

June 27, 2003

MEMORANDUM

TO: District Structures Design Engineers
(Gerard Moiliere, Rod Nelson, Keith Shores, John Danielsen, Neil Kenis,
Kim Saing, Jose Rodriguez, and Agnes Spielmann)
District Structures and Facilities Engineers
(Pepe Garcia, Keith Campbell, John Locke, Jorge Martos, Ron Meade,
Frank Guyamier, Tom Reynolds)

FROM: William N. Nickas, P.E., State Structures Design Engineer

COPIES: Assistant Secretary Ken Morefield,
District Secretaries (Ricky Langley, Aage Schroder, Edward Prescott, Rick
Chesser, Mike Snyder, John Martinez, Ken Hartmann, Jim Ely),
State Highway Engineer, Freddie Simmons,
Director Office of Design, Bob Greer,
District Directors of Operations (Debbie Hunt, Jim MacLaughlin, Jimmy
Rodgers, James Wolfe, George Gilhooley, Gus Pego, John Temple,
Bruce Seiler),
District Directors of Production (Mike Williams, Dave Byrd, Gene Martin,
Gerry O'Reilly, Noranne Downs, Donald Skelton, Nancy Clements),
Structures Design Engineers (William Domico, Bob Nichols, Jack Evans, Larry
Sessions, and Marcus Ansley),
Doug Edwards (FHWA),
State Specifications Engineer, Duane F. Brautigam

Subject: Temporary Design Bulletin C03-05
Fender Systems and Plastic Products

REQUIREMENTS:

The Department is issuing a policy on the use of plastic materials in fenders systems. Due to the lack of specific design criteria for fender systems, all designs of fender systems shall utilize current details using concrete or timber piles and either wood or plastic walers. If plastic walers

are used, substitute plastic walers for wood walers on a one-to-one basis and use either 10" x 10" or 12" x 12" walers. **Plastic piles shall not be utilized in any fender system until design criteria have been established for the fender system and the plastic piles.**

COMMENTARY:

Without established criteria to base designs upon, Engineers designing these systems will be at risk for their designs. No two Engineers will have the same approach to the design, and the performance of the fender systems will not be consistent. Our current details have served us well for many years, and we need to have a unified approach to any revisions to our current details.

BACKGROUND:

Industry representatives have recently been discussing the advantages of using plastic materials for the piles and walers in fender systems throughout the state. The Department has been using plastic walers for approximately 7 years in selected locations across the state. Plastic walers have been used in both new fender systems and for repairing existing fenders with good results. Plastic piles have not yet been used but consultants have been directed or have chosen to design fender systems on several on-going projects using plastic piles. While the advantages of switching from our standard concrete piles to plastic piles have been discussed by industry representatives, no design criteria or philosophy has been obtained or presented for the plastic piles. The main advantages of the plastic piles deal with durability. The SDO has been trying for several years now to obtain the criteria that the plastic pile industry has used to design plastic fender systems in other states. After numerous requests, the criteria have not yet been received.

FOLLOW-UP:

The SDO is currently developing design criteria to be used in the design of all fender systems. As part of this effort, plastic piling will be evaluated to determine the acceptability of the product compared to the design criteria that is developed. Structures standards for fender systems will be deployed as part of this effort. In an effort to provide a standard as soon as possible, the first standard will be based upon concrete piles with plastic or wood walers using the same geometry as current fender systems. As the design criteria and product evaluation proceed, the standard will be revised to incorporate the new criteria and products as appropriate that meet the Department's requirements for strength, performance and durability.

WNN:rvr:lr