Job No. 186431

May 10, 2022

Ryan Howser
Planner II
El Paso County, Colorado

Re: Response to CGS and County Comments
8330 Mustang Pl
Lot 10, Pawnee Rancheros, Filing No. 2
El Paso County, Colorado

Dear Ryan:

RMG – Rocky Mountain Group (RMG) prepared the *Soil, Geology, and Wastewater Study* (RMG Job No. 186431, last dated January 26, 2022) for the proposed subdivision comprising 2 single-family residential lots generally located north and east of the intersection of Woodmen Road and Marksheffel Road. The report was reportedly reviewed by personnel of the Colorado Geological Survey (CGS). The CGS comments (dated April 27, 2022) were provided to us by Michael Cartmell on May 4, 2022.

The purpose of this letter is to provide RMG's response to the CGS and Planner comments. For clarity and ease of review we have included the breakdown of CGS and Planner comments below, each followed by our response to that comment.

**Planner Comments:**
On the soils & geology report and OWTS report, one of the exhibits in the report is for the property on East Chaparral Loop. Please revise.

**RMG Response:**
Regarding the exhibit in the report referencing the East Chaparral Loop property, the correct 8330 Mustang Place Engineering and Geology Map, Figure 6 is now included in the revised Soil, Geology, and Wastewater Study.

**CGS Comment:**
RMG describes the potential for expansive soil and bedrock although none were encountered in the test pits. RMG states p.12 “Based on the test pits performed by RMG for this investigation and our experience with similar materials in this area, the sand generally possess low swell potential. However, the Dawson formation is known to have moderate to high swell potential in some locations.” There are other subsurface geologic conditions that are known in this general area that can impose hazards or constraints to residential construction at this location. These include the potential for collapsible or loose soils, shallow groundwater, shallow hard bedrock, and perched

groundwater on the shallow bedrock. There may also be erosion hazards to the sandy soils that also may be susceptible to scour erosion associated with the Physiographic Floodplain depicted in RMG's Figure 6. This potential for scour erosion should be evaluated by the Civil Engineer for this lot (Lot 1 in Figure 6) to help determine the locations of residential or other types of structures.

**RMG Response:**
Our report has been updated to include "other subsurface geologic conditions that are known in this general area that can impose hazards or constraints to residential construction at this location."

Sections in our report addressing specific "subsurface geologic conditions" can be found in Section 8.0, Identification and Mitigation of Potential Geologic Conditions.

**CGS Comment:**
CGS recommends that the County require the Soil, Geology, and Wastewater Study be expanded to include evaluation for these other geologic hazards and constraints known to exist in this area, specifically shallow groundwater and shallow bedrock. This type of investigation typically includes test borings of sufficient depth to determine groundwater and bedrock depths where both are likely to be shallow. Should groundwater be encountered or expected based on site conditions, the report should discuss the expected seasonal groundwater fluctuation expected at the site based on site-specific data.

**RMG Response:**
Our report has been updated to include an evaluation of "these other geologic hazards and constraints known to exist in this area, specifically shallow groundwater and shallow bedrock"

Sections in our report addressing specific "geologic hazards and constraints" can be found in Section 8.0, Identification and Mitigation of Potential Geologic Conditions.

It is our opinion there is a lack of evidence to support the need for test borings, and that the imposition of a costly and time-consuming non-lot-specific subsurface exploration to further categorize groundwater and bedrock depths is unwarranted. Our previous report (referenced above) provides recommendations for subsurface foundation drainage systems that are commonly utilized to mitigate water conditions such as those identified/encountered on the site and it is our opinion these recommendations are appropriate and adequate, and that no further requirements or limitations should be imposed. Two test pits were observed by RMG on November 4, 2021. A visual and tactile evaluation was performed by RMG for this investigation. The soils were evaluated to determine the soils types and structure. Neither shallow groundwater, shallow bedrock, nor limiting layers were encountered in the test pits. The test pits were excavated to a depth of approximately 8 feet below the existing ground surface. Fluctuations in groundwater and subsurface moisture conditions may occur due to variations in rainfall and other factors not readily apparent at this time. Development of the property and adjacent properties may also affect groundwater levels.

**CGS Comment:**
RMG states p. 14 "The foundation systems for the proposed single-family residential structures and any retention/detention facilities should be designed and constructed based upon recommendations developed in a site-specific subsurface soil investigation." Even with an expanded Soil and Geology study, it would be prudent for the County to require this recommendation by RMG be added as a note on the Plat. This Plat note should also state that the site-specific subsurface soil investigation required for each lot must also include drilled test holes deep enough to determine the feasibility of any basements or other anticipated habitable below-grade construction.

**RMG Response:**
We recommend that the plat note should state, "that the site-specific subsurface soil investigation required for each lot must also include drilled test holes deep enough to determine the feasibility of any basements or other anticipated habitable below-grade construction."

The recommended plat note has been sent to he client to add to the plat.

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

Tony Munger, P.E.
Geotechnical Project Manager