

SECTION 1. GENERAL

This report presents the results of our geotechnical engineering exploration conducted for the *Traffic Signal Modernization Project* at the Kalanianaʻole Highway and Kalaniiki Street intersection in the Kahala area of Honolulu on the Island of Oahu, Hawaii. The project location and general vicinity are shown on the Project Location Map, Plate 1.

This report summarizes the findings and geotechnical recommendations resulting from our field exploration, laboratory testing, and engineering analyses for the project. These findings and geotechnical recommendations are intended for the design of traffic signal pole foundations and utilities only. The findings and recommendations presented herein are subject to the limitations noted at the end of this report.

1.1 **Project Considerations**

The project involves the construction of five Type II traffic signal poles at the Kalanianaʻole Highway and Kalaniiki Street intersection in the Kahala area of Honolulu on the Island of Oahu, Hawaii. The existing intersection is signalized in all four directions with both metal single pole and mast arm traffic signal poles. The project location and general vicinity are shown on the Project Location Map, Plate 1. Based on the information provided, the mast arm lengths of the traffic signal poles range from 20 to 37 feet in length.

The foundations for the traffic signal poles with mast arm lengths ranging from 20 to 37 feet may be designed according to 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. In order to determine the Soil Type at the project site for foundation design, one exploratory soil boring was performed at the intersection to evaluate the subsurface conditions.

1.2 **Purpose and Scope**

The purpose of our geotechnical engineering exploration was to obtain an overview of the surface and subsurface conditions to develop an idealized soil/rock data set to formulate geotechnical engineering recommendations for the project. The work

was performed in general accordance with the scope of services outlined in our fee proposal dated February 19, 2016. The scope of work for this exploration included the following tasks and work efforts:

1. Research and review of available in-house boring data and other subsurface information in the project vicinity.
2. Application for excavation and street usage permits from the applicable agencies and coordination of underground utility toning, site access, and traffic control by our engineer.
3. Locating and staking out of one boring location by our field engineer.
4. Mobilization and demobilization of a truck-mounted drill rig and two operators to the project site and back.
5. Drilling and sampling of one boring to a depth of approximately 26.7 feet below the existing ground surface.
6. Coordination of the field exploration and logging of the boring by our geologist.
7. Laboratory testing of selected samples obtained during the field exploration as an aid in classifying the materials and evaluating their engineering properties.
8. Analysis of the field and laboratory data to formulate geotechnical engineering recommendations for the proposed standard traffic signal pole foundations.
9. Preparation of this report summarizing our work on the project and presenting our findings and recommendations.
10. Coordination of our overall work on the project by our project engineer.
11. Quality assurance of our work and client/design team consultation by our principal engineer.
12. Miscellaneous work efforts, such as drafting, word processing, and clerical support.

Detailed descriptions of our field exploration methodology and the Log of Boring are presented in Appendix A. Results of the laboratory tests performed on selected soil samples are presented in Appendix B. Photographs of core samples recovered from our field exploration are provided in Appendix C.

END OF GENERAL