NEW HAVEN HARBOR CROSSING

NEW HAVEN, CT

SERVICES:
Construction Engineering and Inspection; Survey; Office Administration

ROLE: Prime

CLIENT: CTDOT

PROJECT: $550M

FIRMS FEE: $8.5M

The Connecticut Department of Transportation initiated a $2B multi-modal transportation improvement program for the operational, safety and capacity improvements to approximately 7.2 miles of Interstate 95 in New Haven, East Haven and Branford, CT. At the program's core was the replacement of the existing Pearl Harbor Memorial (Q) Bridge with a new signature, ten-lane extradosed structure. Amongst bridge approaches and connections, is the new I-95/I-91/Route 34 Interchange. This complex section of work entailed the construction of 18 new bridges, 3 widened bridges, 21 permanent retaining walls, three temporary retaining walls, 12 highway ramps and the removal of 21 existing bridges. The construction of this project required maintaining lanes for 140,000 vehicles per day through highways designed for 40,000 vehicles per day. The project's densely populated area called for complex maintenance and protection of traffic plans, comprehensive environmental planning and permitting, and extensive coordination with numerous stakeholders and adjacent projects along I-95.

GM2's services, for this multi-faceted construction project, include structural peer review, structural analyses and design, construction engineering and inspection, and survey. Structural design services entailed the design of the new I-95 Bridge and Ramp S-1 over Fulton Terrace and the I-91/I-95/Route 34 Flyover. The new Fulton Terrace facility is a 105FT single span structure with welded steel plate girders optimizing spacing to coincide with the travel lanes, and full height concrete abutments. Construction documents were developed utilizing three construction phases to maintain ongoing traffic. The flyover entails a curved twin box, girder steel bridge with a 1,886FT length and maximum span of 285FT comprised of separate 3- and 5-span bridges.

Construction services include work under Contract B-1 Western Approach, entailing the foundations for the new extradosed bridge, the I-95 approach and two access ramps. GM2 Associate's surveyors were responsible for checking and verifying horizontal and vertical positions of all stake outs and final positions of cofferdams; temporary work trestles, drilled shafts, poles, footings, piers, pier caps and girders; establishing and monitoring DMP's affixed to the existing bridge, work trestles and railroad tracks; the preparation of quantity surveys, existing utility surveys and control surveys. GM2 assigned three full-time surveyors to Contract B-1.

Under Contract B, bridge superstructure and east via-ducts, GM2's surveyors were responsible for checking and verifying horizontal and vertical positions of all stake outs and final positions of drilled shafts, pile footings, piers, pier caps, tower piers, cable boxes and girders; rebar location to establish correct concrete clearances, correct anchor bolt locations. While on the segmental section pours, survey staff established deflections and elevation monitoring. To retain appropriate elevations of the poured segments, survey crews were on site pre-dawn to ensure precision and eliminate morning sun impacts on the deflection. Additional responsibilities include establishing and monitoring DMP's affixed to the existing bridge, work trestles and railroad tracks, preparing quantity surveys, existing utility surveys and control surveys.

Construction engineering and inspection services provided by GM2 includes full-time inspection and office staff. GM2's Chief Inspector provided coordination, documentation and inspection for the diving and load testing of piles for data collection in support of pile type selection. Work was accomplished utilizing pile driving analyzers and load testing equipment. Office engineering entailed support of maintenance of documentation, the review of quantities, invoicing, certification and DBE goal records and reports of meetings; as well as working within the project's document control systems.