

APPENDIX C-1
UPDATE TO GEOTECHNICAL
INVESTIGATION

Project No.
4920.005.000

April 10, 2018

Ms. Tali Ashurov
David J. Powers & Associates
1871 The Alameda, Suite 200
San Jose, CA 95126

Subject: Cavallo Highlands
Hayward, California

GEOTECHNICAL REPORT UPDATE

- References:
1. ENGEO; Geotechnical Exploration, Carden Property, Hayward, California; July 15, 2016, Revised March 24, 2017; Project No. 4920.003.000.
 2. Ruggeri-Jensen-Azar; Vesting Tentative Map, Tract 8353, Cavallo Highlands, City of Hayward, Alameda County, California; March 5, 2018; Job No. 111044TM.
 3. Ruggeri-Jensen-Azar; Vesting Tentative Map, Tract 8353, Aitken Property, City of Hayward, Alameda County, California; March 13, 2017; Job No. 111044TM.

Dear Ms. Ashurov:

With your authorization, we prepared this geotechnical report update for the Cavallo Highlands project site, formerly named the Carden Property, located in Hayward, California. We understand there are minor revisions to the development concepts on which the recommendations in Reference 1 were based. Our scope of services included reviewing our previous geotechnical report and other relevant documents for the site and preparation of this letter.

SITE BACKGROUND AND PROJECT DESCRIPTION

We previously performed a geotechnical exploration dated March 24, 2017 (Reference 1), for the project site. The study area is an irregular star-shaped parcel located on the western flank of the northwest-southeast trending ridge. The existing topography consists of gentle-to-moderate rolling terrain. The peak and approximate center of the development area is flanked to the north and south by natural swale formations. The site is bordered to the west, north, and east by aspects of the greater Stonebrae development project which included mass grading and drainage improvements directly adjacent the subject site. The site is currently occupied by a small single-story residence with nearby horse stable and material storage.

Based on our review of the Vesting Tentative Map (Reference 2), the limits of development shown on the revised plans are very similar to previous plans (Reference 3) and consist of site grading to develop 19 single-family home lots and construction of associated streets, underground utilities, retaining walls, sidewalks, and landscaping.

CONCLUSIONS AND RECOMMENDATIONS

Based on our understanding of the development, and review of existing data, it is our opinion that the findings, conclusions, and recommendations in the referenced geotechnical report remain valid for design of the single-family residential structures and improvements. We provide the following updated recommendations based on code changes and our review of the Reference.

2016 CBC Seismic Design Parameters

Based on the subsurface soil conditions encountered, the site is categorized as a Site Class C as per ASCE 7-10, Table 20.3-1. We provide the 2016 CBC seismic design parameters below.

TABLE 1: 2016 CBC Seismic Design Parameters

PARAMETER	VALUE
Site Class	C
Mapped MCE_R Spectral Response Acceleration at Short Periods, S_S (g)	2.09
Mapped MCE_R Spectral Response Acceleration at 1-second Period, S_1 (g)	0.86
Site Coefficient, F_A	1.00
Site Coefficient, F_V	1.3
MCE_R Spectral Response Acceleration at Short Periods, S_{MS} (g)	2.09
MCE_R Spectral Response Acceleration at 1-second Period, S_{M1} (g)	1.11
Design Spectral Response Acceleration at Short Periods, S_{DS} (g)	1.39
Design Spectral Response Acceleration at 1-second Period, S_{D1} (g)	0.74
Mapped MCE Geometric Mean (MCE_G) Peak Ground Acceleration, PGA (g)	0.80
Site Coefficient, F_{PGA}	1.00
MCE_R Peak Ground Acceleration adjusted for Site Class effects, PGA_M (g)	0.80

MCE_R = Risk-Targeted Maximum Considered Earthquake

MCE = Maximum Considered Earthquake

Latitude = 37.6°; Longitude = -122.0143°

CLOSING


The recommendations contained in the referenced report remain applicable for development of the subject project unless superseded herein or by a subsequent letter or addendum prepared by ENGEО.

Additionally, when available, we should be provided with a 40-scale grading plans to provide specific remedial grading recommendations.

If you have any questions or comments regarding this letter, please call and we will be glad to discuss them with you.

Sincerely,

ENGEО Incorporated


Todd Bradford, PE




Eric Harrell, CEG