EP-24-0077 Monument Ridge East
N½ Section 2, T11S, R67W, 6th Meridian
39.1284, -104.8624
File Number: SP241
Preliminary plan to create 342 residential lots on 63 acres.

With this referral, we received a request to provide Review Comments (Email dated 6/13/2024); Construction Drawings (Drexel, Barrell & CO., January 3, 2024); Preliminary Drainage Report (PRC Engineering, April 2024); Preliminary Plan Drawings (Bear Creek Surveying, Inc., 4/12/2024); Soil and Geology Study (Entech Engineering, Inc., 3/7/2023), and other documents. We offer the following comments and recommendations.

1. Entech encountered groundwater at depths ranging from 1 to 10 feet during drilling. However, figure 7 of their report fails to depict this shallow groundwater in the relevant areas. Test Boring No. 3, which includes groundwater at 1 foot, is mapped as Colluvium and Dawson Formation without shallow groundwater. It is imperative that Figure 7 is revised to reflect the geologic hazards and constraints.

2. Entech states (page 11), "*Proposed grading plans indicate these areas that have been mapped in lot areas will be filled and raised above the seasonally shallow and potentially seasonally shallow groundwater areas*." In our cursory review of the preliminary plan with existing and proposed grades, it appears that most of the site will contain significant cuts to achieve the proposed grades, in some areas up to 20 feet. Due to the shallow groundwater conditions at this site and the cuts planned, **no basements should be allowed**.

3. CGS agrees with Entech (page 10), "Foundations should maintain a minimum separation of 3 feet between the foundation grade and the maximum anticipated groundwater level." The maximum anticipated groundwater level should be determined during the preliminary plat application by performing a groundwater observation/monitoring program. Site grades may require filling to accommodate this recommendation. CGS recommends that a groundwater observations/monitoring program is performed in areas of shallow groundwater and potentially shallow groundwater. To be effective, this monitoring should be performed through Spring/Summer/Fall/Winter 2024.

4. A geologic hazard note is not included in the preliminary plan drawings. CGS recommends updating Figure 7 of Entech's report and adding a note to the preliminary plan/plat listing the geologic hazards and constraints, along with mitigation measures.

5. Wetlands (Freshwater Emergent/Freshwater Forested/Shrub Wetland) are located within the site. However, these areas do not appear to be portrayed correctly in Figure 7 of Entech's report. These areas are associated with standing water; lots should not be located within these areas, a setback should be established, and these areas should be designated as "No Build Areas". Setbacks and no build areas should be noted on the plans.

6. CGS has concerns with lots and future improvements constructed over the existing drainage that runs north and south through the site, even following grading operations, as this natural drainage can be an area where water will continue to migrate. CGS recommends that if lots are planned (or allowed) within/near the existing drainage (after rerouting and site grading occurs), these areas be further evaluated during site-specific geotechnical investigations to determine the impact (i.e., groundwater conditions, differential settlement, etc.) on future development. It would be prudent to install a drain system within the existing drainage prior to grading operations if it is not planned already.

Submitted 6/13/2024 by Amy Crandall, Colorado Geological Survey: acrandall@mines.edu