



Sladden Engineering

45090 Golf Center Parkway, Suite F, Indio, CA 92201 (760) 863-0713 Fax (760) 863-0847
6782 Stanton Avenue, Suite A, Buena Park, CA 90621 (714) 523-0952 Fax (714) 523-1369
450 Egan Avenue, Beaumont, CA 92223 (951) 845-7743 Fax (951) 845-8863
800 E. Florida Avenue, Hemet, CA. 92543 (951) 766-8777 Fax (951) 766-8778

September 10, 2018

Project No. 644-13016
18-09-071

Scheu Management Corporation
P. O. Box 250
Upland, California 91785

Project: Proposed Industrial/Warehouse Building
NEC Archibald Avenue & Seventh Street
APN 0209-211-24
Rancho Cucamonga, California

Subject: Geotechnical Update

Ref: Geotechnical Investigation report prepared by Sladden Engineering dated April 30, 2013; Project No. 644-13016, Report No. 13-05-023

In accordance with your request, we have reviewed the referenced Geotechnical Investigation report as it relates to the design and construction of the proposed industrial/warehouse building. The project site is located on the northeast corner of Archibald Avenue and Seventh Street in the City of Rancho Cucamonga, California. It is our understanding that the proposed structure will be of reinforced concrete tilt-up construction and will be supported by conventional shallow spread footings and concrete slabs on grade.

In order to achieve firm and uniform foundation bearing conditions, we recommend over-excavation and recompaction throughout the building areas. All artificial fill and native low density near surface soil should be removed to competent native soil expected at depths of approximately 3 to 4 feet below the existing ground surface or to a minimum depth of 3 feet below the bottom of the footings, whichever is deeper. Remedial grading should extend laterally, a minimum of five feet beyond perimeter wall foundations. The exposed surface soil should then be scarified, moisture conditioned to within two percent of optimum moisture content, and compacted to at least 90 percent relative compaction. The previously removed soil and fill material may then be placed in thin lifts at near optimum moisture content and compacted to at least 90 percent relative compaction.

Exterior footings should extend at least 18 inches beneath lowest adjacent grade and interior footings should extend at least 12 inches below slab subgrade. Isolated square or rectangular footings at least 2 feet square and continuous footings at least 12 inches wide may be designed using allowable bearing pressures of 2000 and 1800 pounds per square foot, respectively. The allowable bearing pressure may be increased by approximately 250 psf for each additional 1 foot of width and 250 psf for each additional 6 inches of depth, if desired. The maximum allowable bearing pressure should be limited to 3000 psf unless confirmed by Sladden Engineering subsequent to performing specific settlement calculations. The allowable bearing pressures are for dead and frequently applied live loads and may be increased by 1/3 to resist wind, seismic or other transient loading.

The allowable bearing pressure may be increased by one-third when considering transient live loads, including seismic and wind forces. All footings should be reinforced in accordance with the project structural engineer's recommendations.

Based on the allowable bearing pressures recommended above, total settlement of the shallow footings are anticipated to be less than one inch, provided that foundation preparation conforms to the recommendations provided in this report. Differential settlement is anticipated to be approximately one-half the total settlement for similarly loaded footings spaced approximately 40 feet apart.

Resistance to lateral loads may be provided by a combination of friction acting at the base of the slabs or foundations and passive earth pressure along the sides of the foundations. A coefficient of friction of 0.40 between soil and concrete may be used for dead load forces only. A passive earth pressure of 250 pounds per square foot, per foot of depth, may be used for the sides of footings that are placed against properly compacted native soil. Passive earth pressure should be ignored within the upper 1 foot except where confined.

The bearing soil is non-expansive and falls within the "very low" expansion category in accordance with Uniform Building Code (UBC) classification criteria. Pertinent 2016 CBC Seismic Design parameters are summarized on the attached data sheet.

Sladden has reviewed the 2016 California Building Code (CBC) and summarized the current seismic design parameters for the proposed structure. The seismic design category for a structure may be determined in accordance with Section 1613 of the 2016 CBC or ASCE7. According to the 2016 CBC, Site Class D may be used to estimate design seismic loading for the proposed structures. The 2016 CBC Seismic Design Parameters are summarized below.

Risk Category (Table 1.5-1): I/II/III

Site Class (Table 1613.3.2): D

S_s (Figure 1613.3.1): 1.500g

S₁ (Figure 1613.3.1): 0.600g

F_a (Table 1613.3.3(1)): 1.0

F_v (Table 1613.5.3(2)): 1.5

S_{ms} (Equation 16-37 (F_a X S_s)): 1.500g

S_{m1} (Equation 16-38 (F_v X S₁)): 0.900g

S_{D5} (Equation 16-39 (2/3 X S_{ms})): 1.000g

S_{D1} (Equation 16-40 (2/3 X S_{m1})): 0.600g

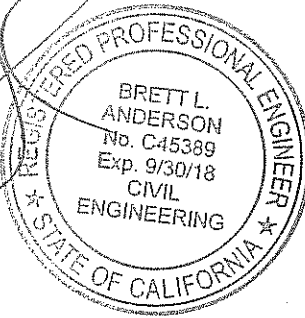
Seismic Design Category: D

If you have questions regarding this report, please contact the undersigned.

Respectfully submitted,
SLADDEN ENGINEERING

Brett L. Anderson
Principal Engineer

Letter/ra



Copies: 4/Scheu Management Corporation