4. LIMITATIONS

The analyses and recommendations submitted herein are based in part upon information obtained from the field borings. Variations of the subsurface conditions between and beyond the field borings may occur, and the nature and extent of these variations may not become evident until construction is underway. If variations then appear evident, it will be necessary to re-evaluate the recommendations presented herein.

The locations of the field borings indicated in this report are approximate, having been estimated by taping from visible features at the project site and using a handheld GPS device. Elevations noted on the borings were approximated using the Topographic Survey Map provided by KSF, Inc. on September 30, 2001. The locations and elevations of the field borings should be considered accurate only to the degree implied by the methods used.

The stratification breaks shown on the graphic representations of the borings depict the approximate boundaries between soil and/or rock types and, as such, may denote a gradual transition. Water level data from the borings were measured at times shown on the graphic representations and/or presented in the text of this report. This data has been reviewed, and interpretations made in the formulation of this report. However, it must be noted that fluctuation may occur due to stream flow conditions, tidal fluctuations, seasonal rainfall, time of year, and other environmental factors.

This report has been prepared for the exclusive use of KSF, Inc. and their project consultants for specific application to the *Seismic Retrofit of Kaholo Bridge, Hawaii Belt Road, Project No. BR-019-2(072)* project in accordance with generally accepted geotechnical engineering principles and practices. No warranty is expressed or implied.

This report has been prepared solely for the purpose of assisting the engineers in the design of the bridge seismic retrofit project. Therefore, this report may not contain sufficient data or the proper information to prepare construction cost estimates or contract bidding. A contractor wishing to bid on this project should retain a competent

geotechnical engineer to assist in the interpretation of this report and/or performance of site-specific exploration for bid estimating purposes.

The owner/client should be aware that unanticipated soil conditions are commonly encountered. Unforeseen subsurface conditions, such as perched groundwater, soft deposits, hard layers, or cavities, may occur in localized areas and may require additional probing or corrections in the field (which may result in construction delays) to attain a properly constructed project. Therefore, a sufficient contingency fund is recommended to accommodate these possible extra costs.

This geotechnical engineering exploration conducted at the project site was not intended to investigate the potential presence of hazardous materials existing at the project site. It should be noted that the equipment, techniques, and personnel used to conduct a geo-environmental exploration differ substantially from those applied in geotechnical engineering.

END OF LIMITATIONS