Washington State Department of Transportation

MEMORANDUM

August 8, 2008

TO: Bijan Khaleghi /Mark Anderson
Bridge and Structures, MS 47340

FROM: Tony M. Allen/Donald A. Williams
E&EP Geotechnical Division, MS 47365

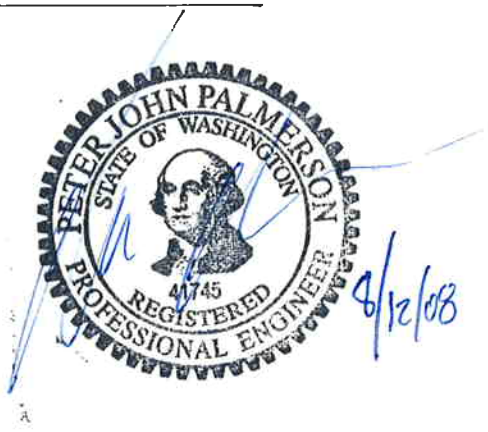
SUBJECT: SR-520, MP 11.8, XL-2028
West Lake Sammamish Parkway to SR-202
Bridge 520/42 S Widening
Addendum 2 to Geotechnical Design Recommendations

As requested, we are supplying the soil springs for the soils beneath the pile cap at Piers 2, 3 and 4. We understand that you need this information to further evaluate the existing Bridge 520/42 S foundations under the extreme seismic event.

To represent foundation flexibility, we recommend that spring constants be developed for the modeling of spread footings for the pile caps following the procedures in the FEMA 356 Prestandard and Commentary for the Seismic Rehabilitation of Buildings and AASHTO Seismic Design Guide Specifications. The shear modulus (G) used to compute the stiffness values should be determined by adjusting the initial shear modulus (G_o) for the level of shearing strain using strain adjustment factors (G/G_o) which are less than 1.0. For this project site, the following values should be used to calculate the value of the shear modulus (G):

Table 1: Foundation Soil Spring Constants

Location	Site Class	Initial Shear Modulus (G_o)	Strain Adjustment Factor (G/G_o)	Poisson's Ratio (ν)
Bridge 520/42S Piers 2 and 3	E	1,040 ksf	0.10	0.3
Bridge 520/42 Pier 4	D	2,270 ksf	0.49	0.3



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cc: Brian Aldrich, Bridge and Structures, MS 4734