



**ENTECH**  
ENGINEERING, INC.

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COLORADO SPRINGS, CO 80907  
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October 4, 2023

Stimple Family LLLP  
14842 Longwall Drive  
Colorado Springs, Colorado 80908

Attn: Doug Stimple

Re: Wastewater Study  
Vollmer Road and Arroya Lane  
Parcel No. 52214-00-002  
El Paso County, Colorado

Dear Mr. Stimple:

The project consists of platting a 7.65-acre parcel for a proposed single-family residence. The site is located northeast of the intersection of Vollmer Road and Arroya Lane, in El Paso County, Colorado.

#### **GENERAL SITE CONDITIONS AND PROJECT DESCRIPTION**

The site is located in a portions of the SE $\frac{1}{4}$  of Section 21 and the SW $\frac{1}{4}$  of Section 22, Township 12 South, Range 65 West of the 6<sup>th</sup> Principal Meridian in El Paso County, Colorado. The site is located approximately 2 miles northeast of Colorado Springs city limits, northeast of Vollmer Road and Arroya Lane in El Paso County, Colorado. The location of the site is as shown on the Vicinity Map, Figure 1.

The topography of the site is gradually southeast with steeper slopes along the eastern side of the property. Sand Creek is located along the eastern side of the site and flows in a southerly direction. Water was observed in Sand Creek at the time of this investigation. The site boundaries are indicated on the USGS Map, Figure 2. Previous land uses have included undeveloped grazing and pasture land. The site contains primarily field grasses and weeds with ponderosa pines along the eastern side of the property. Site photographs, taken September 25, 2023, are included in Appendix A.

The lot is 7.65-acres. The new lot will be serviced by an individual well and on-site wastewater treatment system. One test boring and two test pits were completed as part of this investigation. The test boring and test pit locations are indicated on the Site and Exploration Plan, Figure 3. Test Boring and Test Pit Logs are included in Appendix B, and the laboratory testing results are included in Appendix C.

The site was previously investigated as part of the Soil, Geology, and Geologic Hazard Study completed for The Retreat at TimberRidge dated April 17, 2017, Entech Job No 170020 (Reference 1). One test boring (TB-13) was located on the parcel. Information from the previous report was also utilized in preparing this report. The test boring log and laboratory testing result is included in Appendix D.

## SCOPE OF THE REPORT

The scope of the report will include the following a general geologic analysis utilizing published geologic data. Detailed site-specific mapping will be conducted to obtain general information in respect to major geographic and geologic features, geologic descriptions and their effects on the development of the property.

## FIELD INVESTIGATION

Our field investigation consisted of the preparation of a geologic map of any bedrock features and significant surficial deposits. The Natural Resource Conservation Service (NRCS), previously the Soil Conservation Service (SCS) survey was also reviewed to evaluate the site. The position of mappable units within the subject property are shown on the Geologic Map. Our mapping procedures involved both field reconnaissance and measurements, and aerial photo reconnaissance and interpretation. The same mapping procedures have also been utilized to produce the Geology/Engineering Geology Map which identified pertinent geologic conditions affecting development. The field mapping was performed by personnel of Entech Engineering, Inc. on September 25, 2023.

One test boring and two test pits were completed on the site to determine general suitability for the use of an on-site wastewater treatment system and general soil characteristics. The location of the test borings and test pits are indicated on the Site and Exploration Plan, Figure 3. The Test Boring and Test Pit Logs are presented in Appendix B. Results of this testing will be discussed later in this report.

Laboratory testing was also performed on some of the soils to classify and determine the soils engineering characteristics. Laboratory tests included grain-size analysis, ASTM D-422, and Atterberg Limits, ASTM D-4318. Results of the laboratory testing are included in Appendix C. A Summary of Laboratory Test Results is presented in Table C-1.

## SOIL AND GEOLOGIC CONDITIONS

### Soil Survey

The Natural Resource Conservation Service (NRCS) (Reference 2, Figure 4), previously the Soil Conservation Service (Reference 3) has mapped one soil type on the site. Complete description of the soil type is presented in Appendix E. In general, the soils consist of sandy loam. The soils are described as follows:

<u>Type</u>	<u>Description</u>
71	Pring coarse sandy loam, 3 – 8% Slopes

The soils have been described to have moderate to rapid permeabilities. The soils are described as well suited for use as homesites. Possible hazards with soils erosion are present on the site. The erosion potential can be controlled with vegetation. The soils have been described to have moderate erosion hazards (Reference 3).

### Soils

The soils encountered in the test borings and test pits consisted of a layer of silty sand and sandy clay overlying weathered sandy claystone and sandstone bedrock. Bedrock was encountered at depths ranging from 4 to 8 feet. The upper sands were encountered at medium dense states and moist conditions, the claystone was encountered at hard consistencies and moist conditions, and the sandstone was encountered at very dense states and moist conditions. Swell/Consolidation Testing was performed on a sample of the claystone which resulted in a volume change of 1.4 percent indicating a low to moderate expansion potential. Highly expansive claystone and siltstone lenses are commonly interbedded in the Dawson Formation in the area.

### Groundwater

Groundwater or signs of seasonally occurring water were not encountered in the test borings or test pits, which were drilled to 20 feet and excavated to 8 feet. It is anticipated groundwater will not affect shallow foundations on the majority of the site. An area of potential seasonally shallow groundwater has been mapped in northern portion of the site that is discussed in the following sections. Fluctuations in groundwater conditions may occur due to variations in rainfall or other factors not readily apparent at this time. Isolated sand layers within the soil profile can carry water in the subsurface. Contractors should be cognizant of the potential for the occurrence of subsurface water features during construction.

### Geology

Approximately 12 miles west of the site is a major structural feature known as the Rampart Range Fault. This fault marks the boundary between the Great Plains Physiographic Province and the Southern Rocky Mountain Province. The site exists within a large structural feature known as the Denver Basin. Bedrock in the area is typically gently dipping in a northerly direction (Reference 4). The bedrock underlying the site consists of the Dawson Formation of Cretaceous Age. The Dawson Formation typically consists of coarse-grained arkosic sandstone with interbedded layers claystone or siltstone. The Geology Map for the site is presented in Figure 6. Two mappable units were identified on this site which are described as follows:

**Qay2 Young alluvium two of Holocene Age:** These materials consist of water deposited alluvium, typically classified as a silty to well-graded sand, brown to dark brown in color and of moderate density.

**Qc/Tkd Colluvium of Quaternary Age overlying Dawson Formation of Tertiary to Cretaceous Age:** The materials consist of colluvial or residual soils overlying the bedrock materials on-site. The colluvial soils were deposited by the action of sheetwash and gravity. The residual soils were derived from the in-situ weathering of the bedrock on site. These materials typically consist of silty to clayey sand with potential areas of sandy clays. The bedrock consists of the Dawson Formation. The Dawson Formation typically consists of coarse-grained, arkosic sandstone with interbedded lenses of fine-grained sandstone, siltstone and claystone.

The soils listed above were mapped from site-specific mapping, the *Geologic Map of the Falcon NW Quadrangle* distributed by the Colorado Geologic Survey in 2003 (Reference 5, Figure 5), The *Geologic Map of the Colorado Springs-Castle Rock Area*, distributed by the US Geological Survey in 1979 (Reference 6), and the *Geologic Map of the Pueblo 1° x 2° Quadrangle*, distributed

by the US Geological Survey in 1978 (Reference 7). The test borings and test pits were used in evaluating the site and is included in Appendices B and C. The Geology Map prepared for the site is presented in Figure 6.

### Drainage Areas

The site is not mapped within any floodplains according to the FEMA Map No. 08041C0535G, dated December 7, 2018 (Reference 8, Figure 7). It should be noted that the mapping stops at Arroya Lane and Sand Creek is located along the eastern side of the property. Areas of potential seasonally shallow groundwater were observed in the northern portion of the site (Figure 6). In these areas, we would anticipate the potential for periodically high subsurface moisture conditions and frost heave potential. These areas lie along the headwaters of Sand Creek and are north of the proposed building area. Water was in Sand Creek at the time of our site investigation. These areas will likely be avoided by development. Exact locations of floodplain and specific drainage studies are beyond the scope of this report. Individual wastewater treatment systems must be located a minimum of 25 feet from dry gulches and 50 feet from water courses or floodplains.

### **ON-SITE WASTEWATER TREATMENT**

The Natural Resource Conservation Service (Reference 2), previously the Soil Conservation Service (Reference 3) has been mapped with two soil descriptions. The Soil Survey Map (Reference 2) is presented in Figure 4, and the Soil Survey Descriptions (Reference 3) are presented in Appendix E. The soils are described as having moderate to rapid percolation rates.

Soils encountered in the tactile test pits consisted of loamy sand, sandy clay, and highly weathered silty to clayey sandstone. The limiting layers encountered in the test pit are the sandy clay and sandstone. These soils correspond with USDA Soil Type 4A and a LTAR value of 0.15 gallons per day per square foot. Weathered bedrock was encountered at approximately 3 feet in TP-2. Signs of seasonally occurring groundwater were not observed in the test pits. Absorption fields must be maintained a minimum of 4 feet above groundwater, bedrock, or confining layer. Where groundwater or bedrock are encountered within 6 feet of the surface, designed systems will be required. An engineered designed system is anticipated for the lot, however, areas may be encountered on the lot where a conventional system would be suitable.

In summary, it is our opinion the site is suitable for individual on-site wastewater treatment systems (OWTS) and that contamination of surface and subsurface water resources should not occur provided the OWTS sites are evaluated and installed according to El Paso County and State Guidelines and properly maintained. Based on the testing performed designed systems will be required for the new lots. The Septic Suitability Map is presented in Figure 8. A possible house location, water well, and two septic sites for the new lots are indicated on Figure 8. Areas that should be avoided by septic systems are indicated on the septic suitability map.

**Additional testing may be required depending on the final location of the absorption field.** Absorption fields must be located a minimum of 100 feet from any well, including those on adjacent properties. Absorption fields must also be located a minimum of 50 feet from any drainages, floodplains or ponded areas and 25 feet from dry gulches.

Stimple Family LLLP  
Soils and Geology Study  
Vollmer Road and Arroya Lane  
Parcel No. 52214-00-002  
El Paso County, Colorado  
Page 5



## CLOSURE

This report has been prepared for Stimple Family LLLP, for application to the proposed project in accordance with generally accepted geologic soil and engineering practices. No other warranty expressed or implied is made.

We trust that this report has provided you with all the information that you required. Should you require additional information, please do not hesitate to contact Entech Engineering, Inc.

Respectfully Submitted,

ENTECH ENGINEERING, INC.

Reviewed by:

A blue ink signature of Logan L. Langford, P.G., written in a cursive style.

Logan L. Langford, P.G.  
Geologist

A blue ink signature of Joseph C. Goode, Jr., P.E., written in a cursive style.

Joseph C. Goode, Jr., P.E.  
President

LLL

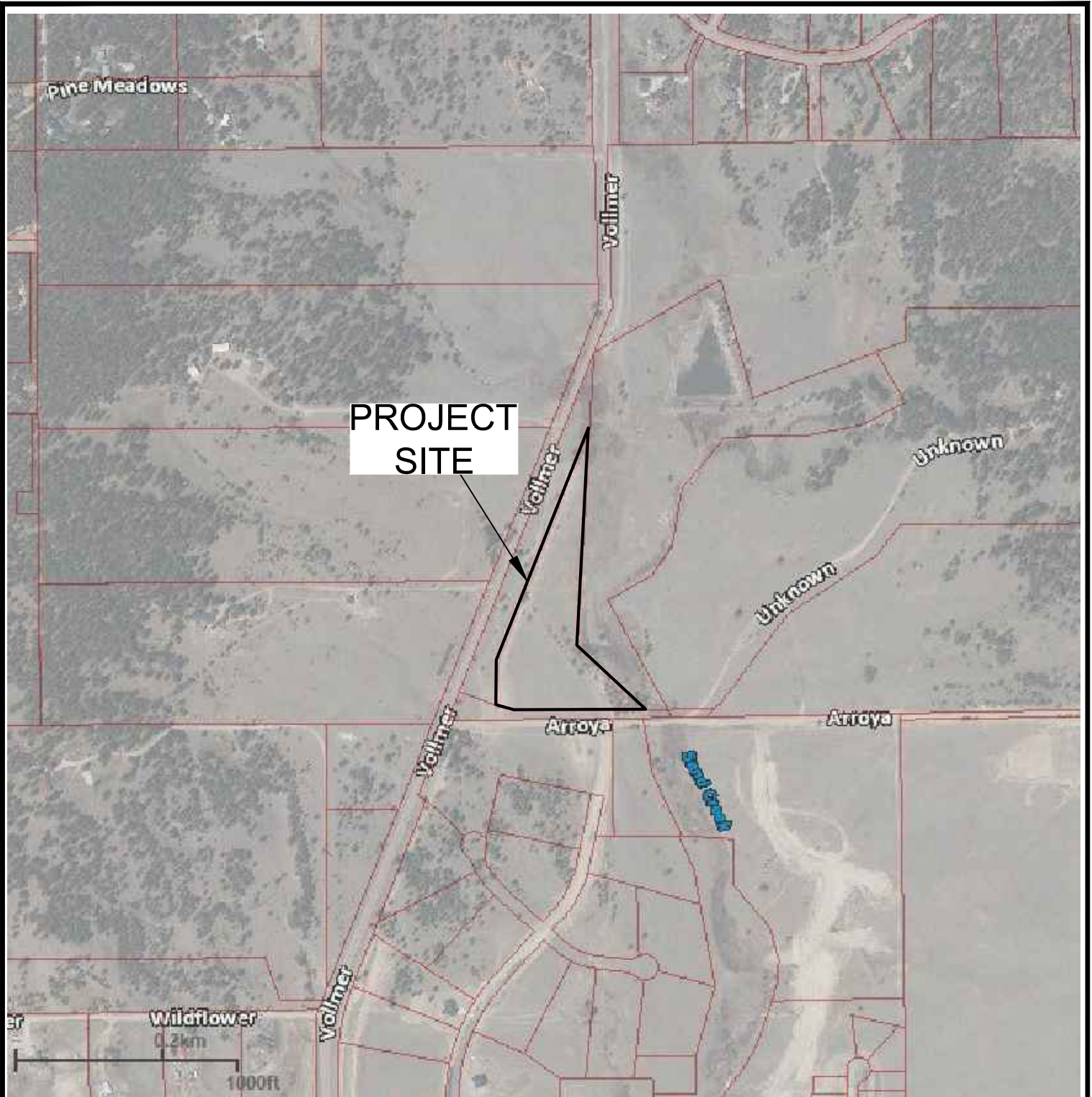
Encl.

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## BIBLIOGRAPHY

1. Entech Engineering, Inc., revised date December 1, 2017. *Soil, Geology, Geologic Hazard, and Wastewater Study, The Retreat at TimberRidge, Vollmer Road and Arroya Lane, El Paso County, Colorado*. Entech Job No. 170020.
2. Natural Resource Conservation Service, September 23, 2016. *Web Soil Survey*. United States Department Agriculture, <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.
3. United States Department of Agriculture Soil Conservation Service. June 1981. *Soil Survey of El Paso County Area, Colorado*.
4. Scott, Glen R.; Taylor Richard B.; Epis, Rudy C; and Wobus, Reinhard A. 1978. *Geologic Structure Map of the Pueblo 1° x 2° Quadrangle, South-Central Colorado*. Sheet 2. U.S. Geologic Survey. Map I-1022, Sheet 2.
5. Madole, Richard F., 2003. *Geologic Map of the Falcon NW Quadrangle, El Paso County, Colorado*. Colorado Geological Survey. Open-File Report 03-8.
6. Trimble, Donald E. and Machette, Michael N. 1979. *Geologic Map of the Colorado Springs-Castle Rock Area, Front Range Urban Corridor, Colorado*. USGS, Map I-857-F.
7. Scott, Glen R.; Taylor Richard B.; Epis, Rudy C; and Wobus, Reinhard A. 1978. *Geologic Structure Map of the Pueblo 1° x 2° Quadrangle, South-Central Colorado*. Sheet 2. U.S. Geologic Survey. Map I-1022.
8. Federal Emergency Management Agency. December 7, 2018. *Flood Insurance Rate Maps for the City of Colorado Springs, Colorado*. Map Number 08041C0535G

## FIGURES

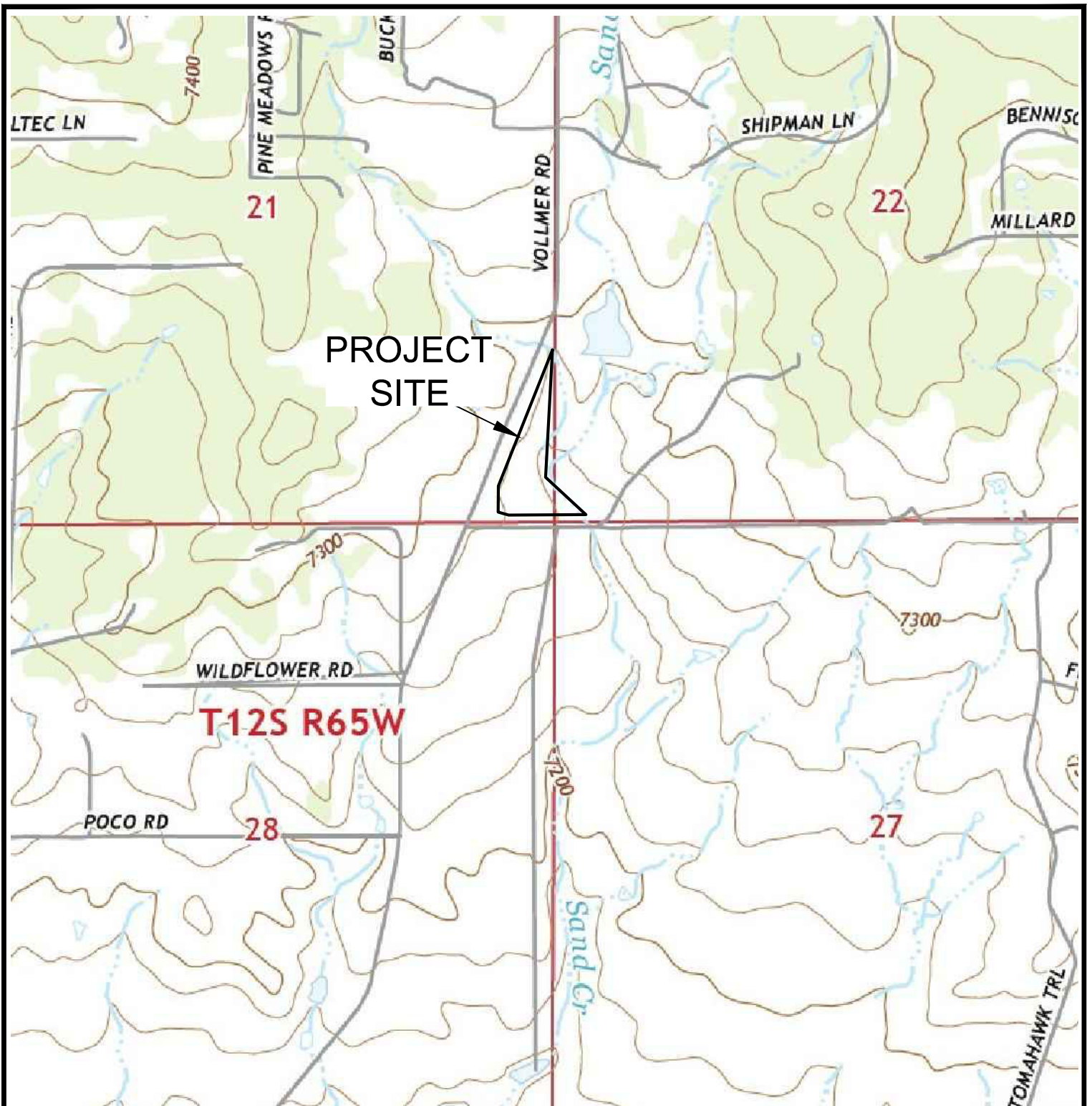


**VICINITY MAP**  
VOLLMER ROAD AND ARROYA LANE  
PARCEL NO. 52214-00-002  
STIMPLE FAMILY LLLP

JOB NO.  
231494

FIG. 1



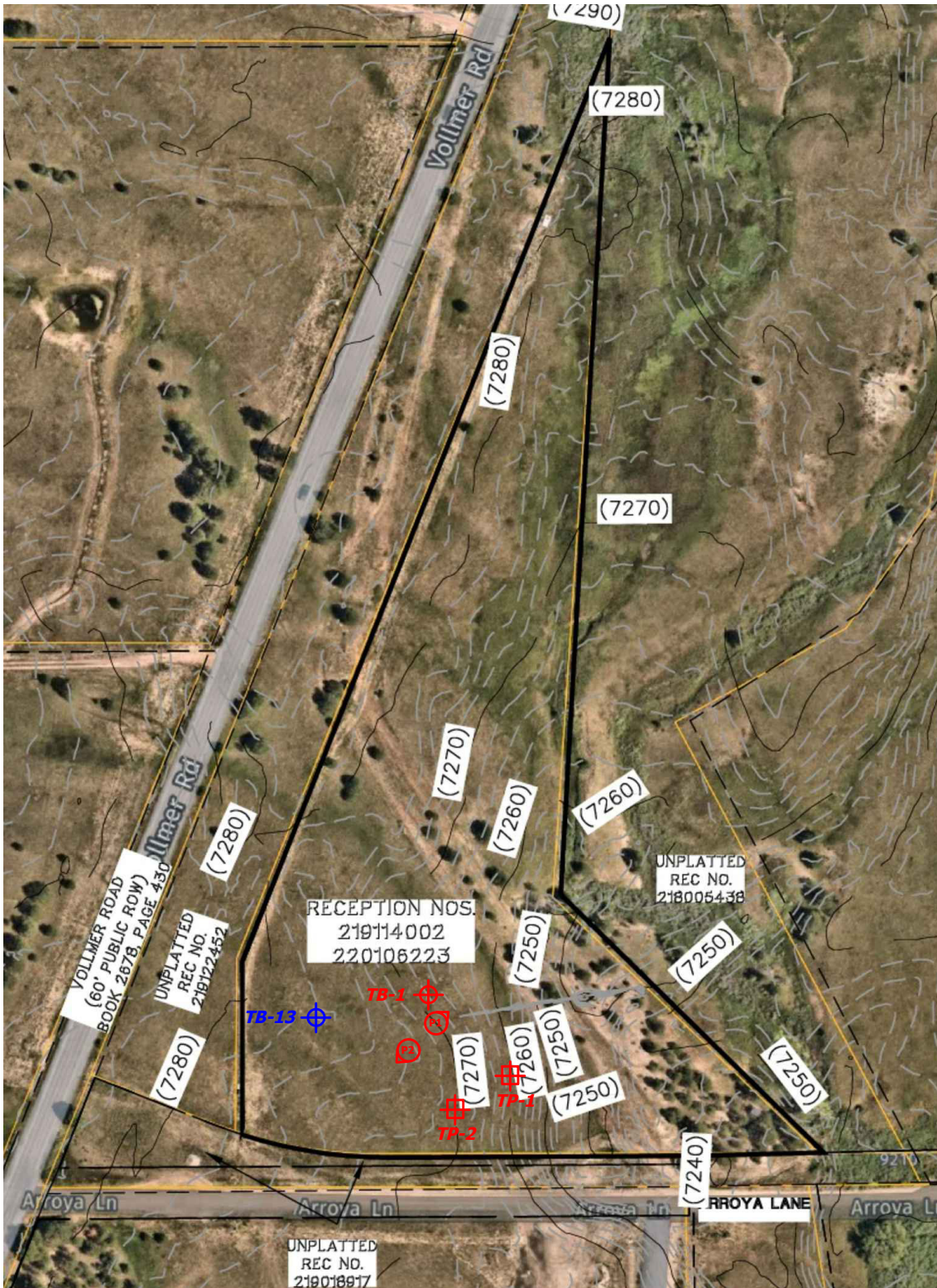






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**USGS TOPOGRAPHY MAP**  
VOLLMER ROAD AND ARROYA LANE  
PARCEL NO. 52214-00-002  
STIMPLE FAMILY LLLP

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231494

FIG. 2

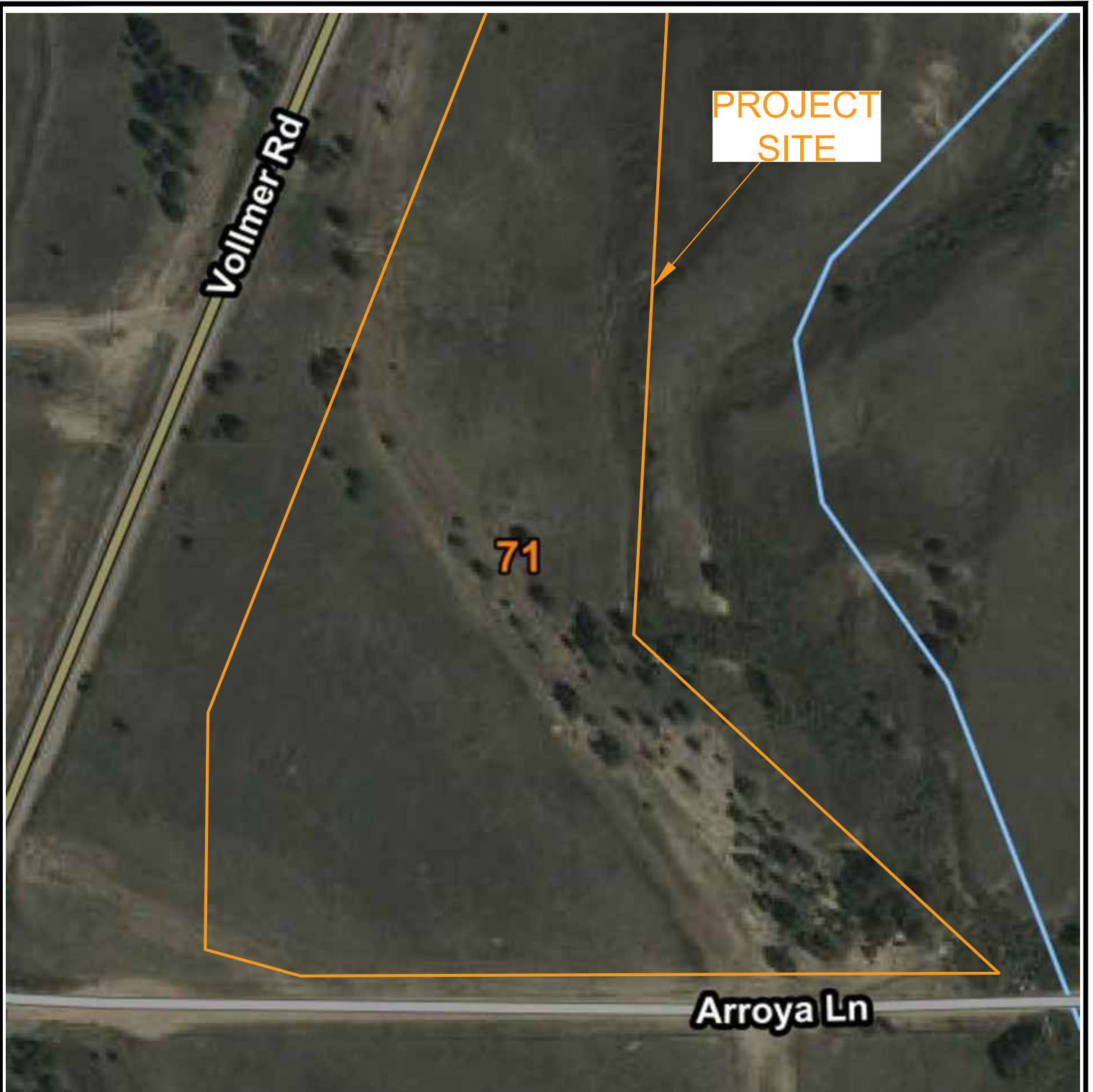


-  - APPROXIMATE TEST BORING LOCATION AND NUMBER
-  - APPROXIMATE TEST PIT LOCATION AND NUMBER
-  - APPROXIMATE TEST BORING LOCATION AND NUMBER (EEI Job No. 170020)
-  - APPROXIMATE PHOTOGRAPH LOCATION AND NUMBER



**SITE AND EXPLORATION PLAN**  
 VOLLMER ROAD AND ARROYA LANE  
 PARCEL NO. 52214-00-002  
 STIMPLE FAMILY LLLP

JOB NO.  
 231494  
 FIG. 3



PROJECT  
SITE

71

Vollmer Rd

Arroya Ln

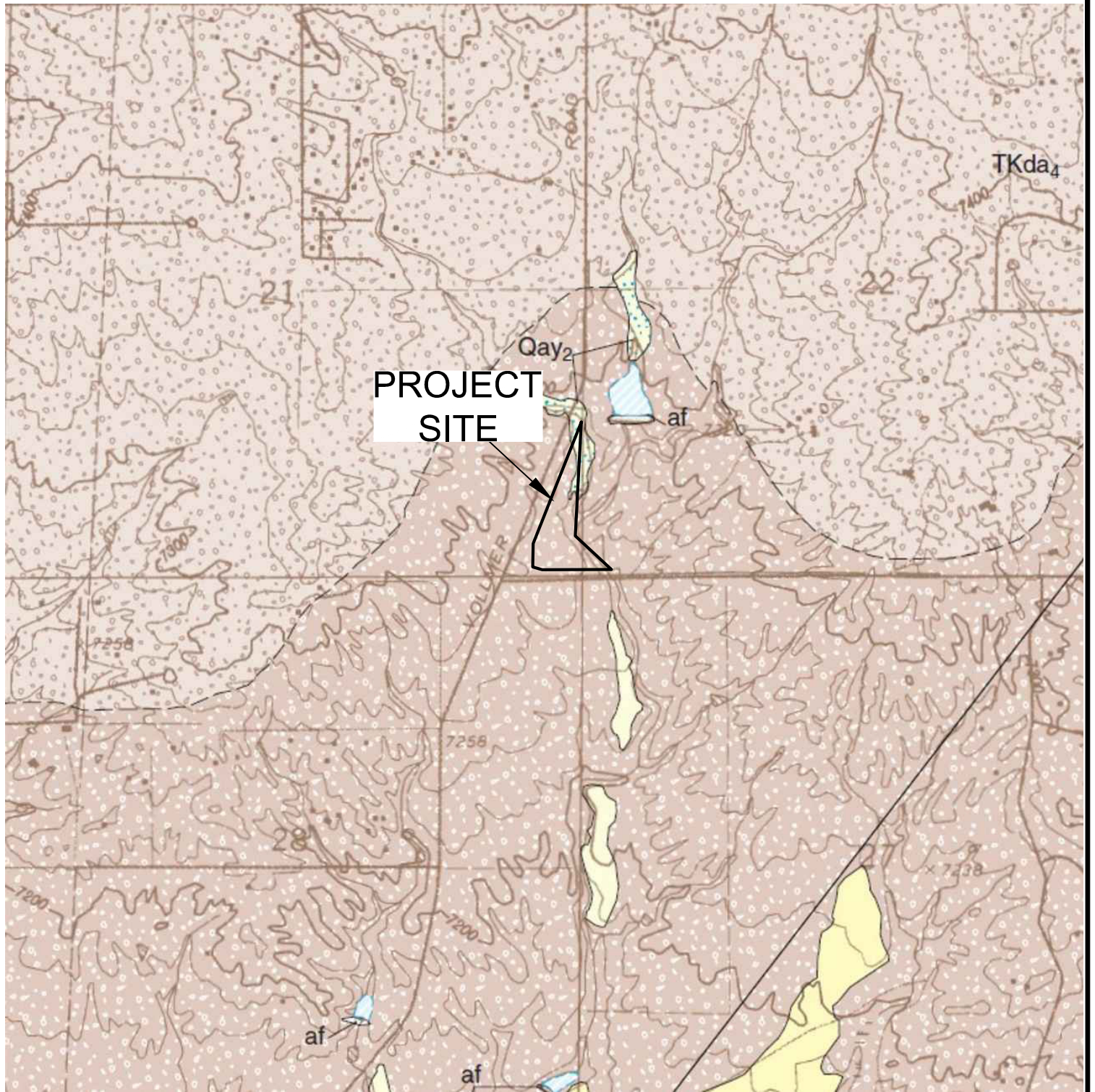


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**SOIL SURVEY MAP**  
VOLLMER ROAD AND ARROYA LANE  
PARCEL NO. 52214-00-002  
STIMPLE FAMILY LLLP

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231494

**FIG. 4**

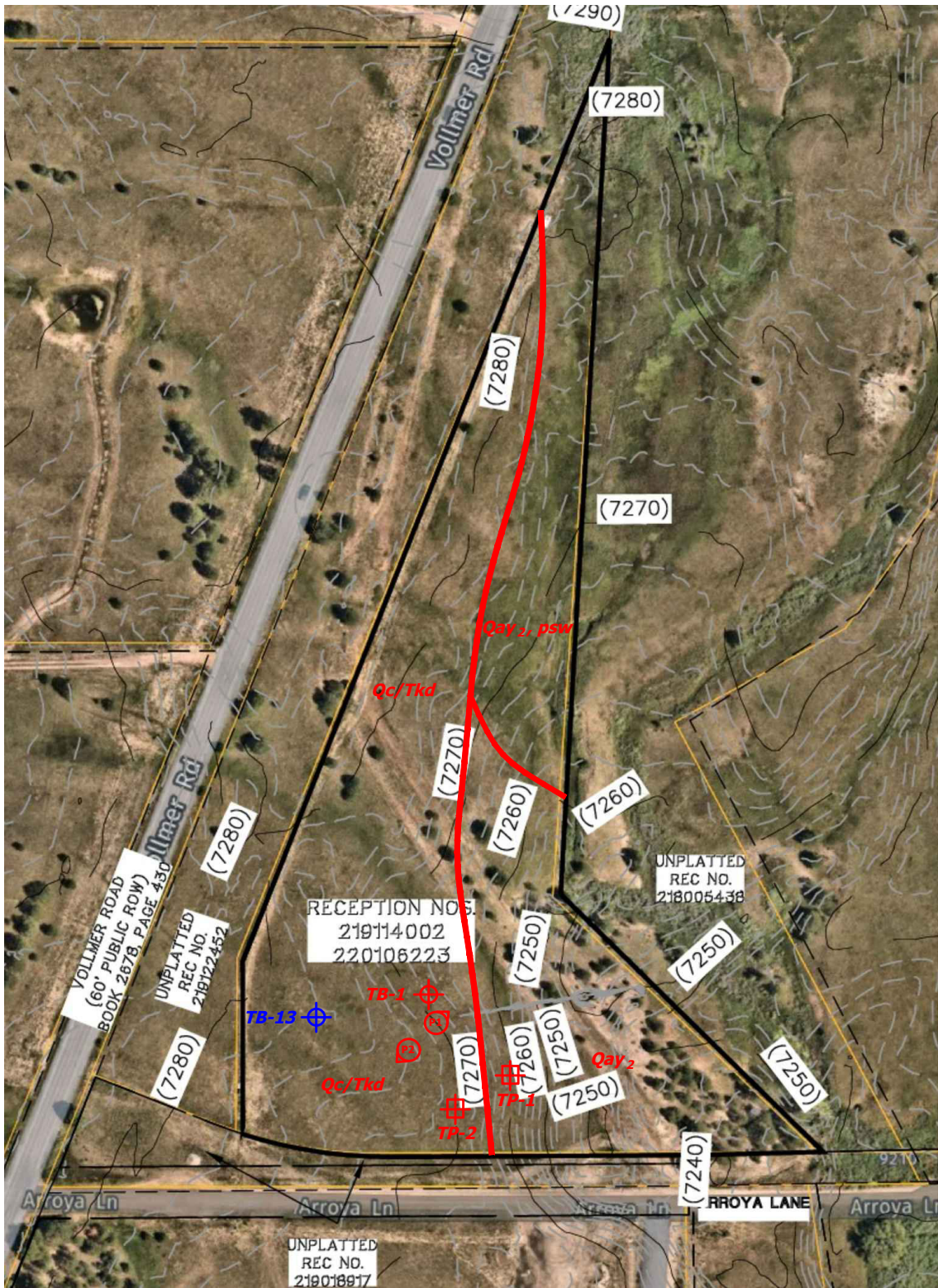


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**FALCON NW QUADRANGLE  
GEOLOGIC MAP**  
VOLLMEYER ROAD AND ARROYA LANE  
PARCEL NO. 52214-00-002  
STIMPLE FAMILY LLLP

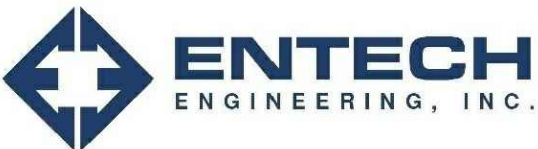
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**FIG. 5**



**Legend:**

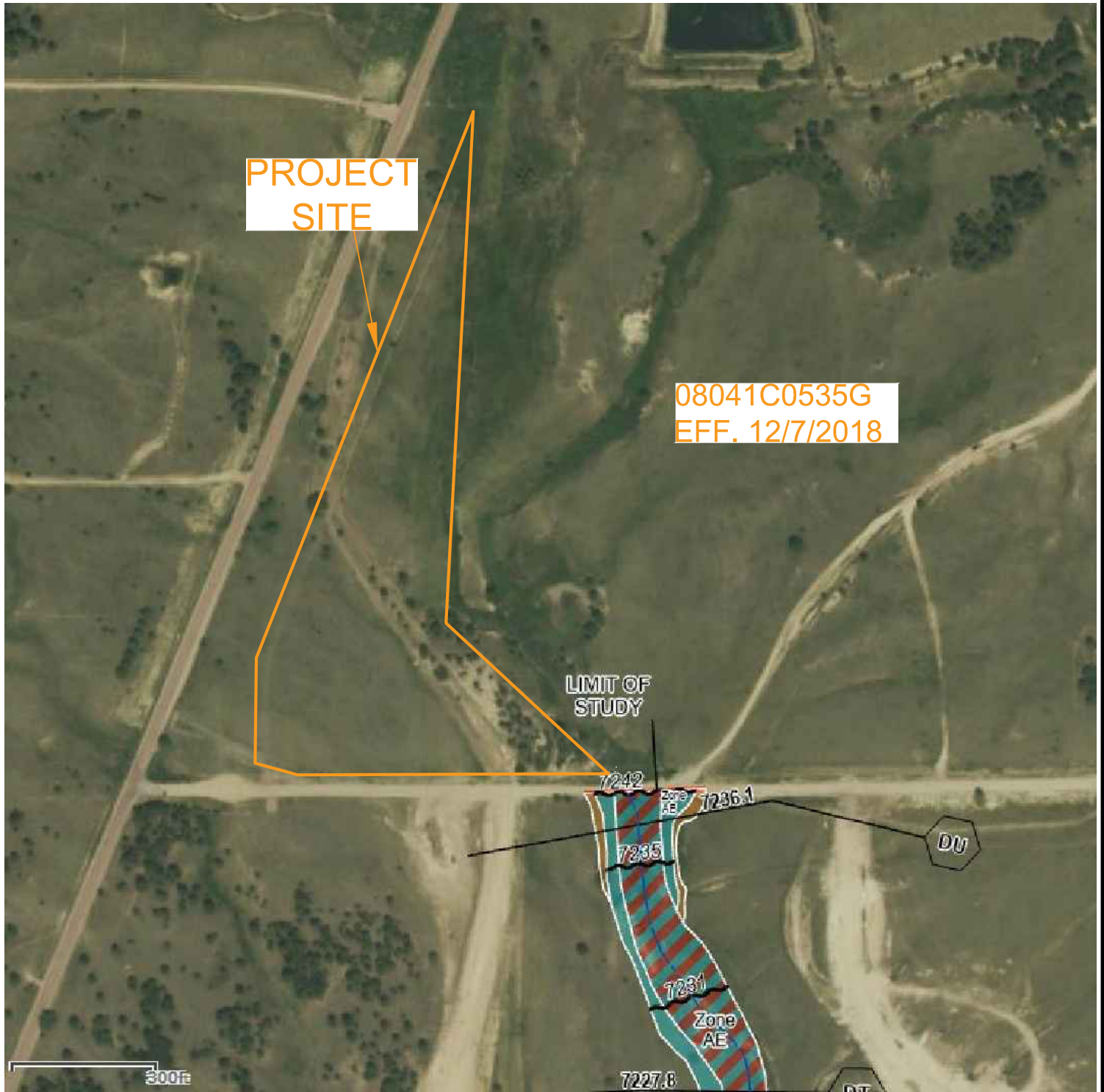
- Qay<sub>2</sub> - Young Alluvium Two of Holocene Age:  
water deposited sands and clays
- Qc/Tkd - Colluvium of Quaternary Age overlying The Dawson Formation of Tertiary to Cretaceous Age:  
sheetwash and residual soil deposits overlying arkosic sandstone with interbedded claystone and siltstone
- psw - potentially shallow groundwater area



**GEOLOGY/ENGINEERING GEOLOGY MAP**  
 VOLLMER ROAD AND ARROYA LANE  
 PARCEL NO. 52214-00-002  
 STIMPLE FAMILY LLLP

JOB NO.  
231494

FIG. 6

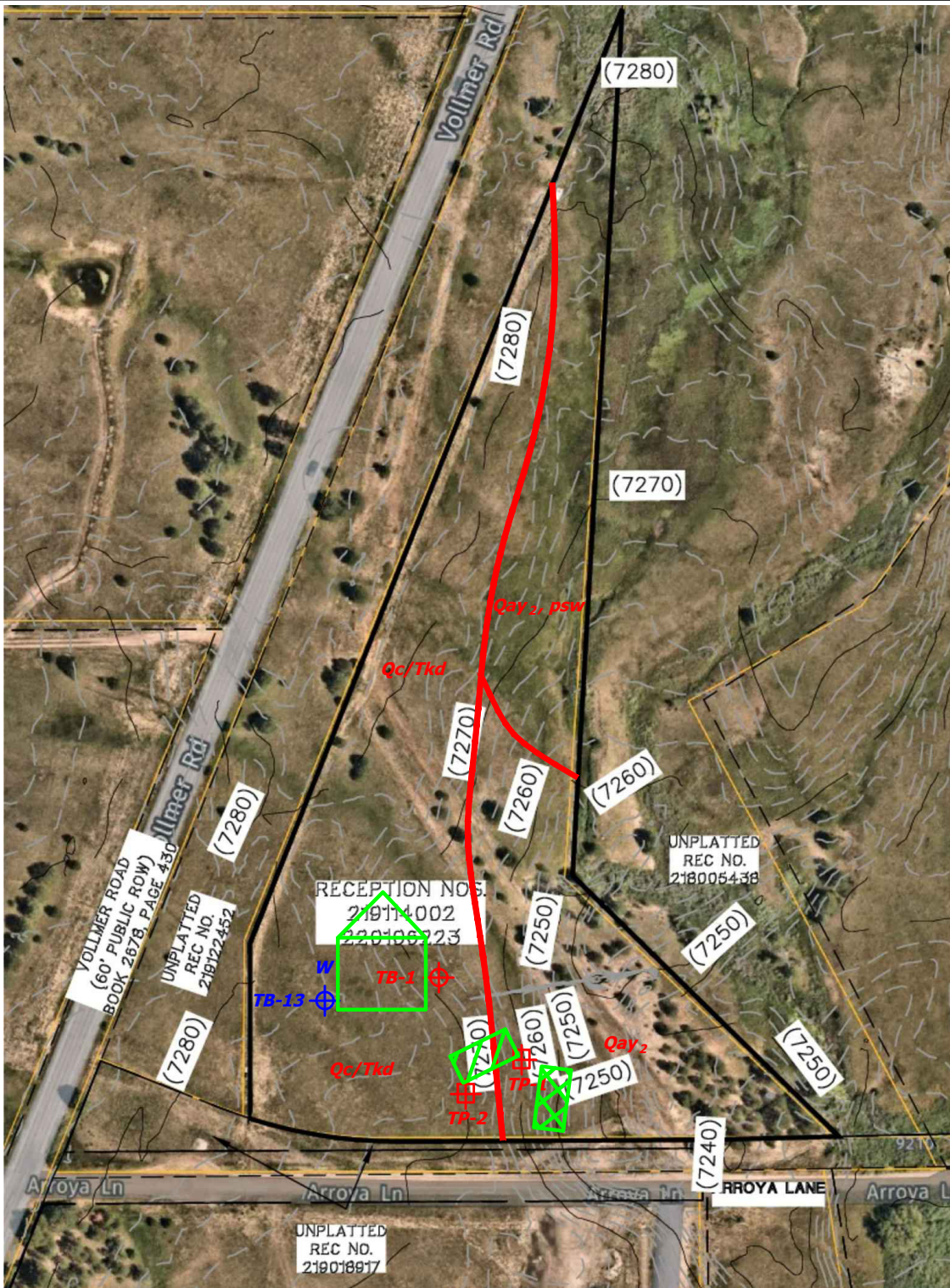








**ENTECH**  
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**FEMA FLOODPLAIN MAP**  
VOLLMER ROAD AND ARROYA LANE  
PARCEL NO. 52214-00-002  
STIMPLE FAMILY LLLP

JOB NO.  
231494

FIG. 7



-  - APPROXIMATE TEST BORING LOCATION AND NUMBER
-  - APPROXIMATE TEST PIT LOCATION AND NUMBER
-  - APPROXIMATE TEST BORING LOCATION AND NUMBER (EEI Job No. 170020)
-  - OWTS LOCATION
-  - ALTERNATE OWTS LOCATION
-  - HOUSE LOCATION AND WATER WELL



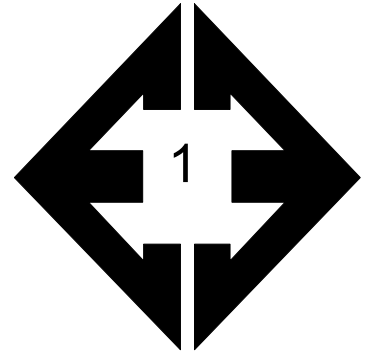
**OWTS SUITABILITY MAP**  
 VOLLMER ROAD AND ARROYA LANE  
 PARCEL NO. 52214-00-002  
 STIMPLE FAMILY LLLP

JOB NO.  
231494

FIG. 8

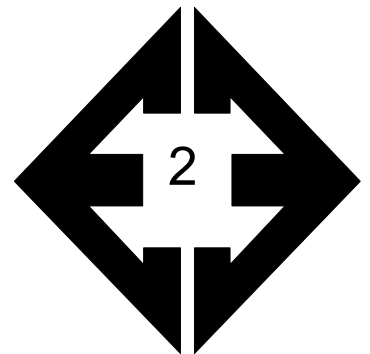
## **APPENDIX A: Photographs**





**Looking northeast  
from the central  
portion of the site.**

September 25, 2023



**Looking southwest  
from the central  
portion of the site.**

September 25, 2023

## **APPENDIX B: Test Boring & Test Pit Logs**

TEST BORING 1  
 DATE DRILLED 9/25/2023

REMARKS

DRY TO 20', 9/25/23

12" TOPSOIL, SAND, SILTY,  
 BROWN, MEDIUM DENSE to  
 DENSE, MOIST

CLAYSTONE, WEAK, OLIVE,  
 HIGHLY WEATHERED, (CLAY,  
 SANDY, HARD, MOIST)

SANDSTONE, WEAK, TAN to  
 OLIVE, HIGHLY WEATHERED,  
 (SAND, CLAYEY, VERY DENSE,  
 MOIST)

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			22	9.7	1
5			39	10.1	1
10			50 11"	11.8	3
15			50 7"	10.9	2
20			50 4"	6.4	2



TEST BORING LOGS

VOLLMER & ARROYA  
 STIMPLE FAMILY

JOB NO.  
 231494

FIG. B-1

TEST PIT 1  
 DATE EXCAVATED 9/25/2023  
 REMARKS

TEST PIT 2  
 DATE EXCAVATED 9/25/2023  
 REMARKS

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type	REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type
TOPSOIL 0-12", SANDY CLAY LOAM, DARK BROWN	1						TOPSOIL 0-12", SANDY CLAY LOAM, DARK BROWN	1					
SANDY CLAY, FINE TO COARSE GRAINED, DARK BROWN, MOIST	2			GR	W	4A	SANDY CLAY, FINE TO COARSE GRAINED, DARK BROWN	2			GR	W	4A
	3							3					
LOAMY SAND, FINE TO COARSE GRAINED, LIGHT BROWN, VERY MOIST	4			SG	L	1	HIGHLY WEATHERED SILTY TO CLAYEY SANDSTONE, FINE TO COARSE GRAINED, BLUE GRAY TO OLIVE, VERY MOIST	4			MA	M	4A
	5							5					
	6							6					
	7							7					
	8							8					
	9							9					
	10							10					

Soil Structure Shape

- granular - gr
- platy - pl
- blocky - bl
- prismatic - pr
- single grain - sg
- massive - ma

Soil Structure Grade

- weak - w
- moderate - m
- strong - s
- loose - l



**TEST PIT LOGS**

VOLLMER & ARROYA  
 STIMPLE FAMILY

JOB NO.  
 231494

**FIG. B-2**

## **APPENDIX C: Laboratory Test Results**

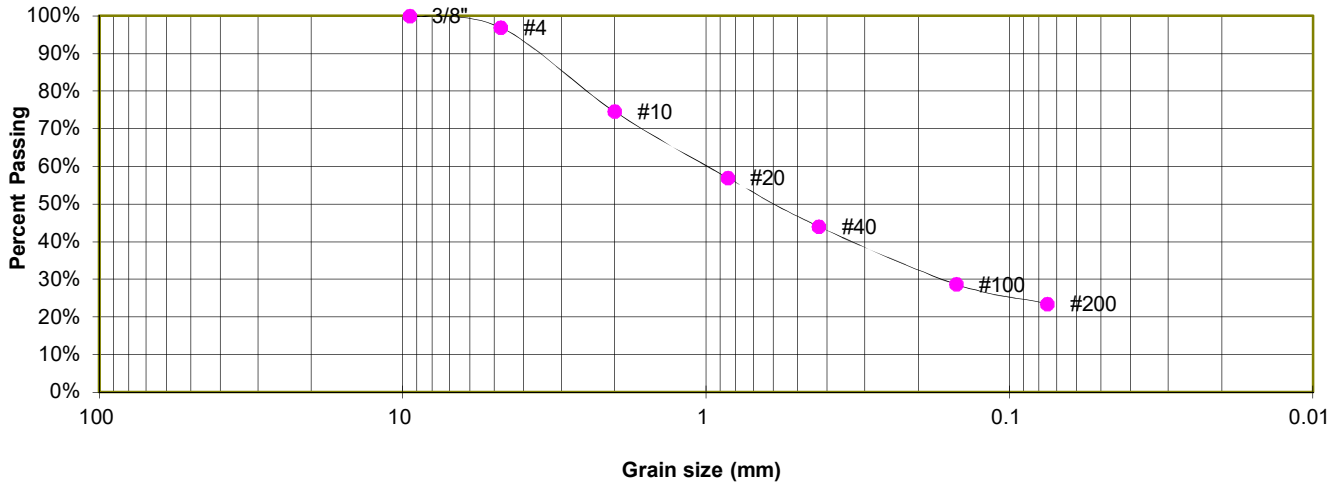
**TABLE C-1  
SUMMARY OF LABORATORY TEST RESULTS**

SOIL TYPE	TEST BORING NO.	DEPTH (FT)	WATER (%)	DRY DENSITY (PCF)	PASSING NO. 200 SIEVE (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTIC INDEX	SWELL/CONSOL (%)	USCS	SOIL DESCRIPTION
1	1	2-3			23.5	NV	NP	NP		SM	SAND, SILTY
1	1	5			30.8	NV	NP	NP		SM	SAND, SILTY
2	1	15			36.9	26	15	11		SC	SANDSTONE, (SAND, CLAYEY)
3	1	10	12.8	114.9	58.4	31	13	18	1.3	CL	CLAYSTONE, (CLAY, SANDY)

TEST BORING 1  
 DEPTH (FT) 2-3

SOIL DESCRIPTION SAND, SILTY  
 SOIL TYPE 1

**Sieve Analysis  
 Grain Size Distribution**



**GRAIN SIZE ANALYSIS**

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	96.9%
10	74.6%
20	57.0%
40	44.0%
100	28.7%
200	23.5%

**ATTERBERG LIMITS**

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

**SOIL CLASSIFICATION**

USCS CLASSIFICATION: SM



**LABORATORY TEST RESULTS**

VOLLMER & ARROYA  
 STIMPLE FAMILY

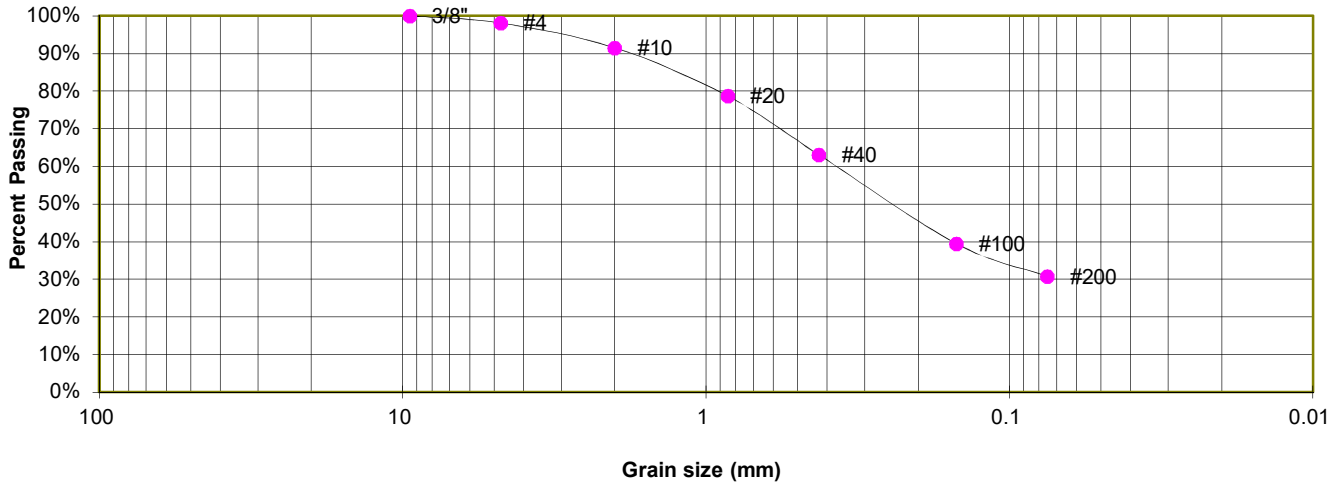
JOB NO.  
 231494

**FIG. C-1**

TEST BORING 1  
 DEPTH (FT) 5

SOIL DESCRIPTION SAND, SILTY  
 SOIL TYPE 1

**Sieve Analysis  
 Grain Size Distribution**



**GRAIN SIZE ANALYSIS**

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	98.1%
10	91.5%
20	78.7%
40	63.1%
100	39.5%
200	30.8%

**ATTERBERG LIMITS**

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

**SOIL CLASSIFICATION**

USCS CLASSIFICATION: SM



**LABORATORY TEST RESULTS**

VOLLMER & ARROYA  
 STIMPLE FAMILY

JOB NO.  
 231494

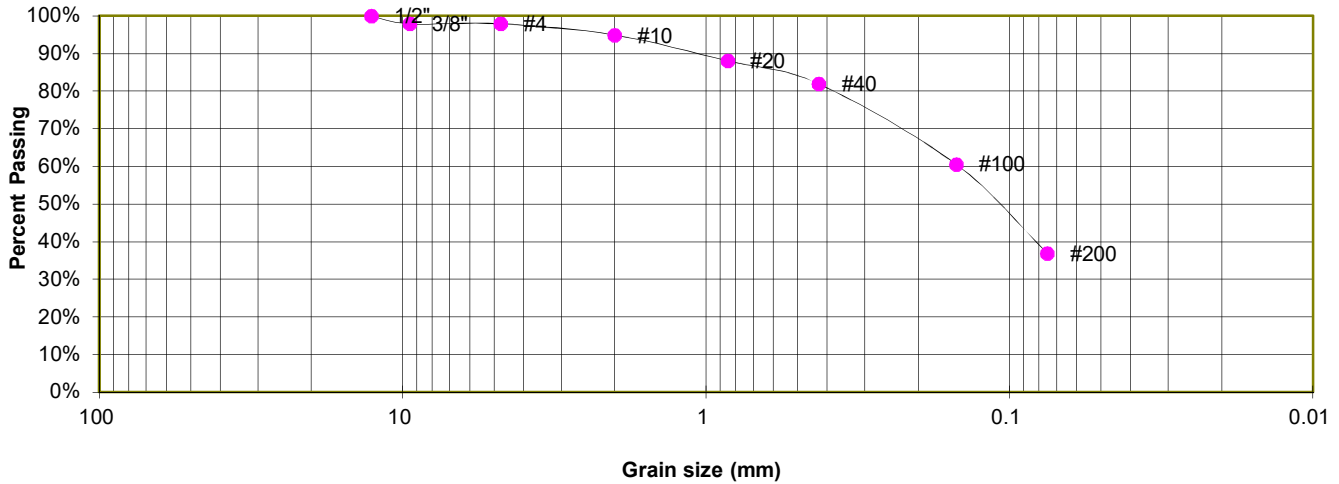
**FIG. C-2**



TEST BORING 1  
 DEPTH (FT) 15

SOIL DESCRIPTION SANDSTONE, (SAND, CLAYEY)  
 SOIL TYPE 2

**Sieve Analysis  
 Grain Size Distribution**



**GRAIN SIZE ANALYSIS**

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	97.9%
4	97.9%
10	94.9%
20	88.1%
40	81.9%
100	60.6%
200	36.9%

**ATTERBERG LIMITS**

Plastic Limit	15
Liquid Limit	26
Plastic Index	11

**SOIL CLASSIFICATION**

USCS CLASSIFICATION: SC



**LABORATORY TEST RESULTS**

VOLLMER & ARROYA  
 STIMPLE FAMILY

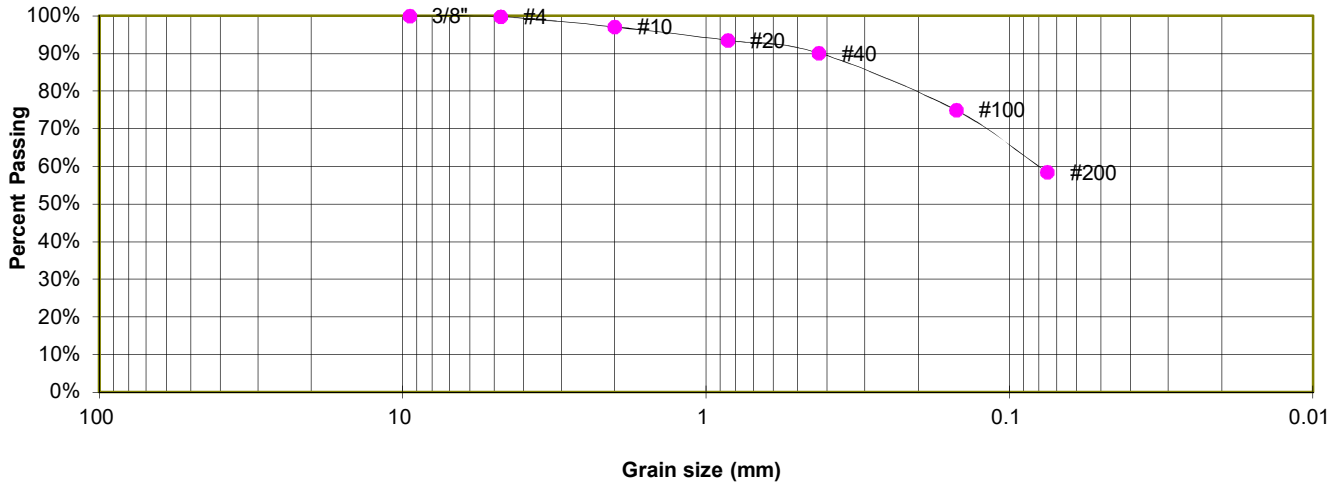
JOB NO.  
 231494

**FIG. C-3**

TEST BORING 1  
 DEPTH (FT) 10

SOIL DESCRIPTION CLAYSTONE, (CLAY, SANDY)  
 SOIL TYPE 3

**Sieve Analysis  
 Grain Size Distribution**



**GRAIN SIZE ANALYSIS**

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.8%
10	97.1%
20	93.5%
40	90.2%
100	74.9%
200	58.4%

**ATTERBERG LIMITS**

Plastic Limit	13
Liquid Limit	31
Plastic Index	18

**SOIL CLASSIFICATION**

USCS CLASSIFICATION: CL



**LABORATORY TEST RESULTS**

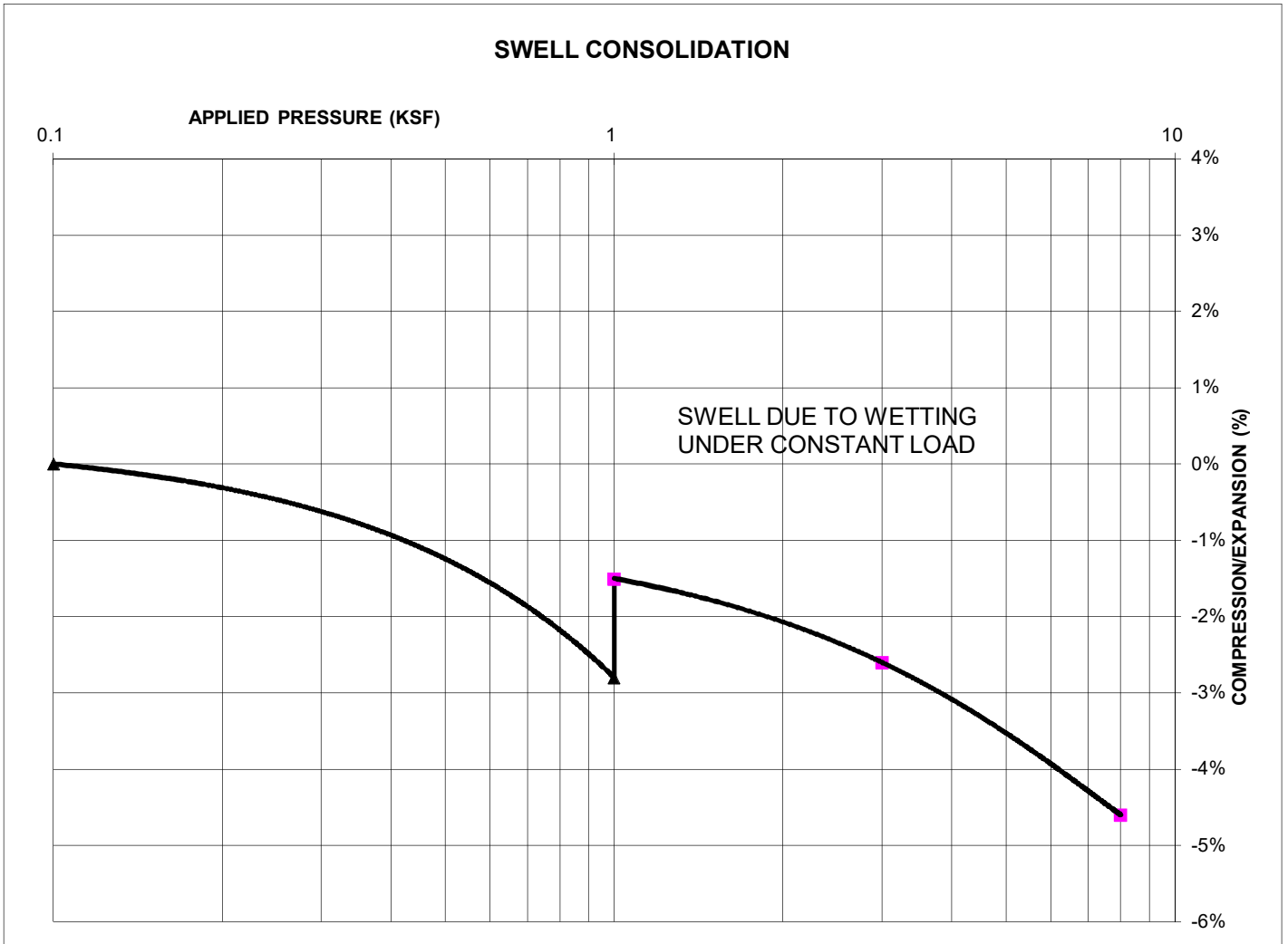
VOLLMER & ARROYA  
 STIMPLE FAMILY

JOB NO.  
 231494

**FIG. C-4**

TEST BORING 1  
DEPTH (FT) 10

SOIL DESCRIPTION CLAYSTONE, (CLAY, SANDY)  
SOIL TYPE 3



**SWELL/CONSOLIDATION TEST RESULTS**

NATURAL UNIT DRY WEIGHT (PCF): 115  
NATURAL MOISTURE CONTENT: 12.8%  
SWELL/CONSOLIDATION (%): 1.3%



**SWELL/CONSOLIDATION  
TEST RESULTS**

VOLLMER & ARROYA  
STIMPLE FAMILY

JOB NO.  
231494

**FIG. C-5**

**APPENDIX D: Test Boring Log and Lab Testing,  
Entech Job No. 170020**

TEST BORING NO. 13  
 DATE DRILLED 1/12/2017  
 Job # 170020

TEST BORING NO.  
 DATE DRILLED  
 CLIENT ARROYA INVESTMENTS  
 LOCATION THE RETREAT AT TIMBER RIDGE

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
STAKE 3512  DRY TO 18.5', 1/23/17													
SAND, SILTY WITH SLIGHTLY CLAYEY LENSES, FINE TO COARSE GRAINED, TAN, MEDIUM DENSE, MOIST	5			18	11.9	1		5					
SANDSTONE, SILTY, FINE TO COARSE GRAINED, TAN, VERY DENSE, MOIST	5			50 11"	7.8	3		5					
	10			50 6"	10.8	3		10					
	15			50 5"	8.4	3		15					
	20			50 6"	9.4	3		20					



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505 ELKTON DRIVE  
 COLORADO SPRINGS, COLORADO 80907

**TEST BORING LOG**

DRAWN:

DATE:

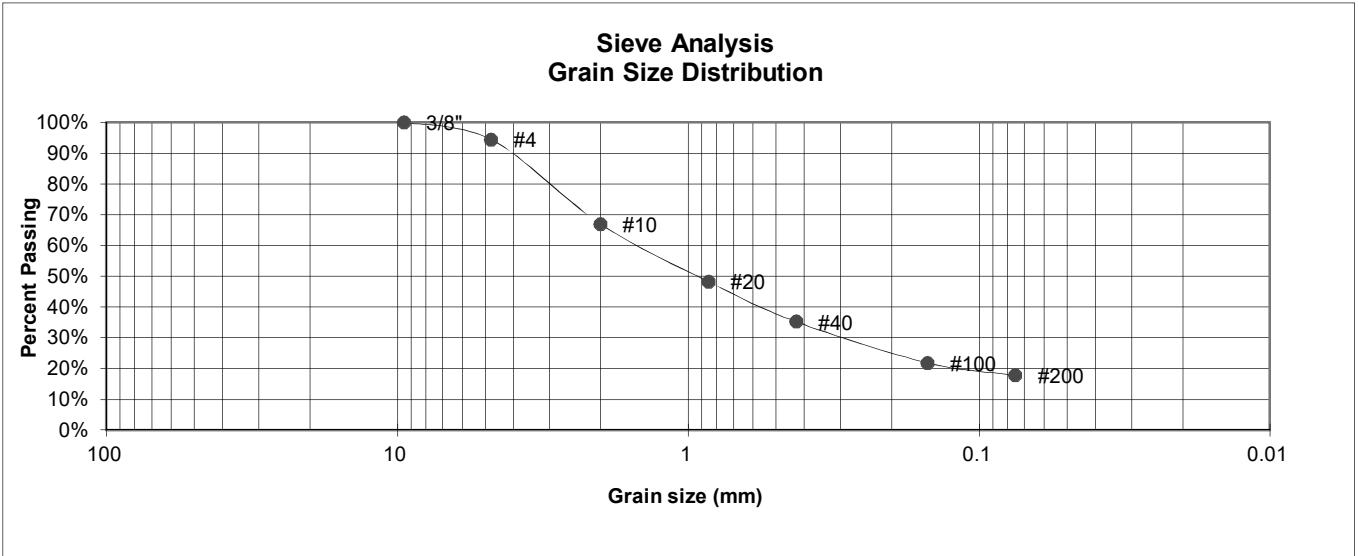
CHECKED:

DATE:

JOB NO.:  
 170020

FIG NO.:  
 B-7

<u>UNIFIED CLASSIFICATION</u>	SM	<u>CLIENT</u>	ARROYA INVESTMENTS
<u>SOIL TYPE #</u>	1	<u>PROJECT</u>	THE RETREAT AT TIMBER RIDGE
<u>TEST BORING #</u>	13	<u>JOB NO.</u>	170020
<u>DEPTH (FT)</u>	2-3	<u>TEST BY</u>	BL



<u>U.S. Sieve #</u>	<u>Percent Finer</u>	<u>Atterberg Limits</u>
3"		Plastic Limit
1 1/2"		Liquid Limit
3/4"		Plastic Index
1/2"		
3/8"	100.0%	<u>Swell</u>
4	94.4%	Moisture at start
10	67.0%	Moisture at finish
20	48.2%	Moisture increase
40	35.2%	Initial dry density (pcf)
100	21.8%	Swell (psf)
200	17.8%	



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COLORADO SPRINGS, COLORADO 80907

**LABORATORY TEST  
RESULTS**

DRAWN:	DATE:	CHECKED:	DATE:
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JOB NO.:  
170020

FIG NO.:

## **APPENDIX E: Soil Survey Descriptions**

## El Paso County Area, Colorado

### 71—Pring coarse sandy loam, 3 to 8 percent slopes

#### Map Unit Setting

*National map unit symbol:* 369k

*Elevation:* 6,800 to 7,600 feet

*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Pring and similar soils:* 85 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Pring

##### Setting

*Landform:* Hills

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Arkosic alluvium derived from sedimentary rock

##### Typical profile

*A - 0 to 14 inches:* coarse sandy loam

*C - 14 to 60 inches:* gravelly sandy loam

##### Properties and qualities

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):* High  
(2.00 to 6.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 6.0 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* B

*Ecological site:* R048AY222CO - Loamy Park

*Hydric soil rating:* No

#### Minor Components

##### Pleasant

*Percent of map unit:*

*Landform:* Depressions

*Hydric soil rating:* Yes



**Other soils**

*Percent of map unit:*

*Hydric soil rating:* No

**Data Source Information**

Soil Survey Area: El Paso County Area, Colorado

Survey Area Data: Version 21, Aug 24, 2023