The Neches River Bridge, Port Arthur, TX, USA

Wind Engineering Study

Owner The Texas Department of Transportation	*Design* Figg and Muller Engineers, Inc. Tallahassee, Florida	*Year Tested* 1985
Length of Superstructure 9440 feet	*Span Lengths* 140 / 240 640 / 240 / 140 feet	*Shipping Clearance* 134 feet
Tower Height 272 feet	*Deck Depth* 8 feet	*Deck Width* 56 feet

The Project

This concrete box girder, cable-stayed bridge is part of a 9440 ft structure crossing the Neches River near Port Arthur, Texas. The cable-stayed portion consists of a 640 ft main span, two 280 ft side spans with two 140 ft end spans

The Wind Tunnel Studies

Wind engineering studies for this cable stayed bridge in the Hurricane-prone gulf coast region included:

- A Monte-Carlo hurricane simulation of the Houston region was performed to define the wind field at the project site.
- Static and dynamic section model tests were conducted for the bridge. Tests were performed in smooth flow to establish stability characteristics and in turbulent flow to develop the response to turbulence.
- The results were integrated with the meteorological to provide design wind loads using the Equivalent Static Load technique, which was developed by the Laboratory in connection with the studies for the Sunshine Skyway bridge.

The Boundary Layer Wind Tunnel Laboratory

Western

The Boundary Layer Wind Tunnel Laboratory
The University of Western Ontario
Faculty of Engineering, London, Ontario
Canada, N6A 5B9 Tel: (519) 661-3338 Fax: (519) 661-3339
Internet: www.blwtl.uwo.ca E-mail: info@blwtl.uwo.ca

FSBR/ 12 / August 2000 / PK
Last Printed: March 19, 2009