

Job No. 185466

March 1, 2022

Revised September 9, 2022

SMH Consultants
411 S. Tejon Street, Suite 1
Colorado Springs, CO 80903

Re: Wastewater Study
Brown Rd
Lots 1 and 2, Owl Ridge Subdivision
El Paso County, Colorado

Ref: *Land Survey Plat Map*, prepared by SMH Consultants, Project No. 2010CS4031, last dated May, 2022.

Dear Brett:

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. 5100000447: currently addressed as 18885 Brown Road, consisting of approximately 61.55 acres zoned RR-5. Note, per the Plat Map referenced above, the total site area is 61.949 acres.

Project Description:

The site consists of approximately 61.55 acres and is partially developed. An existing two-story agricultural residence is located on the southwest corner of the property. Two one-story barns are located east of the residence. It is our understanding the existing site is to be subdivided into a total of two lots. As denoted on the Final Plat prepared by SMH Consultants, dated May 2022, Lot 1 is to consist of approximately 21.9 acres and Lot 2 is to consist of approximately 40 acres. Lot 2, is to retain the existing residence, well and septic. No additional residences are currently proposed on Lot 2. Based on conversations with the owner, a single family residence, well and septic is proposed for Lot 1. Lot 1 is to be accessed from Brown Road. The Proposed Lot Layout is included as Figure 2

It is our understanding that the new Lot 1 is to be serviced by an on-site wastewater treatment system (OWTS) and an individual water supply well. The site is to be accessed from Brown 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. *Soils and Geology Study, 18885 Brown Road, Lots 1-3, Owl Ridge Subdivision, El Paso County, Colorado*, prepared by RMG-Rocky Mountain Group, Job No. 185466, last revised September 9, 2022.

SITE CONDITIONS

Personnel of RMG performed a preliminary reconnaissance visit on September, 8, 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. Four 8-foot deep test pits were observed on September 22, 2021. The test pit locations are presented on the Test Pit Location Map, Figure 3.

The site vegetation primarily consists of native grasses and other prairie-type vegetation. Deciduous trees are scattered sparsely across the site. The site generally slopes down from the west to east with an elevation difference of approximately 70 feet across the site. There appears to be multiple irrigation ditch features that traverse the site from west to east. The water levels in the irrigation ditch areas are anticipated to vary dependent upon local precipitation levels.

The following conditions were observed with regard to the 61.55-acre parcel:

- A well currently does exist near the existing residence;
- Runoff and 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 exist on the site, in the form of irrigation ditches.

Treatment Areas

Treatment areas at a minimum must achieve the following:

- 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, most recently amended May 23, 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;

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, watercourse, irrigation ditch, stream or wetland. Other setbacks for the treatment area include, but are not limited to, a minimum of 10 feet from property lines, dry gulches, cut banks and fill areas (from the crest).

DOCUMENT REVIEW

RMG has reviewed the provided site plan (prepared by SMH Consultants) and identified the soil conditions anticipated to be encountered during construction of the proposed OWTS for 18885 Brown Road, based on our site observations and a review of documented Natural Resource Conservation Service - NRCS Web Soil Survey data provided at websoilsurvey.nrcs.usda.gov. The Web Soil Survey Descriptions are presented below. A review of FEMA Map No. 08041C0305G, 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 four 8-foot deep test pits, on September 22, 2021 (Test Pit TP-1 through TP-4), 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 Brussett loam with 3 to 5 percent slopes, Peyton sandy loam with 5 to 9 percent slopes and the Peyton-Pring complex with 8 to 15 percent slopes. Properties of the Brussett loam include 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 anticipated to be none, and landforms include hills. Properties of the Peyton sandy loam include 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 anticipated to be none, and landforms include hills. Properties of the Peyton-Pring complex include 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 anticipated to be none, and landforms include hills.

The USDA Soil Survey Map is presented in Figure 6.

Bedrock was not encountered in the test pits performed by RMG. Neither groundwater nor redoximorphic features (indicating the 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 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. The proposed residences and OWTS should be located outside of the existing potentially seasonally wet drainage channels and the irrigation ditch features.

Individual wastewater treatment systems are proposed for each new lot. Additional OWTS site evaluations for the proposed lots 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
Project Geologist

Reviewed by,

RMG – Rocky Mountain Group

Tony Munger, P.E.
Geotechnical Project Manager





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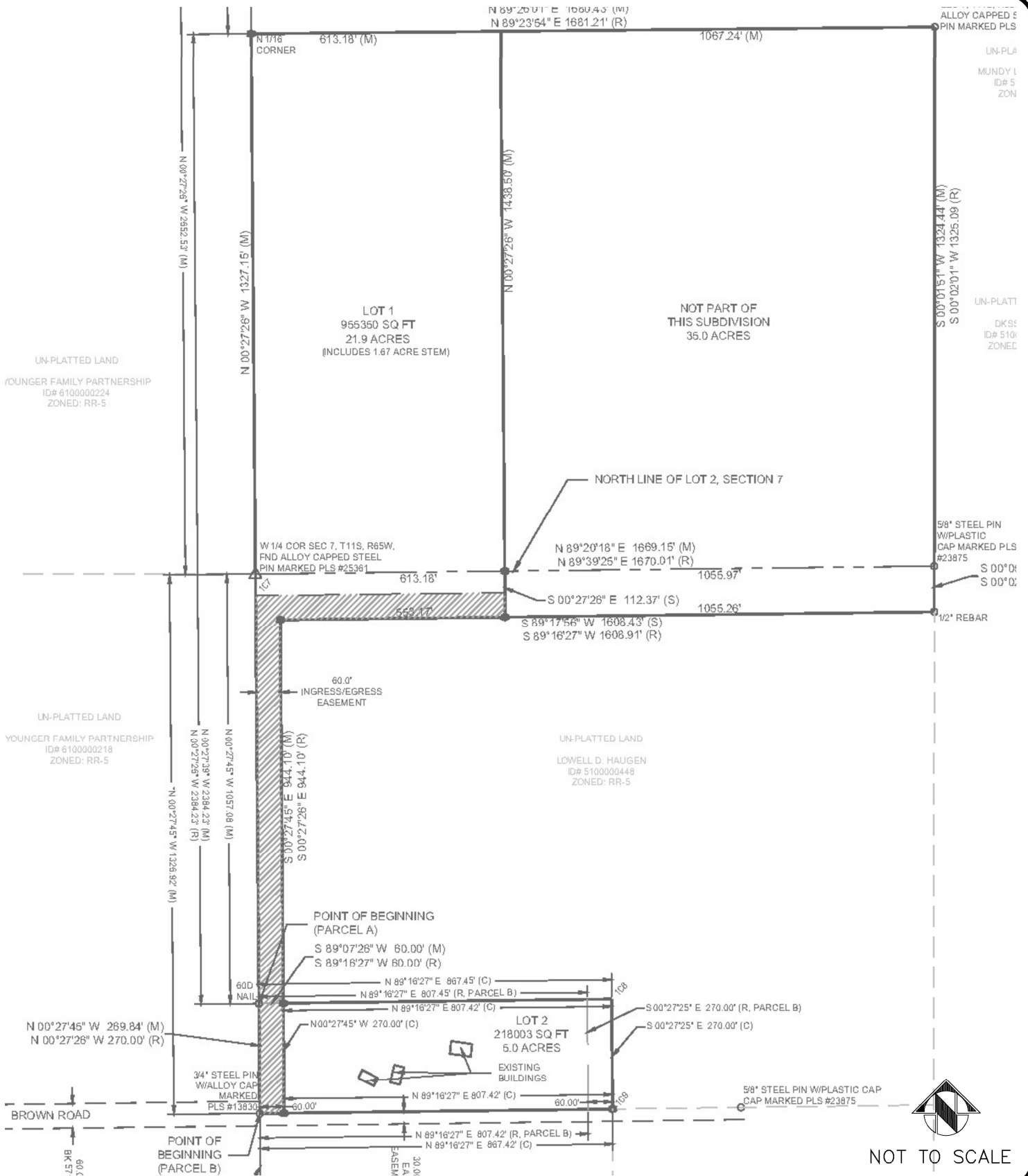
SITE VICINITY MAP

LOTS 1-2, OWL RIDGE SUBDIVISION
BROWN ROAD
EL PASO COUNTY, COLORADO
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FIG No. 1

DATE 7-20-2022
REV 9-9-2022



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PROPOSED LOT LAYOUT

LOTS 1-2, OWL RIDGE SUBDIVISION
BROWN ROAD
EL PASO COUNTY, COLORADO
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FIG No. 2

DATE 7-20-2022
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DENOTES APPROXIMATE LOCATION OF TEST PITS



DENOTES APPROXIMATE LOCATION OF TEST BORINGS
FOR THE SITE SPECIFIC SUBSURFACE SOIL
INVESTIGATION



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TEST BORING AND TEST PIT LOCATION MAP

LOTS 1-2, OWL RIDGE SUBDIVISION
BROWN ROAD
EL PASO COUNTY, COLORADO
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FIG No. 3

DATE 7-20-2022
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TEST PIT TP-1			
DATE OBSERVED: 09/22/21			
SOIL DESCRIPTION	DEPTH (FT)	SYMBOL	SOIL TYPE
0 - 8.0 FT SILTY CLAY (STRONG)		— —	4
		— —	
		— —	
		— —	
	2ft	— —	
		— —	
		— —	
	4ft	— —	
		— —	
	6ft	— —	
		— —	
	8ft	— —	

TEST PIT TP-2			
DATE OBSERVED: 09/22/21			
SOIL DESCRIPTION	DEPTH (FT)	SYMBOL	SOIL TYPE
0 - 5.0 FT SANDY CLAY (STRONG)			4
	2ft		
	4ft		
5.0 - 8.0 FT SANDY LOAM (MODERATE)		●●●	2
		●●●	
		●●●	
		●●●	
	6ft	●●●	
		●●●	
		●●●	
		●●●	
		●●●	
		●●●	
	8ft	●●●	4

SOIL DESCRIPTIONS



SANDY CLAY



SANDY LOAM



SILTY CLAY

TEST PIT LOGS

LOTS 1-2, OWL RIDGE SUBDIVISION
BROWN ROAD
EL PASO COUNTY, COLORADO
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FIG No. 4

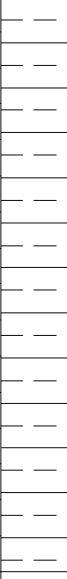
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TEST PIT TP-3			
DATE OBSERVED: 09/22/21			
SOIL DESCRIPTION	DEPTH (FT)	SYMBOL	SOIL TYPE
0 - 8.0 FT CLAY LOAM (MODERATE)	2ft 4ft 6ft 8ft		R-1

TEST PIT TP-4			
DATE OBSERVED: 09/22/21			
SOIL DESCRIPTION	DEPTH (FT)	SYMBOL	SOIL TYPE
0 - 8.0 FT SILTY CLAY (STRONG)	2ft 4ft 6ft 8ft		4

SOIL DESCRIPTIONS



CLAY LOAM



SILTY CLAY



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TEST PIT LOGS

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FIG No. 4

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DENOTES PROPOSED PRIMARY AND ALTERNATE SEPTIC LOCATIONS



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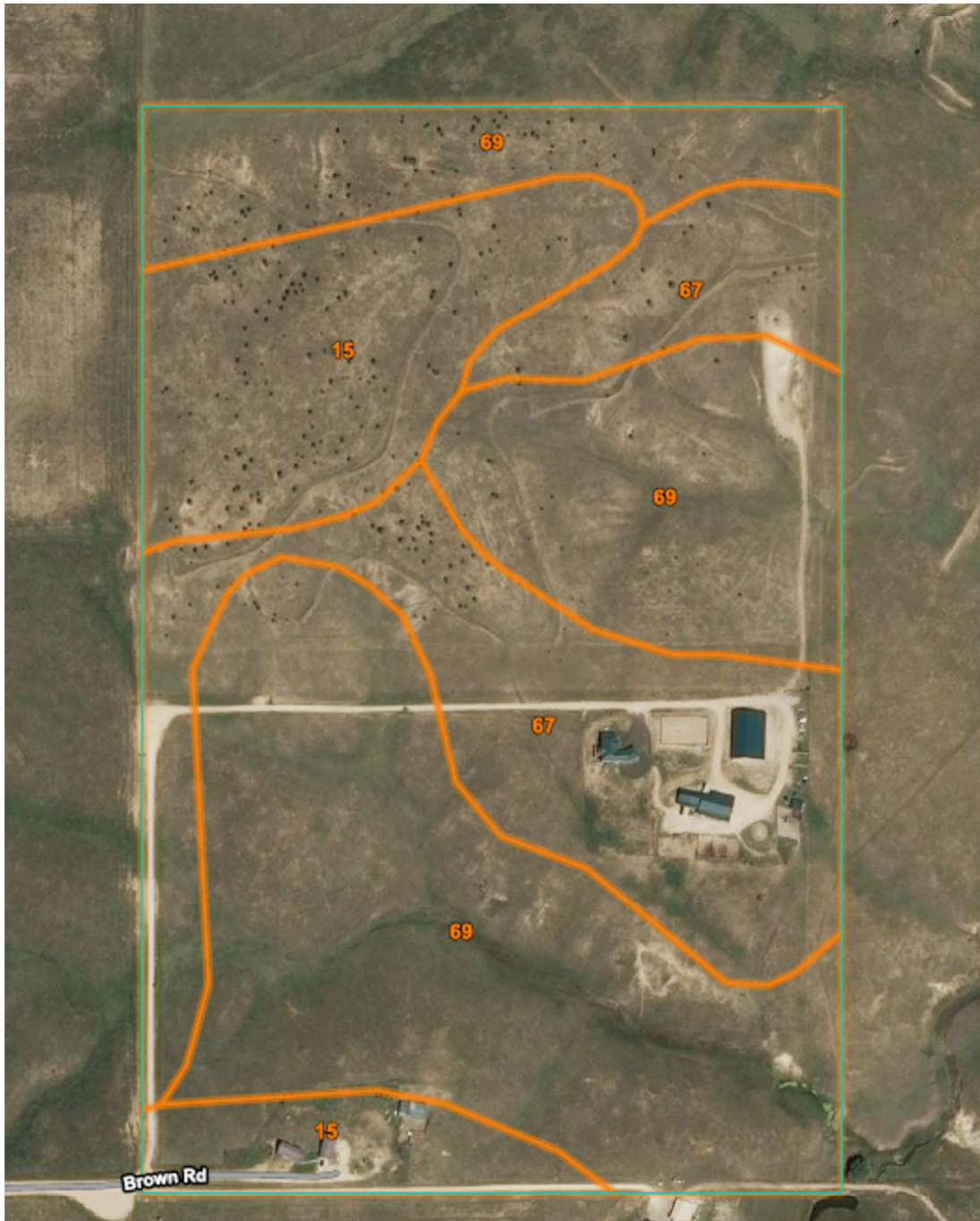
SEPTIC SUITABILITY MAP

LOTS 1-2, OWL RIDGE SUBDIVISION
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FIG No. 5

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- 15 – BRUSSETT LOAM, 3 TO 5 PERCENT SLOPES
 67 – PEYTON SANDY LOAM, 5 TO 9 PERCENT SLOPES
 69 – PEYTON-PRING COMPLEX, 8 TO 15 PERCENT SLOPES



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USDA SOIL SURVEY MAP

LOTS 1-2, OWL RIDGE SUBDIVISION
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FIG No. 6

DATE 7-20-2022
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