Massachusetts Water Resources Authority

Spot Pond tank and pump station

January, 2015
Outline

• Area Served by Project
• Need for Project
• Project approach: Design / build.
• Project features
• Construction photos
• Operational Challenges
Need for Project: Gillis Pump station redundancy
Need for Project: Low Service System
Need for Project: No Storage in "Northern Low"

Loring Road Tanks
20 MG

Shaft W

Nonantum Rd

Shaft 8

Shaft 9

Shaft 9A

Malden R.

Mystic R.

Chelsea Cr.

Chestnut Hill

Spot Pond

Northern Low

Boston Low
Two Problems. One project.

- Spot Pond Water Storage Facility
- Design/build project awarded to Walsh Construction Company in November 2011
- Project consists of
  - 20 MG storage tank in two separate cells
  - Pump station for NIH and NH service area
- Construction underway
Plan:

- Ravine Road
- New England Regional Hospital
- To Gillis P.S. and Spot Pond
- Low Service connection (suction)
- Covered Storage Tank 1
- Covered Storage Tank 2
- Pump Station
- Detention Basin
- Overflow pipe
- To Fells Covered Storage
- High and Intermediate High service connections (discharge)
Site Prior to Construction, October, 2010
Miles of Steel Rebar, July, 2013
Steel and Concrete for Roof Slab, Sept, 2013
Clearing Pipeline Road for New Pipe Installation, Sept, 2013
Concrete Slab Placement, Oct, 2013
Tons of Steel to Tie
Staging to Support Roof Slab Installation, Oct, 2013
Last Section of jacked pipe, March, 2014
Mobile Pumps Behind Gillis Pump Station, March, 2014
Discharge Connection to Section 89, March, 2104
Low Service Tie-in, Ravine Road, September, 2014
Duct bank installation in pipeline road, September, 2014
Northern High/Northern Intermediate High Pumping

Northern Intermediate High Pressure Zone

Bear Hill
Capacity: 6mg
Overflow Elev. = 330’
Bottom Elev. = 300’
Stoneham

Fells Covered Storage
Capacity: 20mg
Overflow = 273’
Bottom Elev. = 251’
Stoneham

Elevation in Feet (BCB)

Spot Pond Reservoir (standby)
High Water Elev. = 160.9

Emergency Connection

Gillis PS
Floor Elev. = 168’
Stoneham

Suction:
Section 99
Connected to Shaft 9A Lines

Spot Pond PS (future)
Floor Elev. = 168’
Stoneham

Section 64
Section 13
Section 10 & 80A
Section 99

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Operational Challenges

Spot Pond Pump Station (SPPS) and Low Service Storage Facility

- 6 MG
- 9.1 MGD
- 4.2 MGD
- 11.7 MGD
- 20 MG
- 2.6 MGD
- 4.2 MGD
- 4.2 MGD
- 20 MG