

Job No. 184228

January 5, 2022

William Guman & Associates, Ltd
731 North Weber Street, Ste 10
Colorado Springs, CO 80903

Re: Wastewater Disposal Report
Cornerstone Estates
Northwest of the Intersection of Goodson Rd and Rex Rd
El Paso County, Colorado

Ref: *Preliminary Plan, Cornerstone Estates, El Paso County, Colorado, prepared by J.R Engineering, Job No. 29992.00, last dated May 6, 2008*

Dear Bill:

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

- EPC Schedule No. 5223000003 addressed as 11340 Goodson Road, which consists of 58.77 acres and is zoned PUD, Planned Unit Development

Project Description

The site consists of approximately 58.77 acres and is partially developed. An existing modular home is located on the northwest corner of the property. A horse stable and corral were located south of the modular home. The proposed development is to consist of 16 lots, each comprising 2.5 acres to 3.64 acres, and a tract of approximately 5.98 acres for open space and drainage. Each lot is to be served by an on-site wastewater treatment system (OWTS) and an individual water supply well. The site is to be accessed from Goodson Road. A Site Vicinity Map is included as Figure 1.

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 of previous geotechnical engineering/geologic investigations for this site were available for our review and are listed below:

1. *Geologic Hazards Study, Preliminary Subsurface Soil Investigation, Preliminary On-Site Wastewater System Report, Cornerstone Estates, Northwest of the Intersection of Goodson and Rex Roads, El Paso County, Colorado*, prepared by RMG Engineers, Job No. 117523, last revised May 5, 2008.
2. *Soils and Geology Study, Cornerstone Estates, Northwest of the intersection of Goodson Rd and Rex Rd, El Paso County, Colorado*, prepared by RMG – Rocky Mountain Group, Job No. 184228, last dated November 5, 2021.

SITE CONDITIONS

Personnel of RMG performed a reconnaissance visit on July 13, 2021. 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 observed. The test pit locations are presented on the Test Pit Location Map, Figure 2.

The site surface characteristics were observed to consist of native grasses and other prairie-type vegetation. Deciduous trees are scattered sparsely across the southeastern portion of the site. Dense stands of deciduous trees occur near the center and northwest boundary of the site and in defined drainage features. Willows, cattails and similar vegetation were present near and surrounding the defined drainage features. Landscaping around the modular home consisted of shrubs, flowers and trees.

The following conditions were observed with regard to the 58.77-acre parcel:

- A well currently does exist on Lot 5 of the existing 58.77-acre site, near an existing modular home. It is our understanding that the well is to be abandoned;
- Two drainage features traverse the site from northwest to southeast and are shown in Figure 4, Septic Suitability Map. The entire site lies outside the designated floodway or floodplain.
- Slopes greater than 20 percent do not exist on the site; and
- A man-made berm is located north of lot 11, near the western boundary.

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;
- Each lot (after purchase but prior to construction of an OWTS) will require an OWTS site evaluation report prepared per *the Regulations of the El Paso County Board of Health*,

Chapter 8, OWTS Regulations. During the site reconnaissance, a minimum of two 8-foot deep test pits will need to be excavated in the vicinity of the proposed treatment area;

- 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;
- Each lot shall be designed to insure that a minimum of 2 sites are appropriate for an OWTS and do not fall within the restricted areas identified on the Septic Suitability Map, Figure 4, (e.g. existing ponds, drainage areas);
- It is not recommended that the existing septic systems be utilized for new construction. The existing systems were constructed between 1964 and 1994. The average life span of systems constructed between those dates was approximately 20 to 30 years. It is unlikely the existing septic systems will meet the current criteria for a Transfer of Title Inspection per 8.4 (0).6 per EPCHDE;
- If an existing system, is to be removed (e.g. tank, components and/or soil) they should be disposed of in an approved off-site location;
- New treatment areas are not to be located within the existing septic field areas unless the existing system has been properly abandoned or removed.

Treatment areas are to be located a minimum distance of 100 feet from any well location. Treatment areas are also to be located a minimum of 50 feet from any spring, lake, water course, irrigation ditch, stream or wetland. Other setbacks for the treatment area include, but are not limited to, a minimum 10 feet from property lines, dry gulches, cut banks and fill areas (from the crest).

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 the lots included within Cornerstone Estates 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. 08041C0535G, 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 July 15, 2021 (Test Pit TP-1, TP-2, and 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 wastewater treatment areas. The Test Pit Logs are presented in Figure 3. The Septic Suitability Map shows proposed primary and alternate septic suitability locations and is presented in Figure 4.

The soil conditions as indicated by the NRCS data are anticipated to consist of Pring Coarse Sandy Loam with 3 to 8 percent slopes and Kettle Gravelly Loamy Sand with 3 to 8 percent slopes. The Pring Coarse Sandy Loam was mapped by the USDA to encompass the majority of the property. Properties of the coarse sandy loam include some-what excessively 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 ponding is none, and landforms include hills. The Kettle Gravelly Loamy Sand was mapped to encompass a very small portion of the northwest corner of the property. Properties of the gravelly loamy sand include some-what excessively 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 ponding is none, and landforms include hills. A USDA Soil Survey Map is presented in Figure 5.

Bedrock was encountered in test pits TP-1 and TP-3 performed by RMG. Neither groundwater nor redoximorphic features (indicating fluctuation of groundwater or higher groundwater levels) were 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. 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.

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 areas 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. A natural drainage traverses the site from northwest to southeast on the property site. The drainage is to remain, and the residences and OWTS should be located outside of the drainage pathway. It is anticipated that the area is potentially seasonally wet. Ponds located near the southernmost drainage way, proposed lot 11, proposed lot 7, and in the southeast corner near the utility easement are also anticipated to be seasonally wet.

Individual wastewater treatment systems are proposed for all 16 lots. Additional OWTS site evaluations for each lot 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,

Reviewed by,

RMG – Rocky Mountain Group

RMG – Rocky Mountain Group



Kelli Zigler
Project Geologist

Tony Munger, P.E.
Geotechnical Project Manager





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
SITE VICINITY MAP





CORNERSTONE ESTATES
GOODSON ROAD
EL PASO COUNTY, COLORADO
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FIG No. 1

DATE 1-5-2022

TEST PIT TP-1			
DATE OBSERVED: 7/15/21			
SOIL DESCRIPTION	DEPTH (FT)	SYMBOL	SOIL TYPE
0 - 1.0 FT LOAM (WEAK)			2A
1.0 - 2.0 FT SILTY CLAY LOAM (MODERATE)	2ft		3
2.0 - 3.5 FT SILTY LOAM (MODERATE)			2
3.5 - 5.0 FT BEDROCK (LIMITING LAYER)	4ft		
	6ft		
	8ft		

TEST PIT TP-2			
DATE OBSERVED: 7/15/21			
SOIL DESCRIPTION	DEPTH (FT)	SYMBOL	SOIL TYPE
0 - 1.0 FT SANDY LOAM (WEAK)			2A
1.0 - 2.5 FT SANDY CLAY LOAM (MODERATE)	2ft		3
2.5 - 5.0 FT SANDY LOAM (MODERATE)	4ft		2
5.0 - 8 FT SAND (STRUCTURELESS)	6ft		1
	8ft		

SOIL DESCRIPTIONS



LOAM



SANDY LOAM
(WEAK)



SILTY CLAY LOAM



SANDY CLAY LOAM



SILTY LOAM



SANDY LOAM
(MODERATE)



BEDROCK



SAND

TEST PIT LOGS

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FIGURE No. 3

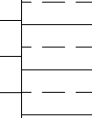
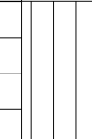
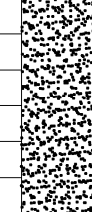
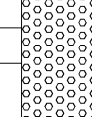
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TEST PIT TP-3			
DATE OBSERVED: 7/15/21			
SOIL DESCRIPTION	DEPTH (FT)	SYMBOL	SOIL TYPE
0 - 2.0 FT SANDY LOAM (WEAK)	2ft		2A
2.0 - 4.0 FT SANDY LOAM (MODERATE)			2
4.0 FT - 7.0 FT SAND (STRUCTURELESS)	4ft 6ft		1
7.0 - 8.0 FT BEDROCK (LIMITING LAYER)	8ft		

SOIL DESCRIPTIONS



SANDY LOAM
(WEAK)



SANDY LOAM
(MODERATE)



SAND



BEDROCK



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TEST PIT LOGS

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FIGURE No. 3

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ESTATES
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WILLIAM GUMAN AND ASSOCIATES, LTD

ENGINEER:		TCM
DRAWN BY:	KCR	
CHECKED BY:	TCM	
ISSUED:	1-5-2022	

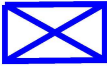
SEPTIC SUITABILITY
MAP

SHEET No.

FIG-4



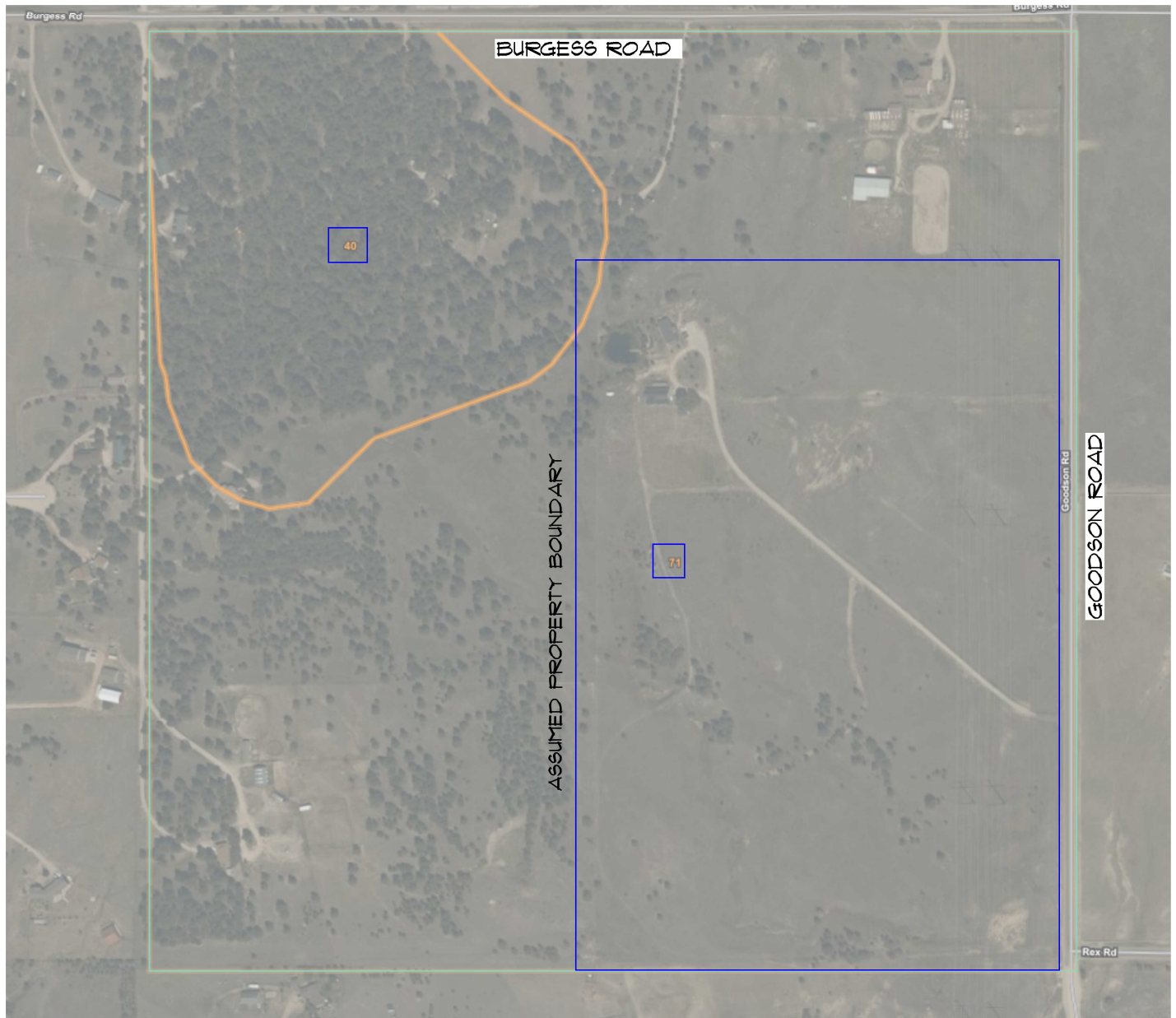
REFERENCE
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DENOTES APPROXIMATE
LOCATION OF PRIMARY AND
ALTERNATE SEPTIC LOCATIONS



DENOTES APPROXIMATE
LOCATION OF BUILDING
ENVELOPES



40 - Kettle Gravelly Loamy Sand, 3 to 8 Percent Slopes

71 - Fring Coarse Sandy Loam, 3 to 8 Percent Slopes



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USDA SOIL SURVEY MAP

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FIG No. 5

DATE 1-5-2022