

NATIONAL STEEL BRIDGE ALLIANCE

**2001** Prize Bridge Award

merit award: **MOVABLE SPAN**

# Boynton Beach Bascule Bridge

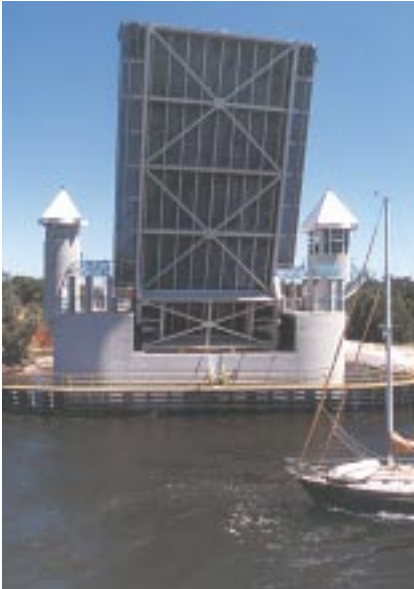
S.R. 804 over the Intracoastal Waterway,  
Palm Beach County, FL



**T**he construction of the Boynton Beach Bascule Bridge presented many challenges to the owner, designer, and the construction team.

The new bridge was constructed on the same alignment as the existing bridge so the first task was removing the existing Bascule Bridge. A 300-ton mobile crane was used to remove each leaf of the old rolling lift bridge in two pieces. Demolition of bascule piers is always a difficult task. The piers were founded on large footings, which were poured on the top of thick concrete





seals. Both engineers and contractors often underestimate the time required for this phase. The Boynton Beach Bridge was no exception. Complete removal of the span, piers, and piling took approximately six months, three months longer than anticipated.

The design specifications required that the bascule span be assembled and aligned in the shop and the parts match marked. This helped to insure proper

fit-up and alignment in the field during erection. The racks were attached to the main girders and the trunnions installed in the shop.

After the piers were constructed, the superstructure was shipped by barge to the site from the fabricator's facility in Palatka, FL, along the Intracoastal Waterway. An 800-ton barge mounted, ringer-type crane was used for the erection.

The erection was done to exact tolerances. Since the racks had been installed to the girders with turned bolts, the entire assembly had to be returned to the alignment achieved in the shop to insure proper tooth contact of the gears. After the erection of the first leaf was completed, the leaf was rotated into the open position and erection on the other leaf began. A portion of the concrete counterweight (CTWT) was placed and the concrete deck was poured before rotating the leaf so that the imbalance would be minimal. The typical CTWT framing member was fabricated with 152 mm x 380 mm (6"x15") flanges and a 152 mm (6") thick web plate with 50 mm (2") web doubler plates added to both sides of the web.

**Owner**

Florida Department of Transportation,  
Fort Lauderdale, FL

**Structural Engineer**

Lichtenstein Consulting Engineers, Inc.,  
Fort Lauderdale, FL

**Steel Fabricator**

PDM Bridge, Palatka, FL (AISC member)

**Steel Detailer**

Tensor Engineering Company,  
Indian Harbor Beach, FL (AISC & NISD members)

**General Contractor**

Walsh Group Ltd (DBA) Archer Western Contractors, Ltd., Fort Lauderdale, FL

**Consultant**

URS, Fort Lauderdale, FL

**Software**

Substructure (Florida Peer) and STAAD