



REHABILITATION DESIGN SERVICES BEESLEY'S POINT BRIDGE - NEW JERSEY

Client: Beesley's Point Bridge Commission

Project: Bridge Rehabilitation Design
Beesley's Point Bridge
Somers Point, New Jersey

Description: **W.J. Castle, P.E. & Associates, P.C.** has worked for the Beesley's Point Bridge Commission since 1984 performing inspection(s) and designs on an "As Needed" basis. The bridge consists of two (2) structures measuring a total length of 4900 feet, with a main double-leaf bascule span. The structure is a privately owned toll bridge connecting U.S. Rte. 9 (North & South). The superstructure is constructed of steel I-beams and an eight (8) inch concrete deck with 121 spans at 40 feet each and one main double leaf bascule span at 80 feet. The substructure is constructed of 119 concrete encased timber pile bents, two pile supported concrete bascule piers and timber pile abutments with timber and steel sheeting.

Due to a combination of age (the bridge was constructed in 1929) and severe environmental conditions, the pile bents were starting to deteriorate faster than repairs could be completed. This was creating a safety hazard to the traveling public which resulted in reduced load limits. Closing of the bridge for major repairs was not feasible due to lost revenues. Therefore, our Company had to develop a simple, economic and efficient design repair for the substructure units. As a result, CASTLE designed a new substructure unit which could be built around the existing pier with no demolition or closing of the bridge to traffic. All work was performed from barges located in the water on either side of the bridge. The new "pier" consisted of 16" diameter concrete filled steel pipe piles driven on each side of the bridge near the fascia beams. New steel cap beams and bracing were then installed and connected to the existing steel beam superstructure. Permits were obtained from all government agencies and the project was started in 1990 for a total cost of approximately \$5 million dollars. In 2005, these repairs were instrumental in the protection of the bridge. The original concrete piles on one of the bents had collapsed and two others were partially collapsed. Since the steel bent supports were in place, the bridge itself remained intact.



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