Job No. 175674

October 1, 2020

Adelaida Romens
5120 Coneflower Lane
Colorado Springs, CO 80917

Re: Wastewater Study
Cleese Ct
EPC Schedule No. 4100000075
El Paso County, Colorado

Ref: *Preliminary Layout, Romens Subdivision,* prepared by Catamount Engineering, Job No. 20-248, not dated.

Dear Adelaida Romens:

As requested, personnel of RMG – Rocky Mountain Group has performed a preliminary investigation and site reconnaissance at the above referenced address. The parcel included in this study is:

- EPC Schedule No. 4100000075: currently addressed as 17720 Cleese Court, which consists of 40 acres and is zoned A-35, Agricultural.

It is our understanding the 40-acre parcel is to be subdivided into seven lots of approximately 5.00 to 5.59 acres each. According to google aerial photos and the El Paso County Assessors website, a mobile home was once present on the property, and has been removed prior to this investigation. Based on a survey provided by Catamount Engineering, completed by Barron Land, dated July 14, 2020, a well is located on the new proposed Lot 6, just south of West Bijou Creek. It is our understanding an existing septic system is not present on the property, as the mobile home was not used as a permanent residence.

This letter is to provide information per the On-Site Wastewater Treatment Systems (OWTS) Regulations of the El Paso County Board of Health pursuant to Chapter 8.

The following are excluded from the scope of this report including (but not limited to) foundation recommendations, site grading/surface drainage recommendations, subsurface drainage recommendations, geologic, natural and environmental hazards such as landslides, unstable slopes, seismicity, snow avalanches, water flooding, corrosive soils, erosion, radon, wild fire protection, hazardous waste and natural resources.

Previous Studies and Field Investigation

Reports reviewed in conjunction with this site were available for our review and are listed below:

1. *Soils and Geology Study, Cleese Ct, EPC Schedule No. 4100000075, El Paso County, Colorado,* prepared by RMG – Rocky Mountain Group, Job No. 175674, last dated October 1, 2020.

The findings, conclusions and recommendations contained in this reports were considered during the preparation of this report.

SITE CONDITIONS

Personnel of RMG performed a reconnaissance visit on August 21, 2020. The purpose of the reconnaissance visit was to evaluate the site surface characteristics including landscape position, topography, vegetation, natural and cultural features, and current and historic land uses. Three 8-foot deep test pits were performed across the site, during our reconnaissance visit. A Test Pit Location Plan is presented in Fig 1.

The site surface characteristics were observed to consist of low lying grasses and weeds across the entire site. Deciduous trees are scattered across the property.

The following conditions were observed with regard to the 40-acre parcel:

- A well currently **does** exist on the existing 40-acre site.
- No runoff or irrigation features anticipated to cause deleterious effects to treatment systems on the site were observed;
- A minor waterway, West Bijou Creek, exists through the center of the property. However, the entire site lies outside of areas designated as 100-year and 500-year floodway or floodplain.
- Slopes greater than 20 percent **do not** exist on the site; and
- Significant man-made cuts **do not** exist on the site.

Treatment Areas

Treatment areas at a minimum must achieve the following:

- The treatment areas must be 4 feet above groundwater or bedrock as defined by the Definitions 8.3.4 of the Regulations of the El Paso County Board of Health, Chapter 8, *OWTS Regulations*, effective July 7, 2018;
- Prior to construction of an OWTS, an OWTS design prepared per *the Regulations of the El Paso County Board of Health, Chapter 8, OWTS Regulations* will need to be completed. A scaled site plan and engineered design will also be required prior to obtaining a building permit.
- Comply with any physical setback requirements of Table 7-1 of the El Paso County Department of Health and Environment (EPCHDE);
- Treatment areas are to be located a minimum 100 feet from any well (existing or proposed), including those located on adjacent properties per Table 7-2 per the EPCHDE;
- Treatment areas must also be located a minimum 50 feet from any spring, lake, water course, irrigation ditch, stream or wetland, and 25 feet from dry gulches.
- Other setbacks include the treatment area to be located a minimum 10 feet from property lines, dry gulches, cut banks and fill areas (from the crest).
- Each new lot shall be laid out to insure that a minimum of 2 sites are appropriate for an OWTS and do not fall within any restricted areas, (e.g. utility easements, right of ways). Based on the test pit observations performed, each new lot has a minimum of two locations for the OWTS, as presented on the OWTS Suitability Map, Figure 2.

Contamination of surface and subsurface water resources should not occur if the treatment areas are evaluated and installed according to El Paso County Health Department and State Guidelines in conjunction with proper maintenance.

DOCUMENT REVIEW

RMG has reviewed the above referenced site plan and identified the soil conditions anticipated to be encountered during construction of the proposed OWTS, which included a review of documented Natural Resource Conservation Service - NRCS data provided by websoilsurvey.nrcs.usda.gov. The results of our review are presented below. A review of FEMA Map No. 08041C0350G and 08041C0375G, effective December 7, 2018 indicates that the proposed treatment areas are not located within an identified floodplain.

SOIL EVALUATION

Personnel of RMG performed a soil evaluation to include three 8-foot deep test pits on August 21, 2020 (Test Pits TP-1 through TP-3), utilizing the visual and tactile method for the evaluation of the site soils. The test pits were excavated in areas that appeared most likely to be used for residential construction.

The soil conditions as indicated by the NRCS data are anticipated to consist of Peyton sandy loam and Brussett loam. The Peyton sandy loam was mapped by the USDA to encompass the majority of the southern of the property with slopes ranging from 1 to 9 percent. Properties of the Peyton sandy loam include somewhat well drained soils, depth of the water table is anticipated to be greater than 80 inches, runoff is anticipated to be medium, frequency of flooding and/or ponding is none, and landforms include hills and flats. Brussett loam was mapped to encompass a sliver of the northern property. The Brussett loam has slopes that range from 3 to 5 percent. Properties of the Peyton sandy loam include somewhat well drained soils, depth of the water table is anticipated to be greater than 80 inches, runoff is anticipated to be low, frequency of flooding and/or ponding is none, and landforms include hills. A USDA Soil Survey Map and USDA Full Map Unit Descriptions are attached in Figures 3 and 4.

Neither groundwater nor bedrock were encountered in the test pits performed by RMG.

An OWTS is proposed for each proposed new lot and should conform to the recommendations presented in an OWTS site evaluation, performed in accordance with the applicable health department codes prior to construction. This report may require additional test pits in the vicinity of the proposed treatment field. A minimum separation of 4 feet shall be maintained from groundwater and bedrock to the infiltrative surface.

Redoximorphic features indicating the fluctuation of groundwater or higher ground water levels were not observed in the test pits. The Test Pit Logs are presented in Figures 5 and 6.

CONCLUSIONS

In summary, it is our opinion the site is suitable for individual on-site wastewater treatment systems within the cited limitations. There are no foreseeable or stated construction related issues or land use changes proposed at this time. The proposed new lots are each anticipated to be suitable for an individual OWTS.

LIMITATIONS

The information provided in this report is based upon the subsurface conditions observed in the test pit excavations and accepted engineering procedures. The subsurface conditions encountered in the excavation for the treatment area may vary from those encountered in the test pit excavations. Therefore, depth to limiting or restrictive conditions, bedrock, and groundwater may be different from the results reported in this letter.

Additional test pits will be required if the treatment areas are not located in the locations assumed for the purpose of this report. If an OWTS is proposed for 15330 Chaparral Loop East, an additional OWTS site evaluation will need to be performed in accordance with the applicable health department codes prior to construction.

I hope this provides the information you have requested. Should you have questions, please feel free to contact our office.

Cordially,

RMG – Rocky Mountain Group

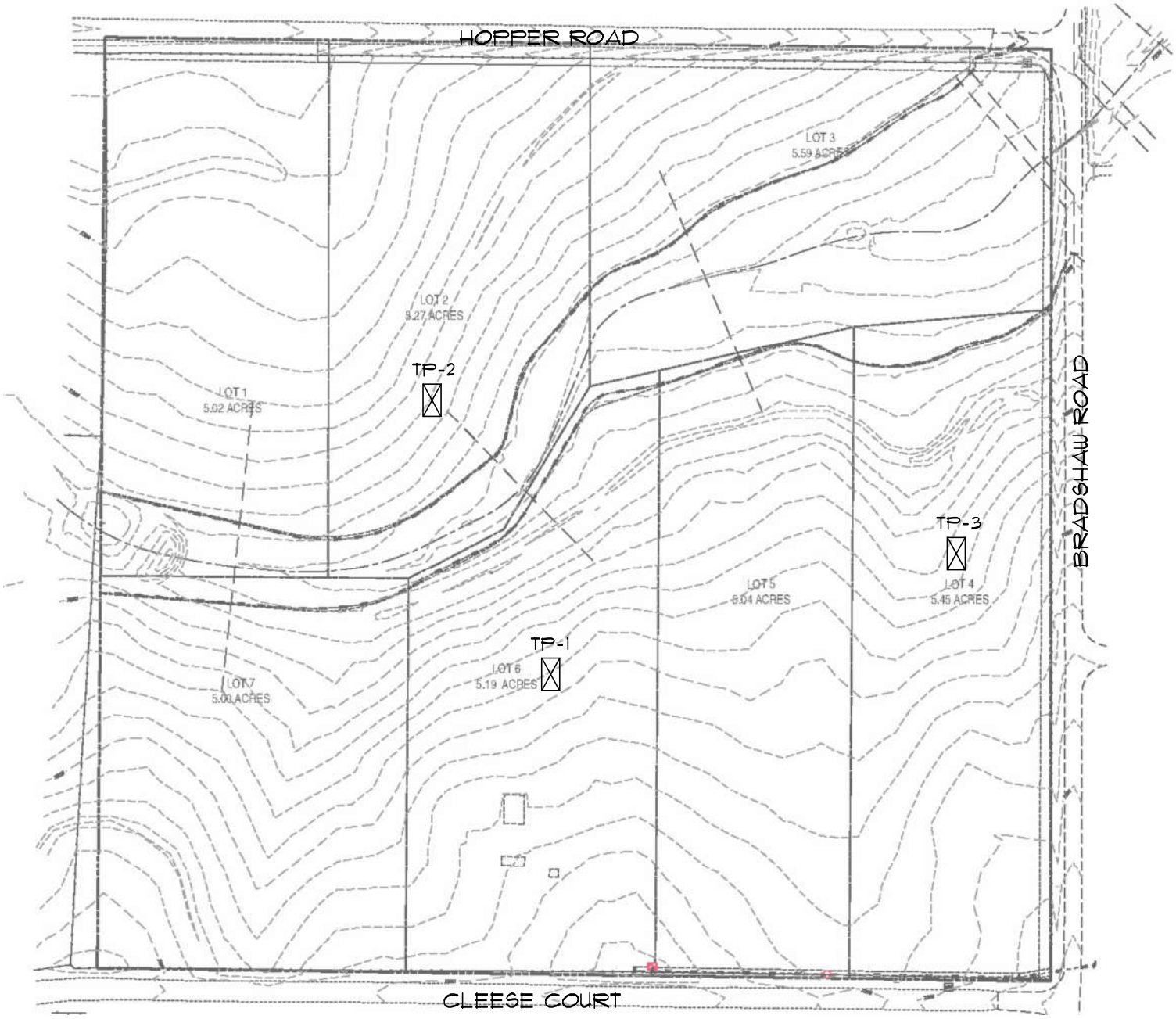
Kelli Zigler

Kelli Zigler
Project Geologist

Reviewed by,

RMG – Rocky Mountain Group

Tony Munger, P.E.
Geotechnical Project Manager



NOT TO SCALE

Base map provided by Catamount Engineering

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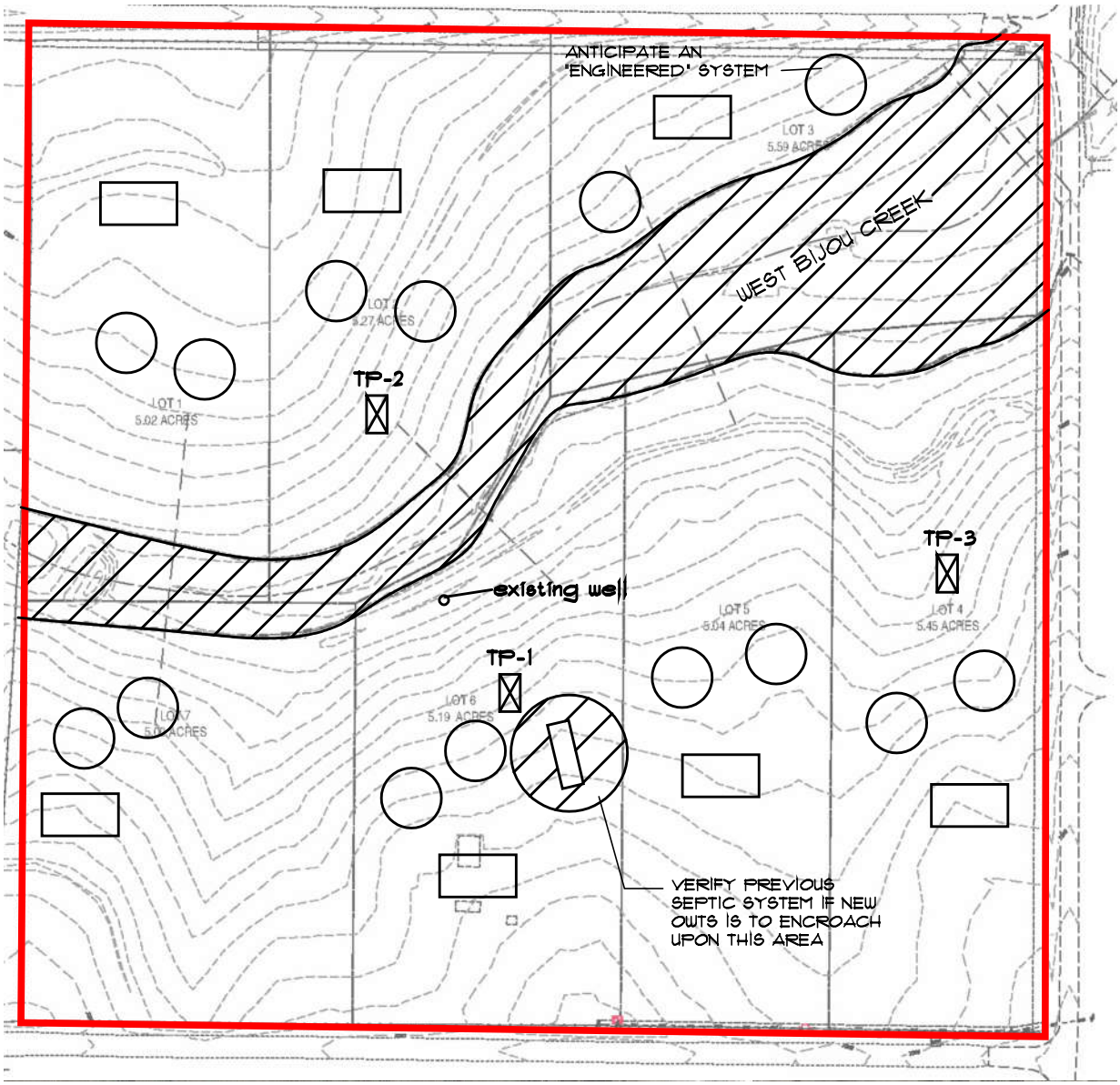
TEST PIT LOCATION PLAN

CLEESE COURT
EPC SCHEDULE NO. 4100000075
EL PASO COUNTY, COLORADO
ADELAIDA ROMENS

JOB No. 175674

FIG No. 1

DATE 10-1-2020



DENOTES ANTICIPATED LOCATION OF HOUSE

DENOTES ANTICIPATED LOCATION(S) OF OWTS

DENOTES AREAS WHERE OWTS ARE NOT RECOMMENDED

NOT TO SCALE

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OWTS SUITABILITY MAP

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EPC SCHEDULE NO. 4100000075
EL PASO COUNTY, COLORADO
ADELAIDA ROMENS

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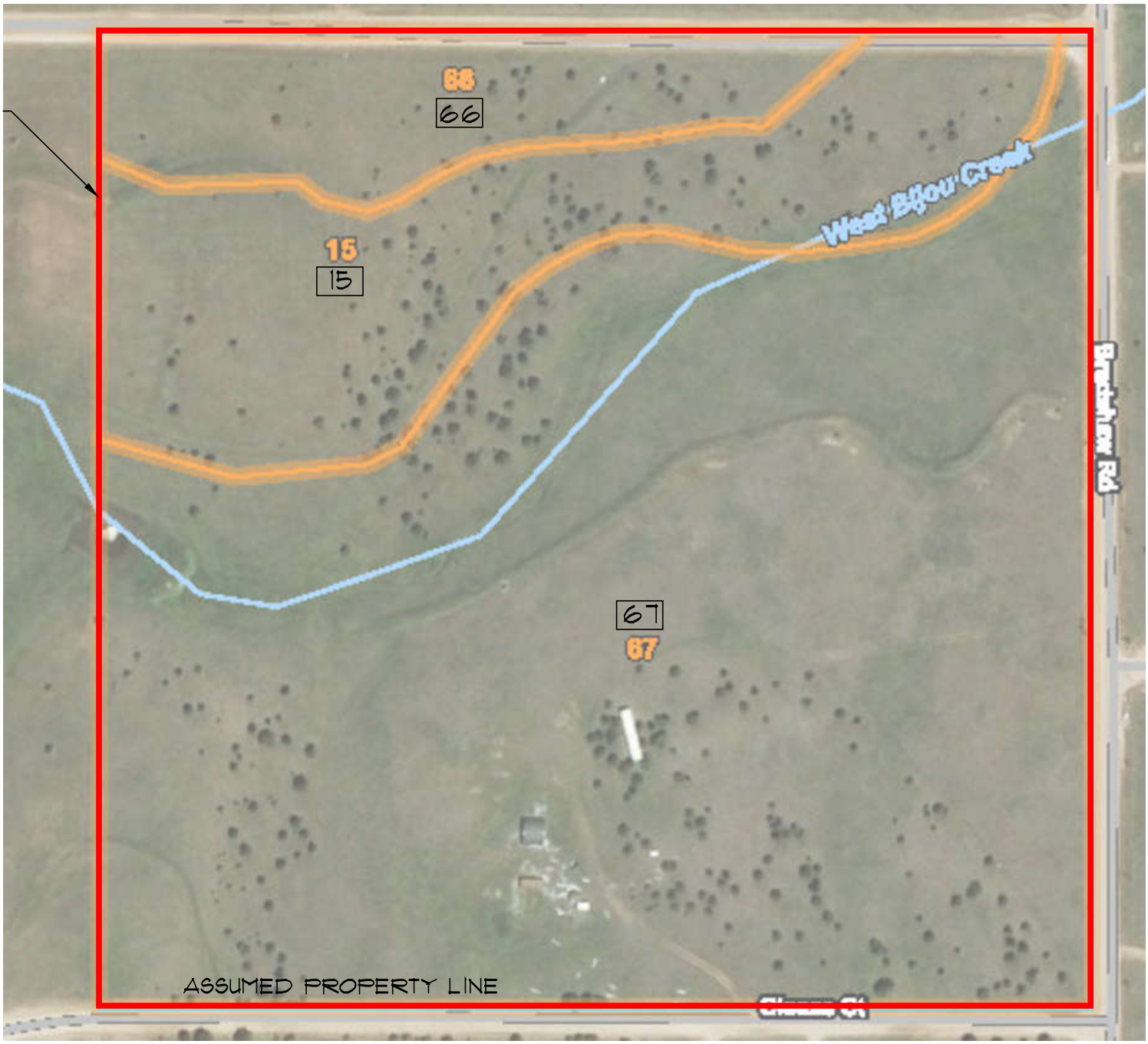
FIG No. 2

DATE 10-1-2020



Map Unit Symbol	Map Unit Name
15	Brussett loam, 3 to 5 percent slopes
66	Peyton sandy loam, 1 to 5 percent slopes
67	Peyton sandy loam, 5 to 9 percent slopes

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USDA SOIL SURVEY MAP

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FIG No. 3

DATE 10-1-2020

El Paso County Area, Colorado

15—Brussett loam, 3 to 5 percent slopes

Map Unit Setting
National map unit symbol: 367k
Elevation: 7,200 to 7,500 feet
Frost-free period: 115 to 125 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Brussett and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brussett

Setting
Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits

Typical profile
A - 0 to 8 inches: loam
BA - 8 to 12 inches: loam
Bt - 12 to 26 inches: clay loam
Bk - 26 to 60 inches: silt loam

Properties and qualities
Slope: 3 to 5 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): 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
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 9.1 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R048AY222CO
Hydric soil rating: No

66—Peyton sandy loam, 1 to 5 percent slopes

Map Unit Setting
National map unit symbol: 369c
Elevation: 6,800 to 7,800 feet
Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition
Peyton and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peyton

Setting
Landform: Flats, hills
Landform position (three-dimensional): Side slope, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock and/or arkosic residuum weathered from sedimentary rock

Typical profile
A - 0 to 12 inches: sandy loam
Bt - 12 to 25 inches: sandy clay loam
BC - 25 to 35 inches: sandy loam
C - 35 to 60 inches: sandy loam

Properties and qualities
Slope: 1 to 5 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): 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 capacity: Moderate (about 7.3 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: R049XB216CO - Sandy Divide
Hydric soil rating: No

15—Brussett loam, 3 to 5 percent slopes

Map Unit Setting
National map unit symbol: 367k
Elevation: 7,200 to 7,500 feet
Frost-free period: 115 to 125 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Brussett and similar soils: 85 percent
Estimates are based on observations, descriptions, and transec the mapunit.

Description of Brussett

Setting
Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits

Typical profile
A - 0 to 8 inches: loam
BA - 8 to 12 inches: loam
Bt - 12 to 26 inches: clay loam
Bk - 26 to 60 inches: silt loam

Properties and qualities
Slope: 3 to 5 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): 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
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 9.1 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R048AY222CO
Hydric soil rating: No

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CLEESE COURT
EPC SCHEDULE NO. 4100000075
EL PASO COUNTY, CO
ADELAIDA ROMENS

ENGINEER:	TM
DRAWN BY:	KZ
CHECKED BY:	TM
ISSUED:	10-1-2020

USDA FULL MAP DESCRIPTIONS

SHEET No.
FIG-4

TEST PIT No.: **TP-1** DATE DRILLED: 8/21/20 REMARKS: NO GROUNDWATER ON 8/21/20	DEPTH (FT)	SYMBOL	SAMPLES	**WATER CONTENT %**	SOIL TYPE
USDA Soil Texture: Sandy Clay USDA Soil Type: 4 USD Structure Shape: Blocky USDA Structure Grade: Moderate Cementations Class: Non-cemented	2.5				
USDA Soil Texture: Sandy Clay USDA Soil Type: R-1 USD Structure Shape: Granular USDA Structure Grade: Strong Cementations Class: Non-cemented	5.0 7.5				

TEST PIT No.: **TP-2** DATE DRILLED: 8/21/20 REMARKS: NO GROUNDWATER ON 8/21/20	DEPTH (FT)	SYMBOL	SAMPLES	**WATER CONTENT %**	SOIL TYPE
USDA Soil Texture: Sandy Clay USDA Soil Type: 4 USD Structure Shape: Blocky USDA Structure Grade: Moderate Cementations Class: Non-cemented	2.5				
USDA Soil Texture: Sand USDA Soil Type: R-0 USD Structure Shape: Granular USDA Structure Grade: Structureless Cementations Class: Non-cemented	5.0 7.5				

ROCKY MOUNTAIN GROUP

Architectural
Structural
Forensics

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TEST PIT LOGS

JOB No. 175674

FIGURE No. 5

DATE 10/1/20

TEST PIT No.: **TP-3**
DATE DRILLED:
8/21/20
REMARKS:
NO GROUNDWATER ON
8/21/20

DEPTH (FT)	SYMBOL	SAMPLES	**WATER CONTENT %**	SOIL TYPE		

USDA Soil Texture: Clay
USDA Soil Type: 4
USD Structure Shape:
Blocky
USDA Structure Grade:
Strong
Cementations Class:
Non-cemented

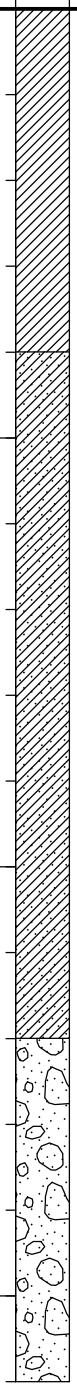
2.5

USDA Soil Texture: Sandy
Clay
USDA Soil Type: 4
USD Structure Shape:
Blocky
USDA Structure Grade:
Moderate
Cementations Class:
Non-cemented

5.0

USDA Soil Texture: Sand
USDA Soil Type: R-0
USD Structure Shape:
Blocky
USDA Structure Grade:
Moderate
Cementations Class:
Non-cemented

7.5



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TEST PIT LOGS

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FIGURE No. 6

DATE 10/1/20