



UPGROUND RESERVOIRS

CHALLENGE

A RAPIDLY GROWING AREA WAS IN NEED OF A SUSTAINABLE WATER SUPPLY FOR ITS MORE THAN 1.5 MILLION RESIDENTS TO SERVE THE COMMUNITY WELL INTO THE FUTURE.

SERVICES

- Architecture
- Environmental Engineering
- Environmental Planning
- M/E/P Engineering
- Public Involvement
- Right of Way
- Roadway Engineering
- Structural Engineering
- Survey + Mapping
- Telemetry
- Traffic Engineering
- Water Modeling
- Water Resources

AWARDS



2015 NATIONAL RECOGNITION AWARD

American Council of Engineering Companies (ACEC) National

2015 OUTSTANDING ACHIEVEMENT AWARD

American Council of Engineering Companies (ACEC) of Ohio

2015 OUTSTANDING ENGINEERING ACHIEVEMENT AWARD

Franklin County Chapter of Ohio Society of Professional Engineers (FCC-OSPE)

2015 OUTSTANDING ENGINEERING ACHIEVEMENT AWARD

Ohio Society of Professional Engineers (OSPE)

2015 TOP PROJECTS AWARD

Water & Wastes Digest (W&WD)

UPGROUND RESERVOIRS

In order to provide adequate water supply for the future, the City of Columbus is constructing three upground reservoirs to be supplied by the Scioto River which flows from north to south through the city.

The first of the three reservoirs, named the John R. Doult Upground Reservoir, was officially dedicated on

September 30, 2014 in honor of the former Columbus Water Administrator.

The John R. Doult Upground Reservoir project received numerous awards, including the 2015 National Recognition Award from the American Council of Engineering Companies (ACEC).

JOHN R. DOULT UPGROUND RESERVOIR HIGHLIGHTS

- \$1 million saved in energy costs through the use of an inflatable dam
- More than 1.5 million residents served
- 850-acre reservoir
- 9.3 billion gallons of water
- 37 million square feet of geomembrane liner, making it one of the largest synthetically-lined reservoirs in the nation
- 20,000 linear feet of 72-inch steel pipe used for the phase 1 raw water line
- 150-foot wide inflatable weir installed in the Scioto River

MORE THAN 20 YEARS OF PLANNING + WORK

The city commissioned a team led by ms consultants to provide preliminary and final design for the proposed reservoirs recommended in the feasibility study. The three reservoirs will occupy 2,500 acres of land in northwest Delaware County, which is located north of the city and adjacent to Franklin County.

Preliminary design for the reservoirs included:

- Subsurface investigations;
- Establishment of the reservoir footprints and construction sequence;
- Detailed site surveys;
- Evaluation of the alternative locations for the raw water pump station;
- and, Evaluation of alternatives for transmission main pipelines.

The evaluation criteria included:

- Design constraints
- Availability of adequate power supply

- Subsurface conditions
- Environmental protection
- Impacts to the community
- Right-of-way acquisition and construction costs
- Operation and maintenance consideration
- Recreational use opportunities
- Security requirements

In addition, the ms team provided environmental investigations for the reservoirs, including Cultural Resources; Terrestrial Habitats; Wetlands; Aquatic Habitats; Hazardous Material Investigations. The results of the environmental studies were used for preliminary design and analysis of alternatives; detailed design of selected option; documentation for permit applications; defining potential construction mitigation elements; and identifying any operational considerations.

COORDINATING A SUCCESSFUL PROJECT

ms also provided the extensive regulatory agency and permitting coordination that a project of this complexity and magnitude requires. The agencies involved include:

- Ohio Environmental Protection Agency (OEPA)
- Ohio Department of Natural Resources (ODNR)
- United States Army Corp of Engineers (USCOE)
- Ohio Department of Transportation (ODOT)
- Delaware County
- Ohio Historic Preservation Office
- Mid-Ohio Regional Planning Commission (MORPC)
- Del-Co Water Co.
- Local townships

Some of the many permits and approvals that were coordinated include 404/401 permits, NPDES stormwater permits, OEPA plan approval, FEMA approval, erosion control plans, and ODNR permits, among others.

SUPPLYING WATER FOR THE FUTURE

The three planned reservoirs will store approximately 18.3 billion gallons of water, and will provide a design safe yield up to 53 MGD of potable water to Columbus and Del-Co Water Company consumers under a 50-year drought condition.

The reservoirs will be constructed over the next 15-20 years.