



ENTECH
ENGINEERING, INC.

505 ELKTON DRIVE
COLORADO SPRINGS, CO 80907
PHONE (719) 531-5599

October 16, 2024

Altitude Adjustment Construction, LLC
6485 Connaught Drive
Colorado Springs, CO 80908

Attn: John Berkheimer

Re: OWTS – Wastewater Study
Berkheimer Subdivision Filing No. 1
Parcel No. 52060-00-063
14060 Black Forest Road
El Paso County, Colorado
Entech Job No. 241486

Dear Mr. Berkheimer:

The project consists of subdividing 13.55-acres; into two rural residential lots. The existing home on Lot 1 will remain, with one new lot proposed. The site is located southwest of the intersection of Vessey Road and Black Forest Road, in El Paso County.

GENERAL SITE CONDITIONS AND PROJECT DESCRIPTION

The site is located in a portion of the NW¹/₄ of Section 29 Township 11 South, Range 65 West of the 6th Principal Meridian in El Paso County, Colorado. The site is located approximately 3¹/₄ miles northeast of Colorado Springs, Colorado, southwest of the intersection of Vessey Road and Black Forest Road, 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 to moderately sloping to the southwest with moderate to steep slopes along a minor drainage in western portion of the property on Lot 2. Water was not observed in the drainage at the time of this investigation. The site boundaries are indicated on the USGS Map, Figure 2. Previous land uses have included undeveloped agricultural and rural residential. The site contains field grasses, weeds, and ponderosa pines. The existing house with a water well and septic system located on Lot 1, will remain. Site photographs were taken and site mapping was completed on September 12, 2024. Site photographs are included in appendix A.

Total acreage involved in the proposed subdivision is 13.55-acres; two rural residential are proposed. The proposed lot sizes range from 5.0 to 8.5-acres. The existing house located on Lot 1 will remain, and the new lot will be serviced by an individual well and on-site wastewater treatment systems. The Site and Exploration Plan is presented in Figure 3.

LAND USE AND ENGINEERING GEOLOGY

This site was found to be suitable for the proposed development. Areas were encountered where the geologic conditions will impose some constraints on development and land use. These include areas of potentially expansive soils, seasonal shallow groundwater, and potential for elevated radon levels. Based on the proposed development plan, it appears that these areas will have minor impacts on the development. These conditions will be discussed in greater detail in the report.



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

SCOPE OF THE REPORT

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 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 12, 2024.

Two test borings were drilled, and two test pits were excavated on the site to determine general suitability of the soil characteristics for residential construction. The locations of the test borings/pits are indicated on the Site Plan/Test Boring Location Map, 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. Results of the laboratory testing are included in Appendix C.

SOIL AND GEOLOGIC CONDITIONS

Soil Survey

The Natural Resource Conservation Service (NRCS) (Reference 1, Figure 4), previously the Soil Conservation Service (Reference 2) has mapped three soil types on the site. Complete descriptions of the soil type are presented in Appendix D. In general, the soils consist of sandy loam to loam. The soils are described as follows:

Type	Description
26	Elbeth sandy loam, 8 to 15% slopes
40	Kettle gravelly loamy sand, 3 to 8% slopes
41	Kettle gravelly loamy sand, 8 to 40% slopes

The soils have been described to have rapid permeabilities. The soils are described as well suited for use as home sites. 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 2).



Groundwater

Groundwater was not encountered during or subsequent to drilling in the test borings which were drilled to depths of 15 and 20 feet. Groundwater is not anticipated to affect shallow foundations on the site. The drainage in the western portion of Lot 2 has been identified as a seasonal shallow groundwater area, and is discussed further later in this report. This area lies within a no build/drainage easement. 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 3). The bedrock underlying the site consists of the Dawson Formation of Tertiary to Cretaceous Age. The Dawson Formation typically consists of coarse-grained arkosic sandstone with interbedded layers of claystone or siltstone.

The geology of the site was evaluated using the *Geologic Map of the Black Forest Quadrangle*, by Thorson in 2003, (Reference 4, Figure 5). The Geology Map for the site is presented in Figure 6. Two mappable units were identified on this site which are described as follows:

Qal Recent Alluvium of Holocene Age: these are water deposited sands and gravel along the minor drainage in the western portion of the site.

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 Black Forest Quadrangle* distributed by the Colorado Geologic Survey in 2003 (Reference 4, Figure 5), 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 Pueblo 1° x 2° Quadrangle*, distributed by the US Geological Survey in 1978 (Reference 6). The test borings and test pits logs used in evaluating the site and are included in Appendix B. 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. 08041C0315G, dated December 7, 2018 (Figure 8, Reference 6). A minor drainage is located in the western portion of the site that has been identified as a seasonal shallow groundwater are, but was dry at the time of our initial site visit. This area is a no build/drainage easement and will be avoided.



ON-SITE WASTEWATER TREATMENT

The Natural Resource Conservation Service (Reference 1), previously the Soil Conservation Service (Reference 2) has been mapped with three soil descriptions. The Soil Survey Map (Reference 1) is presented in Figure 4, and the Soil Survey Descriptions are presented in Appendix D. The soils are described as having moderate to rapid percolation rates. The existing septic system located on Lot 1 will remain. Observations of the leach field area indicated that the system is operating properly. Records for the existing septic system located on Lot 1 are included in Appendix E. The system for the existing home is a conventional infiltration trench system in series.

Soils encountered in the tactile test pits consisted of sandy clay loam, gravelly sandy clay, and shallow weathered sandstone (Dawson Formation). Weathered sandstone was encountered at 4 feet bgs. The limiting layers encountered in the test pits are the sandy clay, which corresponds with USDA Soil Type 4A, with a LTAR value of 0.15 gallons per day per square foot. Bedrock or signs of groundwater were not encountered in the test pits. Absorption fields must be installed a minimum of 4 feet above groundwater, bedrock, or confining layers. Should groundwater or bedrock be encountered within 6 feet of the surface, designed systems will be required. Designed systems are anticipated on the lots due to the restrictive clay soils and shallow bedrock. Areas where a conventional system can be utilized could possibly be determined with additional testing. Testing will be required to determine the site characteristics prior to construction.

On-site Wastewater Systems are to be designed on a per lot basis at the time of 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 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 are anticipated for the majority of the lots, depending on soils encountered. The Septic Suitability Map is presented in Figure 8. A potential house location, water well, and two septic sites for the the lots are indicated on Figure 8. 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.



CLOSURE

It is our opinion that the existing geologic engineering and geologic conditions will impose some minor constraints on development and construction of the site. The majority of these conditions can be avoided by construction. Others 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 new building sites and septic systems 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 Altitude Adjustment Construction, LLC, 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 handwritten signature in blue ink, appearing to read "Logan L. Langford".

Logan L. Langford, P.G.
Sr. Geologist



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

Encl.

LLL/jcg

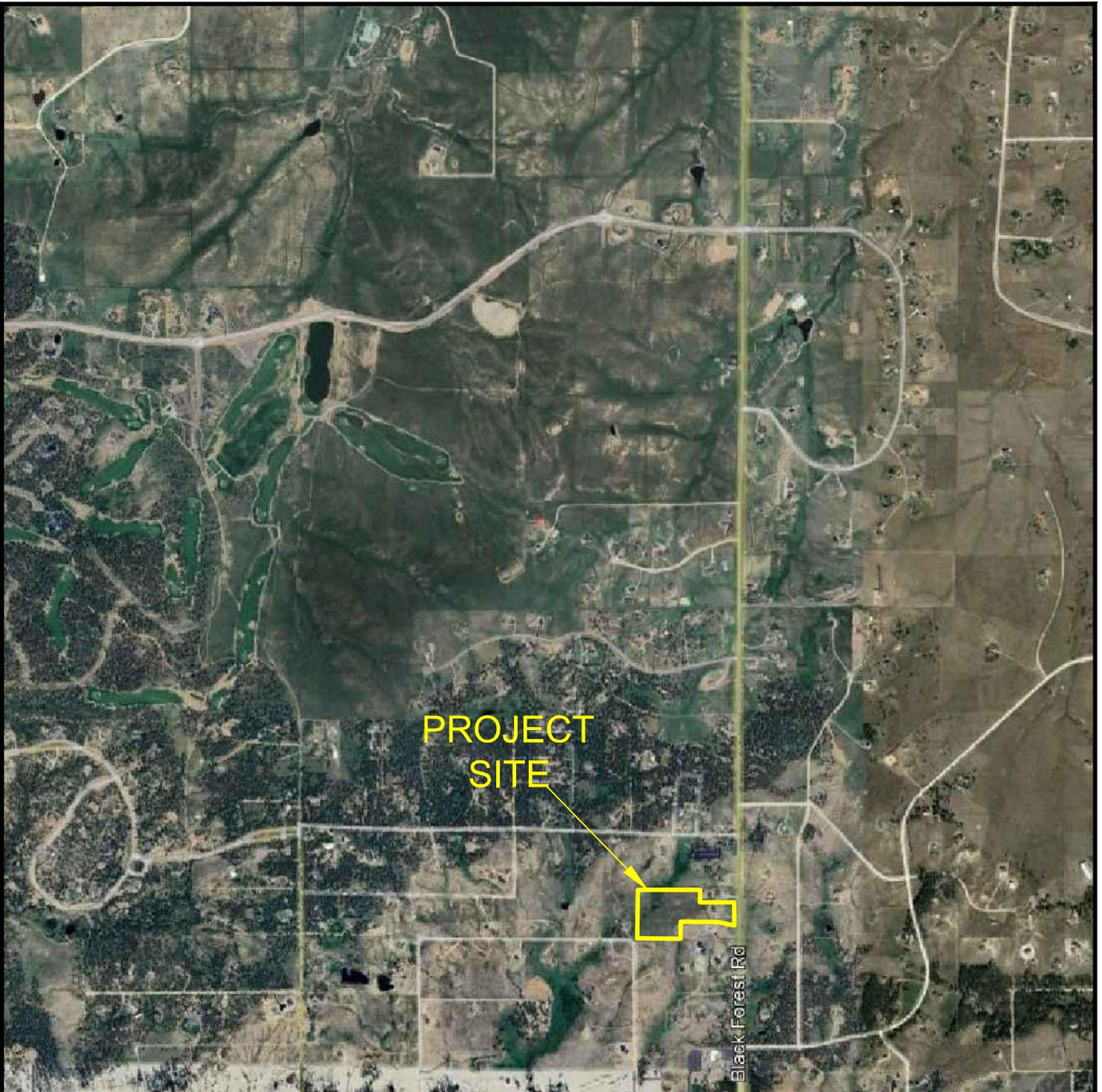
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REFERENCES

1. Natural Resource Conservation Service, August 24, 2023. *Web Soil Survey*. United States Department Agriculture, <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.
2. United States Department of Agriculture Soil Conservation Service. June 1981. *Soil Survey of El Paso County Area, Colorado*.
3. Bryant, Bruce; McGrew, Laura W. and Wobus, Reinhard A. 1981. *Geologic Map of the Denver 1° x 2° Quadrangle, North-Central Colorado*. U.S. Geologic Survey. Map I-1163.
4. Thorson, Jon P., 2003. *Geologic Map of the Black Forest Quadrangle, El Paso County, Colorado*. Colorado Geological Survey. Open-File Report 03-6.
5. 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.
6. Federal Emergency Management Agency. December 7, 2018. *Flood Insurance Rate Maps for the City of Colorado Springs, Colorado*. Map Number 08041C0315G.
7. Kirkman, Robert M. and Rogers, William P., 1981. *Earthquake Potential in Colorado Springs, Colorado*. Geologic Survey. Bulletin 43.
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9. El Paso County Planning Development. December 1995. *El Paso County Aggregate Resource Evaluation Maps*.
10. Schwochow, S.D.; Shroba, R.R. and Wicklein, P.C. 1974. *Atlas of Sand, Gravel, and Quarry Aggregate Resources, Colorado Front Range Counties*. Colorado Geological Survey. Special Publication 5-B.
11. Keller, John W.; TerBest, Harry and Garrison, Rachel E. 2003. *Evaluation of Mineral and Mineral Fuel Potential of El Paso County State Mineral Lands Administered by the Colorado State Land Board*. Colorado Geological Survey. Open-File Report 03-07.

FIGURES

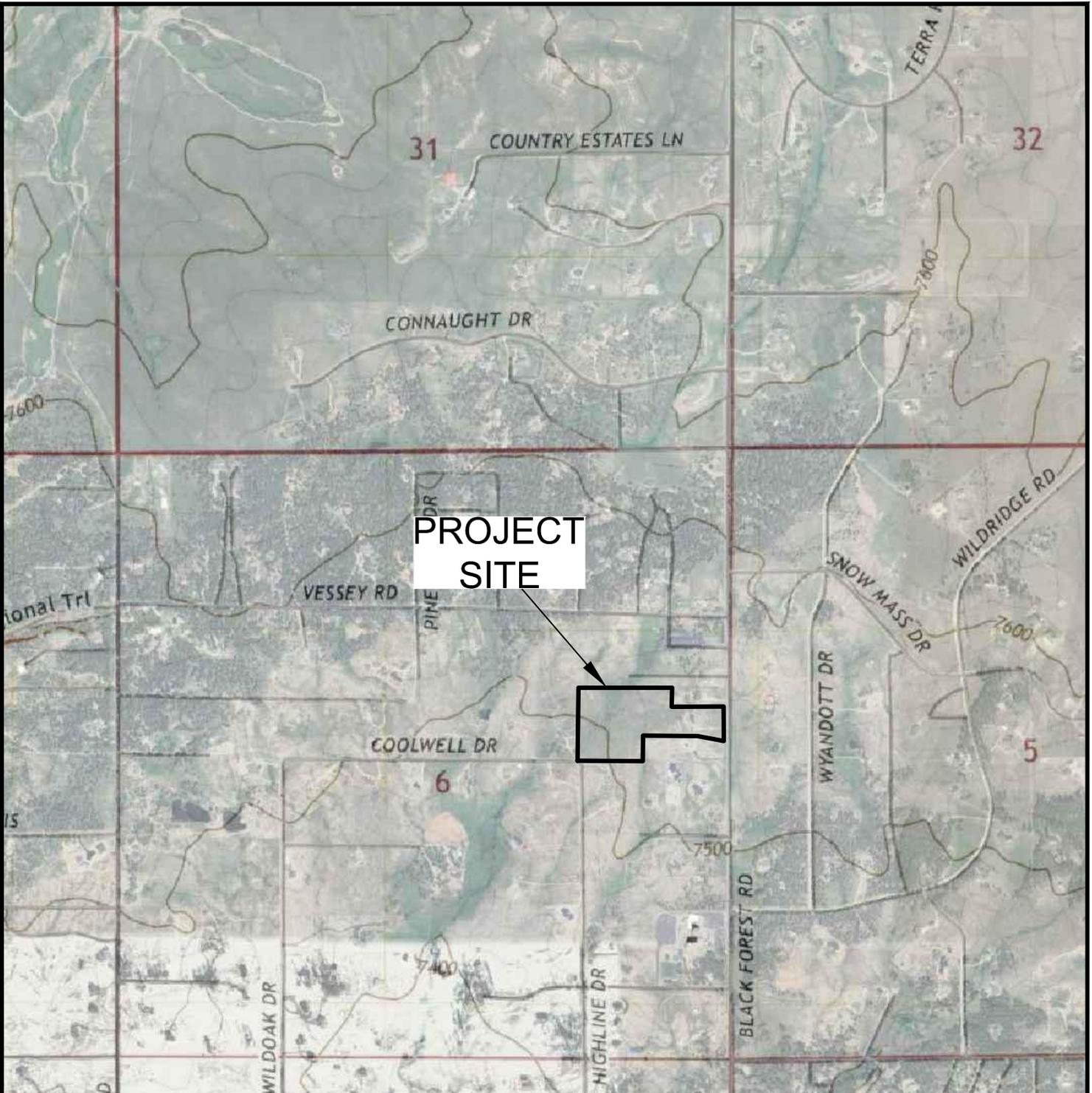


VICINITY MAP

14060 BLACK FOREST ROAD
ALTITUDE ADJUSTMENT CONSTRUCTION, LLC

JOB NO.
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FIG. 1

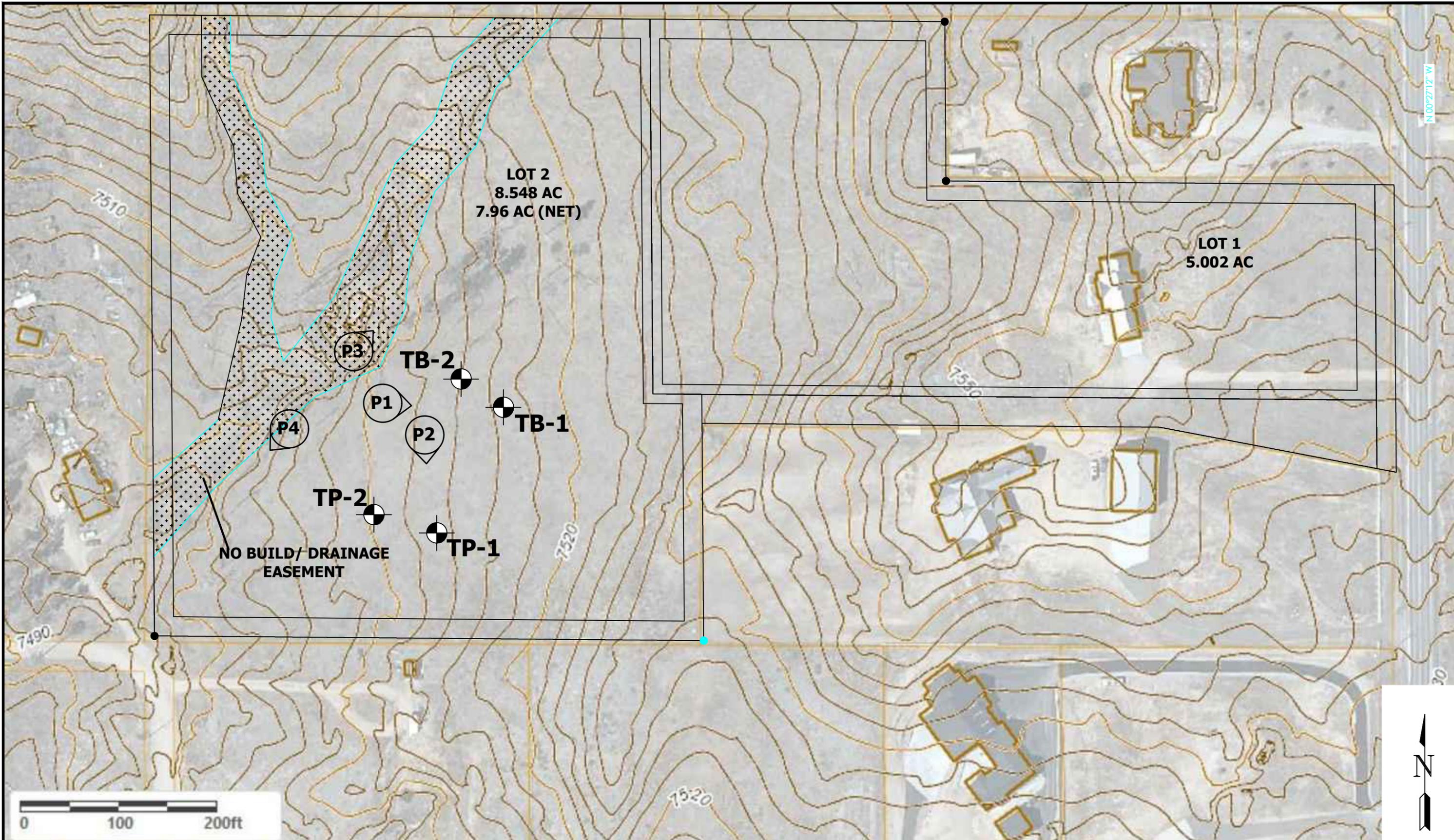


USGS TOPOGRAPHY MAP

14060 BLACK FOREST ROAD
ALTITUDE ADJUSTMENT CONSTRUCTION, LLC

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FIG. 2



N 00°27'12" W

LOT 2
8.548 AC
7.96 AC (NET)

LOT 1
5.002 AC

**NO BUILD/ DRAINAGE
EASEMENT**

TP-2

TP-1

TB-1

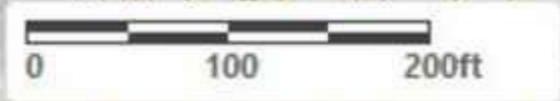
TB-2

P3

P1

P2

P4



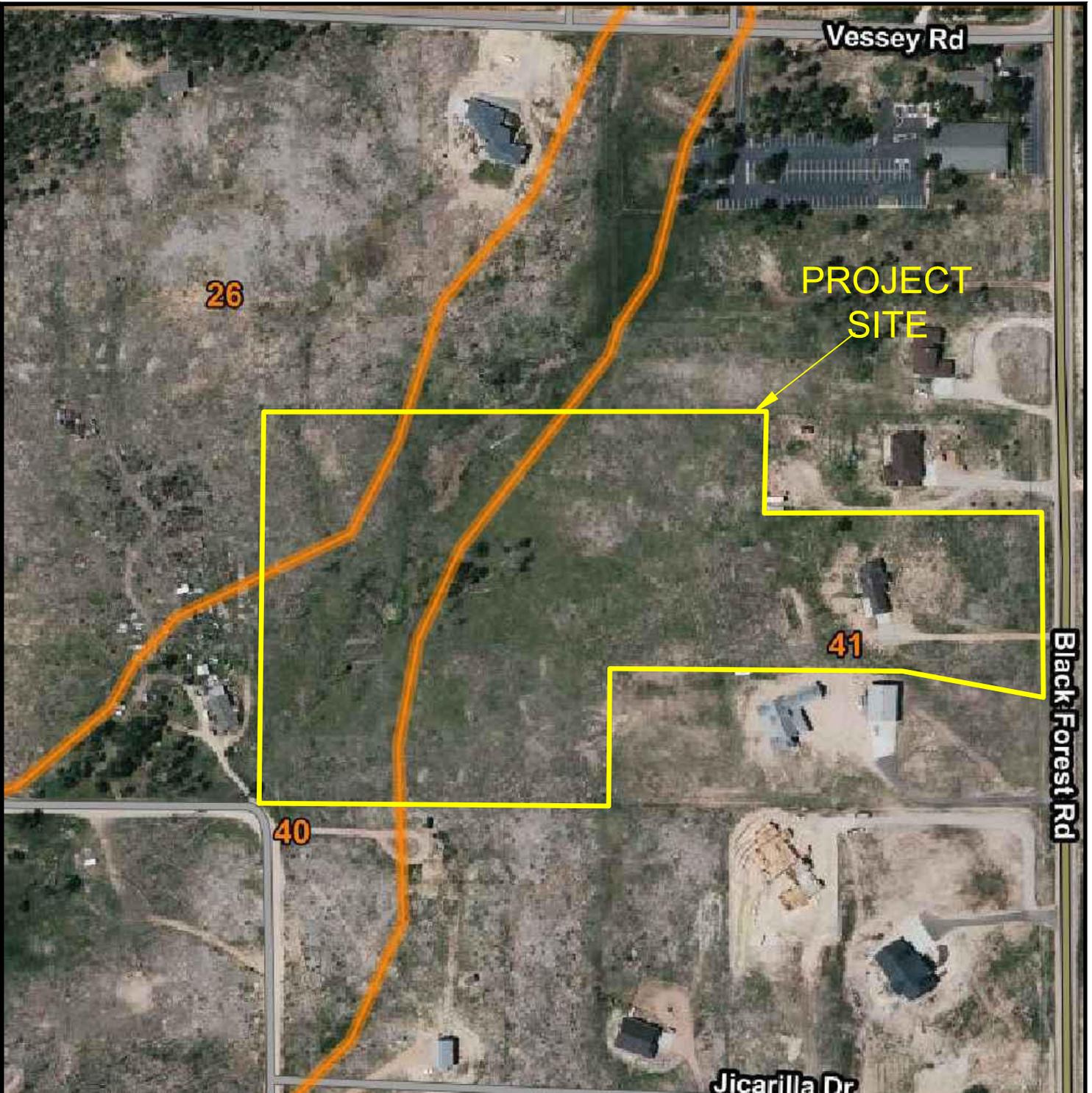
 **TB- APPROXIMATE TEST BORING LOCATION AND NUMBER**

 **TB- APPROXIMATE TEST BORING LOCATION AND NUMBER**



SITE AND EXPLORATION PLAN
14060 BLACK FOREST ROAD
ALTITUDE ADJUSTMENT CONSTRUCTION, LLC

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FIG. 3

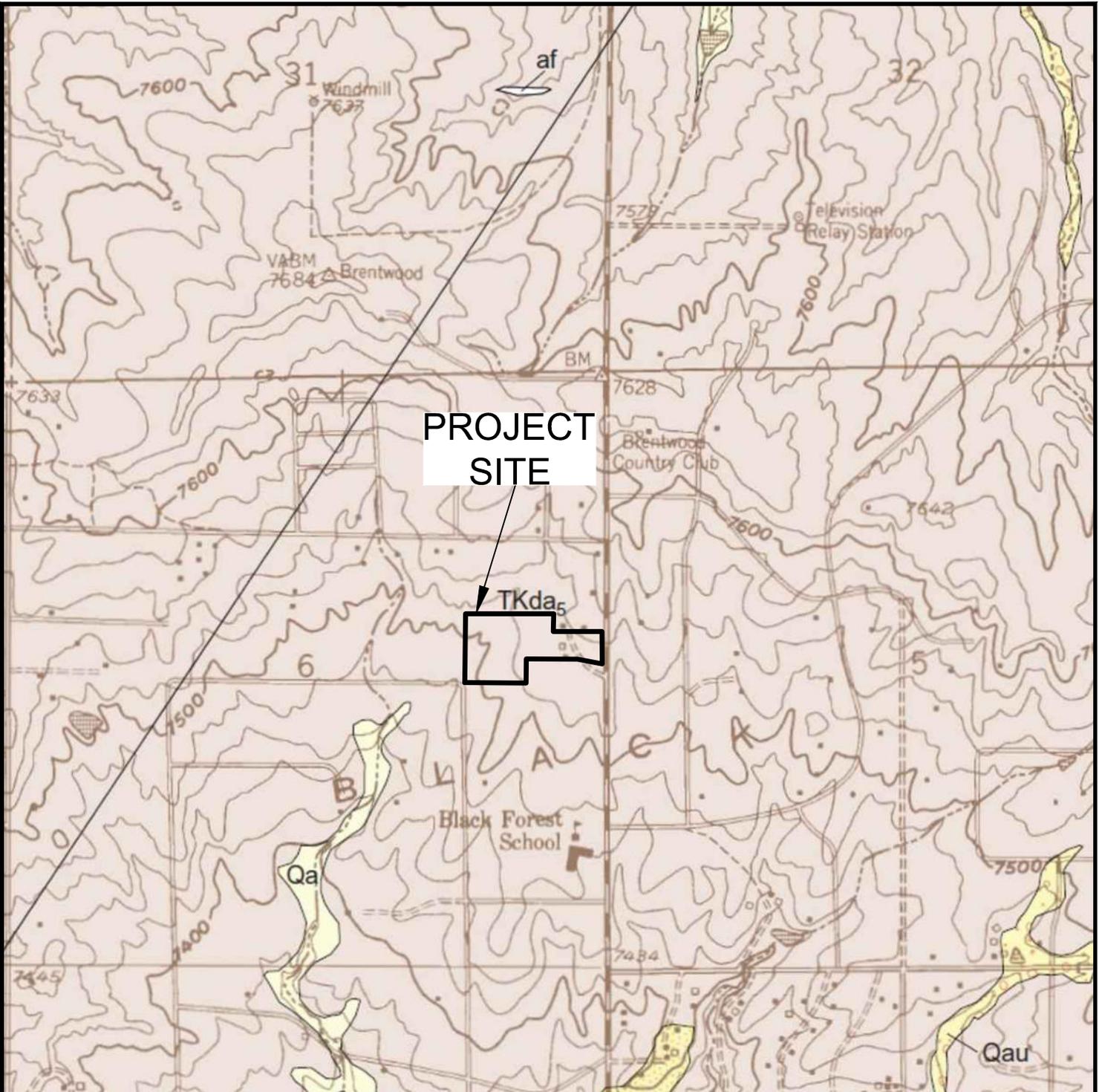


SOIL SURVEY MAP

14060 BLACK FOREST RAOD
ALTITUDE ADJUSTMENT CONSTRUCTION, LLC

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241486

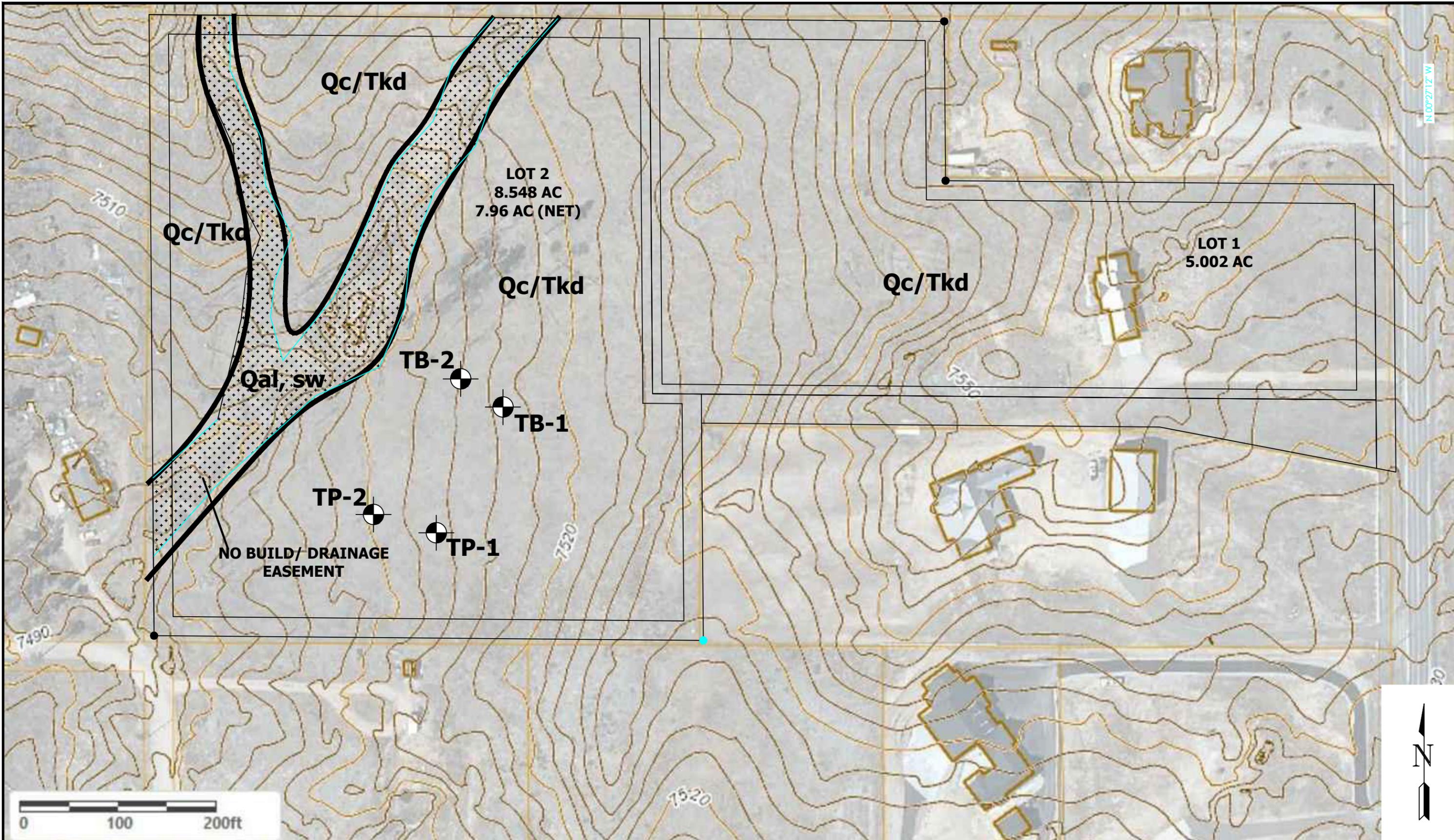
FIG. 4



**GEOLOGIC MAP OF THE BLACK
FOREST QUADRANGLE**
14060 BLACK FOREST ROAD
ALTITUDE ADJUSTMENT CONSTRUCTION, LLC

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FIG. 5



Legend:
 Qal - Recent Alluvium of Holocene Age: water deposited sands and gravel
 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
 sw - seasonally shallow groundwater area



GEOLOGY / ENGINEERING MAP
 14060 BLACK FOREST ROAD
 ALTITUDE ADJUSTMENT CONSTRUCTION, LLC

JOB NO. 241486
FIG. 6

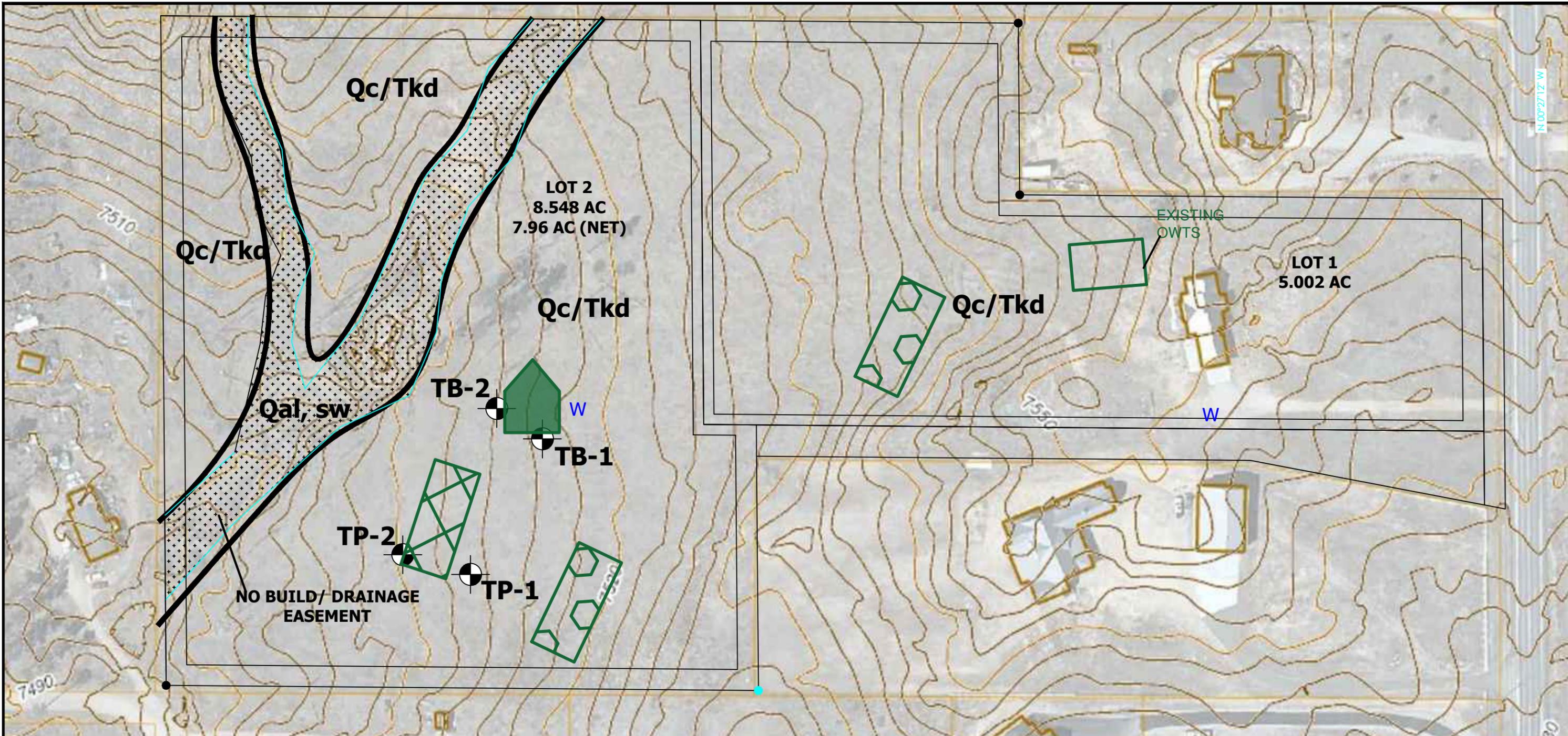


FEMA FLOODPLAIN MAP

14060 BLACK FOREST ROAD
ALTITUDE ADJUSTMENT CONSTRUCTION, LLC

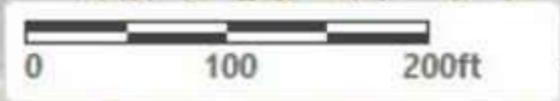
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FIG. 7



LEGEND:

- POSSIBLE OWTS LOCATIONS
- POSSIBLE HOUSE LOCATIONS
- POSSIBLE OWTS ALTERNATE LOCATION
- W** *- WATER WELLS MUST BE A MINIMUM OF 100 FT FROM OWTS ABSORPTION FIELDS



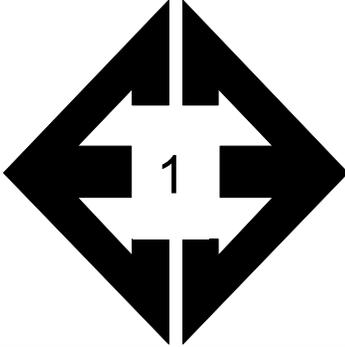
Legend:
 Qal - Recent Alluvium of Holocene Age: water deposited sands and gravel
 Qc/Tkd - Colluvium of Quaternary Age overlying the Dawson Formation of Tertiary to Cretaceous Age: sheetwash and residual soil deposits overlying arkosic sandstone with interbedded claystone and siltstone
 sw - seasonally shallow groundwater area



OWTS SUITABILITY MAP
 14060 BLACK FOREST ROAD
 ALTITUDE ADJUSTMENT CONSTRUCTION, LLC

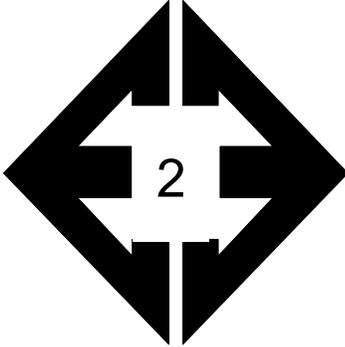
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FIG. 8

APPENDIX A: Site Photographs



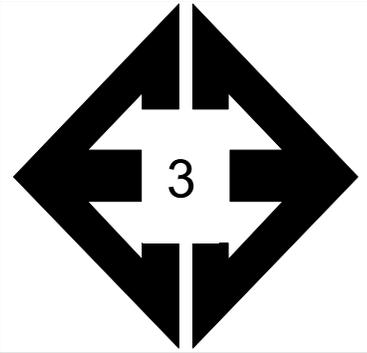
Looking east from the western portion of Lot 2.

September 12, 2024



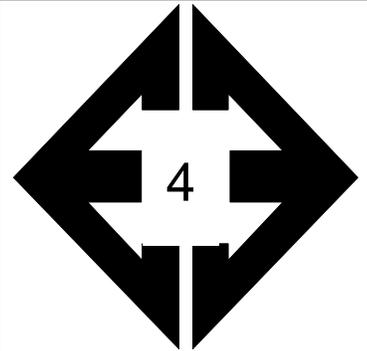
Looking south the central portion of Lot No. 2.

September 12, 2024



**Looking northeast
along drainage
easement in the
western portion of the
site.**

September 12, 2024



**Looking southwest
from the drainage
easement in the
western portion of the
site.**

September 12, 2024



APPENDIX B: Test Boring and Test Pit Logs

TABLE B-1
DEPTH TO BEDROCK & GROUNDWATER

TEST BORING	DEPTH TO BEDROCK (ft.)	DEPTH TO GROUNDWATER (ft.)
1	8	>20
2	8	>15

TEST BORING 1
DATE DRILLED 9/10/2024

TEST BORING 2
DATE DRILLED 9/10/2024

REMARKS

REMARKS

DRY TO 20', 9/12/24

DRY TO 15', 9/12/24

SAND, SILTY, LIGHT BROWN,
MEDIUM DENSE, MOIST

SAND, SILTY, LIGHT BROWN,
LOOSE to DENSE, MOIST

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

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

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
5			10	7.2	1	5			9	4.8	
5			13	4.0	1	5			40	8.4	
10			50	8.7	2	10			50 6"	7.5	
15			50 5"	6.6	2	15			50 6"	8.7	
20			50 9"	10.6	2	20					



TEST BORING LOGS

14060 BLACK FOREST ROAD
ALTITUDE ADJUSTMENT, LLC

JOB NO.
241186

FIG. B-1

TEST PIT 1
DATE EXCAVATED 8/29/2024

TEST PIT 2
DATE EXCAVATED 8/29/2024

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, sandy clay loam (scl), brown, moist	1						topsoil, scl, brown, moist	1					
sandy clay, fine to medium grained, light brown, moist	2			bl	m	4	sandy clay, fine to medium grained, gray brown, moist	2			bl	s	4
	3						sandy clay, fine to medium grained, brown, moist	3					
sandy clay, fine to medium grained, grayish brown, moist	4			ma	sl	4A	sandy clay loam, fine to medium grained, reddish brown, moist	4			gr	s	3
*refusal at 4ft due to sandstone	5						*refusal at 4ft due to sandstone	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
structureless - sl



TEST PIT LOGS

14060 BLACK FOREST ROAD
ADTITUDE ADJUSTMENT CONST.

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FIG. B-2

APPENDIX C: Laboratory Testing Results

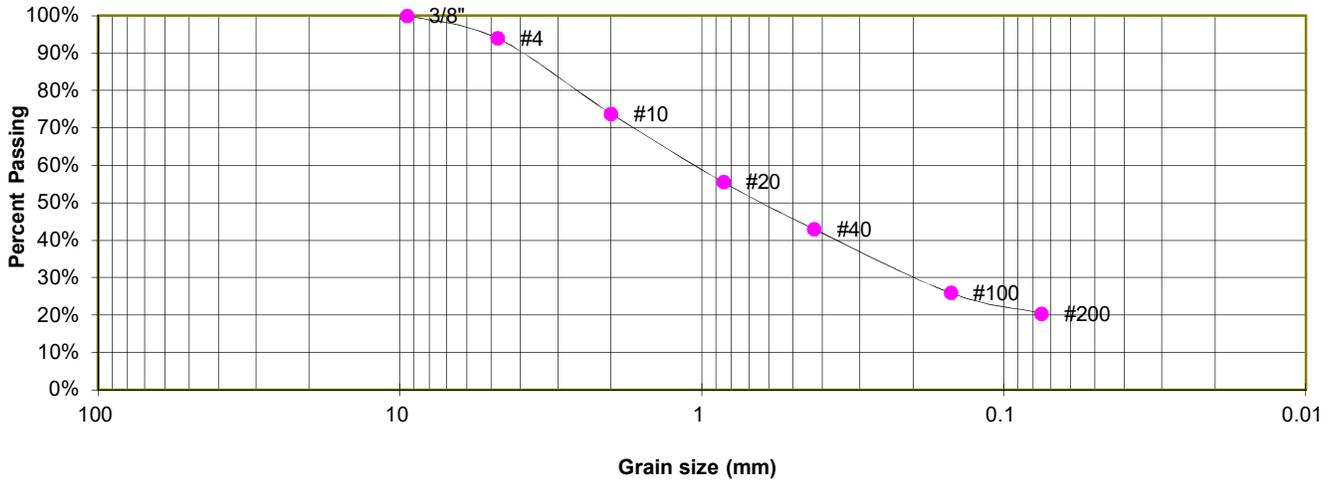
**TABLE C-1
SUMMARY OF LABORATORY TEST RESULTS**

SOIL TYPE	TEST BORING NO.	DEPTH (FT)	PASSING NO. 200 SIEVE (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTIC INDEX	USCS	SOIL DESCRIPTION
1	1	2-3	20.4	NV	NP	NP	SM	SAND, SILTY
2	2	10	16.4	NV	NP	NP	SM	SANDSTONE (SAND, SILTY)

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	94.0%
10	73.8%
20	55.5%
40	43.0%
100	25.9%
200	20.4%

ATTERBERG LIMITS

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM



LABORATORY TEST RESULTS

14060 BLACK FOREST ROAD
 ALTITUDE ADJUSTMENT, LLC

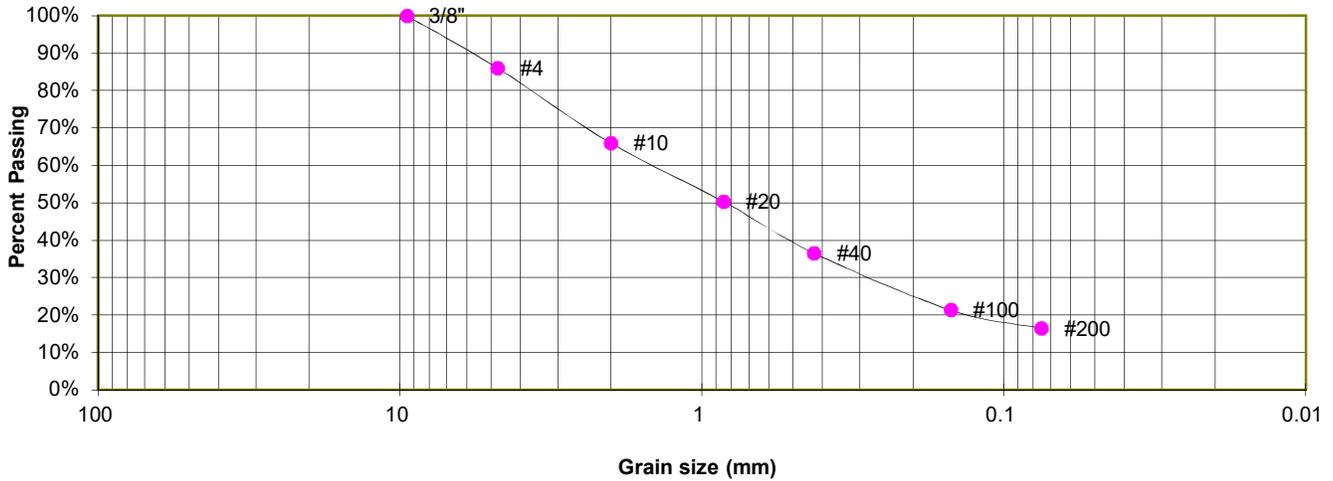
JOB NO.
 241186

FIG. C-1

TEST BORING 2
 DEPTH (FT) 10

SOIL DESCRIPTION SANDSTONE (SAND, SILTY)
 SOIL TYPE 2

**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	86.0%
10	65.9%
20	50.4%
40	36.5%
100	21.3%
200	16.4%

ATTERBERG LIMITS

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM



LABORATORY TEST RESULTS

14060 BLACK FOREST ROAD
 ALTITUDE ADJUSTMENT, LLC

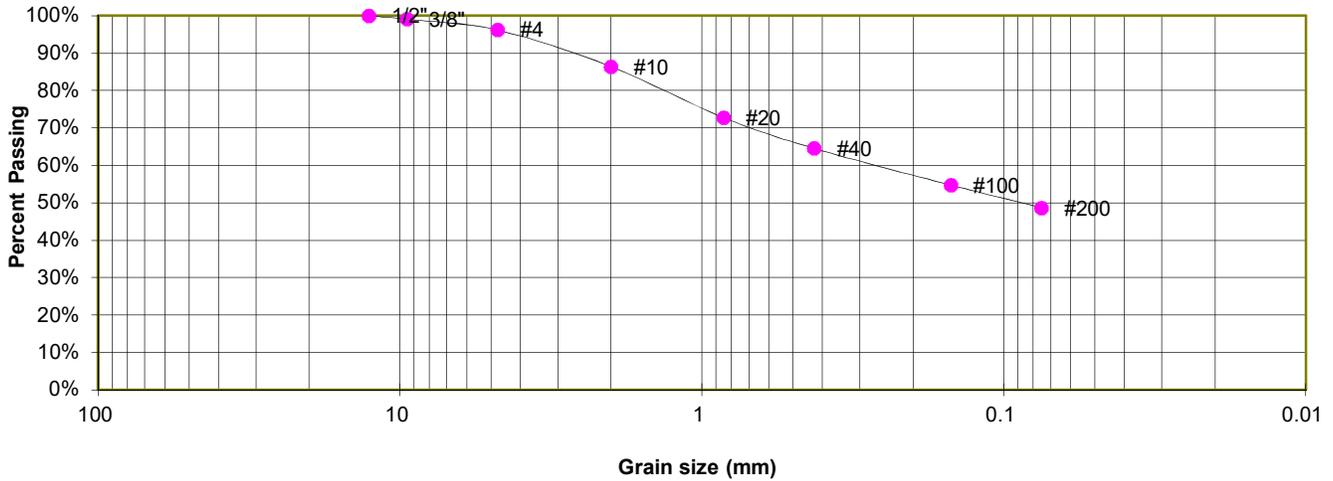
JOB NO.
 241186

FIG. C-2

TEST BORING TP-1
DEPTH (FT) 3.5

SOIL DESCRIPTION SAND, CLAYEY

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"	99.1%
4	96.2%
10	86.4%
20	72.8%
40	64.6%
100	54.7%
200	48.7%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SC



LABORATORY TEST RESULTS

14060 BLACK FOREST ROAD
ALTITUDE ADJUSTMENT, LLC

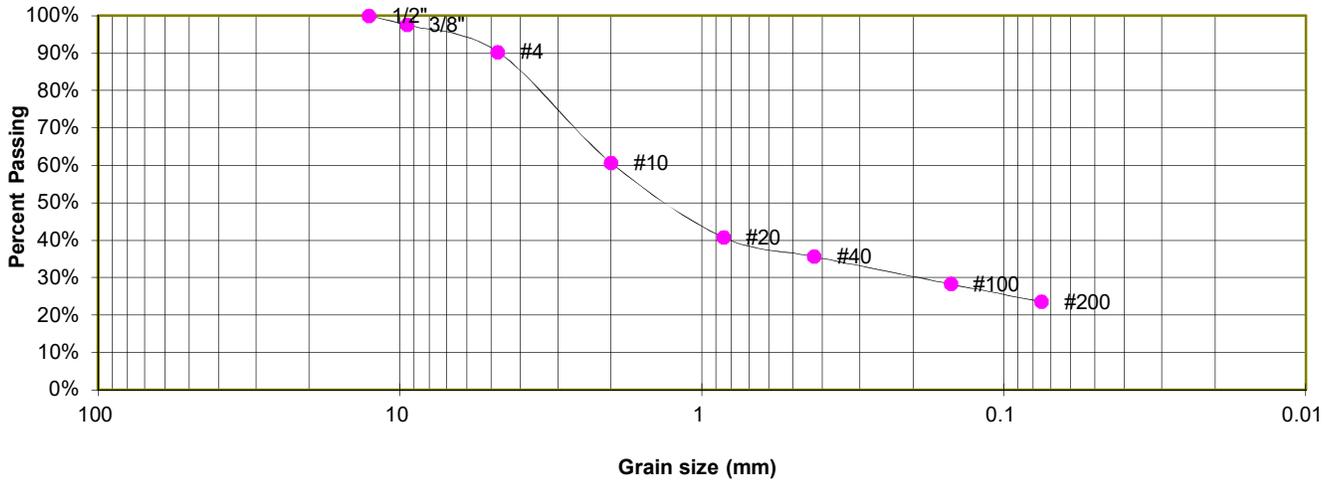
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FIG. C-3

TEST BORING TP-2
DEPTH (FT) 4

SOIL DESCRIPTION SAND, CLAYEY

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"	97.5%
4	90.4%
10	60.7%
20	40.8%
40	35.6%
100	28.3%
200	23.5%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SC



LABORATORY TEST RESULTS

14060 BLACK FOREST ROAD
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FIG. C-4

APPENDIX D: Soil Survey Descriptions

El Paso County Area, Colorado

26—Elbeth sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 367y

Elevation: 7,300 to 7,600 feet

Farmland classification: Not prime farmland

Map Unit Composition

Elbeth and similar soils: 85 percent

Minor components: 5 percent

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

Description of Elbeth

Setting

Landform: Hills

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from arkose

Typical profile

A - 0 to 3 inches: sandy loam

E - 3 to 23 inches: loamy sand

Bt - 23 to 68 inches: sandy clay loam

C - 68 to 74 inches: sandy clay loam

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high (0.20 to 0.60 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: Moderate (about 7.1 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

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



**APPENDIX E: El Paso County Public Health Department,
OWTS Records**

ON-SITE WASTEWATER TREATMENT SYSTEM

INSPECTION FORM

PERMIT # ON0021157

P

APN # 52060000637

DATE: April 21, 2014

APPROVED YES NO Environmental Health Specialist: Neil Mayes

Address: 14060 Black Forest Rd Colorado Springs CO 80908 Owner: Sharon Bowen

Residence: #Bedrooms: 3 Commercial: Enter System Installer: M & M Construction

SEPTIC TANK: Construction Material Precast Concrete Capacity Gallon 1250

DISPOSAL FIELD:

Trench: Depth (Range): Width: Total Length: Sq. Ft.:

Bed: Depth (Range): Width: Total Length: Sq. Ft.:

Depth of Rock: Under PVC: Type of cover on Rock:

DRYWELLS: # of Pits: Rings(Pit 1): Rings(Pit2): Working Depth #1: #2:

Size (L x W) #1 #2 Total Sq. Ft.

ROCKLESS SYSTEMS:

Standard Chamber: Type: Quick 4+ STD #Chambers: 73 Sq. Ft./Chamber: 11.55 Bed: Trench:

Reduction Allowed%: 40 Sq. Ft. Required: 990 Depth (Range): 24" - 36"

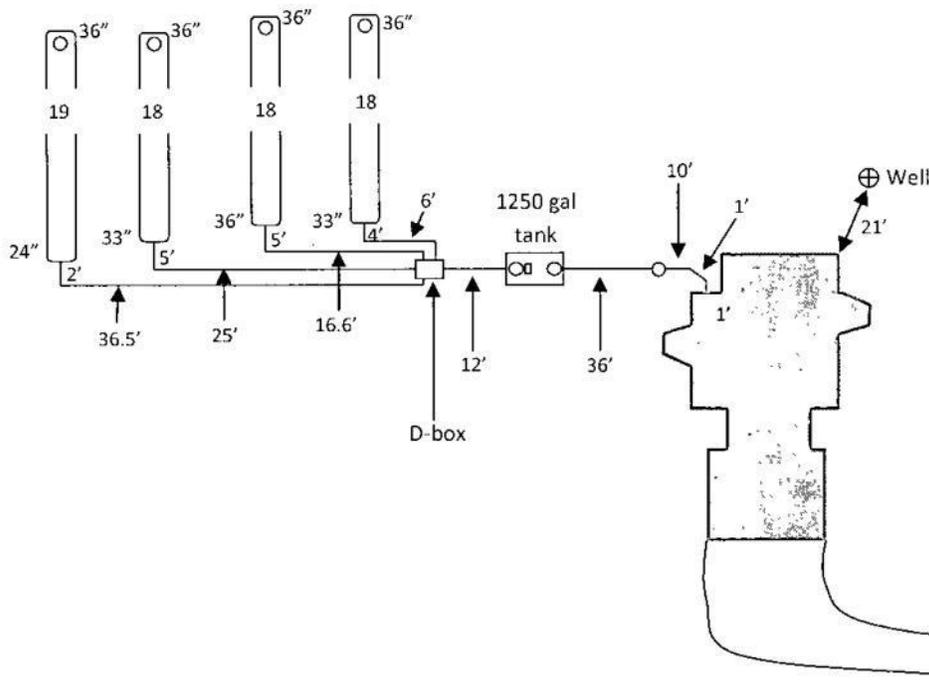
Sq. Ft. Installed: 843.15 Equivalent Sq. Ft. Installed with Reduction: 1405.25

Engineer Design: N X Engineering Firm: Approval Letter Provided: N

Well installed at time of septic inspection: N Public Water: N

*Approval will be revoked if in the future the well is found to be within 50 feet of the septic tank and/or 100 feet of the disposal field.

Notes:



20001046
AR20005071

Prevent • Promote • Protect

1675 W. Garden of the Gods Rd., Suite 2044
Colorado Springs, CO 80907
(719) 578-3199 phone
(719) 578-3188 fax
www.elpasocountyhealth.org
OK

APPLICATION FOR AN ON-SITE WASTEWATER TREATMENT SYSTEM PERMIT

NEW PERMIT MAJOR REPAIR PERMIT MINOR REPAIR PERMIT

Owner Sharon Bowen Daytime Phone 719-590-4744

System Installer MIM Const. Daytime Phone _____

Property Address 14060 Black Forest City and Zip Black Forest, Colo Spgs

Owners Mailing Address same

Email Address mountainlarry@yahoo.com Fax # 719-214-5471

Tax Schedule # 5206000063 Lot Size 13 acres 13.4 acres

Site Located Inside City Limits Yes No Primary Contact Owner Contractor

Proposed Use: Single Family Multi-Family Commercial

Water Supply: Well Cistern Municipal Number of Bedrooms 3

Pick-up: Fax: Email:

Larry Emerson
590-4744

CURRENT FEES AS APPROVED BY THE EL PASO COUNTY BOARD OF HEALTH

New Permit: \$630.00 (EPCPH Charge) + \$147.00 (EPC Planning Dept. Surcharge) + \$23.00 (CDPHE Surcharge) = \$800.00

Major Repair Permit: \$515.00 (EPCPH Charge) + \$23.00 (CDPHE Surcharge) = ~~\$538.00~~ 517.00

Minor Repair Permit: \$230.00 (EPCPH Charge) + \$23.00 (CDPHE Surcharge) = \$253.00

- All Payments are due at the time of application submittal; by cash, check or major credit card (Visa / MC)
- This permit will expire one year from the date of issuance.

I certify that the information provided on this application is in compliance with Section 8.3, Chapter 8 of the Onsite Wastewater System (OWS) Regulations of the El Paso County Board of Health. I also authorize the assigned representative of El Paso County Public Health to enter onto this property in order to obtain information necessary for the issuance of a permit.

Applicants Signature: Larry Emerson Date: 1-20-14

Site Insp. Date: 1/23/14 Perc. Rate: 21 Permit # 0N0021115

E.H.S. Review Notes: ETA SE on well

Date to: E.P.C. Development Services N/A Flood Plain and Enumerations N/A

Permit Requirements: _____

1250
Min. Septic Tank Capacity

990
Min. Absorption Area

E.H. Specialist Neil May Date 1/23/14 Approved Denied

NM

- 1) We require an original copy of your PERCOLATION TEST with a licensed engineer's (P.E.) stamp and signature as well as a plot plan of the test hole locations with measurements from a fixed reference point.
- 2) Property address or lot number must be posted and clearly visible from the road. The percolation holes must be clearly marked or an additional charge for a return trip to the site may be assessed.
- 3) A plot plan must be drawn on an 8 ½" x 11" sheet of paper and shall include the following items:
 - a) North Arrow
 - b) Property Lines
 - c) Property Dimensions
 - d) All Existing and Proposed Buildings
 - e) Proposed Septic System Site
 - f) Alternate Septic System Site
 - g) Driveway & Name of Adjoining Street
 - h) Distance of Percolation Test to Two Property Lines.
- 4) Additional items that shall be included on the plot plan if they apply to your site:
 - a) Proposed &/or Existing Wells
 - b) Wells on Adjacent Properties
 - c) Water Lines
 - d) Bodies of water (ie: Lake, Pond)
 - e) Drainage Ways; Existing or Proposed (ie: Streams, Dry Gulch, etc...)
 - f) Subsoil Drains
- 5) Please provide below complete and accurate directions to the property from a main highway.

Attn: SHARON BOWEN
14060 BLACK FOREST RD
COLORADO SPRINGS, CO
80908-2853

Notify Environmental Health of any change of ownership, type of business activity, business name, or billing address by calling (719) 578-3199. Failure to notify Environmental Health may result in late penalties, Permit/license denial or revocation, and business closure. PERMITS/LICENSES TO OPERATE AND ANNUAL FEE PAYMENTS ARE NOT TRANSFERABLE. Permits become void on change of ownership. New owners must apply and pay for a new Permit(s)/License(s) prior to beginning operation.



**EL PASO COUNTY PUBLIC HEALTH
ENVIRONMENTAL HEALTH DIVISION**
1675 W. GARDEN OF THE GODS ROAD, SUITE 2044
COLORADO SPRINGS, CO 80907
PHONE: (719) 578-3199 FAX: (719) 578-3188
www.elpasocountyhealth.org

MAJOR REPAIR PERMIT - OWTS BLAC

Valid From 1/27/2014 To 1/27/2015

PERMITEE :

SHARON BOWEN
14060 BLACK FOREST RD
COLORADO SPRINGS, CO 80908-2853

Onsite ID: ON0021115

Tax Schedule #: 520600063

Permit Issue Date: 01/27/2014

Dwelling Type: RESIDENTIAL

of Bedrooms (if Res): 3

Proposed Use (if Comm):

Designed Gallons/Day:

Water Source: PRIVATE WELL

OWNER NAME :

SHARON BOWEN

System Installation Requirements :

- Install soil treatment area (S.T.A.) in area of the profile pit observation that was performed on January 20, 2014 at a maximum depth, from bottom of trench of 36 inches.
- A trench system is preferred but if a bed system is installed, it shall not exceed a maximum width of 12 ft.

Septic Tank Capacity Required: 1250 (Gallons) Soil Treatment Area Required: 990 (SQ. Feet)

The Health Officer shall assume no responsibility in case of failure or inadequacy of an Onsite Wastewater Treatment System, beyond consulting in good faith with the property owner or representative. Access to the property shall be authorized at reasonable time for the purpose of making such inspections as are necessary to determine compliance with the requirements of this law (permit).

**Installer inspection request line: Call (719) 575-8699 before 8:30 a.m. of the day that the inspection is requested
Weekends & Holidays excluded.**

This permit is issued in accordance with 25-10-106 Colorado Revised Statutes. The PERMIT EXPIRES upon completion/installation of the Onsite Wastewater Treatment System, or at the end of twelve (12) months from date of issue, whichever occurs first. If both a Building Permit and an Onsite Wastewater Treatment System Permit are issued for the same property and construction has not commenced prior to the expiration date of the Building Permit, the Onsite Wastewater Permit shall expire at the same time as the Building Permit. This permit is revocable if all stated requirements are not met. Onsite Wastewater Treatment System to be installed by an El Paso County Licensed System Contractor, or the property owner.

Authorized By: Environmental Health Specialist