

Stevens & Associates, Inc.

Tunnel Construction Projects

Fact Sheets

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Massachusetts Water Resources Authority Contract No. 282

EFFLUENT OUTFALL TUNNEL PROJECT

CONTRACT AWARD

- General Contractor: Kiewit/Atkinson/Kenny
- Contract Value: Approx. \$202,000,000
- Notice to Proceed: August 1990
- Contract Completion: March, 1995



CONTRACT DESCRIPTION

The Work consists of the construction of a 30 foot diameter concrete lined shaft 420 feet deep on Deer Island in Boston Harbor. The top 110 feet of the shaft is excavated through overburden utilizing slurry walls for a support of excavation, and the bottom 310 feet is excavated through bedrock, by conventional drill and blast techniques. At the bottom of the shaft a starter and tail tunnel were also excavated by drill and blast methods to accommodate the assembly of a Tunnel Boring Machine, which is used in the excavation of the 9.5 mile long outfall tunnel under Massachusetts Bay. The 24 foot diameter tunnel is lined with a six piece precast segmental liner affixed in place by grout.

The actual discharge of treated effluent is through a system of diffusers, which consists of more than fifty, 30 inch diameter pipes that rise to the seabed over the last 6,600 feet of the tunnel's length. Each pipe connects to a diffuser cap which splits the flow into several streams, each issuing from a small port. The purpose of the diffuser is to assure that the maximum practicable dispersion and dilution is achieved for the wastewater flow.

Bad Creek Project - Duke Power Company

SALEM, SOUTH CAROLINA

CONTRACT AWARD

- General Contractor: Gilbert Corporation of Delaware Inc.
- Contract Value: Approx. \$38,000,000
- Notice to Proceed: April 1985
- Contract Completion: February, 1990



CONTRACT DESCRIPTION

The Work consists of the construction of 12,000 feet of various sized tunnels through bedrock ranging from 16 to 32 foot diameter, all by drill and blast methods. Following excavation, the tunnels are finished with a cast-in-place concrete liner. The excavation also includes a powerhouse cavern measuring 148 feet high by 442 feet long by 74 feet wide, as well as 1400 vertical feet of 30 foot diameter shafts. The shafts are also finished with a cast-in-place concrete liner. A total of 450,000 cubic yards of rock is excavated by drill and blast methods, with the waste rock subsequently hauled and placed in the adjacent lake to construct a submerged weir. Temporary rock support consisted of shotcrete and/or rockbolts on an as-needed basis.

Central Artery Tunnel Project Contract C09A4

I-93/I-90 INTERCHANGE, I-93 NORTHBOUND

Contract Award

- General Contractor: J. F. White/Slattery/Interbeton/Perini
- Contract Value: \$397,459,140.00
- Notice to Proceed: January 27, 1997
- Contract Completion: January 3, 2003



CONTRACT DESCRIPTION

The work of this project includes approximately 130,000 cubic yards of soil improvement by soil-cement and jet grout between the Wye Connector railroad bridge and the new Broadway Bridge; improvement of 400 linear feet of the Fort Point Channel, including dredging and erosion protection; 5,600 linear feet of surface roads, 3,700 linear feet of boat sections; 3,000 linear feet of tunnel sections; and 10,000 linear feet of viaducts. Tunnel construction includes cut-and-cover tunnels and the jacking of three tunnels through frozen soil underneath active railroad tracks leading to South Station in Boston, MA.

Also included is construction of the new Wye Connector railroad bridge having an overall length of approximately 180 linear feet; demolition of the existing railroad bridge; and construction of temporary surface roads. The Work includes obstruction removal, ramp and bridge construction, utility relocation, signage and signalization, surface drainage systems, street lighting, and street paving.

Massachusetts Water Resources Authority Contract No. 5522

Wachusett Aqueduct Rehabilitation

CONTRACT AWARD

- General Contractor: United Gunite
- Contract Value: Approx. \$21,000,000
- Notice to Proceed: August 2000
- Contract Completion: September 2002



CONTRACT DESCRIPTION

The Wachusett Aqueduct is a critical fresh water supply conduit used to supply drinking water to over 2.5 million people in eastern Massachusetts. The Work of this Contract consisted of cleaning, pressure grouting for water infiltration control, and providing a reinforced shotcrete lining to portions of the existing Wachusett Aqueduct. Additional work included culvert restoration, clearing and grubbing of culvert channels, sediment removal, channel re-grading, stone and brick masonry mortar repairs, repairs of damaged and collapsed structures, and repairs to the existing embankment.