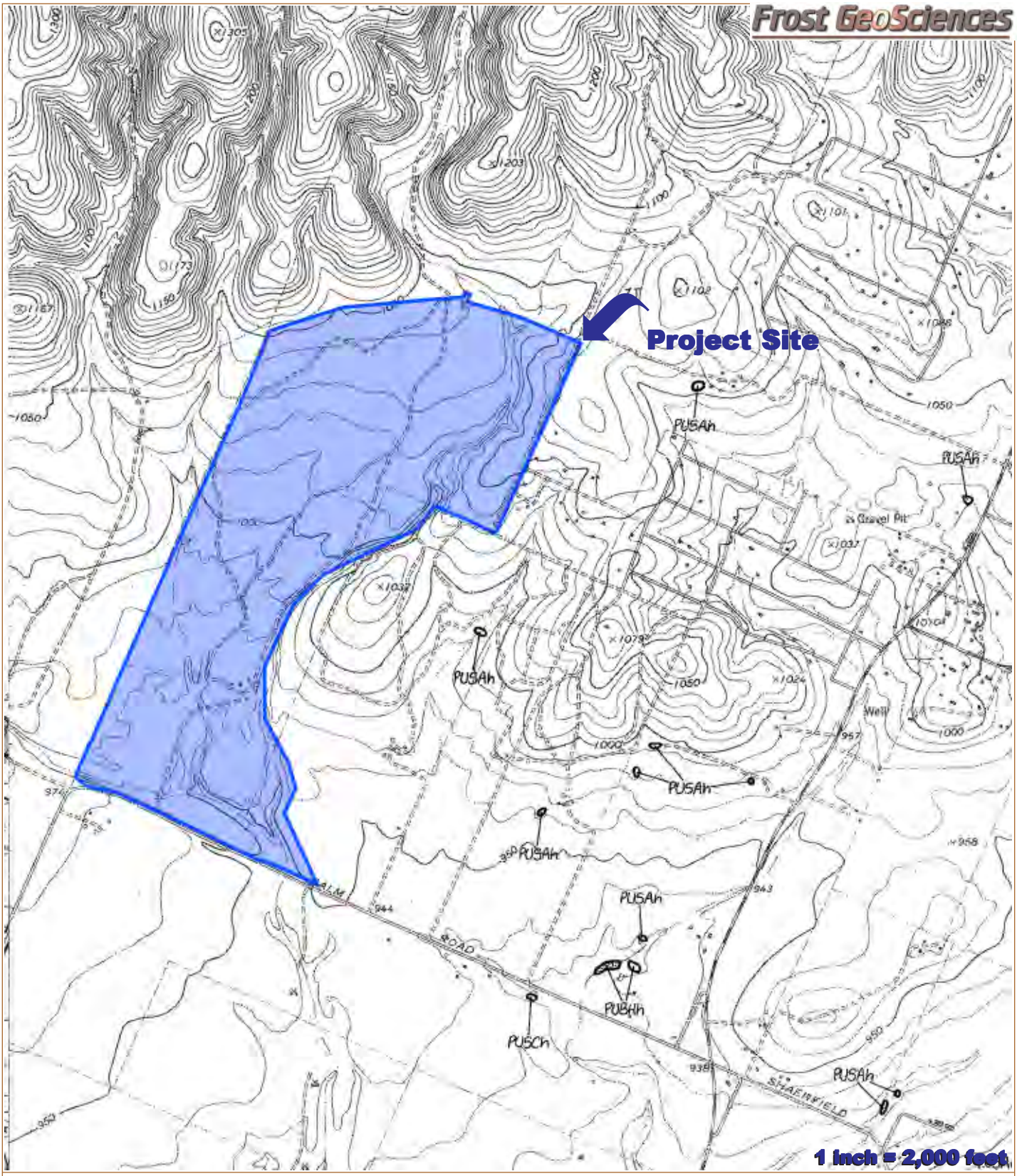
Wetlands & Waters of the U.S. Investigation
Davis Ranch 580 Tract
+/- 580 Acres
Bexar County, Texas

Flood Insurance Rate Map (FIRM)
Community Panel # 48029C0215G
September 29, 2010

PROJECT NO.: FGS-E19199

DATE: August 6, 2019

Frost GeoSciences



PROJECT NAME:

Wetlands & Waters of the U.S. Investigation
Davis Ranch 580 Tract
+/- 580 Acres
Bexar County, Texas

National Wetland Inventory Map
Helotes, Texas Sheets (1994)

PROJECT NO.: FGS-E19199

DATE: August 6, 2019

APPENDIX A

SITE PHOTOGRAPHS

Photo #1 – View downstream along Government Canyon Creek from point 1.

Photo #2 – View of the adjacent property west along Government Canyon Creek from point 1.

Photo #3 – View downstream and along Government Canyon Creek from point 2.

Photo #4 – View upstream along Government Canyon Creek from point 2.

Photo #5 – View upstream along Government Canyon Creek from point 3.

Photo #6 – View downstream along Government Canyon Creek from point 3.

Photo #7 – View upstream along Government Canyon Creek from point 4.

Photo #8 – View downstream along Government Canyon Creek from point 4.

Photo #9 – View upstream and along Government Canyon Creek from point 5.

Photo #10 – View downstream along Government Canyon Creek from point 5.

Photo #11 – View upstream and along Government Canyon Tributary A from point 6.

Photo #12 – View downstream and along Government Canyon Tributary A from point 6.

Photo #13 – View upstream and along Government Canyon Tributary A from point 7.

Photo #14 – View downstream and along Government Canyon Tributary A from point 7.

Photo #15 – View upstream along Government Canyon Tributary A from point 8.

Photo #16 – View downstream along Government Canyon Tributary A from point 8.

Photo #17 – View upstream along Government Canyon Tributary A from point 9.

Photo #18 – View downstream along Government Canyon Tributary A from point 9.

Photo #19 – View upstream along Government Canyon Tributary A from point 10.

Photo #20 – View downstream along Government Canyon Tributary A from point 10.

Photo #21 – View upstream along Government Canyon Tributary A from point 11.

Photo #22 – View downstream along Government Canyon Tributary A from point 11.

Photo #23 – View upstream along Government Canyon Tributary A from point 12.

Photo #24 – View downstream along Government Canyon Tributary A from point 12.

Photo #25 – View upstream along Unnamed Tributary 3 from point 13.

Photo #26 – View downstream along Unnamed Tributary 3 from point 13.

Photo #27 – View upstream along Unnamed Tributary 1 from point 14.

Photo #28 – View downstream along Unnamed Tributary 1 from point 14.

Photo #29 – View upstream along Government Canyon Tributary B from point 15.

Photo #30 – View downstream along Government Canyon Tributary B from point 15.

Photo #31 – View upstream along Government Canyon Tributary B from point 16.

Photo #32 – View downstream along Government Canyon Tributary B from point 16.

Photo #33 – View upstream along Government Canyon Tributary B from point 17.

Photo #34 – View downstream along Government Canyon Tributary B from point 17.

Photo #35 – View upstream along Government Canyon Tributary B from point 18.

Photo #36 – View downstream along Government Canyon Tributary B from point 18.

Photo #37 – View upstream along Unnamed Tributary 2 from point 19.

Photo #38 – View downstream along Unnamed Tributary 2 from point 19.

APPENDIX B

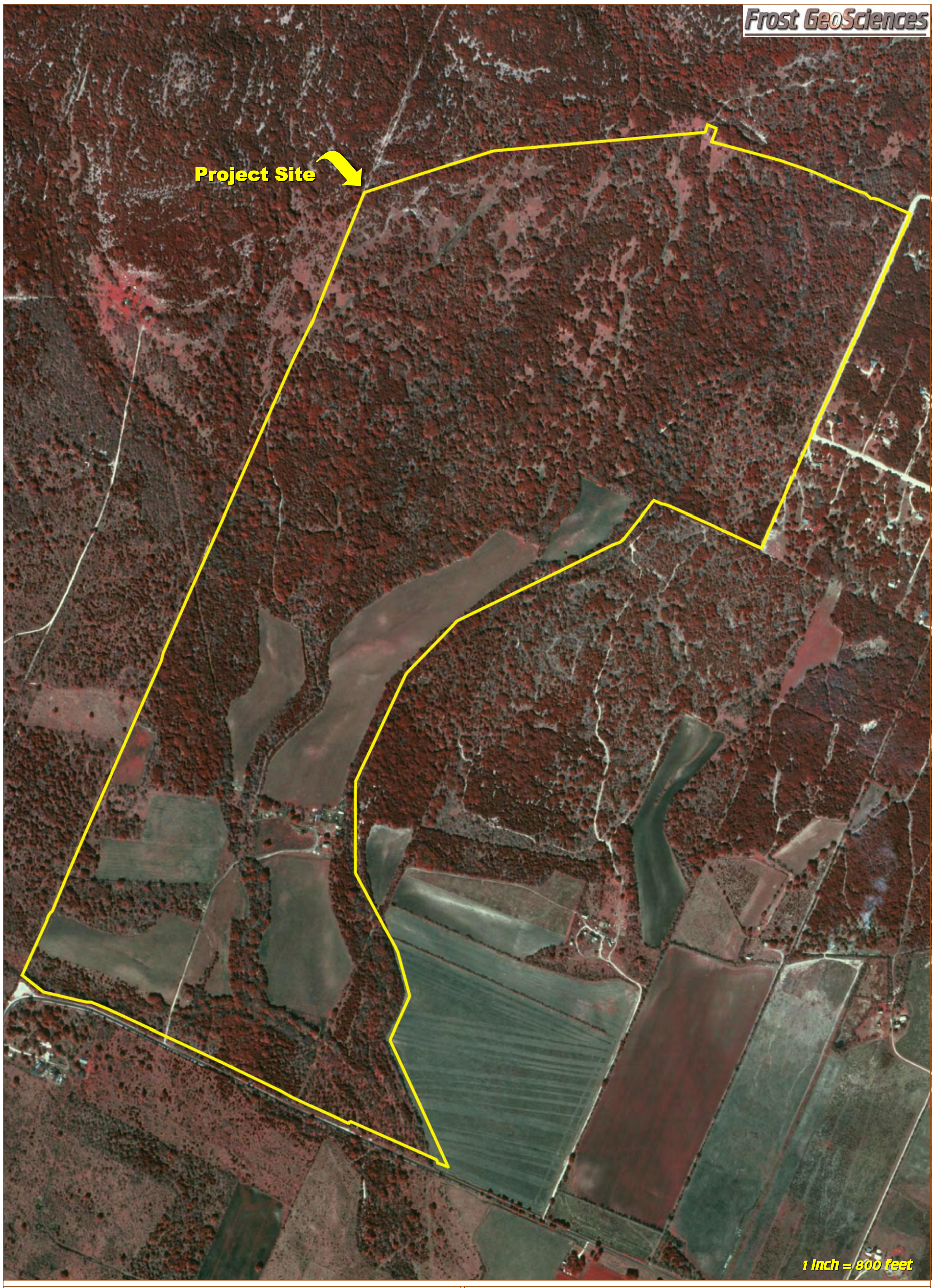
AERIAL PHOTOGRAPHS

Figure 7: 1995

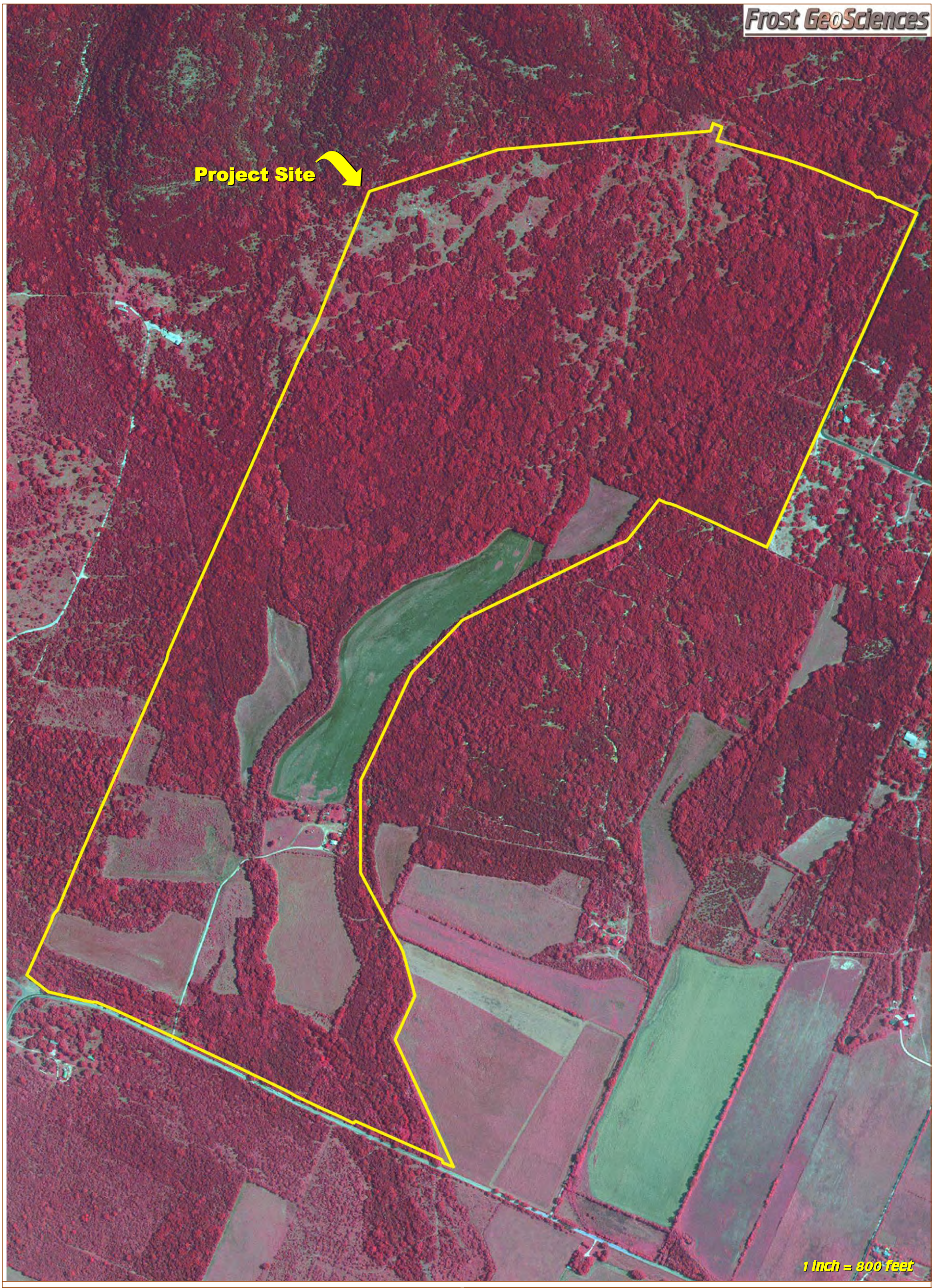
Figure 8: 2004

Figure 9: 2015

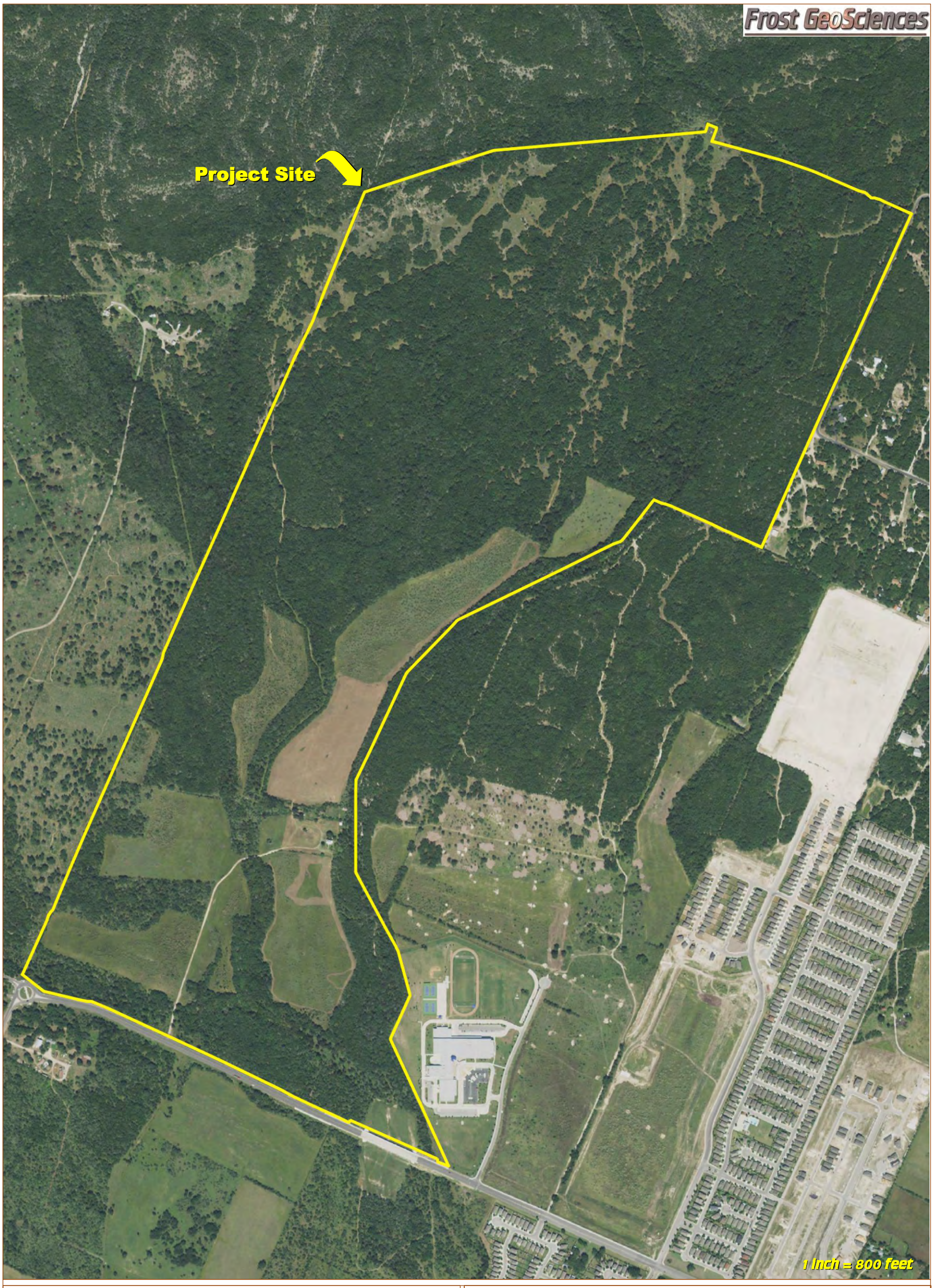
Figure 10: 2018



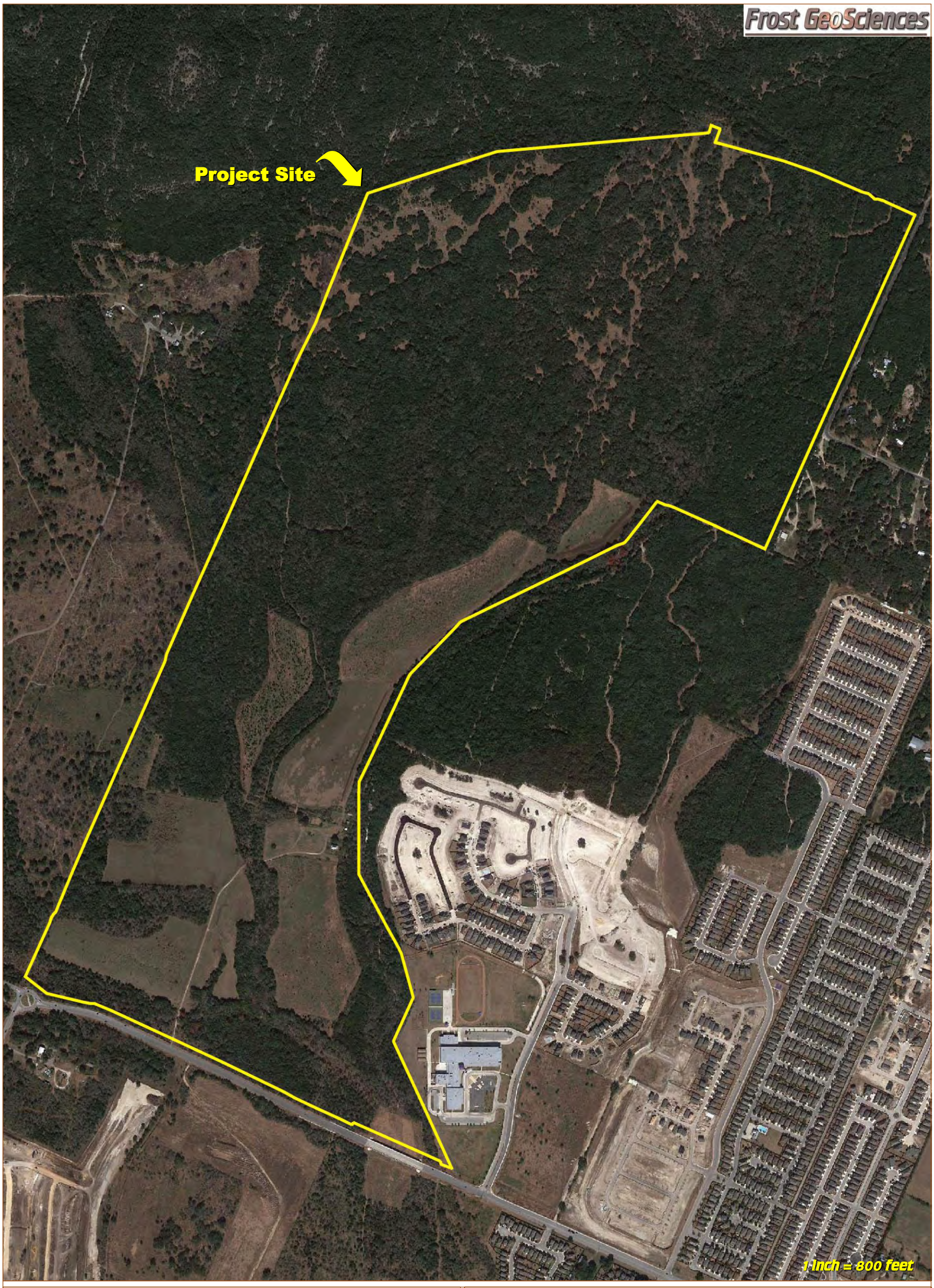
PROJECT NAME:	1995 Aerial Photograph United States Geologic Survey	
Wetlands & Waters of the U.S. Investigation Davis Ranch 580 Tract +/- 580 Acres Bexar County, Texas	PROJECT No.: FGS-E19199	DATE: August 6, 2019



PROJECT NAME:	2004 Aerial Photograph United States Department of Agriculture	
Wetlands & Waters of the U.S. Investigation Davis Ranch 580 Tract +/- 580 Acres Bexar County, Texas	PROJECT No.: FGS-E19199	DATE: August 6, 2019



PROJECT NAME:	2015 Aerial Photograph United States Department of Agriculture	
Wetlands & Waters of the U.S. Investigation Davis Ranch 580 Tract +/- 580 Acres Bexar County, Texas	PROJECT No.: FGS-E19199	DATE: August 6, 2019



PROJECT NAME:	2018 Aerial Photograph Google Earth Image	
Wetlands & Waters of the U.S. Investigation Davis Ranch 580 Tract +/- 580 Acres Bexar County, Texas	PROJECT No.: FGS-E19199	DATE: August 6, 2019

APPENDIX C

QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

STEVE M. FROST, C.P.G., P.G.
PRESIDENT, SENIOR GEOLOGIST

Stephen Frost has over 30 years of experience as a geologist in the oil industry and the environmental/engineering industry. Steve has 40 years of experience operating oil well, geotechnical and environmental drilling rigs. Mr. Frost has been a certified professional geologist for 17 years.

Mr. Frost has extensive experience conducting Phase I and Phase II Environmental Site Assessments (ESA), Geologic Assessments, cave inspections, surface and groundwater investigations, wetlands determinations, biological assessments, archaeological reviews, threatened and endangered species and critical habitat reviews. Steve has performed studies for a wide range of clients including financial institutions, real estate developers, attorneys, engineers and government agencies. Mr. Frost has extensive experience in the use and interpretation of high-resolution reflection/refraction engineering seismographs, magnetometers, gradiometers, gravity meters, and 2-D and 3-D resistivity surveys.

Steve also has extensive experience in construction materials testing and observation, including soils concrete, asphalt and steel inspection. Mr. Frost has performed nuclear density testing on soils and asphalt using both ASTM and TxDOT procedures. Steve has performed rebar inspection prior to concrete placement and has performed field concrete tests, including slump, air content, temperature and costing cylinders.

Mr. Frost provides project management for geotechnical, environmental, and construction materials testing and observation projects. In a project management role, Steve develops program plans, quality assurance plans and prepares cost estimates. Mr. Frost also negotiates delivery orders with clients, managers and oversees subcontractors, performs contract administration and reporting tasks, and serves as the client liaison with federal and state regulatory agencies.

EDUCATION:

Midwestern State University
B.S. Petroleum Geology, 1988

PROFESSIONAL REGISTRATIONS:

American Institute of
Professional Geologists
Certified Professional Geologist
Certificate No 10176

Professional Geoscientist
State of Texas
License No 315

PROFESSIONAL MEMBERSHIPS:

American Institute of
Professional Geologists

Association of Engineering
Geologists

T.G. BEY
FIELD BIOLOGIST

PROFESSIONAL EXPERIENCE

While being the Environmental Division Manager, T.G. Bey is a Field Biologist and Project Manager with Frost GeoSciences, Inc. Ms. Bey performs environmental investigations including environmental site assessments, surveys for endangered species and their habitat, and Significant and Heritage tree surveys. Ms. Bey also has experience in assisting with geologic assessments, wetlands and waters of the U.S. determinations. Ms. Bey has built experience within the Environmental industry through the conducting of field surveys, collecting field data, preparing reports, serving as client liaison, and liaison to local, state, and federal regulatory agencies.

Education

Northwest Vista College,
A.S. in Biological Science,
May 2006

LICENSING:
United States Fish & Wildlife Service Research & Recovery Permit # TE20166A-0,
December 2010

RELATED EXPERIENCE

Golden Cheeked Warbler & Karst Invertebrate Habitat Assessments
Responsibilities include government interactions, historical and site-specific research, field reconnaissance, and final report production to include recommendations.

Threatened/Endangered Species & Critical Habitat Reviews
Conducts threatened/endangered species reviews for habitat evaluation as well as presence/absence surveys for Golden Cheeked Warblers with responsibilities including government interactions, historical and site-specific research, field reconnaissance, and final report production to include recommendations. Obtained licensing by the USFWS to perform each autonomously.

Wetlands & Waters of the US Determinations
Responsibilities include government interactions, historical and site-specific research, field reconnaissance, and final report production to include recommendations.

Tree Surveys
Responsibilities include government interactions, historical and site-specific research, field reconnaissance, and final report production to include recommendations.

Geologic Assessments
Responsibilities include government interactions, site-specific research, and assisting in field reconnaissance and report production.

MADISON GARGARO
ENVIRONMENTAL PROJECT MANAGER

Ms. Madison Gargaro joined Frost Geoscience following an educational experience obtained at the University of Texas at San Antonio with experience in both biotic and abiotic environmental factors, including water quality assessment, habitat identification and quality assessment, soil sampling, the transport of hazardous chemicals in various environmental media, and remediation planning.

Ms. Gargaro's field experience has made her a valuable asset as an Environmental Project Manager for FGS. She has a background in field work which includes collection and interpretation of field data, preparing technical reports, careful documentation of field conditions, and extensive experience with the identification of native plant and bird species.

As a project manager under the Environmental Division, Ms. Gargaro assists in environmental investigations including environmental site assessments, surveys for endangered species and their habitat, and Significant and Heritage tree surveys.

RELATED EXPERIENCE:

Phase I Environmental Site Assessments

Responsibilities include assisting with government interactions, historical and site-specific research, field reconnaissance, and final report production to include recommendations.

Golden Cheeked Warbler & Karst Invertebrate Habitat Assessments

Responsibilities include government interactions, historical and site-specific research, field reconnaissance, and final report production to include recommendations.

Threatened/Endangered Species & Critical Habitat Reviews

Assists with the conduction of threatened/endangered species reviews for habitat evaluation as well as presence/absence surveys for Golden Cheeked Warblers with responsibilities including assisting with government interactions, historical and site-specific research, field reconnaissance, and final report production to include recommendations.

Wetlands & Waters of the US Determinations

Responsibilities include government interactions, historical and site-specific research, field reconnaissance, and final report production to include recommendations.

EDUCATION:
University of Texas at San Antonio, B.S. in Environmental Science, December 2016

Associated Program Work:
Preformed pre-dawn survey for native and endangered bird species on Magnetic Island, Queensland, Australia with James Cook University ecology program.

Preformed pre-dawn surveys to identify native bird species presence in multiple state parks throughout the southwest as part of a summer desert biology study with the University of Texas at San Antonio.

Volunteer Work

Field Researcher at the Cibolo Nature Center in Boerne, TX. Conducted population survey of native rodent species. 2016

Summer Naturalist with the San Antonio Zoo. Planned and implemented educational presentations for guests. 2007-2010

MICHAEL MCMAHAN, G.I.T.

ENVIRONMENTAL PROJECT MANAGER

Ms. Michael McMahan, G.I.T. joined Frost Geoscience following an educational experience obtained at the University of Texas at San Antonio with experience in both biotic and abiotic environmental factors, including water quality assessment, habitat identification and quality assessment, soil sampling, the transport of hazardous chemicals in various environmental media, and remediation planning.

Ms. Gargaro's field experience has made her a valuable asset as an Environmental Project Manager for FGS. She has a background in field work which includes collection and interpretation of field data, preparing technical reports, careful documentation of field conditions, and extensive experience with the identification of native plant and bird species.

As a project manager under the Environmental Division, Ms. Gargaro assists in environmental investigations including environmental site assessments, surveys for endangered species and their habitat, and Significant and Heritage tree surveys.

RELATED EXPERIENCE:

Phase I Environmental Site Assessments

Responsibilities include assisting with government interactions, historical and site-specific research, field reconnaissance, and final report production to include recommendations.

Golden Cheeked Warbler & Karst Invertebrate Habitat Assessments

Responsibilities include government interactions, historical and site-specific research, field reconnaissance, and final report production to include recommendations.

Threatened/Endangered Species & Critical Habitat Reviews

Assists with the conduction of threatened/endangered species reviews for habitat evaluation as well as presence/absence surveys for Golden Cheeked Warblers with responsibilities including assisting with government interactions, historical and site-specific research, field reconnaissance, and final report production to include recommendations.

Wetlands & Waters of the U.S Determinations

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