



May 18, 2020

Falcon Crest HOA
9366 East Falcon Way
Huntsville, UT 84317

Attn: Kirk Delaney
EMAIL: kirkdelaney@gmail.com

Subject: Proposed Residence
8900 East 1800 South
Huntsville, Utah
Project No. 1200326

Mr. Delaney:

This letter presents the results of a reconnaissance-level, geologic-hazard study for proposed residential development of Parcel 21071004 at 8900 East 1800 South in Huntsville, Utah.

The study was conducted to evaluate geologic hazards that may affect the proposed development of the lot. The hazards evaluated are surface fault rupture, landslide, tectonic subsidence, rockfall, debris flow and liquefaction. The study included a review of geologic literature, aerial photographs and lidar data, and geologic analysis. This report has been prepared to summarize the data obtained during the study and to present our conclusions.

PROPOSED CONSTRUCTION

We understand that the lot is planned for residential development.

SITE DESCRIPTION

At the time of our site reconnaissance on May 15, 2020, there were no permanent structures on the site. Falcon Way, an asphalt-paved, two-lane road, extends along the west side of the property. There is an unpaved road that extends from 1800 South Street, south-southeast through the central portion of the property. There is a dry drainage that extends generally east-northeast into the southeast portion of the property.

The slope of the ground surface at the site varies (see Figure 2). The lower portion of the site slopes down to the north-northwest at approximately 2.6 percent. The slope of Falcon way is in a similar direction and slopes down at approximately 9.3 percent. There is a steeper area

east of Falcon Way with a height of up to approximately 20 feet and a slope up to approximately 60 percent down toward Bally Watts Creek to the east. There is an abandoned irrigation ditch that extends near the crest of this slope. The slope above this area is down to the northeast at approximately 13.7 percent.

Vegetation on the flatter portions of the property consists predominantly of grass and brush. There are trees on and near the steeper portions of the site.

There is mostly undeveloped land around the property. Bally Watts Creek is to the east and 1800 South Street, a two-lane, asphalt-paved road, is to the north. There are houses and associated structures to the northwest, south and east of the site.

OFFICE METHODS OF INVESTIGATION

Geologic conditions at the site were evaluated by a review of geologic literature, aerial photographs and lidar data. Aerial photographs used during the investigation were downloaded from the Utah Geological Survey website. They have photograph numbers of AAJ-1B-74 and 75. The photographs have a date of August 10, 1946. The lidar data was downloaded from the AGRC website and has an acquisition date of 2016.

A. Geologic Literature, aerial photograph and lidar Review

The site is located on the south side of Ogden Valley, which is a northwest trending valley within the Wasatch Mountains of north/central Utah. The valley is filled with an accumulation of lacustrine, alluvial and colluvial sediments from deposition during the past 15 million years. Coogan and King (2006) map the surface deposits in the lower portion of the site as alluvial deposits and those in the upper portion of the site as Lake Bonneville deposits. They show landslide deposits on the hill to the west of the site. Elliott and Harty (2010) also show the landslide deposits on their map since it is an inventory map and not original work. Coogan and King (2016) do not show the landslide deposits on their more recent map. We find no evidence for the mapped landslide deposits from aerial photograph and lidar data review. There are no mapped or evidence of landslide deposits on the property.

Ogden Valley is a down-dropped structure with the Ogden Valley Northeast margin fault along the northeast side of the valley and the Ogden Valley Southwest margin and the Ogden Valley North Fork faults along part of the southwest side of the valley. These faults are oriented in a general northwest/southeast direction with the two western faults estimated to have moved in the last 750,000 years and the east fault having evidence of movement in the last 2.6 million years. The faults are considered normal faults with dip direction down to the northeast on the two west fault systems and down to the southwest for the Ogden Valley Northeast margin fault. The faults are considered relatively old structures and do not represent a significant surface-fault-rupture hazard for development within the Ogden Valley area. Tectonic subsidence associated with fault movement would similarly not be a significant hazard in Ogden

Valley. The Ogden Valley Northeast margin fault is the closest surface trace of these faults. It is located approximately 1.8 miles to the north-northeast. The closest potentially active fault to the site is the Wasatch Fault located approximately 10 miles to the west.

Review of aerial photographs and lidar data finds no evidence of landslide, rockfall or debris-flow deposits on the property.

B. Seismicity

The property is located in the Intermountain Seismic Zone, which consists of an area of relatively high historical seismic activity. The most intense seismic ground shaking at the site is expected to originate from the Wasatch fault zone. The Wasatch fault zone is considered capable of producing earthquakes on the order of 7 to 7.5 magnitude and can result in significant seismic ground shaking at the site. The US Geological Survey data indicate that a peak ground acceleration of 0.40g to 0.42g can be expected to have a 2 percent probability of being exceeded in a 50-year time period at this site (ICC, 2017).

FIELD METHODS OF INVESTIGATION

A site reconnaissance was performed on May 15, 2020. No evidence of geologic hazards were identified during the site reconnaissance. Trees at the site show no evidence of surface creep or slope movement. There are no rocks on or near the site consistent with rockfall origin, nor cliffs or slopes steep enough to represent a rockfall source near the site.

There was no evidence of seeps in the slope at the site or vegetation suggesting presence of seeps or springs. Since the soil is expected to be gravel in the lower elevations of the site and clay with subsurface water at a significant depth, liquefaction is not considered a hazard at this site.

CONCLUSIONS

Seismic ground shaking is considered a potential geologic hazard at the site. The seismic ground shaking hazard is mitigated through structural design. In our professional opinion, landslide, rockfall, surface fault rupture, tectonic subsidence and liquefaction are not significant hazards at the site, though slope stability should be evaluated if the house will be within 30 feet of the steep slope that extends through the central portion of the property.

LIMITATIONS

The analysis and report findings are based on published geologic maps and aerial photographs of the site. Our conclusions are based on currently accepted geologic interpretation of this information.

Valley. The Ogden Valley Northeast margin fault is the closest surface trace of these faults. It is located approximately 1.8 miles to the north-northeast. The closest potentially active fault to the site is the Wasatch Fault located approximately 10 miles to the west.

Review of aerial photographs and lidar data finds no evidence of landslide, rockfall or debris-flow deposits on the property.

B. Seismicity

The property is located in the Intermountain Seismic Zone, which consists of an area of relatively high historical seismic activity. The most intense seismic ground shaking at the site is expected to originate from the Wasatch fault zone. The Wasatch fault zone is considered capable of producing earthquakes on the order of 7 to 7.5 magnitude and can result in significant seismic ground shaking at the site. The US Geological Survey data indicate that a peak ground acceleration of 0.40g to 0.42g can be expected to have a 2 percent probability of being exceeded in a 50-year time period at this site (ICC, 2017).

FIELD METHODS OF INVESTIGATION

A site reconnaissance was performed on May 15, 2020. No evidence of geologic hazards were identified during the site reconnaissance. Trees at the site show no evidence of surface creep or slope movement. There are no rocks on or near the site consistent with rockfall origin, nor cliffs or slopes steep enough to represent a rockfall source near the site.

There was no evidence of seeps in the slope at the site or vegetation suggesting presence of seeps or springs. Since the soil is expected to be gravel in the lower elevations of the site and clay with subsurface water at a significant depth, liquefaction is not considered a hazard at this site.

CONCLUSIONS

Seismic ground shaking is considered a potential geologic hazard at the site. The seismic ground shaking hazard is mitigated through structural design. In our professional opinion, landslide, rockfall, surface fault rupture, tectonic subsidence and liquefaction are not significant hazards at the site, though slope stability should be evaluated if the house will be within 30 feet of the steep slope that extends through the central portion of the property.

LIMITATIONS

The analysis and report findings are based on published geologic maps and aerial photographs of the site. Our conclusions are based on currently accepted geologic interpretation of this information.

Falcon Crest HOA
May 18, 2020
Page 4

If you have any questions or if we can be of further service, please call.

Sincerely,

APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, INC.



Douglas R. Hawkes
Douglas R. Hawkes, P.E., P.G.

Reviewed by JEN, P.E.
DRH/rs
Enclosures

REFERENCES

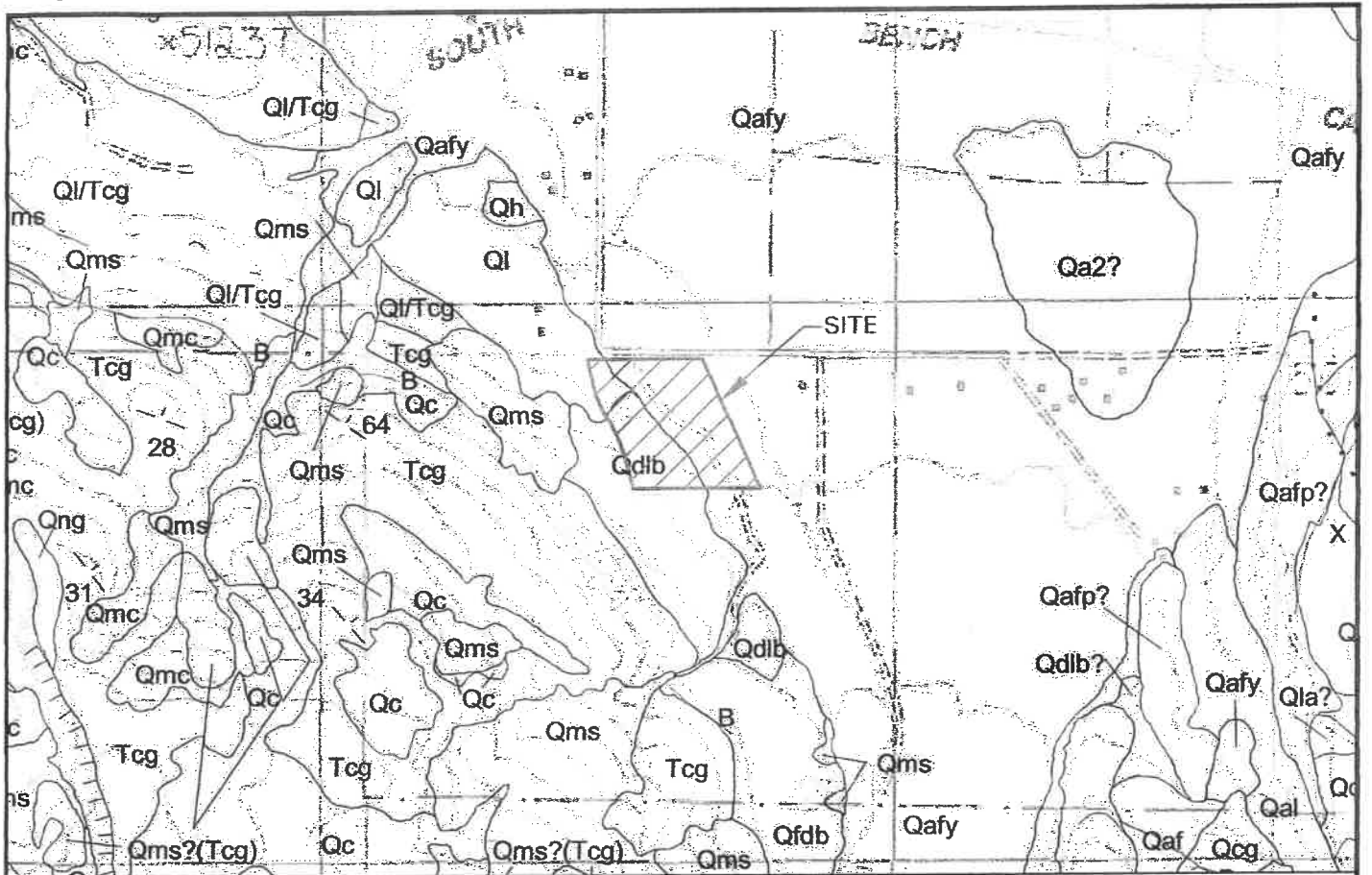
Coogan, J.C. and King, J.K., 2016; Interim geologic map of the Ogden 30' x 60' quadrangle, Box Elder, Cache, Davis, Morgan, Rich and Summit Counties, Utah, and Uinta County, Wyoming, Utah Geological Survey Open-file Report 653DM.

Coogan, J.C. and King, J.K., 2006; Interim geologic map of the Durst Mountain quadrangle, Morgan and Weber Counties, Utah, Utah Geological Survey Open-file Report 598.

Elliott, A.H. and Harty, K.M., 2010; Landslide maps of Utah, Ogden 30' X 60' quadrangle, Utah Geological Survey Map 246DM, Plate 6.

International Code Council, 2017; 2018 International Building Code, Falls Church, Virginia.

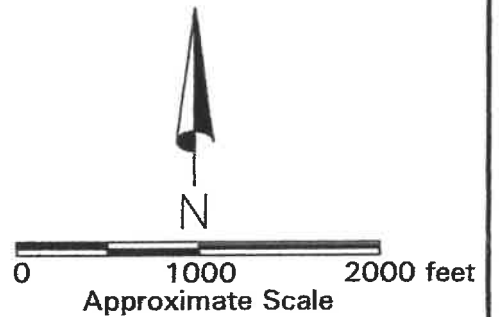
Utah fault and fold database accessed on May 14, 2020 at geology.utah.gov/resources/data-databases/qfaults/.



From Coogan and King (2016)

EXPLANATION OF SYMBOLS AND GEOLOGIC UNITS IN AREA OF PROPOSED DEVELOPMENT

- Qafy - Young alluvial deposits.
- Qdb - Lake Bonneville deltaic lake deposits.
- Ql - Lake Bonneville deposits.
- Geologic contact between units, dashed where approximate.



PROPOSED RESIDENTIAL LOT
 8900 EAST 1800 SOUTH
 HUNTSVILLE, UTAH



From ArcGIS world imagery and AGRC websites

PROPOSED RESIDENTIAL LOT
8900 EAST 1800 SOUTH
HUNTSVILLE, UTAH

1200326

AGEC

Site Topography

Figure 2