

Woodward-Clyde 

Engineering & sciences applied to the earth & its environment

April 11, 1997

Mr. Fred Asiri
LIGO Project
California Institute of Technology
102-33 Bridge Laboratory
Pasadena, California 91125

Re: Geotechnical Investigation of Dikes
WCC File No. 94B315

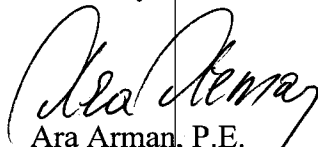
Dear Mr. Asiri:

Attached please find Table IA which incorporates the information given to us during the teleconference on 04/03/97 by the design engineers. At that meeting we were informed that the slab was designed as a "structural slab" and it is expected to distribute the loads uniformly at the rate of 400 p.s.f. instead of the 1,000 p.s.f. shown in our report dated April 1, 1997.

As you can see the attached Table IA shows that the total imposed load will be less than, or about equal to, the preconsolidation pressures of some of the specimens. At locations represented by those specimens settlements due to dead loads are estimated to be negligible. At two other locations expected settlements due to dead loads are estimated to be on the order of 0.7 to 0.8 inches.

If you have any questions concerning the above please call us.

Sincerely



Ara Arman, P.E.
Vice President

Attachment

94B315\GID.LTR LIGO



TABLE 1A

**LIGO LIVINGSTON SITE
CONSOLIDATION STUDY**

Station No.	Dike Load (lb/ft²)	Slab Load (lb/ft²)	Total Load (lb/ft²)	% Strain (lb/ft²)	Dike Subsidence (inches)	Preconsolidation Pressure (lb/ft²)
S/E 8+00	576	400	976	N*	N*	1,300
S/E 33+00	504	400	904	N	N	1,300
S/E 58+00	696	400	1096	N	N	1,500
S/E 83+00	948	400	1348	N	N	1,400
S/E 108+00	1,140	400	1540	0.7	0.8	1,000
S/E 128+00	1,020	400	1420	0.7	0.7	700
S/W 33+00*	480**	400	880	N	N	1,200

NOTES:

- * N= Negligible
- ** Assume column of soil at S/W Sta. 33+00 subjected to consolidation = 48 inches
Assume soil unit wet weight = 120 lb/ft²