



Construction Management Services

Meet your project goals with flexible solutions from Black & Veatch



BLACK & VEATCH

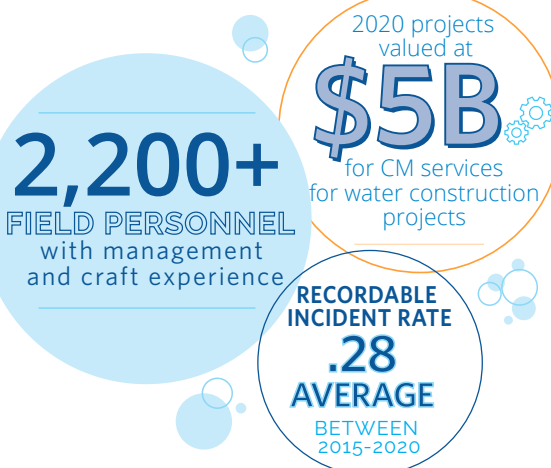


Scalable Solutions to Meet Your Needs

Seasoned Experts and Vast Resources in Construction Management and Services to Deliver Any Program

The construction management service offered by Black & Veatch is built on experience gained through more than 100 years of delivering projects to clients worldwide. More than 2,200 of Black & Veatch's 8,300+ professionals worldwide are involved in the direct construction of programs and projects. They include skilled craftspeople, schedulers, estimators, safety professionals, quality assurance professionals, claims specialists and technical experts who are fully integrated to deliver quality projects safely, on time and within budget.

Our construction management professionals align critical project success factors with your project goals before we set foot on a construction site.



SERVICES

INITIATE



- Constructability
- Construction execution planning
- Alternative delivery and procurement strategy
- Contractor outreach

PLAN AND EXECUTE



- Bidding management
- Quality assurance inspection

MONITOR AND CONTROL



- Project control
 - Schedule management
 - Cost management
 - Risk management
 - Change management
 - Documentation mgmt
- Project mgmt information systems
- Contract mgmt and admin

CLOSEOUT



- Commissioning and startup support
- Site safety and security



CALAVERAS DAM

San Francisco Public Utilities Commission's Calaveras Dam Replacement Project was a multi-year, award-winning mega construction project. Our professionals are equally capable of supporting smaller, but no less critical capital projects through scalable staffing and adaptable delivery solutions.

SERVICE PROJECT HIGHLIGHTS

INITIATE

Constructability

Pure Water | San Diego, CA

Black & Veatch identified more than \$25 million in cost savings during the constructability review for the City of San Diego Pure Water program. Seventy-five percent of our constructability review comments were incorporated into the bid documents.

PLAN AND EXECUTE

Quality Assurance Inspection

Pump Station No. 2 | San Diego, CA

Black & Veatch supported the City of San Diego from oversight of driven pile foundations to commissioning a new SCADA system. Our specialized inspection team described installation conditions and discussed questions and concerns with the contractors during task planning and throughout the construction process.

INITIATE

Alternative Delivery and Procurement Strategy

Great Water Alliance | Waukesha, WI

Black & Veatch developed a contract packaging and contractor outreach program resulting in 35 potential prime contractors. A focused pre-qualification process ensured that contractors were invested in providing the owner a cost-competitive and best-value bidding process.

MONITOR AND CONTROL

Project Management Information System (PMIS)

Denver Water | Denver, CO

As the program and construction manager for the Gross Reservoir Expansion program, Black & Veatch is working with Denver Water to integrate our project-specific dashboard and geotechnical data collection with Denver Water's PMIS platform.

CLOSEOUT

Commissioning and Startup Support

New York City Department of Environmental Protection | New York, NY

Black & Veatch provided programmatic construction management for the final phase of New York City's new Water Tunnel No. 3, including startup and tunnel activation. The original deadline for the tunnel startup and activation was accelerated by 160 days. During the tunnel cleaning and activation, 70 construction management professionals worked around-the-clock shifts on site to augment and work with NYCDEP's operations staff. By leveraging its deep bench of professionals and experience in startup of water conveyance systems, Black & Veatch delivered this project in compliance with the aggressive schedule.

Construction Experience Highlights



CAPITAL SPEND \$600 million

PERFORMANCE PERIOD

2010 - 2020

SERVICES

- Contract administration
- Project controls and master CPM schedule
- Resident engineering and inspection
- Change and cost management
- Public outreach

Calaveras Dam Replacement

SUNOL, CA

Black & Veatch provided construction management services for the San Francisco Public Utilities Commission's Calaveras Dam Replacement Project. The new dam provides the community with a 220-foot high seismically-designed earth/rockfill dam. The project and construction teams built the new dam alongside the existing one, which was operational for the duration of the project. Black & Veatch's geotechnical capabilities have helped the client navigate the highly complex geological and seismic conditions.

Key Accomplishments

- Effectively managed multiple large construction changes related to landslides and geologic faulting in the dam foundation.
- Developed consistently accurate independent cost and schedule estimates for proposed changes, prior to negotiation with the contractor.
- Developed effective risk management solutions to keep the work moving while changes were negotiated, thus minimizing cost and schedule impacts.



CAPITAL SPEND: \$120 million

PERFORMANCE PERIOD

2013 - 2019

SERVICES

- Value engineering
- Constructability
- Contract administration
- PMIS implementation
- Quality assurance inspections
- Cost and schedule control
- Start-up and commissioning

Cox Creek Water Reclamation Facility

ANNE ARUNDEL COUNTY, MD

Anne Arundel County selected Black & Veatch to oversee the construction for the complex renovation and upgrade of the Cox Creek Water Reclamation Facility. Black & Veatch provided construction management, inspection and start-up coordination services. To complete the \$120 million upgrade to the facility, Anne Arundel County proceeded with construction in a three-phased approach. Black & Veatch conducted value engineering and constructability reviews performed on the phase two and phase three design documents resulted in trimming the engineer's estimate to \$104 million from \$116 million.

Key Accomplishments

- Value engineering, constructability and bid-ability reviews performed on the Phase 2 and 3 design documents, which resulted in trimming the engineer's estimate by \$12 million.
- Black & Veatch's operations technology group joined construction management team on site to coordinate complex facility start-up.

OARS Augmentation and Relief Sewer

COLUMBUS, OH

The Olentangy-Scioto Intercepting Sewer Augmentation Relief Sewer (OARS) Tunnel program serves as an integral part of the City of Columbus' Combined Sewer Overflow (CSO) Consent Decree. The city selected Black & Veatch to provide third-party construction management services for the project. The project was designed to collect and consolidate combined overflows, within the city's combined sewer drainage area, and convey the combined overflows to the Jackson Pike WWTP and/or the Southerly WWTP for biological treatment.

Key Accomplishments

- Construction of the CSO had rock tunnel and associated shafts.
- Effectively managed multiple large construction changes related to unforeseen subsurface conditions and geological faulting.
- Developed construction sequencing to keep multiple, large existing utilities in service during construction.



CAPITAL SPEND \$360 million

PERFORMANCE PERIOD

2010 - 2017

SERVICES

- Construction administration, management and inspection
- Constructibility review
- Implemented use of risk register
- Implemented required traffic control

Tomahawk Wastewater Treatment Facility Expansion

LEAWOOD, KS

Black & Veatch is the owner's engineer providing construction management and inspection services on the construction management at risk (CMAR) delivery of the wastewater plant expansion. New facilities will expand treatment capacity from 7 million gallons per day (mgd) to 20 mgd and accommodate flows of up to 196 mgd during wet weather. Scope elements include new influent pumping and coarse screening, fine screening and grit removal, primary clarifiers, 5-stage biological nutrient removal (BNR) treatment, secondary clarifiers, intermediate pumping, disinfection, tertiary filtration, auxiliary wet weather treatment and solids processing.

Key Accomplishments

- The team successfully managed 12-month flow diversion and bypass pumping operations with no permit violations.
- The construction management team piloted new technology and applications that allow them to interact with the 3D BIM model in the field, in real time, to proactively address contractor questions, describe installation conditions and resolve conflicts.



CAPITAL SPEND \$268 million

PERFORMANCE PERIOD

2018 - 2022

SERVICES

- Contract administration
- Construction phase services
- Construction management
- Public relations/ community engagement



CAPITAL SPEND \$700 million
PERFORMANCE PERIOD

2014 - 2034

SERVICES

- Construction management
- Program management
- Cost and schedule control

Metropolitan St. Louis Sewer District (MSD) Tunnel Program

ST. LOUIS, MO

Black & Veatch is providing third-party construction management services for a series of CSO and sanitary sewer overflow (SSO) storage and wastewater conveyance tunnel projects. The MSD embarked on a \$4.7 billion wet-weather program to address CSO and SSO overflows under a consent decree. The tunnels will be constructed over the course of a 20-year program scheduled for completion in 2034. Services during construction include resident engineering/inspection and overall construction management, including cost and schedule control analysis and document control.

Key Accomplishments

- Executing work on seven projects involving 17 miles of deep rock tunnels ranging from 8 to 28 feet in diameter.
- Implementation of a program-wide construction management/document management software system.



CAPITAL SPEND: \$1 billion+
PERFORMANCE PERIOD

2018 - 2025

SERVICES

- Value engineering
- Constructability
- Contract administration
- PMIS implementation
- Quality assurance inspections
- Cost and schedule control
- Startup and commissioning

Coxwell Relief Tunnel and Integrated Pump Station

TORONTO, ONTARIO

The Ashbridges Bay Treatment Plant (ABTP) is the largest secondary wastewater treatment plant in Canada with an average capacity of 818 million liters per day (mld), which is 216 mgd. The City of Toronto selected Black & Veatch to assist in managing two major construction efforts, which have a combined capital value of more than \$1 billion, at ABTP. These efforts are the Coxwell Bypass Tunnel and the ABTP Integrated Pumping Station.

The Coxwell Bypass Tunnel's objective is to improve water quality in the Don River and Inner Harbor of Toronto by providing a wet weather solution and redundancy to the city's most important sanitary trunk sewer. The ABTP Integrated Pump Station will receive flows from the Coxwell Bypass Tunnel and other sewer interceptors. It replaces two existing pump stations that feed the headworks at ABTP.

Key Accomplishments

- Effectively managed coordination of multiple large and complex projects without disruption to treatment operations. Developed construction sequencing to keep multiple, large existing utilities in service during construction.
- Providing flexible staffing solutions of up to 20 professionals on multiple project sites and multiple shifts.

Brackish Groundwater Desalination Program

SAN ANTONIO, TX

The Brackish Groundwater Desalination (BGD) Program uses previously untapped and plentiful brackish groundwater sources of water to supply the treatment plant which is to be located in southern Bexar County. San Antonio's project was the largest inland BGD facility in the U.S. Black & Veatch provided program management, design, and construction management services for the program. The program employed a combination of traditional and alternative delivery models, including design-bid-build, CMAR and design-build.

Key Accomplishments

- Black & Veatch received discretionary and non-discretionary bonus at the end of the program for outstanding service.
- This program employed 26 firms in San Antonio and was considered an economic engine for the city. Approximately 75 jobs were created and 25 percent of those jobs were set aside for minority/disadvantaged and women-owned enterprises.



CAPITAL SPEND \$223 million

PERFORMANCE PERIOD

2012 - 2020

SERVICES

- Construction management
- Program management
- Engineering and design
- Operations and maintenance
- Permitting/licensing

South Fork Improvements

WINSTON-SALEM, NC

Black & Veatch oversaw construction of critical improvements spread across 10 separate project for this \$120 million program. Projects included a new 150 mgd consolidated influent pump station, 1,100-kW dual fuel generator, flow equalization facilities and aeration improvements. The program also featured multiple pipelines, including more than five miles of force mains and 3 miles of gravity interceptor.

Key Accomplishments

- Improvements also included an upgrade of an existing 10 mgd sewer lift station and construction of a new 150 mgd consolidated influent and transfer pumping station.
- Pipeline inspection and evaluation services using CCTV, laser and sonar for 65,000 linear feet of existing gravity interceptor.
- Conceptual design services for all program projects.
- Funding administration for more than \$100 million in Clean Water State Revolving Fund (CWSRF) loans and federal grants to cover construction costs.
- State-of-the-art wastewater treatment plant performance management system.



CAPITAL SPEND \$120 million

PERFORMANCE PERIOD

2013 - 2021

SERVICES

- Alternative delivery and procurement strategy
- Bidding phase management
- Contract administration
- PMIS implementation
- Quality assurance inspections
- Cost and schedule control
- Startup and commissioning

Water

For more information, contact us at
bv.com/water

