

August 18, 2015

Dana Shuler, P.E.  
Weber County Engineering Division  
2380 Washington Blvd., Suite 240  
Ogden, UT 84401

Subject: Geologic Review  
Lot 13, Ridge Crest Subdivision  
7914 East Heartwood Drive  
Eden, Utah  
SA Project No: 15-160

Report: IGES Report - Geotechnical Investigation, The Ridge Nests Development, Powder Mountain Resort, Weber and Cache Counties, Utah (IGES Project No. 01628-008), dated September 16, 2014: prepared for Summit, LLC, 3632 North Wolf Creek Drive, Eden, Utah 84310.

***Geologic Submittal Status: INCOMPLETE SUBMITTAL***

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Dear Ms. Shuler,

At your request, Simon Associates, LLC (SA) reviewed the above referenced September 16, 2014, IGES Geotechnical, Inc., (IGES) report. The purpose of SA's review is to evaluate whether or not the IGES document adequately addresses geologic conditions at the site, consistent with concerns for public health, safety, and welfare; reasonable professional standards-of-care, and; the Weber County Hillside Development Review Procedures and Standards.

The purposes of the IGES investigation were to assess the nature and engineering properties of the subsurface soils at the proposed home sites and to provide recommendations for the design and construction of foundations, grading, and drainage. The scope of work completed for the IGES study included subsurface exploration, literature review, engineering analyses, and preparation of the subject report.

## **IGES Conclusions**

Conclusions from the September 16, 2014, IGES report follow:

1. "Geology and geologic hazards have been previously addressed by Western Geologic in a separate submittal (Western Geologic, 2012)<sup>1</sup>. This work [Western Geologic, 2012] has also been referenced in our previous geotechnical report for the project (IGES, 2012b)<sup>2</sup>. The report by Western Geologic [2012] indicates that the development is located outside of known geologically unstable areas. The Western Geologic report also includes a large-scale geologic map that shows the development is in an area mapped as 'undifferentiated dolomite'. Dolomite is a rock that has similar mechanical properties to limestone and is fairly hard, often forming cliffs and other near-vertical formations," (page 3).
2. "During our subsurface investigation, potentially adverse geologic structures (e.g., evidence of faulting or landslides) were not evident in the test pits. Also, geomorphic expressions of shallow, surficial landslides were not observed within the development. Based on currently available data and our observations, the potential for geologic hazards such as landslides, liquefaction, or surface fault rupture impacting the site is considered low," (page 3).
3. "Based on our review of geologic literature and field observations, the majority of the site is underlain by bedrock consisting of undifferentiated Cambrian-age dolomite (Cr). This rock unit is fairly hard – samples could only be obtained with a firm blow from a rock hammer. Where exposed, the bedrock was moderately weathered, closely fractured, and dark gray, and reacted weakly to dilute HCL. At the time of our field work Geneva was excavating a utility line just offsite to the northeast – the trench exposed dolomite from the surface to the bottom of the trench (about nine feet). Geneva personnel indicated that excavation of the dolomite was very difficult, requiring a ram-hoe (a large jack-hammer on the end of an excavator arm)," (page 5).

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<sup>1</sup> Western Geologic, 2012, Report: geologic hazards reconnaissance, proposed area 1 mixed-use development, Powder Mountain Resort, Weber County, Utah, dated August 28, 2012.

<sup>2</sup> IGES, Inc., 2012b, Design Geotechnical Investigation, Powder Mountain Resort, Weber County, Utah, Project No. 01628-003, dated November 9, 2012.

4. "Groundwater was not encountered in the test pit excavations. In addition, groundwater was not observed in the nearby utility excavation that was on-going during our field work. Based on our observations, groundwater is not anticipated to adversely impact the proposed development," (page 6).
5. "Lots 1 and 9 through 15 are expected to be founded entirely on dolomite bedrock," (page 10).

### **SA Comments**

The 2012 Western Geologic development report referenced in the September 16, 2014, IGES report:

1. Provided a "... reconnaissance-level<sup>3</sup> engineering geology and geologic hazards review and evaluation..."
2. Was "...intended to be a reconnaissance-level tool to assist with project planning and reduce and minimize impacts from high-risk geologic hazards..." (page 1).
3. States "... Landslide risk can be minimized by avoiding mapped landslides and steep slopes in the project area, particularly at a planning level. Mapped colluvial and landslide areas in the project area appear to be in slopes steeper than 20%. We therefore recommend that stability of slopes be evaluated in a site-specific geotechnical engineering evaluation prior to construction for any development in slope area exceeding 20%."

### **SA Recommendations**

Based on the recommendations presented in the August 28, 2012, Western Geologic development report and in accordance with Chapter 27 of the Weber County Hillside Development Review Procedures and Standards, SA recommends Weber County not consider the September 16, 2014, IGES report complete from a geologic perspective and request IGES address the following:

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<sup>3</sup> Reconnaissance-level: an examination or survey of the general geological characteristics of a region (dictionary.com, <http://dictionary.reference.com>)

1. In accordance with the recommendations provided in the Western Geologic (2012) development report, SA recommends Weber County request IGES perform a slope stability analysis as stipulated in the Geologic Hazard Study for the development (Western Geologic, 2012), since the slope at the building envelope is greater than 20%.
2. Figure A-2, Geotechnical Map, of the September 16, 2014 IGES report depicts "... the relative locations of the various geologic units ..." described in the September 16, 2014, IGES report. SA recommends Weber County request IGES:
  - a. Include, for a reasonable distance, geologic units of adjacent properties.
  - b. Evaluate whether any potential off-site geologic hazards may impact the subject property; the evaluation should be completed under the direction of an engineering geologist.

## **Closure**

Comments and recommendations in this review are based on data presented in the referenced Consultant's report. SA accordingly provides no warranty that the data in the Consultant's report or any other referenced reports are correct or accurate. SA has not performed an independent site evaluation. Comments and recommendations presented herein are provided to aid Weber County in reducing risks from geologic hazards and to protect public health, safety, and welfare. There is no other warranty, either express or implied.

All services performed by SA for this review were provided for the exclusive use and benefit of Weber County; no other person or entity may or is entitled to use or rely upon any of the information or reports generated by SA as a result of this review.

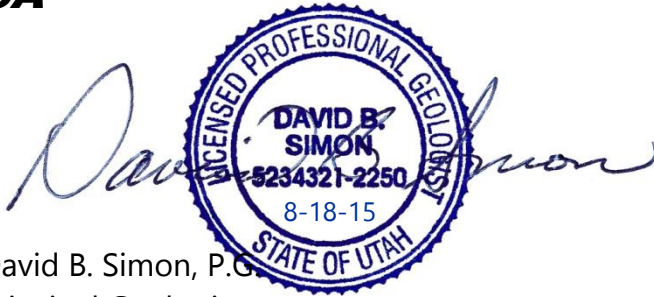
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Should you have any questions, please feel free to contact the undersigned. The opportunity to be of service to Weber County is appreciated.

Very truly yours,

**SA**



David B. Simon, P.G.  
Principal Geologist

DBS/AOT

Dist.: 1/addressee