



ENGINEERING CONSULTING SERVICES, LTD.
Geotechnical • Construction Materials • Environmental

December 13, 2005

Mr. Pierre A. Goria
Goria Corporation
5517 Burlington Road
McLeansville, North Carolina 27301

ECS, Ltd. Project G-11611

RE: Report of Engineering Services
Goria Burial Vault Load Testing
McLeansville, North Carolina

Dear Mr. Goria:

Engineering Consulting Services, Ltd. (ECS) has visited the subject site as requested. The purpose of our visit was to perform static load testing on the burial vaults. Load testing was performed in general accordance with the procedure used by the National Concrete Burial Vault Association for precast concrete burial vaults.

Load tests were performed on three burial vaults on October 18, 2005; two full size burial vaults - the Endurance (Photo 1) and the Eonian brands (Photo 2), and one Eonian urn burial vault (Photo 3). Static loads were applied incrementally with a hydraulic jack; a steel load frame was used to distribute the loads uniformly over the surface of the vaults to simulate earth cover over the vaults. A $\frac{1}{2}$ " thick metal plate was used in place of the frame when testing the urn burial vault. Deflection of the full sized vault walls was measured by positioning dial gauges at the centers of the long sides. The load was applied in 1,000 lbs (1 kip) increments and held for 4 minutes. The final loads on the full size vaults were held for 30 minutes. Please see the attached Load Testing Records.

The maximum static loads applied were 5,000 lbs on the Endurance vault, 8,000 lbs on the Eonian vault, and 9,000 lbs on the urn vault. The deflection measured on the two full size vaults ranged from 0.147" to 0.42".

On December 7, 2005 ECS engineer Bopanna Kolera, E.I. visited the site to witness a Center Load Pressure Test on the Eonian brand full size burial vault (Photo 4). The test was set up by Mr. Goria. Static load was applied at the center of the vault with a hydraulic jack. A $\frac{3}{4}$ " thick metal plate was used to distribute the load over a 12" by 12" area, in accordance with NCBVA specification. We understand that NCBVA standards require minimum load of 5,000 lbs and permanent deflection of less than $\frac{1}{2}$ ".

The vault was loaded continuously to a maximum load of 28,100 lbs. Vertical deflection observed at maximum load was $\frac{1}{2}$ " and rebounded to approximately $\frac{1}{4}$ " on removal of the load.

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The permanent deflection on the vault met the NCBVA requirement at a load in excess of 5 times the required load.

We appreciate the opportunity to be of service to Goria Corporation. If you have any questions regarding this report or if we may be of further assistance, please do not hesitate to contact us.

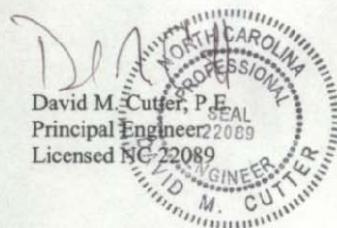
Sincerely,

ENGINEERING CONSULTING SERVICES, LTD.

Bopanna T. Kolera

Bopanna T. Kolera, E.I.
CMT Project Manager

Attachment: Load Testing Records
Jack Calibration Sheet



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PHOTOGRAPHS



Photo 1: Frame Load Test on Endurance Burial Vault (Full size)



Photo 2: Frame Load Test on Eonian Burial Vault (Full size)

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Photo 3: Frame Load Test on Eonian Urn Burial Vault



Photo 4: Center Load Pressure Test on Eonian Burial Vault (Full Size) – At approx. 13 kips

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Greensboro, NC 27409
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LOAD TESTING RECORD

ECS Project Name: Goria Burial Vault Load Testing
ECS Project Number: 11611

Date: 10-17-2005

Object: Endurance Burial Vault

Load (kips)	Pressure Gauge (psi)	Time (mins)	Dial Gauge Reading (in)		Remarks
			Left	Right	
0	175	0	0.100	0.100	
		0.5	0.398	0.266	
		1	0.398	0.265	
		2	0.399	0.264	
		4	0.399	0.264	
1.0	250	0.5	0.479	0.329	
		1	0.479	0.329	
		2	0.479	0.329	
		4	0.479	0.329	
2.0	450	0.5	0.509	0.355	
		1	0.509	0.355	
		2	0.509	0.355	
		4	0.509	0.356	
3.0	600	0.5	0.510	0.356	
		1	0.510	0.357	
		2	0.510	0.357	
		4	0.511	0.358	
4.0	750	0.5	0.512	0.358	
		1	0.512	0.359	
		2	0.513	0.359	
		4	0.513	0.359	
		12	0.516	0.361	
		20	0.518	0.364	
		30	0.520	0.365	

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LOAD TESTING RECORDECS Project Name: **Goria Burial Vault Load Testing**
ECS Project Number: **11611**Date: **10-17-2005**Object: **Eonian Burial Vault**

Load (kips)	Pressure Gauge (psi)	Time (mins)	Dial Gauge Reading (in)				Remarks
			Left	Right	Left	Right	
0	175	0	0.100	0.200	0.100	0.100	
		0.5	0.127	0.256			
		1	0.127	0.256			
		2	0.127	0.256			
		4	0.129	0.257			
2.0	250	0.5	0.165	0.315			
		1	0.165	0.316			
		2	0.166	0.316			
		4	0.168	0.321			Set-up and dial
3.0	450	0.5			0.229	0.266	gauges reset
		1			0.230	0.267	
		2			0.231	0.267	
		4			0.233	0.269	
4.0	600	0.5			0.234	0.273	
		1			0.234	0.274	
		2			0.234	0.275	
		4			0.235	0.276	
6.0	850	0.5			0.236	0.278	
		1			0.236	0.278	
		2			0.237	0.279	
		4			0.238	0.280	
8.0	1200	0.5			0.239	0.280	
		1			0.239	0.281	
		2			0.239	0.281	
		4			0.240	0.282	
		12			0.243	0.286	
		20			0.245	0.289	
		30			0.247	0.293	

