



GEOLABS, INC.

Geotechnical Engineering and Drilling Services

August 10, 2020
W.O. 7328-00(E)

Mr. Conrad Higashionna
Engineering Concepts, Inc.
1150 South King Street, Suite 700
Honolulu, HI 96814

**AMENDMENT TO GEOTECHNICAL REPORT
TRAFFIC SIGNAL POLE FOUNDATION RECOMMENDATIONS
TRAFFIC SIGNAL MODERNIZATION PROJECT
KOKO HEAD OFF-RAMP & KOKO HEAD AVENUE INTERSECTION
HONOLULU, OAHU, HAWAII**

Dear **Mr. Higashionna**:

This amendment consists of incorporating changes in the mast arm lengths for the above project. Traffic signal pole foundation recommendations were previously provided in our report entitled "Traffic Signal Pole Foundation Recommendations, Traffic Signal Modernization Project, Koko Head Off-Ramp & Koko Head Avenue Intersection, Honolulu, Oahu, Hawaii," dated August 2, 2019.

TRAFFIC SIGNAL POLE FOUNDATIONS

Based on our research of available geologic and subsurface information in the project vicinity, we anticipate that the project site is generally underlain by a thin layer of fill overlying clayey residual and saprolitic soils grading to basalt formation with depth. Therefore, we recommend a "Stiff Clays" ground condition be used in the design. Based on the anticipated subsurface soil conditions and typical loading demands of Standard Type II Traffic Signals with mast arm lengths of 27 and 38 feet, we believe the Standard Plan TE-33A.1 and TE-33A.2, Type II Traffic Signal Standard by the State of Hawaii – Department of Transportation, Highways Division may be used for the design of cast-in-place concrete drilled shaft foundations to support the new traffic signal poles planned.

Based on the existing ground elevation of the Koko Head Off-Ramp and Koko Head Avenue intersection (about +215 feet MSL), we anticipate that groundwater will not be encountered above the design tip elevation of the cast-in-place concrete drilled shaft foundation. Therefore, we recommend the following drilled shaft diameters and lengths for the proposed traffic signal pole foundations in accordance with TE-33A.2, Type II Traffic Signal Standard Drilled Shaft Foundation Schedule for a Level Ground Condition – Above Ground Water Table.

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STANDARD TRAFFIC SIGNAL POLES DRILLED SHAFT FOUNDATIONS FOR LEVEL GROUND CONDITIONS		
<u>Mast Arm Length</u> (feet)	<u>Drilled Shaft Diameter</u> (inches)	<u>Drilled Shaft Length</u> (feet)
27	30	7
38	30	11

CLOSURE

We appreciate the opportunity to provide geotechnical engineering services to you on this project. If you have questions or need additional information, please contact our office.

Respectfully submitted,

GEOLABS, INC.

By 
Gerald Y. Seki P.E.
Vice President

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