

# EMPIRICAL ANALYSIS OF LIQUEFACTION-INDUCED LATERAL SPREADING

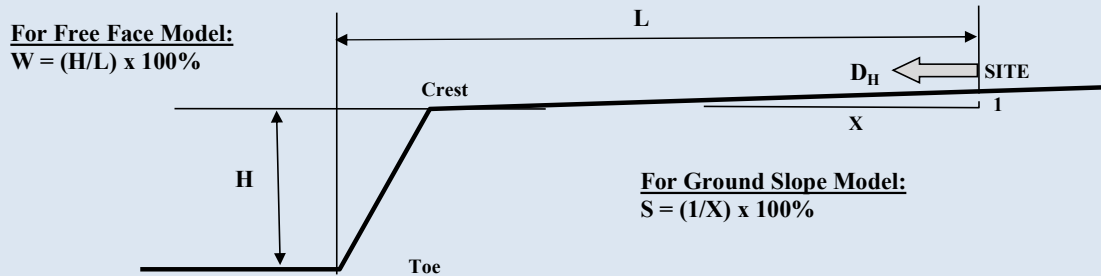
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## PROJECT INFORMATION

Project Name	
Project No.	
Project Location	
Analyzed By	
Reviewed By	

## INPUT PARAMETERS

Analysis Description	
Regression Analysis Model	Ground Slope Model
Earthquake Moment Magnitude, M	7.50
Site to Source Distance, R <sub>0</sub>	30.00 miles
Ground Slope Gradient, S	20.00 %
Thickness of Saturated Soil with SPT N <sub>1</sub> < 15, T <sub>15</sub>	10.00 feet
Fines Content of Soil Included within T <sub>15</sub> , F <sub>15</sub>	25.00 %
Mean Grain Size of Soil Included within T <sub>15</sub> , D <sub>50,15</sub>	0.100 mm



## COMPUTED LATERAL SPREADING

- Youd, Hansen & Bartlett (2002) Method	28.7 inches
- Bardet, Mace & Tobita (1999) Method	71.8 inches
- Hamada et al. (1986) Method	30.2 inches

## NOTES:

- D<sub>H</sub> = Predicted liquefaction-induced lateral ground displacement (lateral spread)
- L = Distance from toe of free face to site under consideration.
- H = Height of free face (Crest Elevation - Toe Elevation)
- W = Free face ratio (%)
- S = Slope of natural ground toward the channel (%)

## REFERENCES:

1. Bardet, J.P., Mace, N., and Tobita, T. (1999), "Liquefaction-Induced Ground Deformation and Failure," A Report to PEER/PG&E, Task 4A-Phase 1, University of Southern California.
2. Hamada, H., Isoyama, R., and Emoto, K. (1986). "Study on Liquefaction induced Permanent Ground Displacements." Monograph, Association for Development of Earthquake Prediction in Japan, Tokyo.
3. Youd, T.L., Hansen, C.M., and Bartlett, S.F. (2002), "Revised Multilinear Regression Equations for Prediction of Lateral Spread Displacement," Journal of Geotech. and Geoenvironmental Engineering, ASCE, Vol. 128, No. 12, December 1, 2002.