EP-22-0022_1 Latigo Trails Filing 9 SF2137

E½ Section 16, T12S, R64W, 6th P.M.

39.0081, -104.568

Proposed: 37 single-family lots within 102 acres

The available referral documents include a Preliminary Geotechnical Investigation and Geologic Hazards Evaluation (CTL Thompson, Inc., (CTL), August 3, 2021), Final Plat (J.R. Engineering, September 9, 2021), Construction Documents (J.R. Engineering, September 10, 2021), Letter of Intent (William Guman & Associates, Ltd. (Guman), September 10, 2021), and other documents. The site does not contain any unusual geologic hazards or geotechnical constraints that preclude the proposed 37-lot residential subdivision. As noted on page 6 of CTL's report, "Geologic hazards we identified at the site include expansive soils and hard bedrock." CTL's characterization of the geologic hazards and constraints associated with the site is valid. **Provided CTL's recommendations are adhered to and lot-specific geotechnical investigations are performed, CGS has no objection to approval of the final plat for Filing 9 as proposed.** We offer the following comments and recommendations.

Expansive soils and bedrock. CGS agrees with CTL's proposed mitigation methods for expansive bedrock on page 10 "Where present near foundation levels, sub-excavation ranging from 4 feet to 8 feet in thickness may be appropriate depending on planned finish grades and results of future lot specific investigations." CTL states on page 14, "After grading is completed, design-level investigations should be performed on a lot-specific basis." It should be made apparent to the builder/owner that sub-excavations greater than or less than the range provided by CTL may be recommended during lot-specific investigations.

Geotechnical Constraints. CGS agrees with CTL on page 7 that "the hard to very hard bedrock will be difficult to excavation (sic) and will require heavy duty excavation equipment." These conditions will be problematic excavating lower levels, foundations, utility trenches, and septic systems. The contractor should be aware of these conditions and determine the appropriate techniques necessary to excavate the site.

Groundwater Conditions. CTL states on page 7, "We expect shallow groundwater will not present a significant or widespread constraint within the development; however, areas of seasonally high groundwater may be present near drainages." CGS agrees with CTL (page 7) that "perched groundwater may develop after development where more permeable granular soils overlie less permeable bedrock." We also agree with CTL on page 10, "Localized areas of potentially seasonal shallow groundwater can be avoided by siting the residences away from these areas (near drainages)."

Foundation Perimeter Drains. CTL states on page 15, "Foundation drains should be constructed around the lowest excavation levels of basement and/or crawlspace areas. These drains should discharge to a positive gravity outlet or to a sump where water can be removed by pumping." Individual foundation perimeter drains are intended to handle small amounts of intermittent water and should not be used to mitigate a persistent shallow groundwater condition.

Geologic Hazard Disclosure Statement. CGS recommends a geologic hazard disclosure statement be included on the final plat referencing CTL's August 3, 2021 report.

Referral Documents. As stated on page 3 of the Letter of Intent (Guman),

> "The Colorado Geological Survey's review comment of the submitted geotechnical report (as posted on EDARP) indicates:
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> <<Provided Entech's recommendations are adhered to, and lot-specific investigations and analysis are conducted for use in design of individual foundations, floor systems, subsurface drainage, and pavements, CGS has no objection to approval of the residential subdivision as proposed.>>"

This statement does not appear to be correct as CTL prepared the report provided for the Latigo Trails development (not Entech), and we could not find a record of our previous comment posted on EDARP.

Submitted 11/17/2021 by Amy Crandall, Engineering Geologist, Colorado Geological Survey (303-384-2632 or acrandall@mines.edu)