

Architecture
Structural
Geotechnical



Materials Testing
Forensic
Civil/Planning

**ROCKY MOUNTAIN GROUP
EMPLOYEE OWNED**

Job No. 176395

September 25, 2020

M.V.E., Inc.
1903 Lelaray Street, Suite 200
Colorado Springs, CO 80909

Re: Wastewater Study
15330 Chaparral Loop East
El Paso County, Colorado

Ref: *Land Survey Plat*, prepared by Clark Land Surveying, Inc., Project No. 170651, last dated August 23, 2017.

Ref: *Final Plat*, Subdivision, Filing No. 1, Replat of Lot 104, Peyton Ranches Subdivision, prepared by M.V.E., MVE Project 61140, last dated May 14, 2020.

Dear M.V.E, Inc.:

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

- EPC Schedule No. 3133002011: the southern parcel, addressed as 15330 Chaparral Loop East is a portion of Lot 104, which consists of 8.69 acres and is zoned RR-5, Residential Rural,
- EPC Schedule No. 3128002004: the northern parcel, addressed 15550 Chaparral Loop East, is the remaining portion of Lot 104, which consists of 8.32 acres and is zoned RR-5, Residential Rural.

It is our understanding that the parcels were not properly subdivided per the El Paso County regulations. El Paso County is requesting the lot to be replatted into two new parcels. The Land Survey Plat, referenced above, does not designate lot numbers. However, the northern parcel (15550 Chaparral Loop East) contains a single-family modular residence, reportedly constructed in 1981, several accessory structures, a well, and a septic system. The southern parcel (15330 Chaparral Loop East) is currently undeveloped, used as grazing land, and is proposed to contain a new single-family residence with a well and septic system.

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

The following are also 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, 15330 Chaparral Loop East, El Paso County, Colorado*, prepared by RMG – Rocky Mountain Group, Job No. 176395, last dated September 25, 2020.
2. *Subsurface Soil Investigation, 15330 Chaparral Loop East, El Paso County, Colorado*, prepared by RMG - Rocky Mountain Group, Job No. 159645, last dated September 8, 2017.

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. Two 8-foot deep test pits were performed on 15330 Chaparral Loop East, during our reconnaissance visit. A Test Pit Location Plan is presented in Figure 1.

The site surface characteristics were observed to consist of low lying grasses and weeds across the entire site. No deciduous trees are located on the property.

The following conditions were observed with regard to the 8.69-acre parcel:

- A well currently **does not** exist on the existing 8.69-acre site.
- No runoff or irrigation features anticipated to cause deleterious effects to treatment systems on the site were observed;
- No major waterways exist on the property. The entire site lies outside the designated 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).
- The new parcel shall be laid out to ensure that the proposed OWTS does not fall within any restricted areas, (e.g. utility easements, right of ways). Based on the test pit observations, the parcel has a minimum of two locations for the OWTS.

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, identified the soil conditions anticipated to be encountered during construction of the proposed OWTS for 15330 Chaparral Loop East, which included a review of documented Natural Resource Conservation Service - NRCS data provided by websoilsurvey.nrcs.usda.gov. The Soil Survey Descriptions are presented below. A review of FEMA Map No. 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 two 8-foot deep test pits 15330 Chaparral Loop East, on August 21, 2020 (Test Pit TP-1 and TP-2), 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 Test Pit Logs are presented in Figure 4. A Septic Suitability map is presented in Figure 5.

The soil conditions as indicated by the NRCS data are anticipated to consist of Blakeland loamy sand with 1 to 9 percent slopes. The Blakeland loamy sand was mapped by the USDA to encompass the majority of the eastern portion of property. Properties of the loamy sand include somewhat excessively drained soils, depth of the water table is anticipated to be greater than 6.5 feet, runoff is anticipated to be low, frequency of flooding and/or ponding is none, and landforms include hills and flats. Truckton, loamy sand was mapped to encompass the majority of the western portion of the property. This soil condition is located outside of the proposed OWTS locations and has been eliminated from this study. A USDA Soil Survey Map and USDA Full Map Unit Descriptions are attached in Figures 2 and 3.

Groundwater and bedrock were not encountered in the test pits performed by RMG.

An OWTS is proposed for 15330 Chaparral Loop East and should conform to the recommendations of a future 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.

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 new southern lot is suitable for an individual OWTS.

LIMITATIONS

The information provided in this report is based upon the subsurface conditions observed in the profile 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.

An OWTS site evaluation will need to be performed in accordance with the applicable health department codes prior to construction.

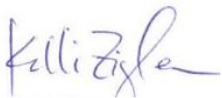
I hope this provides the information you have requested. Should you have questions, please feel free to contact our office.

Cordially,

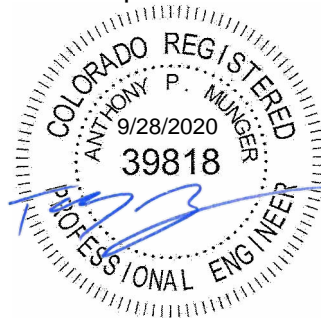
RMG – Rocky Mountain Group

Reviewed by,

RMG – Rocky Mountain Group



Kelli Zigler
Project Geologist



Tony Munger, P.E.
Geotechnical Project Manager



NOT TO SCALE

 DENOTES APPROXIMATE LOCATION OF TEST PITS



ROCKY MOUNTAIN GROUP

Southern Office
 Colorado Springs, CO
 80918
 (719) 548-0600
Central Office:
 Englewood, CO 80112
 (303) 688-9475
Northern Office:
 Greeley / Evans, CO 80620
 (970) 330-1071

**TEST PIT
 LOCATION PLAN**
 15330 CHAPARRAL LOOP EAST
 EPC SCHEDULE NO.s 3128002004
 AND 3133002011
 EL PASO COUNTY, COLORADO
 M.V.E, INC.

JOB No. 176395

FIG No. 1

DATE 9-25-2020



8 - Blakeland loamy sand, 1 to 9% slopes

95 - Truckton loamy sand, 1 to 9% slopes

NOT TO SCALE



ROCKY MOUNTAIN GROUP

Southern Office
 Colorado Springs, CO
 80918
 (719) 548-0600
Central Office:
 Englewood, CO 80112
 (303) 688-9475
Northern Office:
 Greeley / Evans, CO 80620
 (970) 330-1071

**USDA SOIL
 SURVEY MAP**
 15330 CHAPARRAL LOOP EAST
 EPC SCHEDULE NO.s 3128002004
 AND 3133002011
 EL PASO COUNTY, COLORADO
 M.V.E, INC.

JOB No. 176395

FIG No. 2

DATE 9-25-2020

8—Blakeland loamy sand, 1 to 9 percent slopes

Map Unit Setting

National map unit symbol: 369v
Elevation: 4,600 to 5,800 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Blakeland and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blakeland

Setting

Landform: Hills, flats
Landform position (three-dimensional): Side slope, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock and/or eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 11 inches: loamy sand
AC - 11 to 27 inches: loamy sand
C - 27 to 60 inches: sand

Properties and qualities

Slope: 1 to 9 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 to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

Other soils

Percent of map unit: 1 percent
Hydric soil rating: No

95—Truckton loamy sand, 1 to 9 percent slopes

Map Unit Setting

National map unit symbol: 36bd
Elevation: 6,000 to 7,000 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Truckton and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Truckton

Setting

Landform: Hills, flats
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 8 inches: loamy sand
Bt - 8 to 24 inches: sandy loam
C - 24 to 60 inches: coarse sandy loam

Properties and qualities

Slope: 1 to 9 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 (1.98 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 4 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes



ROCKY MOUNTAIN GROUP

Southern Office
Colorado Springs, CO
80918
(719) 548-0600
Central Office:
Englewood, CO 80112
(303) 688-9475
Northern Office:
Greeley / Evans, CO 80620
(970) 330-1071

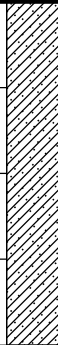
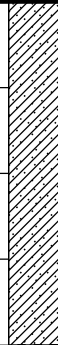



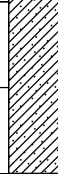

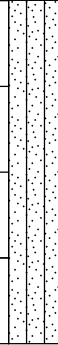
**USDA FULL MAP
UNIT DESCRIPTIONS**

15330 CHAPARRAL LOOP EAST
EPC SCHEDULE NO.s 3128002004
AND 3133002011
EL PASO COUNTY, COLORADO
M.V.E, INC.

JOB No. 176395

FIG No. 3

DATE 9-25-2020

TEST PIT No.: 1 DATE DRILLED: 8/21/20 REMARKS: NO GROUNDWATER ON 8/21/20	DEPTH (FT)	SYMBOL	SAMPLES	WATER CONTENT %	SOIL TYPE	TEST PIT No.: 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 Loam USDA Soil Type: 3 USDA Structure Shape: Granular USDA Structure Grade: Strong Cementations Class: Non-cemented						USDA Soil Texture: Sandy Clay Loam USDA Soil Type: 3 USDA Structure Shape: Granular USDA Structure Grade: Strong Cementations Class: Non-cemented					
USDA Soil Texture: Sandy Loam USDA Soil Type: 2 USDA Structure Shape: Blocky USDA Structure Grade: Moderate Cementations Class: Non-cemented	2.5					USDA Soil Texture: Clay USDA Soil Type: 4 USDA Structure Shape: Blocky USDA Structure Grade: Moderate Cementations Class: Non-cemented	2.5				
USDA Soil Texture: Sand USDA Soil Type: 1 USDA Structure Shape: Granular USDA Structure Grade: Structureless Cementations Class: Non-cemented	5.0					USDA Soil Texture: Sandy Clay USDA Soil Type: 4 USDA Structure Shape: Blocky USDA Structure Grade: Moderate Cementations Class: Non-cemented	5.0				
	7.5					USDA Soil Texture: Sand USDA Soil Type: 1 USDA Structure Shape: Granular USDA Structure Grade: Structureless Cementations Class: Non-cemented	7.5				

ROCKY MOUNTAIN GROUP

Architectural
Structural
Forensics



Geotechnical
Materials Testing
Civil, Planning

Colorado Springs - (Corporate Office)
2910 Austin Bluffs Parkway
Colorado Springs, CO 80918
(719) 548-0600

SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO




TEST PIT LOGS

JOB No. 176395

FIGURE No. 4

DATE 9/25/20



-  DENOTES ANTICIPATED LOCATION OF HOUSE
-  DENOTES POSSIBLE LOCATION(S) OF OUTS
-  DENOTES AREAS WHERE OUTS ARE NOT RECOMMENDED



NOT TO SCALE



ROCKY MOUNTAIN GROUP

Southern Office
 Colorado Springs, CO
 80918
 (719) 548-0600
Central Office:
 Englewood, CO 80112
 (303) 688-9475
Northern Office:
 Greeley / Evans, CO 80620
 (970) 330-1071

SEPTIC SUITABILITY

15330 CHAPARRAL LOOP EAST
 EPC SCHEDULE NO.s 3128002004
 AND 3133002011
 EL PASO COUNTY, COLORADO
 M.V.E, INC.

JOB No. 176395

FIG No. 5

DATE 9-25-2020