

SECTION 1. GENERAL

This report presents the results of our geotechnical engineering exploration conducted for the *Traffic Signal Modernization Project* at the Kahuapaani Street and Ulune Street intersection in Halawa 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 site is located at the intersection of Kahuapaani Street and Ulune Street in Halawa 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, we understand that the mast arm lengths of the proposed traffic signal poles range from 12 to 50 feet in length. The foundations for the traffic signal poles with mast arm lengths ranging from 12 to 38 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. Non-standard traffic signals, defined as traffic signal poles with mast arm lengths exceeding 40 feet, are not covered under the Standard Plans. Therefore, one exploratory soil boring was performed near the northwest corner of the intersection, where the proposed traffic signal pole with a 50-foot mast arm length is planned.

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 28 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 and non-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. Photograph of core samples recovered from our field exploration is provided in Appendix C.

END OF GENERAL