KLEINFELDER
An employee owned company

October 9, 2007
Project No: 86102/Perc

ProLogis
2817 East Cedar Street, Suite 200
Ontario, California 91761

Attention: Scott Mulkay, Senior Project Manager

Subject: Soil Hydraulic Conductivity Analysis
SMC Expansion, Kaiser Commerce Center
Northwest Corner of Valley Boulevard and Commerce Drive
Fontana, California

Dear Mr. Mulkay:

In accordance with your authorization, Kleinfelder performed hydraulic conductivity testing and laboratory testing (soil grain size distribution) for correlation with soil hydraulic conductivity and for the proposed project at the subject site. Our laboratory testing included grain size distribution and hydrometer testing on samples collected during our field hydraulic conductivity investigation on October 3, 2007.

PROJECT DESCRIPTION

We understand that the project consists of an approximately 265,000 square-foot expansion to the existing SMC distribution warehouse. We understand that the construction will includes shallow foundations and concrete slab-on-grade floors, tilt-up concrete walls and a steel column and joist framed roof system.

A storm water retention basin associated with the subject building expansion is located at the northwest corner of Valley Boulevard and Commerce Drive. The County of San Bernardino requested percolation testing within the detention basin as part of the building expansion design.

SCOPE OF WORK

Our scope of services included a field hydraulic conductivity evaluation using a pilot hole test procedure and laboratory testing for correlation between grain size distribution and hydraulic conductivity. Laboratory testing included sieve and hydrometer analysis of samples collected during our recent field investigation.

The scope of services and evaluation presented herein includes performing field hydraulic conductivity testing as well as laboratory testing and correlation of the results to the hydraulic conductivity of the soils tested.

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FIELD INVESTIGATION

Two pilot hole tests for the approximation of the hydraulic conductivity of the subsurface soils were performed on October 3, 2007. The pilot holes were excavated using a backhoe and hand digging equipment. Each hole was excavated to approximately 2 feet below the existing grade. Measurements of the limits of each excavation were recorded for the analysis of surface area and volume.

Within the excavations, a geofabric liner was placed to limit the migration and sloughing of the smaller particle material within the sides and bottom of the excavation. Each excavation was repeatedly filled with water to presaturate the surrounding soils prior to the performance of our testing procedure. Our testing procedures were generally based upon the "San Bernardino Onsite Waste Water Disposal System, by the County of San Bernardino Division of Environmental Health Services, dated August 1992".

For performance of the test, each excavation was filled with water to approximately the ground surface to start the recorded percolation portion of the test. Our onsite representatives then measured the depth of the water in each excavation after a period of 10 minutes. The pilot holes were then refilled the hole with water back up to the approximate ground surface. This process was repeated for a period of approximately one hour. The readings were documented and the data was transported to the Kleinfelder Diamond Bar Office.

LABORATORY TESTING

Grain size distribution was obtained by sieve analysis of the soils encountered during our field investigation were performed on two samples collected approximately 2 feet below the existing grade. The tests were performed in general accordance with ASTM Test Method D 422. The sieve analysis and hydrometer analysis results are presented on Plate 1, Grain Size Distribution attached to this letter.

HYDRAULIC CONDUCTIVITY CORRELATION

The hydraulic conductivity of soils was approximated by in-situ pilot hole tests and by correlation with the grain size distribution of the soils encountered during the referenced investigation. The in-situ pilot hole tests were analyzed by recording the volume of water that percolated during a 10-minute time interval. The pilot holes produced a hydraulic conductivity between approximately 5 inches/hour and 10 inches/hour (73 to 143 gallons/square foot/day). We also used the hydraulic conductivity correlation approach that is outlined in the referenced Principles of Geotechnical Engineering by Das. The estimated hydraulic conductivity of the soils by correlation method was approximately 3.7 (in/hr), or 55 gallons/square foot/day.

The hydraulic conductivity discussed above assumes that periodic maintenance of the existing detention basin will be performed. The maintenance of the existing basin will reduce the amount of finer particle size soils (fine sand, silts, and clays) and debris which would significantly decrease the hydraulic conductivity.

We are recommending a factored hydraulic conductivity value of 2 inches/hour (30 gallons/sf/day) be used for design of the detention basin project. The hydraulic conductivity incorporates factor of safety, soil/material uniformity, onsite conditions and detention basin maintenance for the hydraulic conductivity at the site.

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LIMITATIONS

This letter has been prepared for the exclusive use of Prologis and their agents for specific application to the project site in Fontana, California. The data presented in this report were prepared in accordance with generally accepted geotechnical engineering practice. No warranty, express or implied, is provided.

The scope of our geotechnical services did not include an environmental site assessment for the presence or absence of hazardous/toxic materials in the soil within the subject site.

This letter may be used only by the client and only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both on-site and off-site) or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this report for an adjacent or nearby project shall notify Kleinfelder of such intended use. Based on the intended use of this report and the nature of the new project, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party.

CLOSURE

We trust that this letter satisfies your current needs. If you have any questions regarding this report or require additional information, please contact this office. We appreciate the opportunity to have been of service.

Respectively submitted,

KLEINFELDER WEST, INC.

Jeffery D. Waller, P.E.
Staff Engineer

Eric W. Noel, P.E., G.E.
Geotechnical Group Manager

Attachments:

References
Plate 1 – Grain Size Distribution

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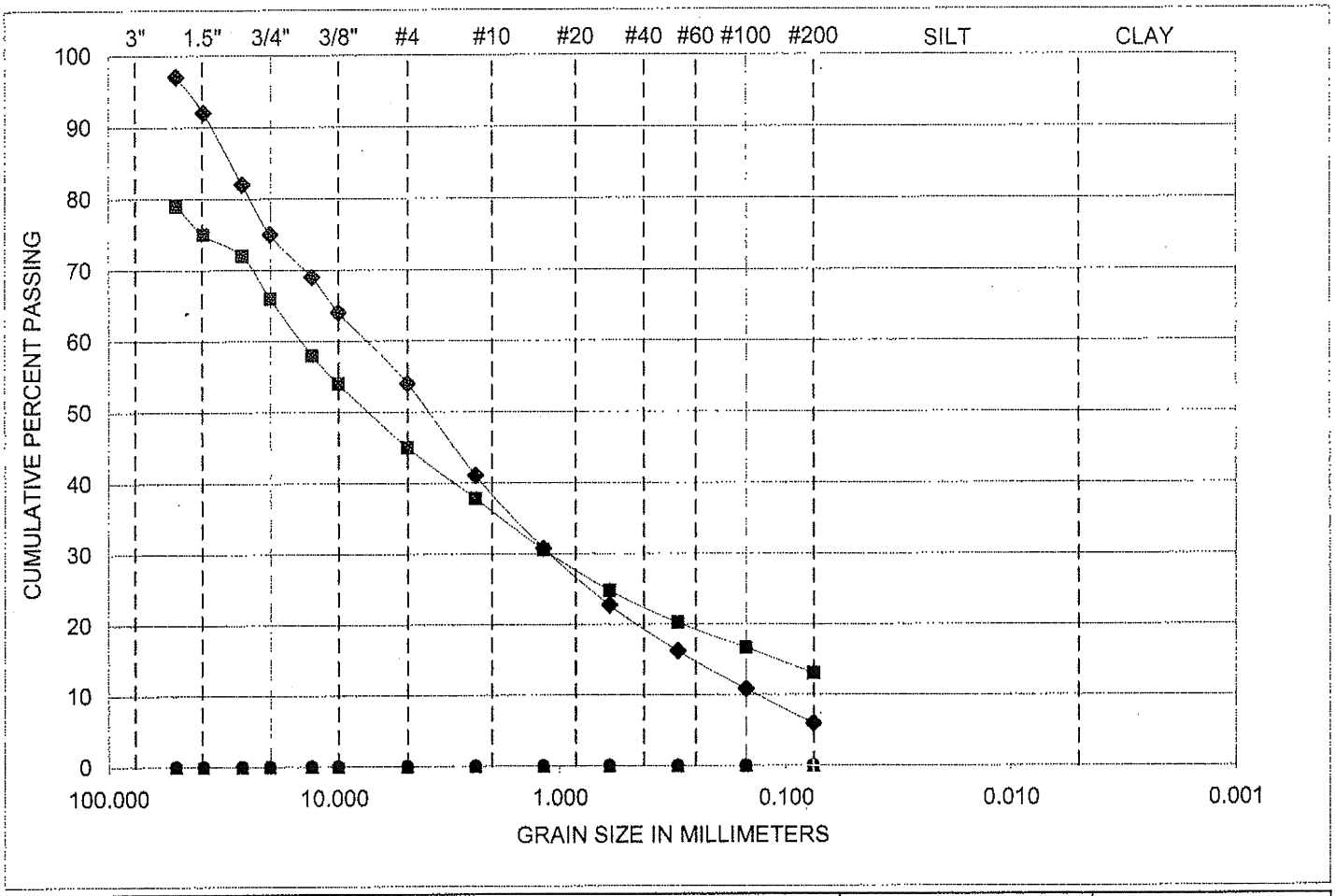
REFERENCES

Das, Braja M., 2006, Principles of Geotechnical Engineering, Sixth Edition, by Thomson Canada Limited.

County of San Bernardino Department of Public Health, Division of Environmental Health Services, On-Site Wastewater Disposal System, Soil Percolation (PERC) Test, August 1992.



COBBLE	GRAVEL	SAND	SILT	CLAY

SYMBOL	SAMPLE IDENTIFICATION			PERCENTAGES			ATTERBERG LIMITS			SOIL CLASSIFICATION	USCS TOTAL SAMPLE
	BORING NO.	SAMPLE NO.	DEPTH (ft.)	GRAVEL	SAND	FINES	LL	PL	PI		
♦	N. PERC	07-3-253	-	46	48	5.9	--	--	--	Poorly Graded Sand With Silt and Gravel	SP-SM
■	S. PERC	07-3-254	-	16	71	13.1	--	--	--	Silty Sand With Gravel	SM
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X							--	--	--		
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KLEINFELDER

PROJECT NO. 86102 - PERC

Proposed SMC Building Expansion
NW Corner of Valley Blvd. and Commerce St.
Fontana, California

GRAIN SIZE DISTRIBUTION

PLATE 1