

Memorandum

To: MR. PAT HIPLEY
Office of Earthquake Engineering

Date: September 18, 2000

File: 01-Hum-255-0.7
01-296701

Middle Channel Bridge
Bridge No. 04-0229

From: DEPARTMENT OF TRANSPORTATION
ENGINEERING SERVICE CENTER
Division of Structural Foundations – MS 5
Office of Geotechnical Earthquake Engineering

Subject: Pile Tip Elevations Based on Laterally Loaded Pile Analysis

As per your request, this memo presents recommended tip elevations for the proposed 36-inch diameter cast-in-steel shell (CISS) retrofit piles for the Middle Channel Bridge.

The recommended pile tip elevations are presented in the attached Table 1. The recommended tip elevations are based on a laterally load pile group analysis utilizing the computer program GROUP 4.0 developed by Ensoft, Inc., Austin Texas. Since no design lateral load or pile top deflection and pile ultimate moment capacity were provided, the recommended pile tip elevations are based on obtaining at least two zero moments along the pile length. The soil parameters used for this analysis were presented in our memo dated April 15, 1999.

If you have any questions or comments, please call Mohammed S. Islam at 227-7094 or Abbas Abghari at 227-7172.

Mohammed S. Islam
MOHAMMED S. ISLAM
Transportation Engineer

A. Abghari
ABBAS ABGHARI, Chief
Office of Geotechnical Earthquake Engineering

Attachment



Table 1. Recommended Pile Tip Elevations for Middle Channel Bridge Based on Laterally Loaded Pile Analysis

Location/ Type	Design Loading (Service), kips	Nominal Resistance, kips		Cut-off Elevation, ft	Design Elevation, ft	Specified Tip Elevations, ft
		Compression	Tension			
Pier M-2/ PP36x1/2	N/A	600	300	+3.0	-55	N/A
Pier M-3/ PP36x1/2	N/A	600	300	+3.0	-65	N/A
Pier M-4/ PP36x1/2	N/A	600	300	+3.0	-65	N/A
Pier M-5/ PP36x1/2	N/A	600	300	+3.0	-65	N/A
Pier M-6/ PP36x1/2	N/A	600	300	+3.0	-65	N/A
Pier M-7/ PP36x1/2	N/A	600	300	+3.0	-65	N/A
Pier M-8/ PP36x1/2	N/A	600	300	+3.0	-55	N/A
Pier M-9/ PP36x1/2	N/A	600	300	+3.0	-60	N/A