East Park Reservoir

96 million gallons of covered water storage for the city of Philadelphia

Ross Robertson, P.E. – JACOBS/CH2M
Brian Lee, P.E. – JACOBS/CH2M
John Muldowney, P.E. – Philadelphia Water Department
Frank Houston, P.E. – DN Tanks
Agenda

• History of East Park Reservoir
• Project Overview and Design Components
• Construction Overview, Strategies, and Challenges
• Community Partnership Opportunity
A Brief History of East Park Reservoir

- Reservoir planned following severe drought of 1869
- Construction started in 1871 and completed in 1889
A Brief History of East Park Reservoir
Design Timeline

- Transmission System Model Analysis
- Reservoir Alternative Analysis
- Design Project
Critical Success Factors

• Improve resiliency of East Park Reservoir
• Minimize visual impact and disturbance to the community
• Uninterrupted service to water customers
• Provide operational flexibility
Project Features

- Three 32 MG AWWA D110 prestressed concrete storage tanks
- Yard piping to/from tanks
- Influent Control Building
- Effluent Metering Building
- Stormwater and Overflow management
- Rain garden
- Electrical, instrumentation and controls, and site security
Developed Phases

Phase 1: Tank 1 construction
Phase 2: Northeast Basin decommissioning and Tank 2 construction
Phase 3: Tank 3 construction
Exterior Tank Features

• Leak detection and underdrain
• Walls are vertically and horizontally prestressed
• Independent wall structure
  – Flexible floor to wall connection
Yard Piping Features

• 48” express feeds from two water treatment plants
• 64” tank influent
• 60” tank effluent
• 54” overflow
Green Infrastructure

- 5 MG capacity Infiltration Basin
  - Receives overflow from tanks
- Effluent control gate with dechlorination structure
  - Stormwater does not leave the site
Green Infrastructure

Rain Garden

- Receives stormwater flow from 33rd Street
- Improves quality of water to Schuylkill River
- Creates appealing entrance to park
Project Schedule

• Project Kickoff (4/16)
• Clearing in NW Basin (5/16)
• Tank 1 Construction (6/16)
• Influent Tie-in (7/17)
• Tank 1 Commissioning (10/17)
• NE Basin Demolition (3/18)
• Tank 2 & 3 Construction (6/18)
• Tank 2 & 3 Commissioning (7/19)
AWWA D110 Prestressed Concrete Tank Construction

- Capacity: Three 32 MG Tanks
  - Each tank capacity equivalent to just under 50 Olympic-sized swimming pools
- Tank Dimensions: 400’ Diameter x 35’ Wall Height
- Roughly 16,000 CY concrete for each tank
- 170 miles of prestressing for each tank
  - Kalahari to State College!
Community Partnership Opportunity

- Audubon PA and Philadelphia Outward Bound Discovery Center
- Nearly 200 species of migrating birds are believed to used the reservoir
- 50 Acres of land and “lake”
Overview of The Discovery Center
Thank You! Questions?