Prestressed Concrete Tank Replaces Steel Tank
Colchester, Vermont

Growth at the Severance Corners town center in Colchester, Vermont prompted the Champlain Water District (CWD) to evaluate the two existing welded steel tanks on Water Tower Hill. The older tank was constructed in 1965 and was recently determined to be under capacity for future growth. Based on the required additional capacity, the requirements for current and future maintenance, and for the age of the tank, the decision was made to construct a new replacement tank.

Aldrich & Elliott Engineers conducted a study to confirm future storage requirements and evaluate water storage tank options. Their recommendation was to construct a 1.275 MG AWWA D110 Type III wire-wound prestressed concrete tank. Prestressed concrete was selected over options for welded steel and glass-lined bolted steel tanks, based on the priority to provide a permanent durable facility, with lowest long-term cost of ownership. The prestressed concrete tank also provided superior resistance to cold climate operating conditions.

The Water Tower Hill tank replacement required extensive project planning and coordination. The new tank was designed to match the overflow elevation of the second existing tank onsite requiring a water depth of 64 feet. Since the tanks are located on an easement within a parking lot for a local business park, staging and construction areas were limited. The construction site was also limited by the presence of the adjacent existing tank, cell towers, and equipment control buildings. Working closely with Aldrich & Elliott Engineers and CWD, DN Tanks prepared a comprehensive construction and traffic management plan.

Upon completion, a Tideflex Mixing System, safety and security hardware were installed. The tank was filled, tested, disinfected, and placed in service. One of the more interesting aspects of Vermont construction is compliance with the state’s “Act 250”. This process reviews and manages the appearance of buildings and structures to assure environmentally acceptable appearance. Based on the “Champlain Blue” paint color of the existing steel tank remaining onsite, the new prestressed concrete tank was required to match this color. Upon completion, DN Tanks applied an exterior acrylic decorative coating to match the appearance of the steel tank.

Completion of the 1.275 MG tank at Water Tower Hill demonstrates the adaptability of AWWA D110 Type III tanks in limited and challenging construction areas. The project was completed with minimal disruption to the office park and to the surrounding area. DN Tanks skillfully and safely executed construction of the new water storage tank in extremely confined areas, leaving Champlain Water District to enjoy decades of tank service without the necessity of expensive tank maintenance.

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