



INTEROFFICE MEMO

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DATE: February 24, 2014
TO: Craig Shike
Bridge Operations & Standards Managing Engineer
FROM: Jan Six Phone#: 503-986-3377
Senior Bridge Geotechnical Engineer
ODOT - Bridge Section
SUBJECT: Proposed Revision to Bridge Design & Drafting Manual
RE: BDDM Section 1.1.4.2 (3)

Problem Statement:

Changes to terminology and the procedure for handling group effects are needed to coordinate with the current version of the LRFD Specs.

Proposal:

Modify Section 1.14.2 (3) as follows:

(3) Pile Supported Footings

Pile Group Reduction Factors Effects and p-y Multipliers:

The p-y multiplier approach, utilizing the LPILE program, is recommended to evaluate the response of a pile groups subjected to lateral loads. The p-y multipliers are applied to standard p-y curves to account for pile group effects. P-y multipliers are included in the LPILE program. Section 10 of the AASHTO LRFD Bridge Design Specifications should be referenced for the P multiplier values to be used in the analysis. The P multipliers are dependent upon the soil type, soil density or consistency and pile center to center spacing of piles in the group in the direction of loading expressed in multiples of pile diameter. The Foundation Designer should be consulted for the procedures to use in this design approach.

For non-seismic loading conditions, an alternative approach using the group reduction factors listed in the table below may be used. This table is for use with pile groups installed in cohesive soils only. No reduction factor is required for pile groups in cohesionless soils regardless of pile spacing or contact between the pile cap and the ground.

Table with 2 columns: Pile Spacing (parallel to translation) and Reduction Factor

direction)	
5 x Pile Diameters	1.0
3 x Pile Diameters	0.75

~~Note: Use linear interpolation between pile spacings of 3D and 5D.~~

Analysis / Research / Other Supporting Data:

- None
 Attached:
 - [name of attachment]
 - [name of attachment]

Bridge Engineering Section Response:

<input type="checkbox"/> Accepted for consideration as submitted <input type="checkbox"/> Accepted for consideration as noted <input type="checkbox"/> Proposal tabled, see Remarks <input type="checkbox"/> Proposal not accepted, see Remarks		
Remarks:		
[name of reviewer] Bridge Design Standards Reviewer		Date
Craig Shike Bridge Operations & Standards Managing Engineer		Date

Cc: file