

COLORADO GEOLOGICAL SURVEY

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303.384.2655



Karen Berry
State Geologist

January 4, 2016

Ms. Lonna Thelen
Principal Planner
Planning and Development Department
PO Box 1575, Mail Code 155
Colorado Springs, CO 80901-1575

Location:
SE ¼ of SW ¼ of Sec. 36
T13S, R67W of the 6th PM
38.8685°, -104.8430°

Subject: Indian Hills Business Park
Colorado Springs, El Paso County, CPC PUP 16--00145; CGS Unique No. EP-17-0026

Dear Ms. Thelen:

The Colorado Geological Survey has reviewed the Indian Hills Business Park referral. Included in the referral documents were: Draft Geologic Hazards Evaluation and Preliminary Geotechnical Investigation (CTL | Thompson, Inc., 12/13/2016), Trip Generation Letter (LSC Transportation Consultants, Inc, 12/7/2016), PUD Concept Plan (Thomas and Thomas, 12/7/2016), Preliminary Utility and Public Facilities Plan (JPS Engineering, 12/6/2016).

Based on the submitted PUD Concept Plan, the applicant proposes Office/Special Commercial and Industrial buildings on 13.32 acres.

The site is within an area with known and identified geologic hazards. These include expansive soil and bedrock, potentially unstable slopes, existing fill, and erosion. The geotechnical engineer has addressed these hazards. With the exception of potentially unstable slopes, we concur with their overall assessment of the site and mitigation of the other hazards. Their recommendations must be strictly adhered to. CGS recommends additional analysis for the hazard of potentially unstable slopes as discussed in the following section.

Potentially unstable slopes

The project area is along the base of the landform locally known as "The Mesa". As discussed in the "Colorado Springs Landslide Susceptibility Map" (Colorado Geological Survey Map Series 42, 2003) this area is prone to both deep seated (bedrock) and shallow (alluvium and colluvium) landslide problems. Erosion and mass wasting along the edges of The Mesa are the normal processes in the ongoing weathering of this landform. Great care must be exercised in developing along the top and bottom edges of the mesa where these processes are active. All slopes along the edges of the mesa are potentially unstable and in many locations, including near this proposed development, there are observable landslide features.

The potentially unstable slopes identified in the northwest corner of the project are along the edge of this mesa. A no-build line is shown on the development plan. CTL indicates that this no build line does not have technical justification. They have performed a slope-ratio analysis that, in their opinion, demonstrates that this no-build line can be modified and they have provided a new no-build line in their report on Figure 3. In general this new no-build line follows the one provided on the PUD drawing. Where it differs is in the relatively flat ground along the base of the steep slopes. The new line includes the flatter ground in the

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buildable area. The no-build line will be useful in limiting cuts or other destabilizing activity along the toe of these steep slopes.

However, the purpose of the no-build line has not been defined. Based on landslides observable in other locations within “the Mesa” mass movement of slope material, should it occur, should be expected to extend beyond the base of the steep slopes. The no-build line may adequately prevent destabilizing the toe of the slopes but not the impacts of a landslide originating in these areas.

Slope stability analysis is required prior to PUD approval of the no-build line. CTL depicts slope stability cross-sections conducted for previous work that, in their opinion support a modified no-build line. The details of this analysis should be provided including demonstration that impacts from potential landslides do not extend beyond the no-build line.

A complicating factor is future development that may occur west of the property at the top of the steep slopes. The slope stability analysis for the Indian Hills project must account for impacts of future development most notably groundwater from irrigation. The analysis should calculate factors of safety for the natural slopes and sensitivity to groundwater from natural precipitation and the advent of irrigation. Potential impacts from slope failure onto the project area should be evaluated.

CGS cannot recommend approval of the development plan until slope-stability analysis justifies the no-build line as discussed above.

Thank you for the opportunity to review and comment on this project. If you have questions or require further review, please call me at 303-384-2654, or e-mail jlovekin@mines.edu .

Sincerely,



Jonathan R. Lovekin
Senior Engineering Geologist

Cc: File