

# Geologic Assessment

Texas Commission on Environmental Quality

For Regulated Activities on The Edwards Aquifer Recharge/transition Zones and Relating to 30 TAC §213.5(b)(3), Effective June 1, 1999

*To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.*

*Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.*

## Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: Russell Ford, P.G.

Telephone: 512 442-1122

Date: 8/29/22

Fax: 512-442-1181

Representing: Terracon Consultants, Inc.; TBPG 50058 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:

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Regulated Entity Name: Seargeant Tracts, FM 1626 at Cole Springs Road, Buda, Hays County, Texas

## Project Information

1. Date(s) Geologic Assessment was performed: 8/11/22

2. Type of Project:

☒ WPAP

☐ AST

☐ SCS

☐ UST

3. Location of Project:

☒ Recharge Zone

☐ Transition Zone

☐ Contributing Zone within the Transition Zone

4. ☒ Attachment A - Geologic Assessment Table. Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.
5. ☒ Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups\* (Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A, Soil Conservation Service, 1986). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
KrC	D	0 to 6.5
AnB	D	0 to 5
KrB	D	0-6
RuD	C	0-5

\* Soil Group Definitions (Abbreviated)

- A. Soils having a high infiltration rate when thoroughly wetted.
- B. Soils having a moderate infiltration rate when thoroughly wetted.
- C. Soils having a slow infiltration rate when thoroughly wetted.
- D. Soils having a very slow infiltration rate when thoroughly wetted.

6. ☒ Attachment B – Stratigraphic Column. A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.
7. ☒ Attachment C – Site Geology. A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.
8. ☒ Attachment D – Site Geologic Map(s). The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 400'  
 Applicant's Site Plan Scale: 1" = \_\_\_\_\_'  
 Site Geologic Map Scale: 1" = 200'  
 Site Soils Map Scale (if more than 1 soil type): 1" = 200'
9. Method of collecting positional data:
  - ☒ Global Positioning System (GPS) technology.
  - ☐ Other method(s). Please describe method of data collection: \_\_\_\_\_
10. ☒ The project site and boundaries are clearly shown and labeled on the Site Geologic Map.
11. ☒ Surface geologic units are shown and labeled on the Site Geologic Map.

12. ☐ Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.
- ☒ Geologic or manmade features were not discovered on the project site during the field investigation.
13. ☐ The Recharge Zone boundary is shown and labeled, if appropriate.
14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.
- ☒ There are 1 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
- ☐ The wells are not in use and have been properly abandoned.
- ☐ The wells are not in use and will be properly abandoned.
- ☒ The wells are in use and comply with 16 TAC Chapter 76.
- ☐ There are no wells or test holes of any kind known to exist on the project site.

### *Administrative Information*

15. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

## ATTACHMENT A

GEOLOGIC ASSESSMENT NO FEATURES OBSERVED PROJECT NAME: Sargeant Tracts, FM 1626 at Cole Spring Road, Buda, Hays County, Texas																			
LOCATION			FEATURE CHARACTERISTICS												EVALUATION		PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10	11	12	
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY	CATCHMENT AREA (ACRES)	TOPOGRAPHY	
						X	Y	Z		10						<40	≥40	<1.6	≥1.6
WW-1	30.0811	-97.8738	MB	30										0	30	X		X	

\* DATUM NAD27

2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
O	Other natural bedrock features	5
MB	Manmade feature in bedrock	30
SW	Swallow hole	30
SH	Sinkhole	20
CD	Non-karst closed depression	5
Z	Zone, clustered or aligned features	30

## 8A INFILLING

N	None, exposed bedrock
C	Coarse - cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, sticks, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

## 12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

I have read, I understood, and I have followed the Texas Natural Resource Conservation Commission's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field.

My signature certifies that I am qualified as a geologist as defined by 30 TAC 213

\_\_\_\_\_

Date \_\_\_\_\_

Attachment B  
Stratigraphic Column  
Sergeant Tract  
FM 1626 at Cole Springs Road  
Buda, Texas

<b>HYDROGEOLOGIC SUBDIVISION</b>	<b>FORMATION</b>	<b>THICKNESS (feet)</b>	<b>LITHOLOGY</b>
Confining Bed	Buda	45	Nodular, hard, tan to brown limestone
Confining Bed	Del Rio Clay	60	Blue green to yellow brown, calcareous, fossiliferous clay

Source: Small, Hanson, and Hauwert, 1996

## **ATTACHMENT C SITE-SPECIFIC GEOLOGY**

The Seargeant tracts consist of three tracts totaling approximately 13.56-acres located at the northeast corner of the intersection of FM 1626 and Cole Springs Road in Buda, Hays County, Texas. The geologic assessment was conducted by Mr. Russell C. Ford, P.G. of Terracon on August 11, 2022. Exhibit 1 is a site location map depicting the site in relationship to the surrounding area. The site consists of undeveloped ranchland property with a residence and small business located in the western portion of the site along FM 1626. Vegetation consists of mostly native grasses with scattered hardwood vegetation. The area surrounding the site is predominately residential or undeveloped property.

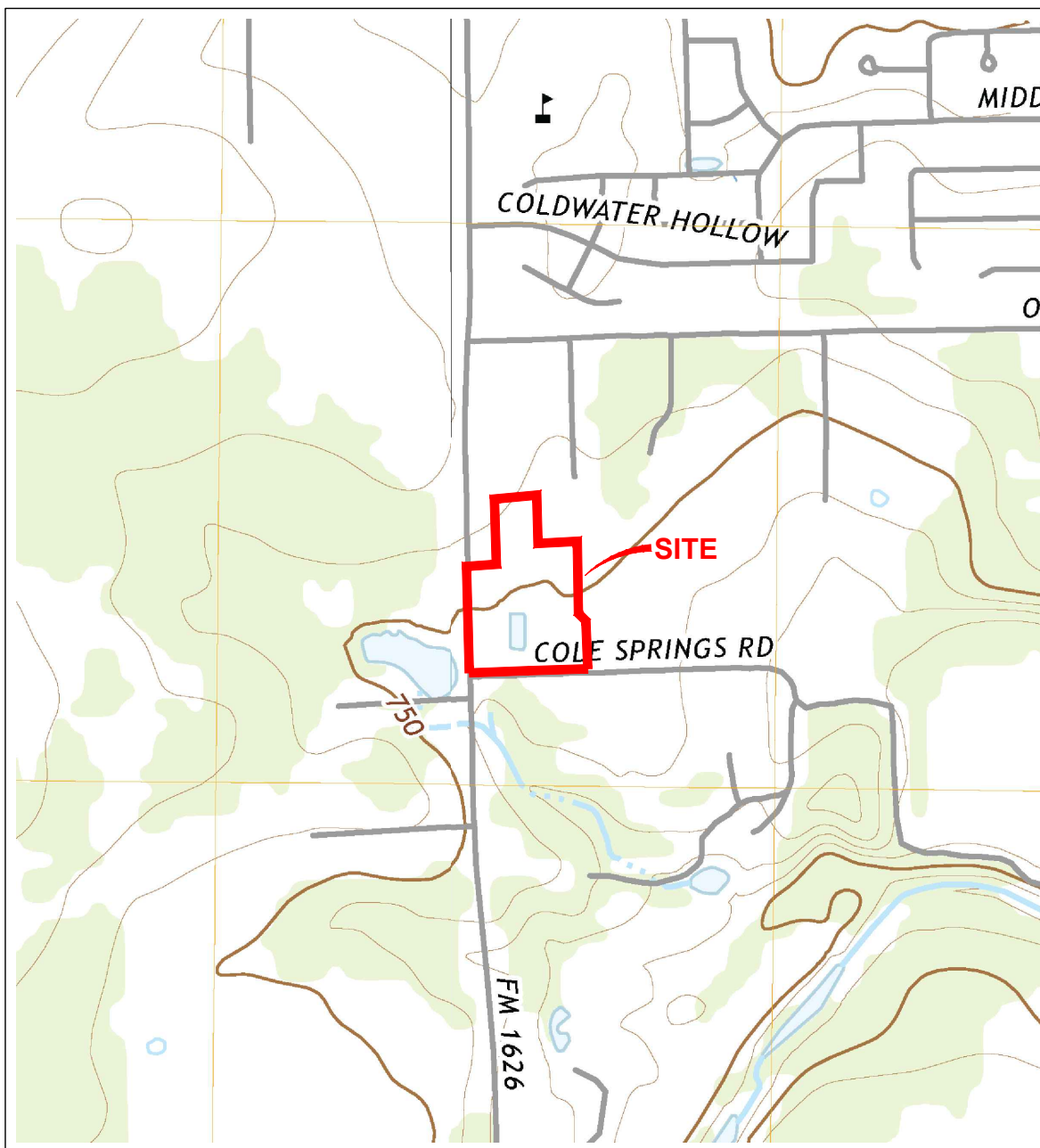
The site is characterized as gently sloping to the south. Site elevation ranges from about 760 feet above mean sea level (msl) to about 745 feet msl. Two small stock ponds are located in the south-central portion of the site.

The Geologic Site Map is provided as Exhibit 2. The site is located entirely within the Recharge Zone of the Edwards aquifer. The recharge zone boundary is located approximately  $\frac{1}{2}$  mile east of the site. The surficial geologic units present at the site have been identified as the Buda Formation and the Del Rio Clay. Both units comprise part of the upper confining unit of the Edwards aquifer.

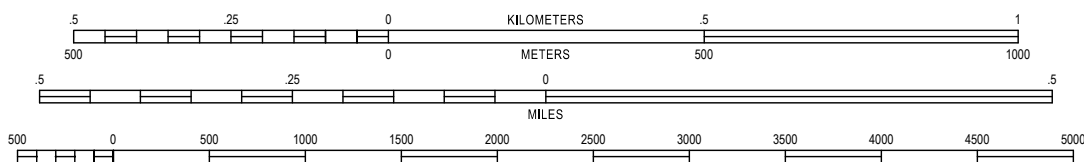
The Buda Formation consists of a variably nodular, hard, massive limestone. The Buda is approximately 40 to 50 feet thick in the area. The Del Rio Formation underlies the Buda and is about 65 feet in the area and forms the confining unit for the Edwards aquifer. The formation consists of calcareous, fossiliferous clay that contains abundant pyrite and gypsum. Exposure of the various geologic deposits was generally obscured by the presence of a relatively thick soil cover and site vegetation.

A review of aerial photographs did not reveal any lineations or faults and there was no surficial evidence of site faulting. However, a fault is mapped as crossing through the site as depicted on Exhibit 2. The fault, locally referred to as the Mustang Branch Fault, is associated with the Balcones Fault zone. The faults trend to the northeast and form the dominant structural trend in the area.

No geologic features, as defined in 30 TAC §213, were observed on the site. A water well is located behind the existing residence as shown on Exhibit 2. The well is located within a small well shed and is currently in use. Based upon the lack of any significant sensitive recharge features onsite, the potential for fluid flow through the site is considered low.



SCALE 1:12,000



CONTOUR INTERVAL 10 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1988

**Mountain City, Texas**  
2019  
7.5 MINUTE SERIES (TOPOGRAPHIC)

**Buda, Texas**  
2019  
7.5 MINUTE SERIES (TOPOGRAPHIC)

Project Mng:	RF
Drawn By:	ATX Drafting
Checked By:	RF
Approved By:	RF
Project No.	96207183
Scale:	AS SHOWN
File No.	96207183
Date:	Aug 18, 2022

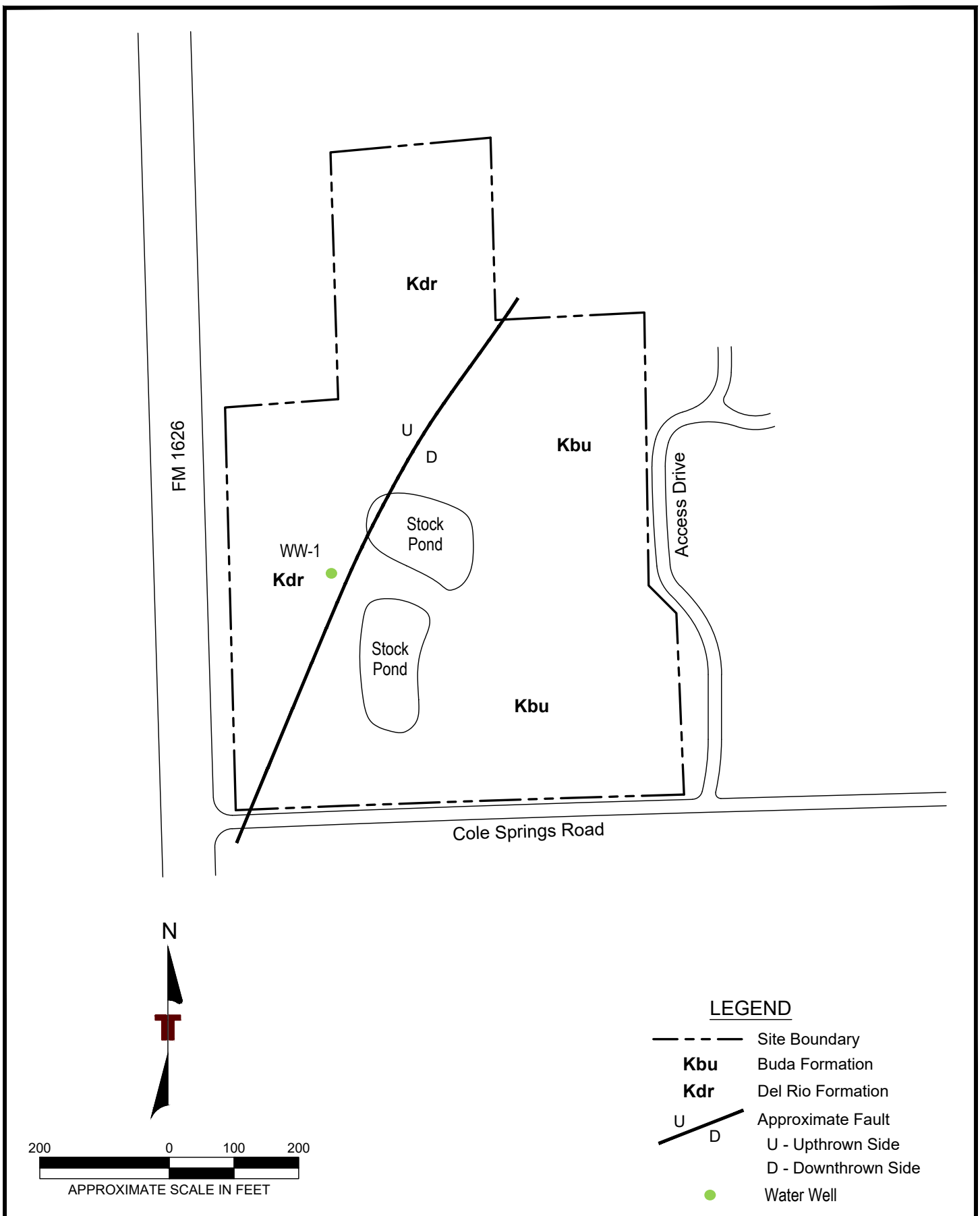
**Terracon**  
Consulting Engineers and Scientists  
5307 INDUSTRIAL OAKS BLVD. - #160 AUSTIN, TX 78735  
PH. (512) 442-1122 FAX (512) 442-1181

**TOPOGRAPHIC MAP**

**Seargeant Tract**  
FM 1626 at Cole Springs Road  
Buda, Hays County, Texas

**EXHIBIT**

**1**



### LEGEND

- Site Boundary
- Kbu** Buda Formation
- Kdr** Del Rio Formation
- UD Approximate Fault
- U - Upthrown Side
- D - Downthrown Side
- Water Well

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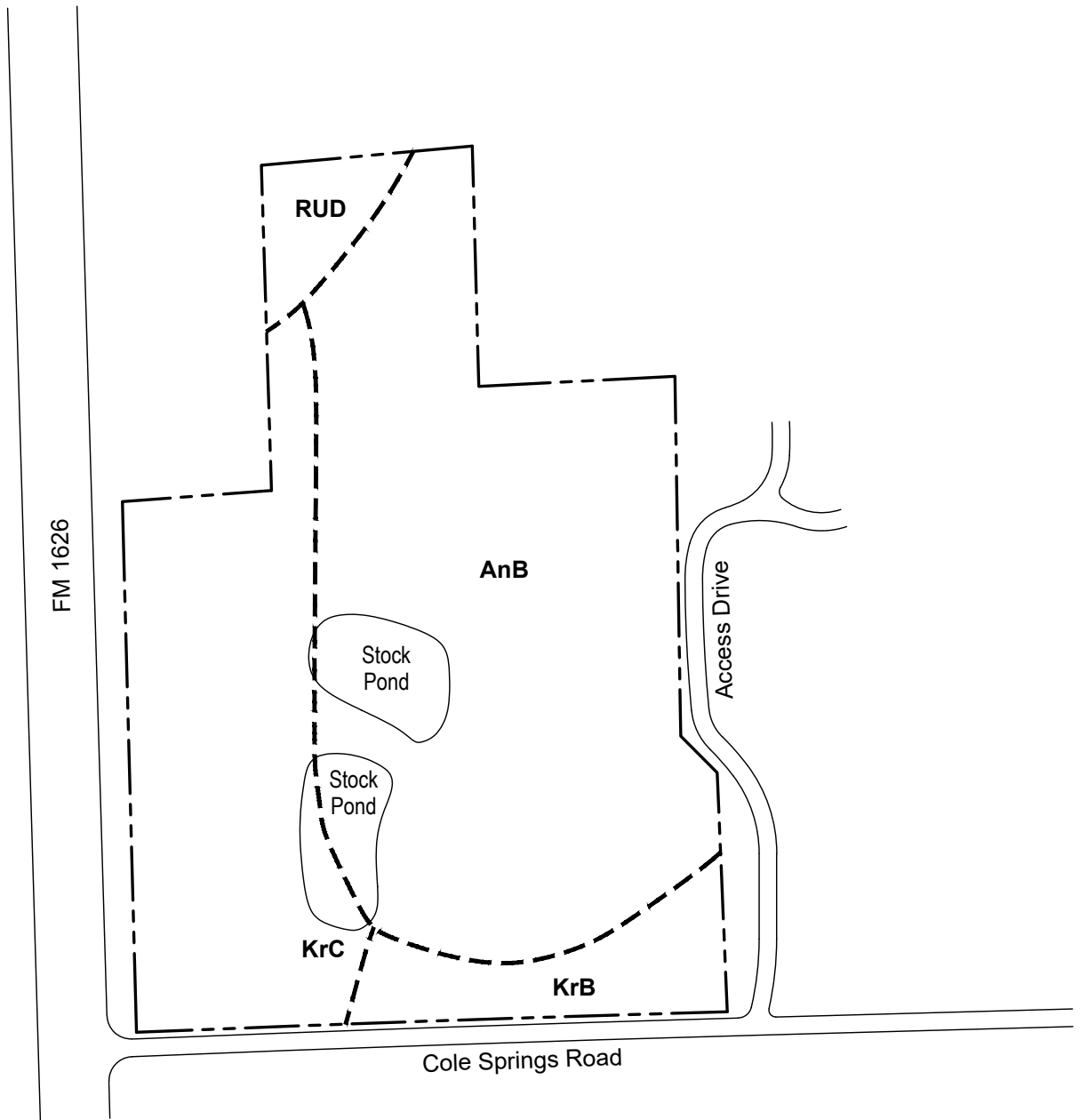
### SITE GEOLOGIC MAP

**Sargeant Tract**  
 FM 1626 at Cole Springs Road  
 Buda, Hays County, Texas

EXHIBIT

2





### LEGEND

- Site Boundary
- AnB** Anhalt Clay  
(1%-3% slopes)
- KrB** Krum Clay  
(1%-3% slopes)
- KrC** Krum Clay  
(3%-5% slopes)
- RUD** Rumple-Comfort, Rubbly Association  
(1%-8% slopes)

Project Mng:	RF
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### SITE SOILS MAP

**Sergeant Tract**  
FM 1626 at Cole Springs Road  
Buda, Hays County, Texas

EXHIBIT

3