

# Memorandum

To: MR. MICHAEL KEEVER  
Office of Structure Design  
Bridge Design Branch South  
Design Section 15

Date: June 18, 2001

File: 11-SD-15-KP M 23.01  
11-232600

Attention: Ms. Traci Holden



Type L Wall at Pomerado Road  
OC (Widen)  
Bridge No. 57-0909

From: **DEPARTMENT OF TRANSPORTATION**  
DIVISION OF ENGINEERING SERVICES  
Geotechnical Services - MS 5  
Structure Foundations Branch - South

Subject: Final Foundation Recommendations

A foundation study for the proposed Type L Wall at the Pomerado Road OC Bridge, Bridge No. 57-0909, was completed in May 2001. The study consisted of a field investigation and the review of "As-Built" data. The field investigation consisted of a site review and the drilling of one mud rotary sample boring. The "As-Built" review included the evaluation of "As-Built" Log of Test Borings (LOTB) from July 1973 and "As-Built" drawings of the structure. Information from mud-rotary test borings W11-B1 and W11-B2 completed during March of 2000 for the investigation of the nearby retaining wall W11 was also reviewed. All elevations referred to below and shown on the current LOTB sheets ( including W11-B1, B2) are based on the NAVD of 1988. The elevations shown on the 1973 "As-Built" LOTB sheets are based on the NGVD of 1929.

## Project and Site Description

The existing Pomerado Road OC bridge carries Pomerado Road over State Route 15 in northern San Diego, California. The site location is an area of gently sloping hills being extensively graded for development. The proposed improvements of Interstate Route 15 at the structure location involves a proposed widening of the southbound lanes. The proposed Type L wall will accommodate the southbound exterior roadway widening of approximately 8m. The freeway at the bridge location consists of a cut section of roadway. The proposed wall footing will be located below the traveled way surface in native material consisting of dense sand and gravel.

### Geologic Data

Based on the recent field investigations, and the 1973 "As-Built" LOTB information, the structure site is underlain by Quaternary alluvium consisting of very dense sand, sandy gravel, silt and cobble-gravel. The cobbles are found in very dense layers throughout the soil column investigated, and consist of very hard and fresh dacite, granite and quartzite. Groundwater was not encountered by the 1973 borings extended to elevation 136.5m, or the recent boring that extended to elevation 143.5m.

### Seismic Data and Liquefaction

According to the Office of Geotechnical Earthquake Engineering (OGEE) Final Seismic Design Recommendations memorandum dated May 31, 2001, the controlling fault for the site is the Newport - Inglewood- Rose Canyon Fault (NIE, style strike slip). This fault is located approximately 13.2 km west of the site, and may generate a maximum credible earthquake of moment magnitude  $M_w=7$ . The Memo indicates that the horizontal peak bedrock acceleration at the site is estimated to be 0.3 g (gravity acceleration), and the horizontal Peak Ground Acceleration is approximately 0.35g. Based on the available information, the potential for soil liquefaction appears remote and there is no potential for lateral spreading.

### Foundation Recommendations

The following recommendations are for the proposed Type L wall at Abutment 1 of the Pomerado Road OC, Bridge 57-0909 as shown on the General Plan dated May 21, 2001. Spread footings are recommended for the support of the proposed Type L Wall. Refer to the recommendations provided in Table 1 below for the maximum bottom of footing elevation, minimum footing width and the recommended Gross Allowable Soil bearing pressure to be used in design.

Table No. 1  
Type L Wall Spread Footing Data

Support Location	Bottom of footing Elevation	Minimum Footing Width	Recommended Soil Bearing Pressures	
			ASD <sup>1</sup>	LFD <sup>2</sup>
			Gross Allowable Soil Bearing Pressure ( $q_{all}$ )	Ultimate Soil Bearing Pressure ( $q_{ult}$ )
TW-1 38m lt.sta.241+59- 34m lt. sta. 242+00 "SB Line"	149.3m	2.9 m	240 kPa (2.5 tsf)	N/A

Notes: 1) Allowable Stress Design, (ASD). The Maximum Contact Pressure, ( $q_{max}$ ), is not to exceed the recommended Gross Allowable Soil Bearing Pressure, ( $q_{all}$ ). The Ultimate Soil Bearing Capacity, ( $q_{ult}$ ), will equal or exceed 3 times the recommended Gross Allowable Soil Bearing Pressure, ( $q_{all}$ ).  
2) Load Factor Design, (LFD). The Maximum Contact Pressure, ( $q_{max}$ ), divided by the Strength Reduction Factor, ( $\phi$ ), is not to exceed the recommended Ultimate Soil Bearing Pressure, ( $q_{ult}$ ). The Ultimate Soil Bearing Capacity, ( $q_{ult}$ ), will equal or exceed the recommended Ultimate Soil Bearing Pressure, ( $q_{ult}$ ).

### General Notes

- 1) All support locations are to be plotted in plan view on the LOTBs as stated in "Memo to Designers" 4-2. The plotting of support locations should be made prior to requesting a final foundation review.
- 2) Should there be any reduction in the spread footing dimensions, or increase in the bottom of footing elevation, the Structure Foundations Section South must be notified to reevaluate the recommended gross allowable soil bearing pressures to be used for design.

### Construction Considerations

- 1) The footing concrete shall be placed neat against undisturbed soil at the bottom of the footing excavation. If the soils at the bottom of the excavation are disturbed or loosened, they shall be re-compacted to 95% relative density prior to placing any concrete or steel.

The recommendations contained in this report are based on specific project information regarding the proposed structure locations, loading conditions and foundation dimensions provided by Office of Structure Design. If any conceptual changes are made during final project design, or if there are any questions regarding the above recommendations, please contact Mark A. Richards at (916) 227-7193 (CALNET 498-7193) or Mark DeSalvatore (916) 227-7056 (CALNET 498-7056), of the Office of Geotechnical Design - South, Structure Foundations South Branch.

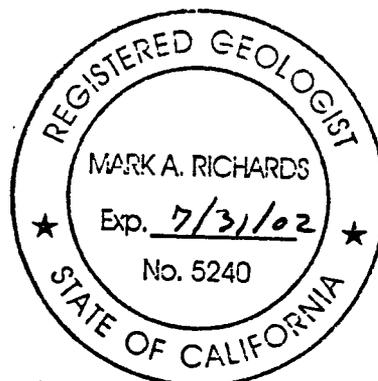
Report by: *Mark A. Richards* Date: *6/18/01*

Supervised by: *Mark DeSalvatore* Date: *6/18/01*

MARK A. RICHARDS, RG #5240  
Associate Engineering Geologist  
Structure Foundations - South

MARK DeSALVATORE, RCE #39499  
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- c: R.E. Pending File
- DBarlow - Specs & Estimates
- TRuckman - Specs & Estimates
- OAlcantara - Proj Mgmt
- A. Padilla - Materials & Investigation (D11)
- LCarr - Proj Mgr (D11)
- YDeng - Structure PCE
- Geology Bridge File (LA)
- Geology Bridge File (Sac)
- MWilliam
- RGES.30



# Memorandum

To: MR. MICHAEL KEEVER  
Structure Design MS - 9  
Office of Bridge Design-South  
Bridge Design Branch 15

Attention: Ms. Traci Holden

Date: September 10, 2001

File: 11-SD-15-KP M 23.01  
EA 11-232600

Type L Wall at Pomerado Rd.  
OC (Widen)  
Bridge No. 57-0909



From: DEPARTMENT OF TRANSPORTATION  
ENGINEERING SERVICE CENTER  
Geotechnical Services - MS 5  
Office of Geotechnical Design - South  
Structure Foundations - South Branch

Subject: Supplemental Foundation Recommendations

The following are Supplemental Foundation Recommendations addressing a decrease in the footing width of the proposed Type L Retaining Wall at the Pomerado Rd OC (Br. No. 57-0909). Based on the Foundation Plan dated June 1, 2001 and the Type "L" Wall Detail Sheet dated June 20, 2001, the wall footing width has been decreased from 2.90 meters along the entire length of the wall to 2.60 meters from station 9+90.0 to 9+95.0 and from station 10+42.0 to 10+47.0 RW1 LOL. The footing width for the remaining portion of the wall, from station 9+95.0 to 10+42.0 RW1 LOL has been decreased to 2.80 meters. The Gross Allowable Soil Bearing Pressure of 240 kPa listed in Table 1 of the Final Foundation Recommendations, dated June 18, 2001, is still applicable for the proposed retaining wall with a footing width of 2.60 meters or greater. All other recommendations in the original Final Foundation Recommendation Report are still applicable.

Any questions regarding the above Supplemental Foundation Recommendations should be directed to the attention of Erich Neupert (916) 227-7145 (CALNET 498-7145) or Mark DeSalvatore (916) 227-7056 (CALNET 498-7056) at the Office of Geotechnical Design - South, Structure Foundations - South Branch.

Report by:

Supervised by:

Date: 9/10/01

Erich Neupert  
Engineering Geologist  
Office of Geotechnical Design - South  
Structure Foundations - South Branch

Mark DeSalvatore, R.C.E., No. 039499  
Senior Materials and Research Engineer  
Office of Geotechnical Design - South  
Structure Foundations - South Branch

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