

Boston/Logan Airport Terminal Area Roadways

A HOCHTIEF Company

Owner

Massachusetts Port Authority

Location

Boston, MA

Value

\$92,800,000

Market

Highways & Interchanges

Start - Completion Dates

11/1998 - 10/2003

- 44 spans of post-tensioned box girder viaduct
- External post-tensioning system
- 500 feet of cut-and-cover tunnel
- 6,000 feet of elevated roads founded upon 67 large diameter drilled shaft foundations

Project Description

The terminal area roadways project (TAR) at the Boston Logan International Airport included the construction of elevated and at-grade egress roadways from the terminal buildings to both Route 1A and the Ted Williams Tunnel, including approximately 8,000 linear feet of post-tensioned concrete box girder viaduct. The foundations for these bridges include 67 caissons up to nine feet in diameter, drilled up to 210 feet deep.

The project also includes a system of retained fill ramp, with over 16,000 cubic yards of lightweight concrete foam fill contained behind cast-in-place retaining walls. In order to maintain airport traffic, the project phasing required multiple detours and major traffic switches. These detours required the construction of two temporary steel bridges founded on low-headroom mini-piles in front of an open terminal.

Due to several design constraints, the majority of the 44 spans were constructed with an external post-tensioning system. In a typical cast-in-place viaduct an internal post-tensioning system is utilized in which cables are continuously embedded in the concrete. Alternatively, the external post-tensioning system for this project was designed with the cables exposed within the box girders. The tendons are anchored at the end beams but run exposed between the concrete web walls until they pass through deviators. They are then embedded in the bottom soffit through mid-span.

Company Role

Flatiron was the prime contractor for this project.

