



Above: Tunnel under the taxiway during construction. The excavation support system for the cut-and-cover tunnel under taxiways at JFK International airport is an MRCE design. Top Left: The construction on the Van Wyck Expressway progressing in June 2000. Lower Left: Superstructure construction at the airport.

JFK - Light Rail Transit System - *Design-Build and Taxiway Tunnel* *Queens, NY*

DESIGN-BUILD SECTION

Mueser Rutledge Consulting Engineers (MRCE) is the geotechnical and foundation engineering design consultant for the JFK Light Rail project connecting JFK Airport with the Jamaica Rail Station, the New York City subway system and the various car parking lots. The light rail project is being constructed under a design-build contracting procedure. MRCE is responsible for all of the geotechnical investigation, instrumentation pile load testing, dynamic soil-structure interaction, liquefaction study, site-specific ground motion parameters, non-linear pile effects, in-situ geophysical testing and design of the foundation elements for all of the elevated structures and stations.

TAXIWAY TUNNEL SECTION

MRCE provided geotechnical and foundation engineering services for construction of a tunnel under Taxiways A and B for the JFK Light Rail System. MRCE's work included the design of internally braced sheet pile excavation support walls and a temporary bridge to carry Taxiway B traffic across the excavation. In addition, MRCE performed subsurface investigations; instrument installation; data retrieval and analysis for pump tests, dewatering, and structural cross-lot bracing; and quality assurance/quality control. MRCE provided geotechnical testing in the field and in the laboratory. More than 50 instruments were installed under the supervision of, and monitored by MRCE Resident Engineers to record water levels, lateral ground movements, and structural loads. MRCE also assisted the contractor by reviewing the plan to combine the sheeting and bracing design with a horizontal chemical grout blanket to form a groundwater cut-off capable of minimizing seepage into the excavation. Additionally, MRCE provided an alternative design solution consisting of jet grouting in one area where difficulty was encountered driving the steel sheeting to required depths.