Project No. A8575-06-14
January 29, 2016

Department of General Services
Mr. James DiGiorgio
707 3rd Street, Suite 4-193
Sacramento, CA 95605

Subject: REPORT OF GEOTECHNICAL EVALUATION
CALIFORNIA AIR RESOURCE BOARD FACILITY
3695 POMONA BOULEVARD
POMONA, CALIFORNIA

Dear Mr. DiGiorgio:

Geocon West, Inc. is pleased to submit this letter summarizing our geotechnical evaluation for the proposed California Air Recourse Board Facility at the subject property located at 3695 Pomona Boulevard in the City of Pomona, California.

The purpose of this study was to evaluate subsurface soil and geologic conditions at the Site and identify potential geotechnical conditions and geologic hazards that could impact the proposed project. The scope of our evaluation included a satellite reconnaissance, and review of available published and unpublished literature pertinent to the geologic and seismic conditions at the Site and surrounding area. The State of California Seismic Hazard Zone Map for the San Dimas Quadrangle (CDMG, 1998) was also reviewed as part of this evaluation. This letter is intended to provide geotechnical information to be used in development planning and the preparation and is not intended for design purposes. A comprehensive geotechnical investigation will be required for development of the Site. The future comprehensive geotechnical investigation should include subsurface investigation, laboratory testing, engineering analyses, and preparation of a written report summarizing findings and presenting conclusions and recommendations for design and construction of the proposed Site development. It is our understanding the proposed project (Site) is comprised of several one to five story structures.

Soil and Geologic Conditions

Based on published geologic maps, the Site is underlain by Quaternary Age Younger Fan Deposits. The Younger Fan Deposits are loose and soft to medium dense and firm and consist of primarily of sand and silt. The site is not located within an Alquist Priolo earthquake fault zone for surface fault rupture, and the site is not directly underlain by any known faults or fault-related features.

Groundwater Conditions

The historic high groundwater level in project area ranges between 15 and 20 feet below the ground surface (CDMG, 1998). Groundwater level information in the CDMG publication is based on data collected from the early 1900's to the late 1990's. Based on current groundwater basin management practices, it is unlikely that the groundwater levels will ever exceed the historic high levels. Also as a part of this study, research was conducted on available depth to groundwater data on the Department of Water Resources and State Water Resources Control Board GeoTracker websites. Monitoring wells located approximately 2,000 feet north of the site, reported groundwater at depths between 57 and 61 feet below the ground surface between January 1974 and September 2014. Fluctuations in groundwater may occur due to variations in rainfall, and other factors not in evidence at the time measurements were made.

Based on these conditions, groundwater is not anticipated to adversely impact the proposed development. However, it is not uncommon for groundwater levels to vary seasonally or for groundwater seepage conditions to develop where none previously existed, especially in impermeable fine-grained soils which are heavily irrigated or after seasonal rainfall. In addition, recent requirements for stormwater infiltration could result in shallower seepage conditions in the immediate Site vicinity. Proper surface drainage of irrigation and precipitation should be incorporated into the project design.

Liquefaction

Liquefaction is a phenomenon in which loose, saturated, relatively cohesionless soil deposits lose shear strength during strong ground motions. Primary factors controlling liquefaction include intensity and duration of ground motion, gradation characteristics of the subsurface soils, in-situ stress conditions, and the depth to groundwater. Liquefaction is typified by a loss of shear strength in the liquefied layers due to rapid increases in pore water pressure generated by earthquake accelerations.

The current standard of practice, as outlined in the "Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California" and "Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California" requires liquefaction analysis to a depth of 50 feet below the lowest portion of the proposed structure. Liquefaction typically occurs in areas where the soils below the water table are composed of poorly consolidated, fine to medium-grained, primarily sandy soil. In addition to the requisite soil conditions, the ground acceleration and duration of the earthquake must also be of a sufficient level to induce liquefaction.

A review of the State of California Seismic Hazard Zone Map for the San Dimas Quadrangle (CDMG, 1998) indicates that the Site is located in an area designated as "liquefiable". The Los Angeles Building Code and DMG Special Publication 117A, Guidelines for Analyzing and Mitigating Liquefaction in California, require exploration to a minimum depth of 50 feet below the lowest portion of the proposed structure to assess liquefaction potential. A comprehensive geotechnical investigation, including

subsurface exploration, laboratory testing, and engineering analyses will need to be performed. The geotechnical report will include a site-specific analysis of the potential for liquefaction and provide recommendations for the mitigation of the potential consequences of liquefaction, if any, including structure design considerations.

CONCLUSIONS

It is our opinion that neither soil nor geologic conditions are known to exist at the Site that would preclude the construction of the proposed development. A comprehensive geotechnical investigation will be required to analyze liquefaction settlement and provide conclusions and recommendations for the design and construction of the Site. The geotechnical report will include a site-specific analysis of the potential for liquefaction and provide recommendations for the mitigation of the potential consequences of liquefaction, if any, including structure design considerations. This letter is intended to provide geotechnical information to be used in development planning and is not intended for design purposes.

There may be a potential for expansive soils to be present at the Site. If expansive soils are found to be present at the Site, the potential impacts of expansive soils can be mitigated through implementation of proper design considerations. A comprehensive geotechnical investigation, including subsurface exploration, laboratory testing, and engineering analyses should be performed for the proposed project. The project geotechnical report should include an evaluation of the presence of expansive soils, as well as provide recommendations for the mitigation of the potential consequences of expansive soils, if any, including structure design considerations.

It is anticipated that the proposed project will be able to utilize typical design and construction techniques. It is anticipated that soils at the proposed foundation level will consist of loose and soft to medium dense and firm Quaternary Age Younger Fan Deposits. Based on these considerations, it is anticipated that proposed foundations should derive support in competent Quaternary Age Younger Fan Deposits or newly placed engineered fill. It is anticipated that a conventional foundation system or a reinforced concrete mat foundation system will be suitable for support of the proposed structures. However, the determination of the appropriate foundation system will depend on the results of the comprehensive geotechnical investigation, including the evaluation of the liquefaction potential and laboratory testing to evaluate the soil compressibility. The Client should be aware that a deepened foundation system may be required if total combined seismically and statically induced settlements exceeds the allowable settlement for conventional foundations established by the reviewing agency. Although difficult to determine without conducting a site specific liquefaction analysis study, based on the likely soft soils in the vicinity, the client should be aware that larger structures like the proposed five-story parking structure, may need to be supported on a deep foundation system.

If you have any questions regarding this letter, or if we may be of further service, please contact the undersigned.

Very truly yours,

GEOCON WEST, INC.

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Project Engineer

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Vice President