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WASTEWATER STUDY
PINERY CIRLCE – 3 LOT SUBDIVISION
PARCEL NO. 52054-00-041
EL PASO COUNTY, COLORADO



Prepared for:

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November 21, 2025

Respectfully Submitted,

ENTECH ENGINEERING, INC.

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Reviewed by:

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Date: 11/21/25

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Entech Job No. 251507
LLL/JCG

PCD No.

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1 SUMMARY

Project Location

The project site is located within the SE¼ of Section 5, Township 12 South, Range 65 West of the 6th Principal Meridian in El Paso County, Colorado. The site is located just south of the Palmer Divide approximately 4 miles north-northeast of Colorado Springs city limits within the Black Forest burn scar. The location of the site is as shown in the Vicinity Map (Figure 1).

Project Description

A three-lot rural residential subdivision is proposed for the 15-acre parcel. The proposed lots are to be 5 acres and will be serviced by individual water wells and on-site wastewater treatment systems (OWTS). A residence was previously located on proposed Lot 3, and portions or the existing retaining wall, previous septic system and water well remain on the site. The well is located on Lot 2 and the previous septic system components are located on portions of Lots 2 and 3.

Scope of Report

This report presents the results of our geologic evaluation and treatment of engineering geologic hazard study with respect to OWTS proposed for the subdivision.

Land Use and Engineering Geology

This site was found to be suitable for the proposed development; however, geologic conditions in certain areas will impose some minor constraints on development and land use. These include areas of artificial fill, potentially expansive soils, seasonal shallow and shallow groundwater areas, drainage areas, shallow bedrock, and the potential for elevated radon levels. These conditions are discussed in greater detail in this report.

In general, it is our opinion that the development can be achieved if the observed geologic conditions on site are either properly mitigated or avoided. All recommendations are subject to the limitations discussed in the report.

2 GENERAL SITE CONDITIONS AND PROJECT DESCRIPTION

The topography of the site is generally gradually sloping to the southwest with moderate slopes to the north along the Kettle Creek drainage in the northwestern portion of the site. The drainage generally flows in southwesterly direction, and water was not observed flowing in the drainages

at the time of this investigation. The site boundaries are indicated in the USGS Map (Figure 2). Previous land uses have included rural residential. The previous residence on the site was lost in the Black Forest fire in 2013. The site primarily contains field grasses and weeds with Ponderosa Pines along the northern side of the site. Site photographs are included in Appendix A.

The project is to consist of the subdividing of 15 acres into a 3-lot rural residential subdivision. The proposed lots are approximately 5 acres and will be serviced by individual water wells and on-site wastewater treatment systems (OWTS). A residence was previously located on proposed Lot 3, and portions of the existing retaining wall, previous septic system and water well remain. The proposed lot configuration is shown in the Site and Exploration Plan (Figure 3).

3 SCOPE OF THE REPORT

The scope of this report is to evaluate the site for the use of individual on-site wastewater treatment systems. Detailed site-specific mapping was conducted to obtain general information with respect to major geographic and geologic features, geologic descriptions, and their effects on the development of the property in accordance with the El Paso Land Development Code.

4 FIELD INVESTIGATION

Our field investigation consisted of the preparation of a geologic map of any bedrock features and significant surficial deposits. The site was also evaluated using the Web Soil Survey from the Natural Resource Conservation Service (NRCS), formerly known as the Soil Conservation Service (SCS). The position of mappable units within the subject property is shown on the Geologic Map. Our mapping procedures involved both field reconnaissance and measurements and air 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 on September 8, 2025. Site photographs are included in Appendix A.

Three (3) test borings were drilled and three (3) tactile test pits were excavated across the project site to determine the classification and engineering characteristics of the soils. The borings were drilled to depths of 20 feet using a truck-mounted, continuous flight auger drilling rig supplied and operated by Entech, and the test pits were excavated to depths of 3.5 to 6 feet where shallow bedrock was encountered.

The locations 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 included in Appendix B, and Laboratory Test Results are included in Appendix C. The results of the testing will be discussed later in this report.

Laboratory testing was performed to classify and determine the engineering characteristics of the soils. Laboratory tests included moisture content testing (ASTM D2216), grain-size analysis (ASTM D422), and Atterberg Limits testing (ASTM D4318). Swell testing included one-dimensional swell/consolidation testing. Results of the laboratory testing are included in Appendix C.

5 SOIL, GEOLOGY, AND ENGINEERING GEOLOGY

5.1 General Geology

The site lies in the western portion of the Great Plains Physiographic Province just south of the Palmer Divide. A major structural feature known as the Rampart Range Fault lies approximately 12 miles to the west. This fault marks the boundary between the Great Plains Physiographic Province and the Southern Rocky Mountain Province. The site exists within the southeastern edge of a large structural feature known as the Denver Basin. Bedrock in the area tends to be very gently dipping in a northeasterly direction (Reference 1). The rocks in the area of the site are sedimentary in nature and typically Tertiary to Cretaceous in age. The bedrock underlying the site consists of the Dawson Arkose Formation of Tertiary to Cretaceous Age. Overlying this formation are unconsolidated deposits of residual, colluvial, alluvial, and man-placed fill of the Quaternary Age. The residual soils are produced by the in-situ action of weathering of the bedrock on site. Some colluvial soils deposited by gravity and sheetwash exist. The alluvial soils were deposited by water along the drainage in the northwestern portion of site. Man-placed fill exists as remnants associated the previous residence that was lost in the Black Forest fire in 2013. The site's stratigraphy will be discussed in more detail in Section 5.3.

5.2 Soil Conservation Survey

The Natural Resource Conservation Service (Reference 2), previously the Soil Conservation Service (Reference 3), has mapped two soil types on the site (Figure 4). In general, it is a sandy loam. The soils are described as follows:

Exhibit 1: Soil Survey Description

Type	Description
40	Kettle gravelly loamy sand, 3 to 8% slopes
41	Kettle gravelly loamy sand, 8 to 40% slopes

Complete descriptions of each soil type are presented in Appendix D. The soil has generally been described as having moderately high permeabilities. Limitations on development include limited ability to support a load, shrink-swell potential, slopes, and frost action potential. Possible hazards with soil erosion are present on the site. The erosion potential can be controlled with vegetation. The soil has been described to have moderate erosion hazards.

5.3 Site Stratigraphy

The Geologic Map of the Black Forest Quadrangle showing the site is presented in Figure 5 (Reference 4). The Geology Map prepared for the site is presented in Figure 6. Three mappable units were identified on this site that are described as follows:

Qal **Alluvium of Quaternary Age:** These are modern stream deposits associated with the Kettle Creek drainage in the northwestern portion of the site. These materials generally consist of silty to clayey sands and gravel.

Qaf **Artificial Fill of Quaternary Age:** These are man-placed fill deposits associated with the previous residence located on proposed Lot 3. Other areas of fill may exist on the site other than those mapped.

Tkd **Dawson Formation of Tertiary to Cretaceous Age:** The Dawson Formation typically consists of arkosic sandstone with interbedded fine-grained sandstone, siltstone, and claystone. Overlying this formation is a variable layer of residual soil. The residual soils were derived from the in-situ weathering of the bedrock materials on-site. These soils consist of clayey sands and sandy clays. Areas of colluvial soils may exist on some of the slopes on site. These materials are derived from the bedrock materials and have been re-deposited by the action of sheetwash and gravity.

The soils listed above were mapped from site-specific mapping, the *Geologic Map of the Black Forest Quadrangle* distributed by the Colorado Geological Survey in 2003 (Reference 4), the *Geologic Map of the Colorado Springs-Castle Rock Area*, distributed by the US Geological Survey

in 1979 (Reference 5), and the *Geologic Map of the Denver 1^0 x 2^0 Quadrangle*, distributed by the US Geological Survey in 1981 (Reference 1). The Test Borings and Test Pit Logs used in evaluating the site are included in Appendix B. The Geology Map prepared for the site is presented in Figure 6.

5.4 Soil Conditions

The soils encountered in the test pits can be grouped into one general soil type. The soils were classified using the USDA textural soil classification.

Gravelly Sand (Soil Type 1 or R1) The gravelly sand was encountered in TP-2 underlying the layer of topsoil and extended to a depth of 3.5 feet bgs.

Gravelly Sandy Loam (Soil Type 2 or R1) The gravelly sandy loam was encountered in TP-3 underlying the layer of topsoil and extended to a depth of 4 feet bgs.

Sandy Clay and Gravelly Sandy Clay (Soil Type 4 and 4A) The sandy clay and gravelly sandy clay (residually weathered Dawson Formation) were encountered in underlying the topsoil in TP-1 and underlying Soil Type 1 and 2 in TP-2 and TP-3 and extended termination of the test pits (3.5 to 5 Feet).

The Test Pit Logs are presented in Appendix B. Laboratory Test Results are presented in Appendix C, and a Summary of Laboratory Test Results is presented in Table C-1.

5.5 Groundwater

Groundwater was not encountered in any of the test borings which were drilled to 20 feet during or subsequent to drilling. Redoximorphic features were encountered in TP-1 and TP-3 at depths of 1.5 to 5 feet bgs, and groundwater was encountered at 2.5 feet in TP-2. Areas of seasonally shallow groundwater and shallow water have been mapped in the drainages and some low-lying areas on the site. These areas are discussed in the following section. Fluctuation in groundwater conditions may occur due to variations in rainfall and other factors including development of the site and surrounding areas.

For the sandy materials on site, it should be noted that some groundwater conditions might be encountered due to the variability in the soil profile. Isolated sand and gravel layers within the soils, sometimes only a few feet in thickness and width, can carry water in the subsurface. Groundwater may also flow on top of the underlying bedrock or clays. Builders and planners

should monitor potential occurrences of such subsurface water features during construction on-site and mitigate as necessary at the time of construction.

Drainage and Flood Plain Areas – Constraint

The site is not located within any floodplain zones according to FEMA Map No. 08041C0315G (Figure 6, Reference 7). It is mapped as a having a 1% annual chance of flooding. Specific drainage studies and floodplain locations are beyond the scope of this report.

The topography of the site is generally gradually sloping to the southwest with moderate slopes to the north along the Kettle Creek drainage in the northwestern portion of the site. The drainage generally flows in southwesterly direction, and water was not observed flowing in the drainages at the time of this investigation.

The Kettle Creek Drainage in the northwest portion of the site has been included in the National Wetlands Inventory as a Freshwater Wetland habitat classified as **R4SBC** (Riverine intermittent – R4; Stream Bed – SB, Seasonally Flooded – C,) (Figure 8, Reference 8). This area lies within a drainage easement and will be avoided by construction.

Seasonally Shallow and Seasonal Shallow Groundwater Areas – Constraint

In these areas, we would anticipate periodic high subsurface moisture conditions and frost heave potential on a seasonal basis. The Kettle Creek drainage in the northwestern portion of the site has been identified as seasonally shallow groundwater. Redoximorphic features were observed in the test pits at depths ranging from 1.5 to 5 feet bgs, and groundwater was encountered in TP-2 at 2.5 feet. Test borings drilled in proposed house locations were dry during and subsequent to drilling to depths of 20 feet. Septic fields should not be placed in areas where there is the potential for shallow groundwater. Where shallow groundwater conditions are encountered mounded OWTS would be required.

6 ON-SITE WASTEWATER TREATMENT

The site was evaluated for individual on-site wastewater treatment systems in accordance with El Paso Land Development Code. Test pits were located in potential locations of future soil treatment areas on two of the proposed lots. The approximate locations of the Test Pits are indicated on the Site and Exploration Plan (Figure 3), the Geology/Engineering Geology Map (Figure 6), and the OWTS Suitability Map, Figure 8. Test Pit Logs are included in Appendix B, and Laboratory Test Results in Appendix C.

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 are presented in Appendix D. The soils are described as having rapid percolation rates. The majority of the soils have been described with moderate to high permeabilities.

Soils encountered in the tactile test pits consisted of sandy clay, gravelly sand, and gravelly sandy loam. Signs of seasonal occurring groundwater were observed in the test pits at depths of 1.5 to 5 feet. The limiting layers encountered in the test pits are the sandy clay (4A), the gravelly sand (1, R-1) gravelly sandy loam (2A, R-1). The soil types correspond to LTAR values ranging from 0.50 to 0.20 gallons per day per square foot. Owing to the potential for shallow groundwater conditions, shallow bedrock, high rock percentage and clayey soils engineered OWTS are anticipated to be required for the lots. Where shallow groundwater conditions are encountered mounding of the OWTS would be necessary. We expect that areas may be available on the lots where mounds would not be required. A minimum of 4 feet of separation between the potential groundwater elevation and the base of the absorption field is required.

On-site Wastewater Systems are to be evaluated for each lot prior to obtaining a building permit. The systems are to meet County Chapter 8 OWTS criteria and State CDPHE criteria including any required mitigation to accommodate respective leach fields and infrastructure including, but not limited to earthwork grading, berming and diversion swale implementation, installation of secondary sand filters or any other higher treatment levels and dosing as required on a per lot basis and determined by test pit results and site topography. There are no identified geologic hazards on the site that are prohibitive to future OWTS design at this time.

In summary, it is our opinion that the 5 acre lots are 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. An OWTS Suitability Map is presented in Figure 9. OWTS sites should not be located within defined drainages. Individual soil testing is required on each lot prior to construction. 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.

7 CLOSURE

It is our opinion that the existing geologic engineering and geologic conditions will impose some constraints on development and construction of the site. The majority of these conditions can be mitigated through proper engineering design and construction practices. The proposed development and use are consistent with anticipated geologic and engineering geologic conditions.

It should be pointed out that because of the nature of data obtained by random sampling of such variable and non-homogeneous materials as soil and rock, it is important that we be informed of any differences observed between surface and subsurface conditions encountered in construction and those assumed in the body of this report. Individual investigations for OWTS sites will be required prior to construction. Construction and design personnel should be made familiar with the contents of this report. Reporting such discrepancies to Entech Engineering, Inc. soon after they are discovered would be greatly appreciated and could possibly help avoid construction and development problems.

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

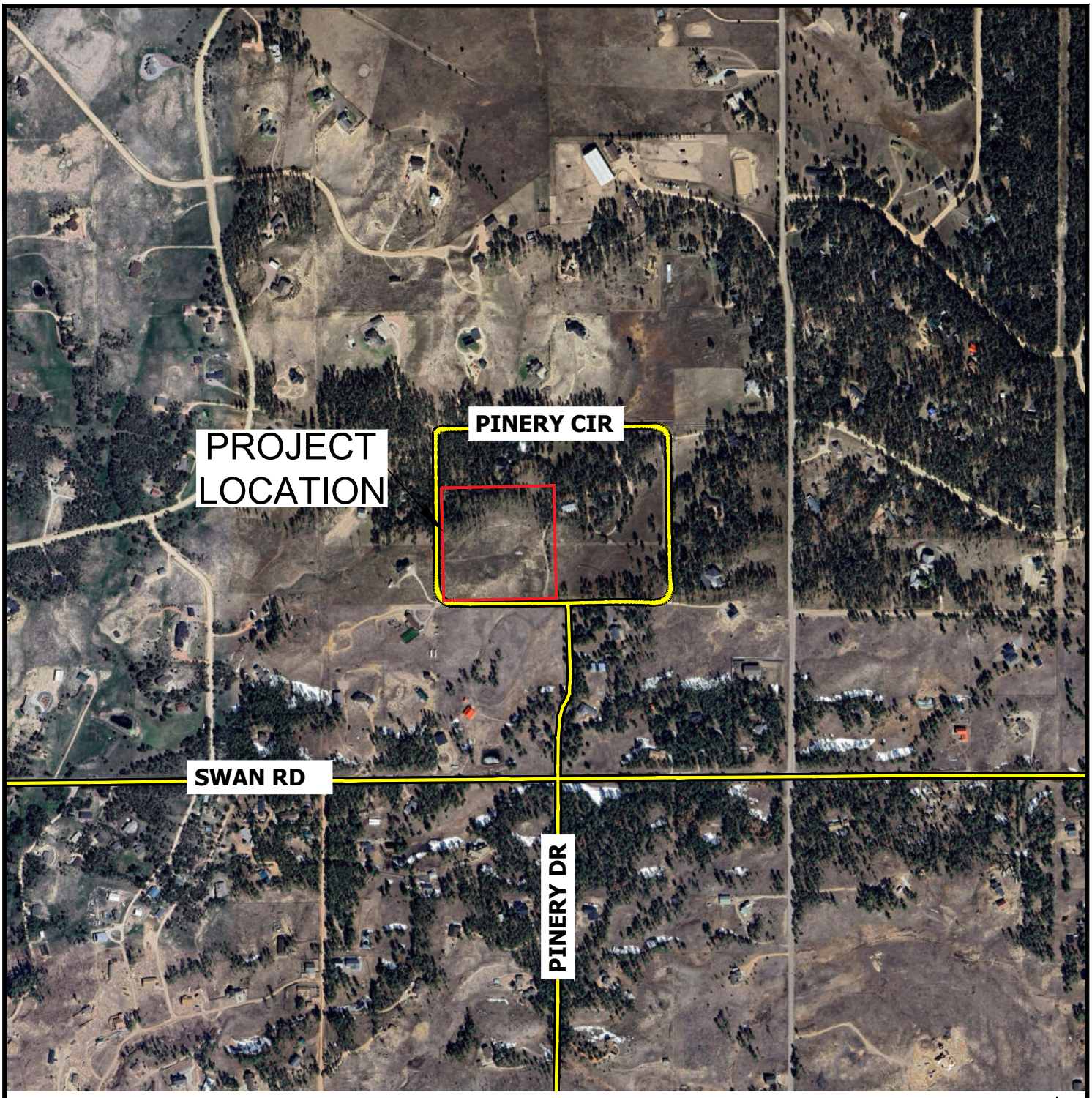
We trust that this report has provided you with all the information that you required. Should you require additional information, please do not hesitate to contact Entech Engineering, Inc.

8 REFERENCES

1. Bryant, Bruce; McGrew, Laura W. and Wobus, Reinhard A. 1981. *Geologic Structure Map of the Denver 1° x 2° Quadrangle, North-Central Colorado*. U.S. Geologic Survey. Map 1-1163.
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7. Hart, Stephen S. 1974. *Potentially Swelling Soil and Rock in the Front Range Urban Corridor, Colorado*. Colorado Springs-Castle Rock Map. Colorado Geological Survey. Environmental Geology 7.
8. Federal Emergency Management Agency. December 7, 2018. *Flood Insurance Rate Maps for the City of Colorado Springs, Colorado.* Map Numbers 08041CO305G, and 08041CO315G.

   U.S. Fish & Wildlife Service, May 1, 2020. *National Wetlands Inventory*. Department of the Interior, fws.gov/wetlands/data/Mapper.html

FIGURES



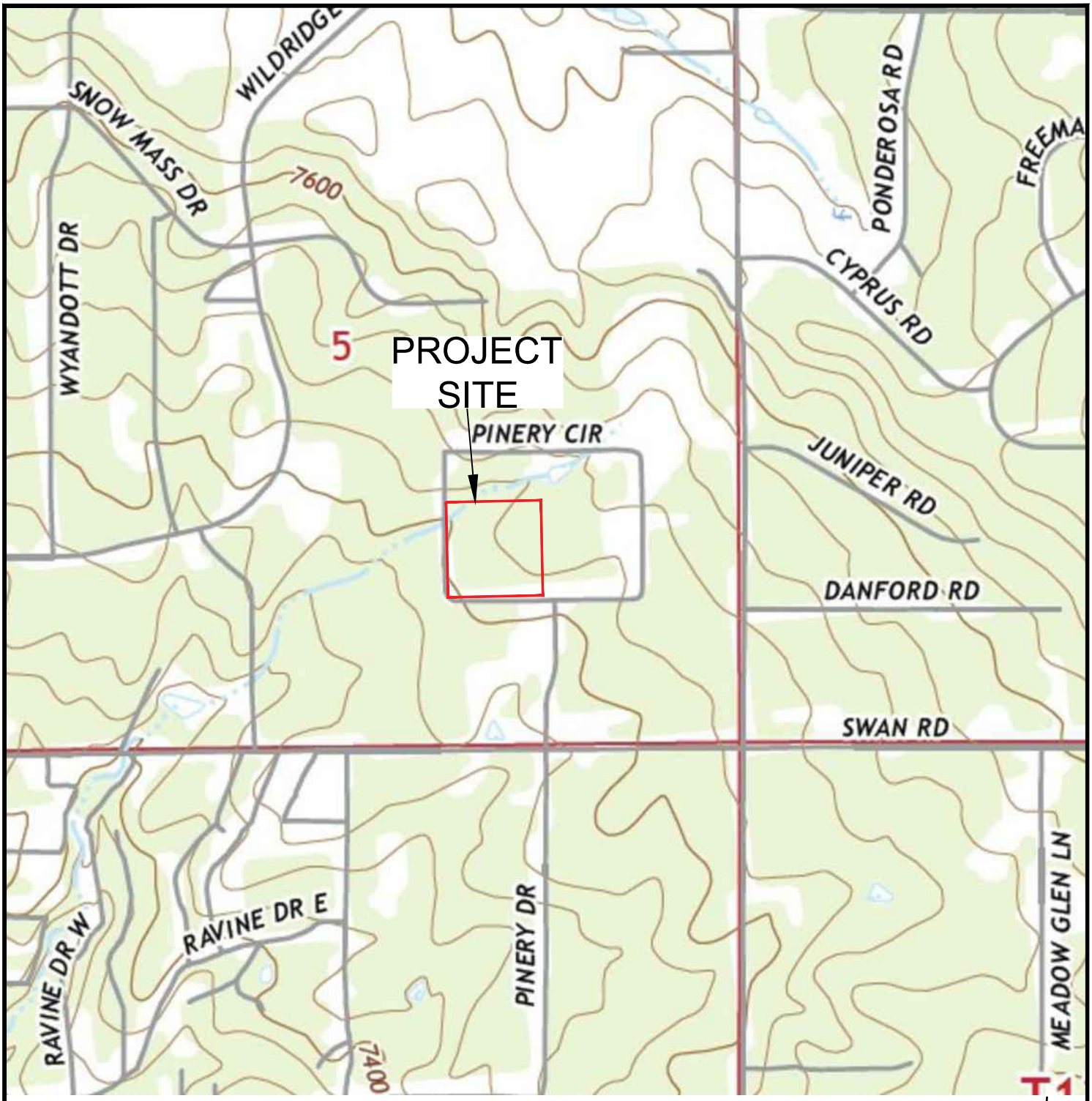
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VICINITY MAP

PINERY CIRCLE - 3 LOT SUBDIVISION
ALAN GREAVES

JOB NO. 251507

FIG. 1



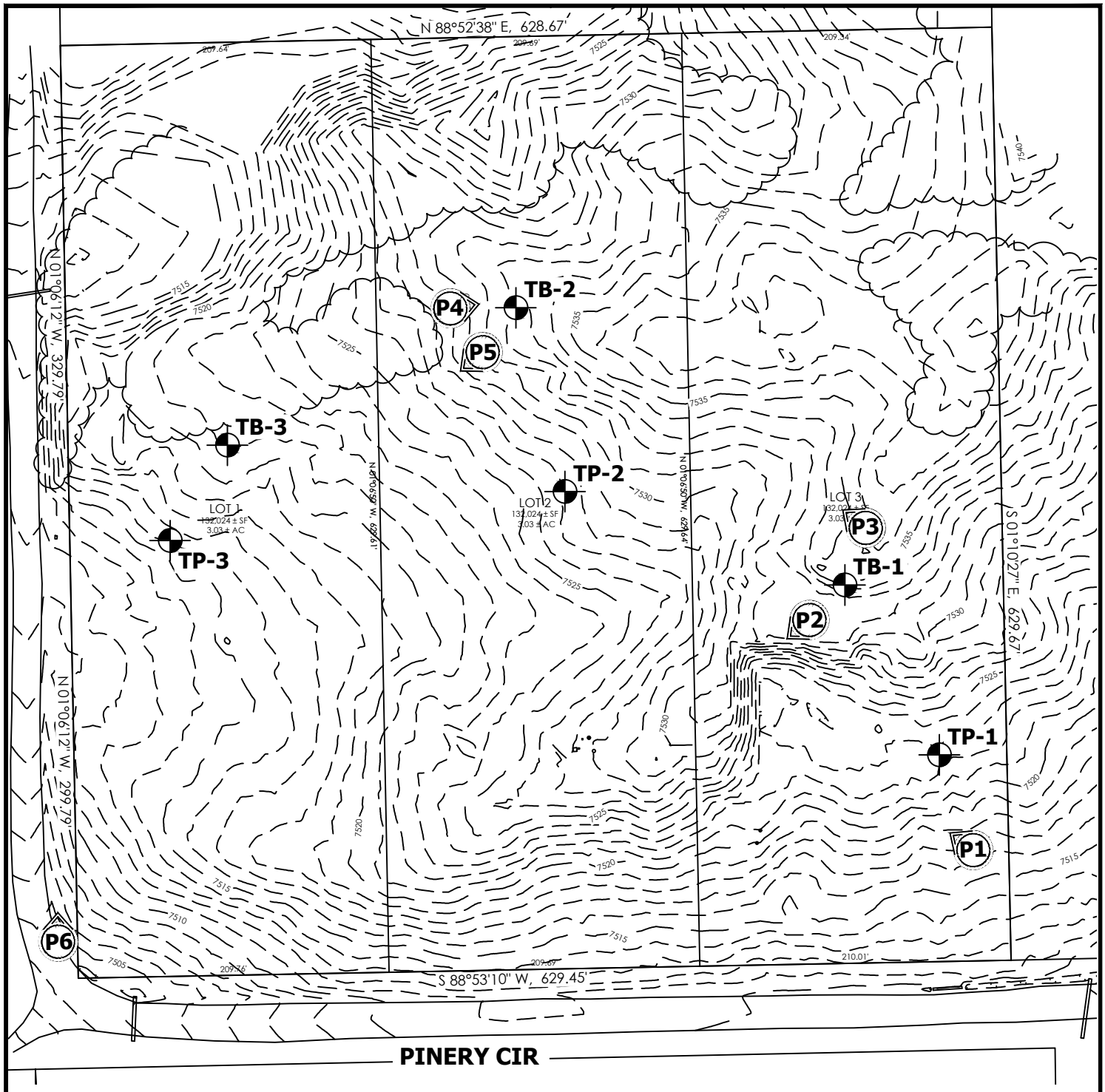
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USGS TOPOGRAPHY MAP

PINERY CIRCLE - 3 LOT SUBDIVISION
ALAN GREAVES

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FIG. 2



- APPROXIMATE TEST BORING LOCATION AND NUMBER

P2 - APPROXIMATE PHOTOGRAPH LOCATION AND NUMBER

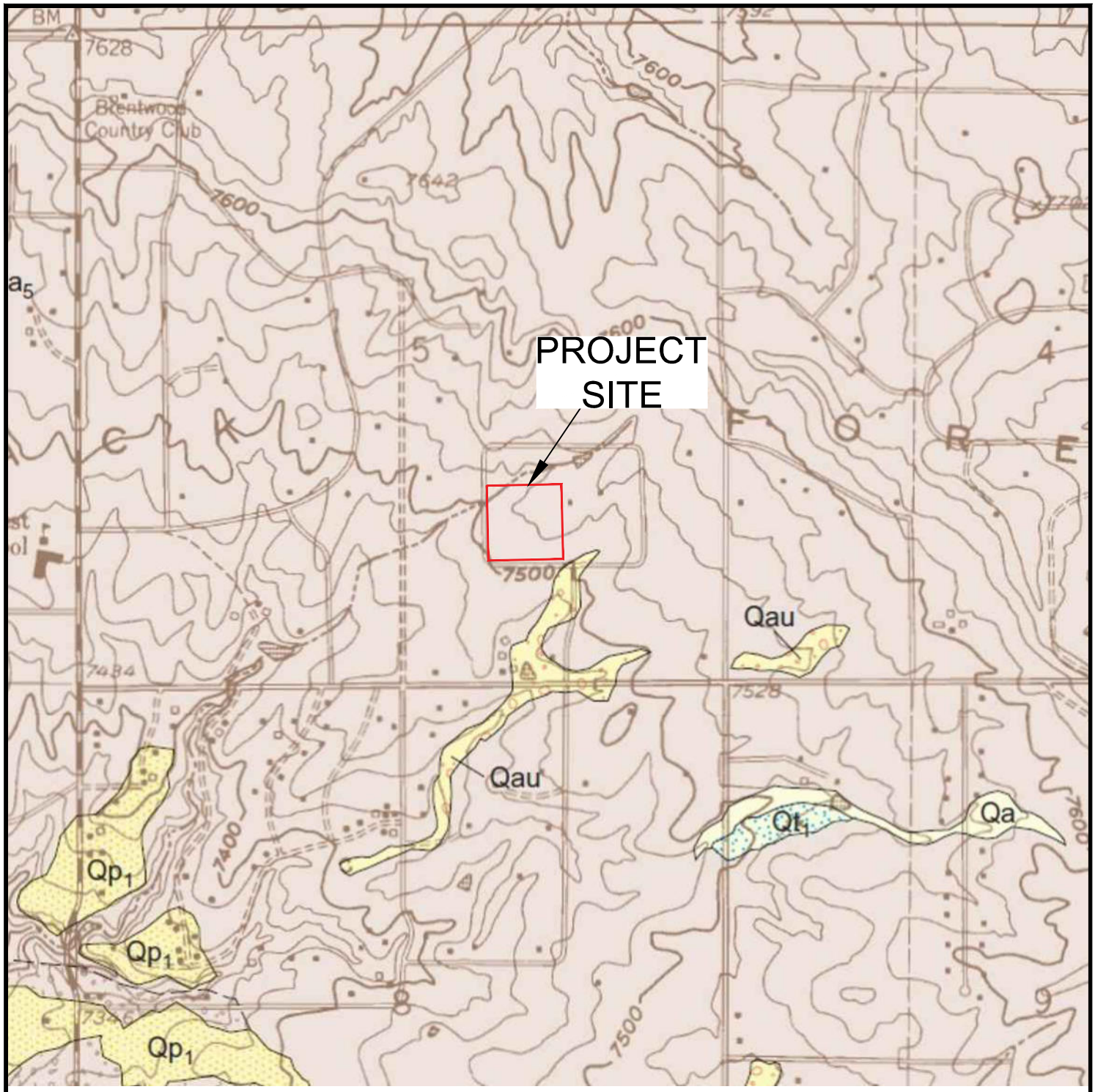
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SITE AND EXPLORATION MAP

PINERY CIRCLE - 3 LOT SUBDIVISION
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FIG. 3



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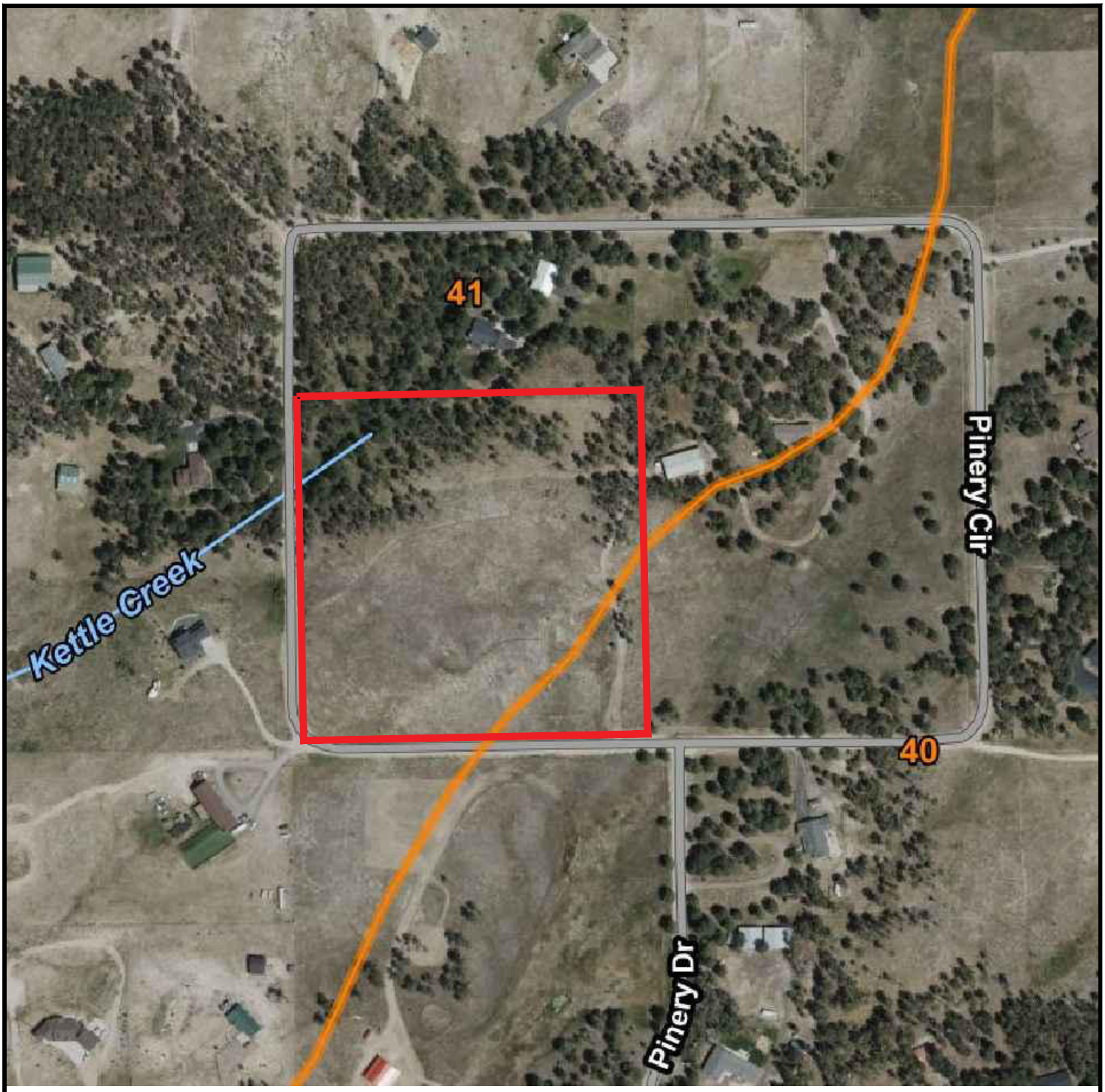
GEOLOGIC MAP OF THE BLACK FOREST QUADRANGLE

PINERY CIRCLE - 3 LOT SUBDIVISION

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FIG. 5



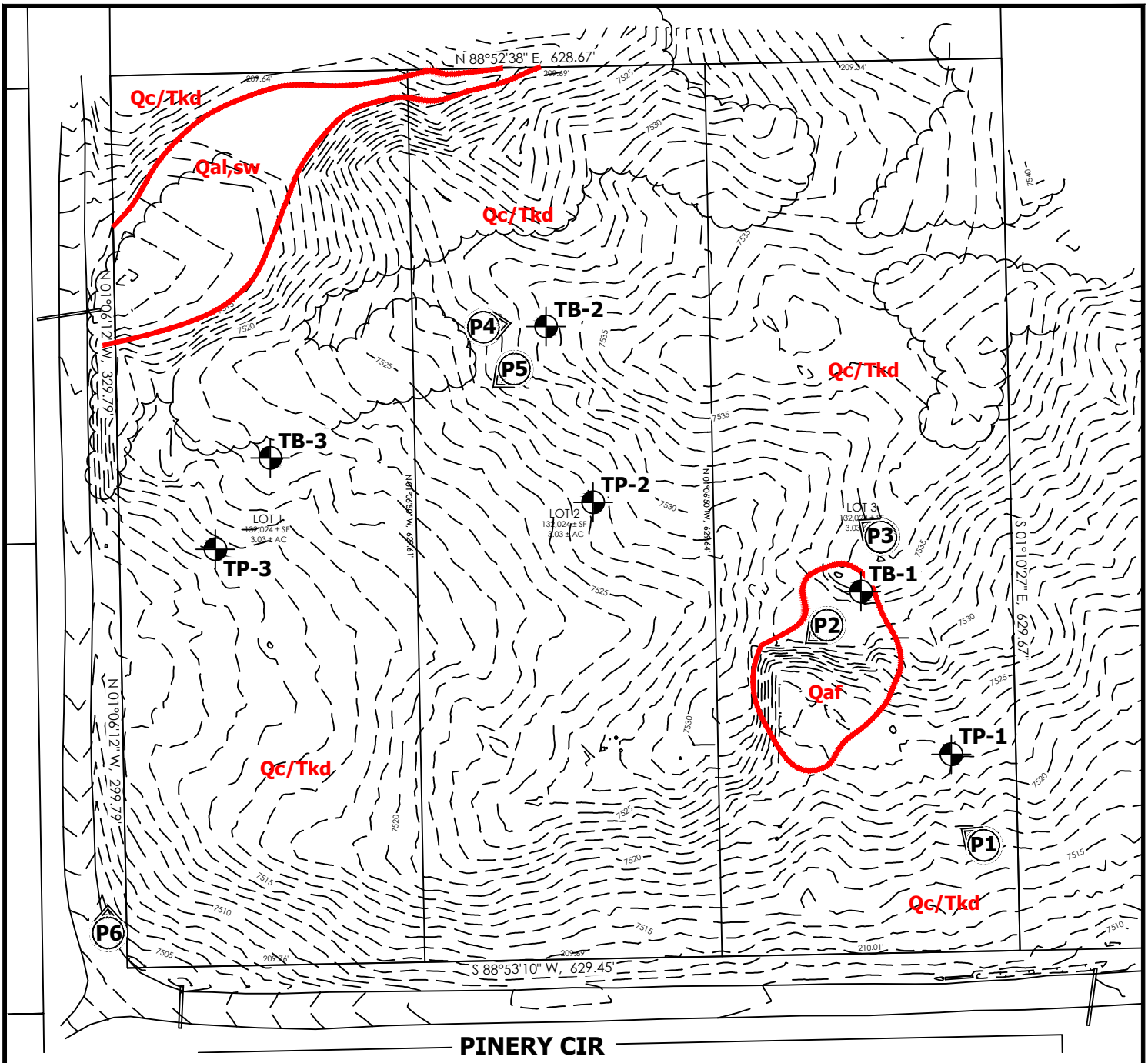
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SOIL SURVEY MAP

PINERY CIRCLE - 3 LOT SUBDIVISION
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FIG. 4



Legend

Qaf - **Artificial Fill Deposits of Holocene Age**
Man-made fill deposits

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 siltstone and claystone

Qal - **Recent Alluvium of Holocene Age:**
Recent water deposited materials

sw - Seasonally wet

⊕ - APPROXIMATE TEST BORING LOCATION AND NUMBER

N

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GEOLOGY/ENGINEERING GEOLOGY MAP

PINERY CIRCLE - 3 LOT SUBDIVISION
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FIG. 6



N

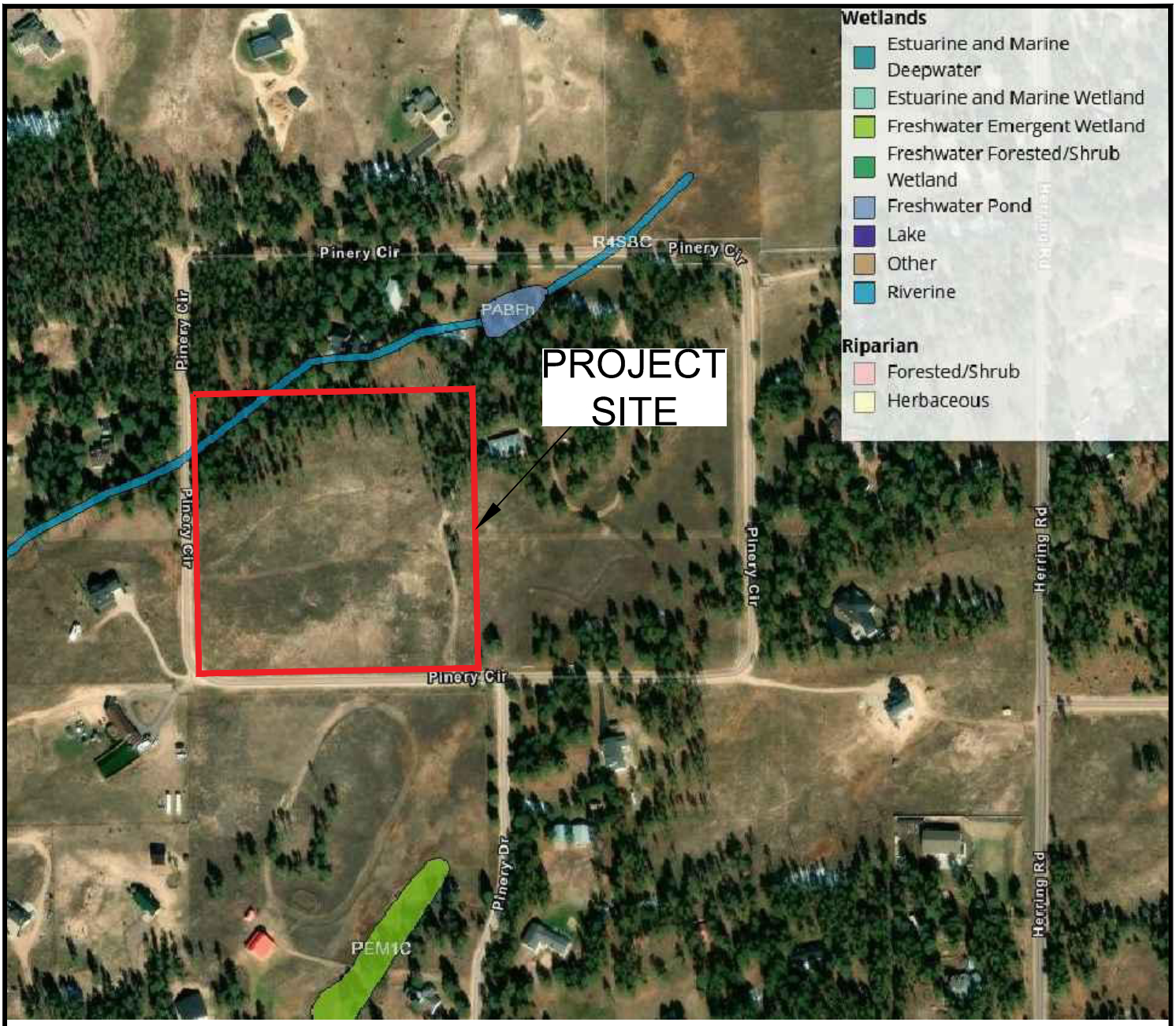
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FEMA FLOODPLAIN MAP

PINERY CIRCLE - 3 LOT SUBDIVISION
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FIG. 7



N

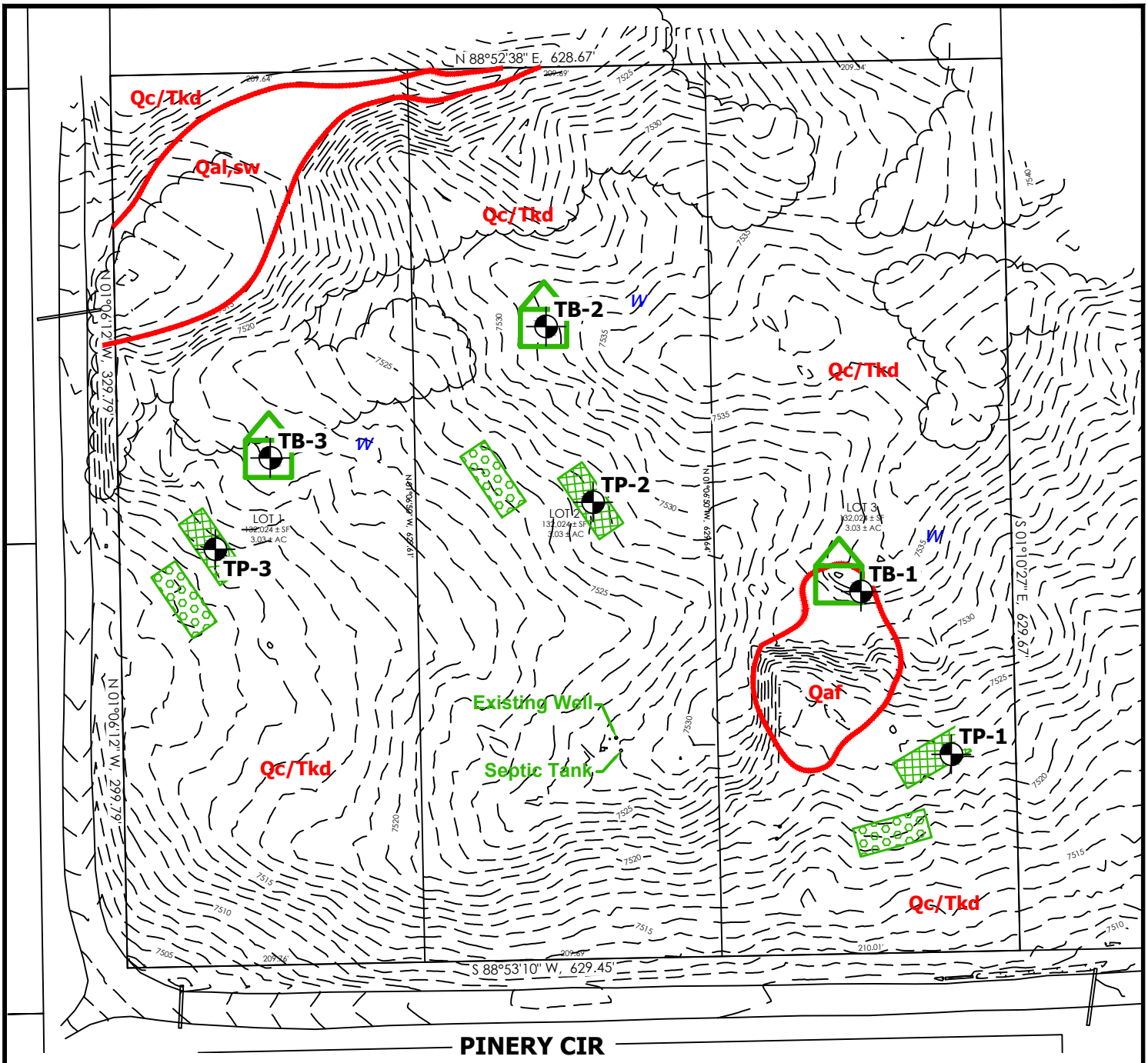
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USFWS WETLANDS MAP

PINERY CIRCLE - 3 LOT SUBDIVISION
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FIG. 8



LEGEND:

- POSSIBLE OWTS LOCATIONS

- POSSIBLE OWTS ALTERNATE LOCATIONS

W

*- WATER WELLS MUST BE A MINIMUM OF 100 FT FROM OWTS ABSORPTION FIELDS

N

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OWTS SUITABILITY MAP

PINERY CIRCLE - 3 LOT SUBDIVISION
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FIG. 9

APPENDIX A: Site Photographs



1

Looking northwest from the southeastern portion of the site.

September 8, 2025



2

Looking southwest from the eastern portion of the site.

September 8, 2025

Job No. 251507



3

Looking north from the eastern portion of the site.

September 8, 2025



4

Looking east from the northern portion of the site.

September 8, 2025

Job No. 251507



5

Looking south from the northern portion of the site.

September 8, 2025



6

Looking north from the southwestern portion of the site.

September 8, 2025

Job No. 251507

APPENDIX B: Test Boring and Test Pit Logs

TEST BORING 1
DATE DRILLED 9/11/2025

REMARKS

DRY TO 20', 9/12/25

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %
			50/11"	9.2
5			50	10.3
10			50/9"	9.4
15			50	10.3
20			50/10"	8.8

SAND, SILTY, BROWN
SANDSTONE, VERY WEAK, LIGHT RED to TAN, HIGHLY WEATHERED (SAND, SILTY, VERY DENSE, MOIST)

TEST BORING 2
DATE DRILLED 9/11/2025

REMARKS

DRY TO 20', 9/12/25

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %
			42	10.3
5			42	9.2
10			42	7.1
15			47	12.0
20			50/10"	11.3

SAND, SILTY, TAN, DENSE, MOIST (RESIDUALLY WEATHERED SANDSTONE)

SANDSTONE, EXTREMELY WEAK, TAN, HIGHLY WEATHERED (SAND, SILTY, VERY DENSE, MOIST)

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TEST BORING LOGS

PINERY CIRCLE
ALAN GREAVES

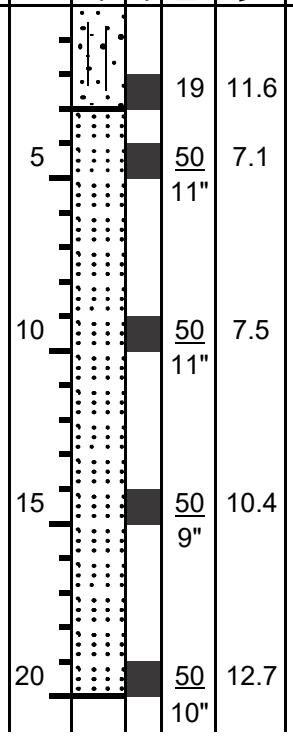
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FIG. B-1

TEST BORING 3
DATE DRILLED 9/11/2025

REMARKS

DRY TO 20', 9/12/25



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TEST BORING LOGS

PINERY CIRCLE
ALAN GREAVES

JOB NO. 251507

FIG. B-2

TEST PIT 1
DATE EXCAVATED 9/18/2025

REMARKS

redoximorphic features at 1.5'

topsoil, sandy clay loam, dark brown, moist

sandy clay, fine grained, grayish brown, moist (residually weathered clayey sandstone, Dawson Formation)

Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type
1					
2			ma	sl	4A
3					
4					
5					
6					
7					
8					
9					
10					

TEST PIT 2
DATE EXCAVATED 9/18/2025

REMARKS

water at 2.5'

topsoil, sandy clay, dark brown,

gravelly sand, fine to coarse grained, light brown, wet

sandy clay, fine grained, grayish brown, moist weathered clayey sandstone, Dawson Formation)

Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type
1					
2			sg		1 R1
3					
4			ma	sl	4A
5					
6					
7					
8					
9					
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
structureless - sl

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TEST PIT LOGS

PINERY CIRCLE - 3-LOT SUBDIVISION
ALAN GREAVES

JOB NO. 251507

FIG. B-4

TEST PIT 3
DATE EXCAVATED 9/18/2025
REMARKS

redoximorphic features at 5'

Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type
1					
2					
3			gr	m	2 R1
4					
5			ma	sl	4A
6					
7					
8					
9					
10					

topsoil, sandy clay, dark brown, moist

gravelly sandy loam, fine to coarse grained, light brown, moist

sandy clay, fine grained, light brown, moist weathered clayey sandstone, Dawson Formation)

Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type
1					
2					
3					
4					
5					
6					
7					
8					
9					
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

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TEST PIT LOGS

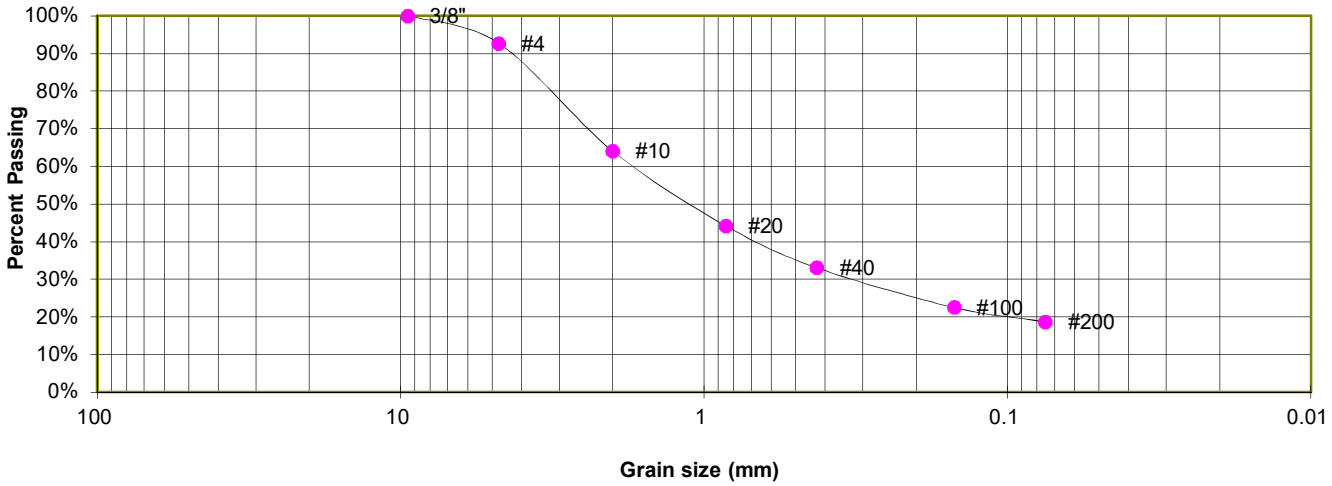
PINERY CIRCLE - 3-LOT SUBDIVISION
ALAN GREAVES

JOB NO. 251507

FIG. B-5

APPENDIX C: Laboratory Test Results

TEST BORING	1	SOIL DESCRIPTION	SANDSTONE (SAND, SILTY)
DEPTH (FT)	5	LOT #	0



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	92.7%
10	64.1%
20	44.2%
40	33.1%
100	22.5%
200	18.7%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM

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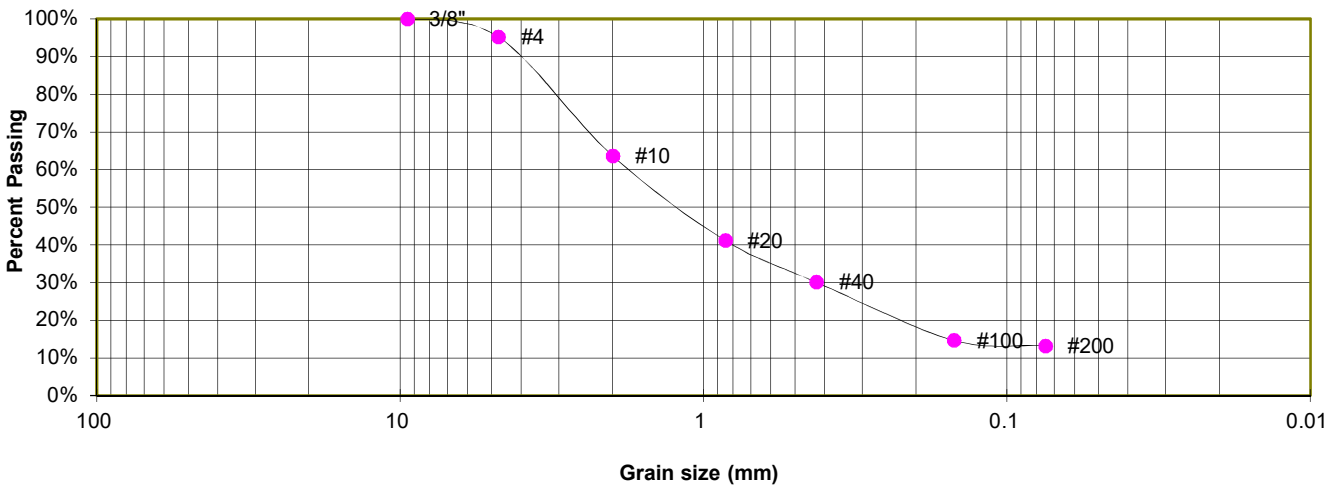
LABORATORY TEST RESULTS

PINERY CIRCLE
ALAN GREAVES

JOB NO. 251507

FIG. C-1

TEST BORING	2	SOIL DESCRIPTION	SAND, SILTY
DEPTH (FT)	10	LOT #	0



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	95.3%
10	63.7%
20	41.2%
40	30.1%
100	14.6%
200	13.2%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM

ENTECH ENGINEERING, INC.

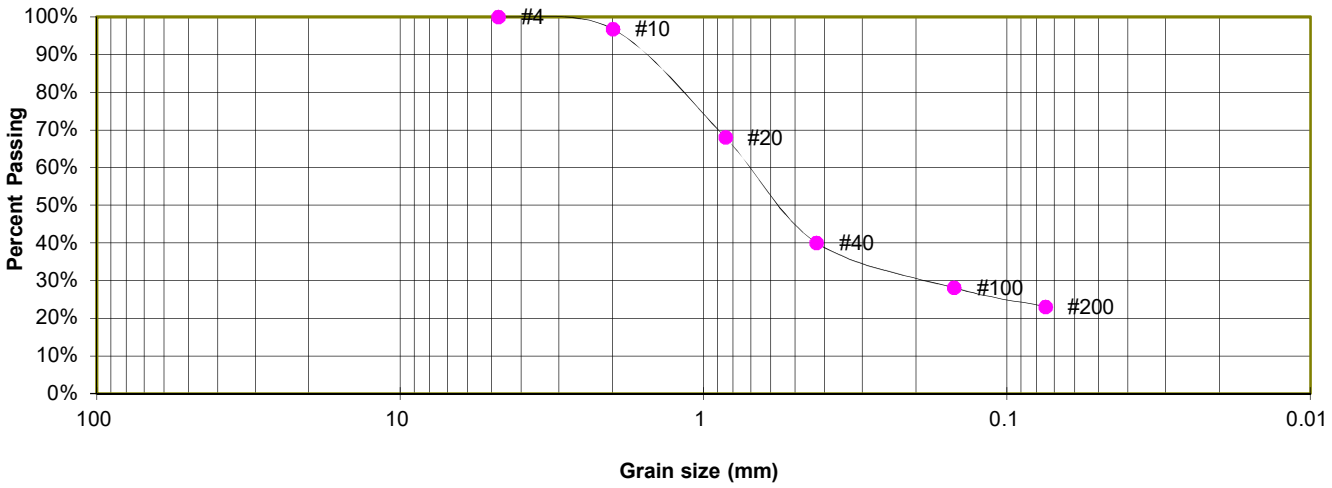
LABORATORY TEST RESULTS

PINERY CIRCLE
ALAN GREAVES

JOB NO.
251507

FIG. C-2

TEST BORING	3	SOIL DESCRIPTION	SAND, SILTY
DEPTH (FT)	2-3	LOT #	0



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	96.8%
20	68.1%
40	40.1%
100	28.1%
200	23.0%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM

ENTECH ENGINEERING, INC.

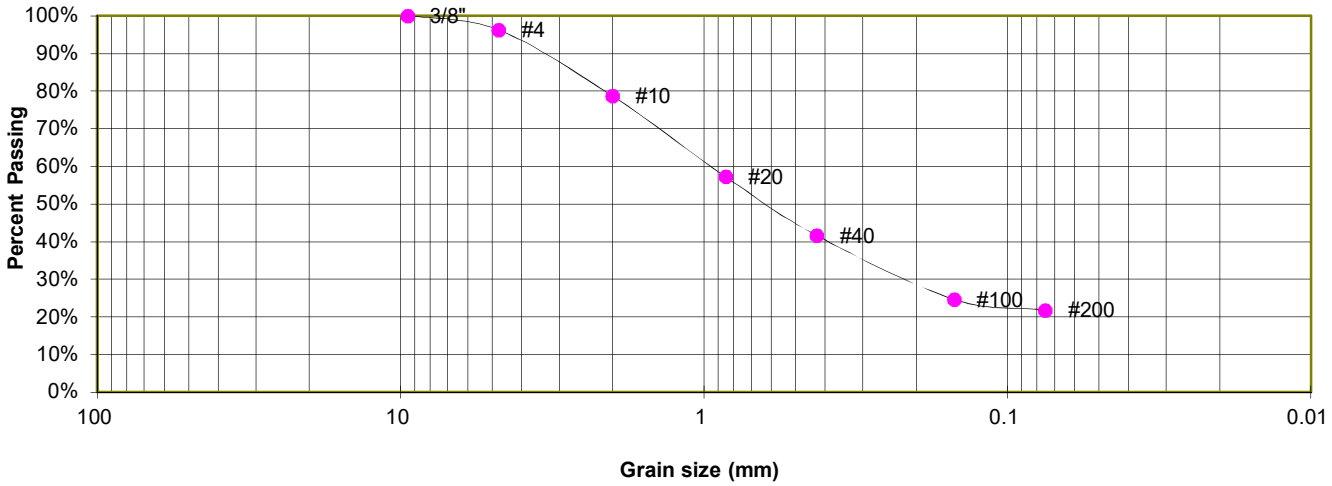
LABORATORY TEST RESULTS

PINERY CIRCLE
ALAN GREAVES

JOB NO.
251507

FIG. C-3

TEST BORING	TP-1	SOIL DESCRIPTION	SAND, SILTY
DEPTH (FT)	2	LOT #	2



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	96.3%
10	78.7%
20	57.3%
40	41.6%
100	24.7%
200	21.8%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM

ENTECH ENGINEERING, INC.

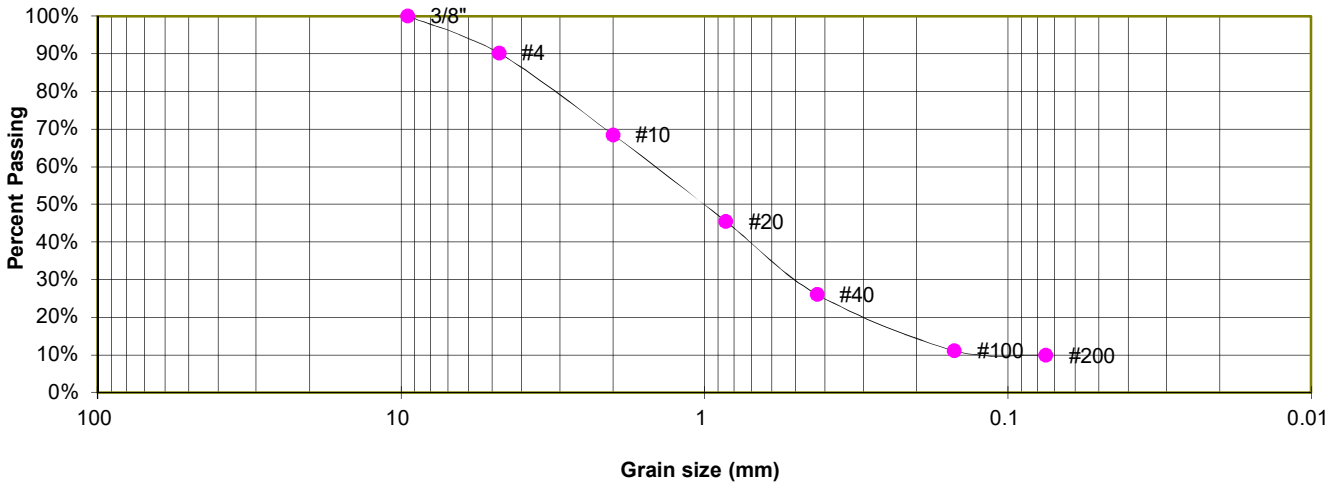
LABORATORY TEST RESULTS

PINERY CIRCLE
ALAN GREAVES

JOB NO.
251507

FIG. C-4

TEST BORING	TP-2	SOIL DESCRIPTION	SAND, WITH SILT
DEPTH (FT)	2	LOT #	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	90.1%
10	68.5%
20	45.5%
40	26.1%
100	11.1%
200	9.9%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SW-SM

ENTECH ENGINEERING, INC.

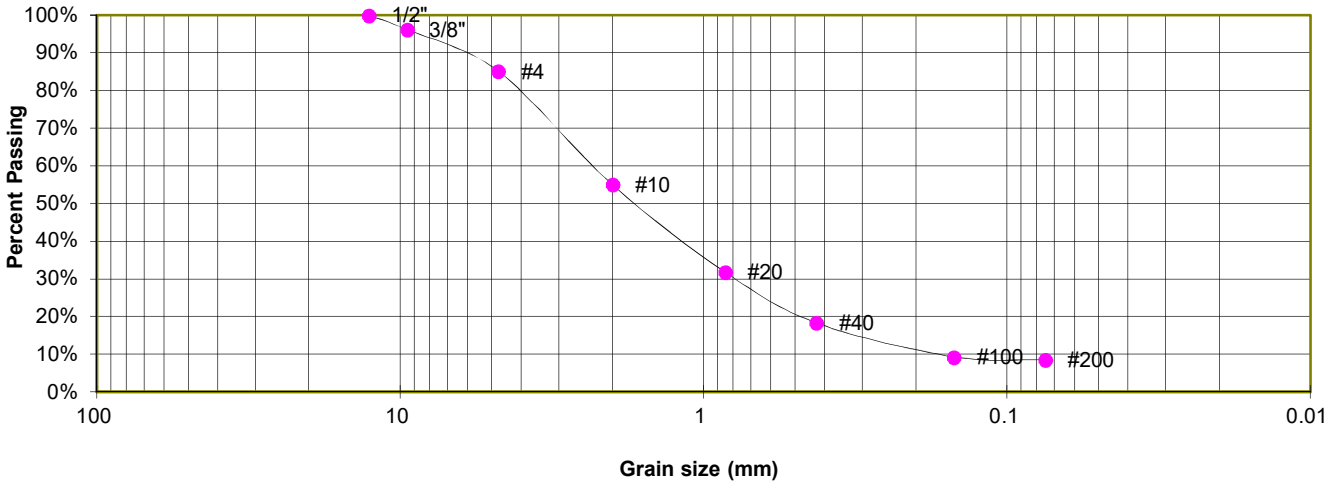
LABORATORY TEST RESULTS

PINERY CIRCLE
ALAN GREAVES

JOB NO.
251507

FIG. C-5

TEST BORING	TP-3	SOIL DESCRIPTION	SAND, WITH SILT
DEPTH (FT)	3	LOT #	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	96.2%
4	85.1%
10	55.0%
20	31.8%
40	18.3%
100	9.3%
200	8.5%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SW-SM

ENTECH ENGINEERING, INC.

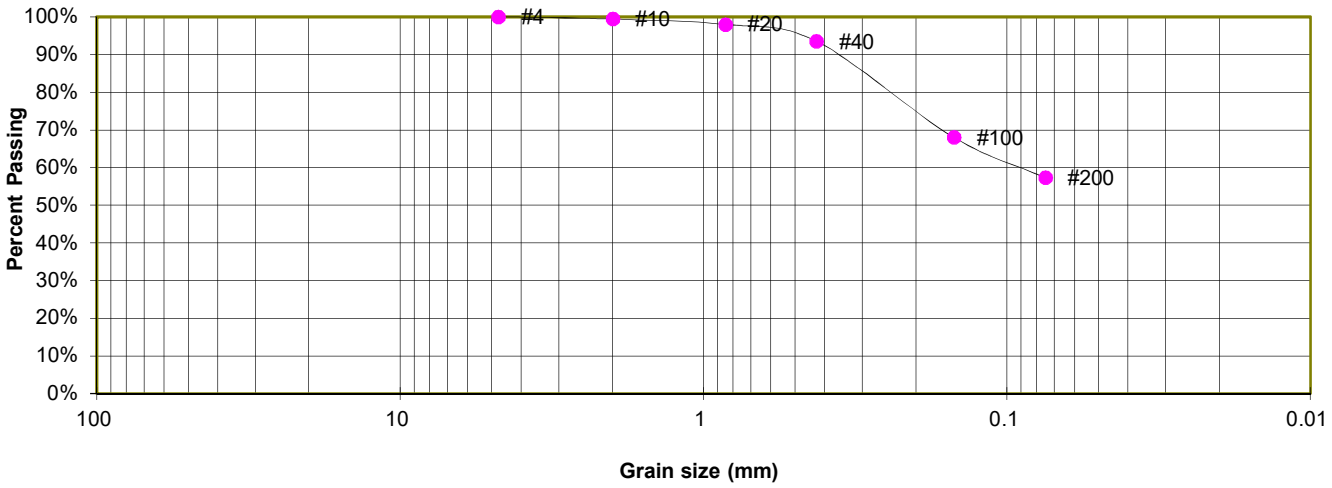
LABORATORY TEST RESULTS

PINERY CIRCLE
ALAN GREAVES

JOB NO.
251507

FIG. C-6

TEST BORING	TP-3	SOIL DESCRIPTION	CLAY, SANDY
DEPTH (FT)	5	LOT #	4



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	99.4%
20	98.0%
40	93.6%
100	68.0%
200	57.3%

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

LABORATORY TEST RESULTS

PINERY CIRCLE
ALAN GREAVES

JOB NO.
251507

FIG. C-7

APPENDIX D: USDA Soil Survey Descriptions

El Paso County Area, Colorado

40—Kettle gravelly loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 368g
Elevation: 7,000 to 7,700 feet
Farmland classification: Not prime farmland

Map Unit Composition

Kettle and similar soils: 85 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kettle

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium derived from arkose

Typical profile

E - 0 to 16 inches: gravelly loamy sand
Bt - 16 to 40 inches: gravelly sandy loam
C - 40 to 60 inches: extremely gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively 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 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F048AY908CO - Mixed Conifer
Hydric soil rating: No

Minor Components

Pleasant

Percent of map unit: 5 percent
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 22, Sep 3, 2024

El Paso County Area, Colorado

41—Kettle gravelly loamy sand, 8 to 40 percent slopes

Map Unit Setting

National map unit symbol: 368h
Elevation: 7,000 to 7,700 feet
Farmland classification: Not prime farmland

Map Unit Composition

Kettle and similar soils: 85 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kettle

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium derived from arkose

Typical profile

E - 0 to 16 inches: gravelly loamy sand
Bt - 16 to 40 inches: gravelly sandy loam
C - 40 to 60 inches: extremely gravelly loamy sand

Properties and qualities

Slope: 8 to 40 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Medium
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 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F048AY908CO - Mixed Conifer
Hydric soil rating: No

Minor Components

Pleasant

Percent of map unit: 5 percent
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 22, Sep 3, 2024