Dry Weather Flows to Chelsea Screen House
Wet Weather Flow Paths
Through Chelsea Screen House
Spot Pond Low Service Tank Supply
Lower Service Pressure Zone

Low Pressure Zone

- Low Service (180-200')
- High Service (230')
- Intermediate High (320')
- Northern Intermediate High (330')
- Southern Extra High (440')
- Northern Extra High (440')

Legend:
- Transmission
- Boosted Areas
- Transmission Shuffles

Map showing various pressure zones and transmission areas in a regional context.
Low Service Tank

- 20 MG storage
- Flow thru tank
- Low Service to supply;
  - East Boston, Chelsea, Everett, Malden, Medford and Somerville
- When pumping, additional supplied communities
  - Melrose, Reading, Saugus, Stoneham, Wakefield, Wilmington, Winchester and Woburn
20-Million Gallon Flow-Through Tank

Spot Pond Covered Storage Facility
Pumping

Pumping Schematic

Bear Hill Tank

Fells Covered Storage

Spot Pond Covered Storage

NIH-5

NIH-4

HS-3

HS-2

HS-1

Intermediate High Service

High Service

Low Service
Low Service Area prior to Transition
Nonantum Road PRV
Nonantum Road PRV

- Each PRV has a Capacity of 0 to 30 MGD
- One Valve will be in Service and the Other will Remain as a backup.
- Dual Pilot Control to Maintain Hi/Lo Downstream Pressure Settings Based on Tank Level
- During Power Failure – Low Hydraulic Pilot Valve will Supply System.
  - This is similar to Deer Island Tank Operation
Transition steps

• Increase gradeline at Shaft 9A from 180 FT to 190 FT BCB
  – Pressure increase of 3 psi to East Boston, Chelsea, Everett, Malden, Medford and parts of Somerville

• Increase gradeline at Nonantum Road from 185 FT to 190 BCB. Open to Shaft 9 Service Area making this one zone
  – Pressures increase of 4 psi to Brighton, Charlestown and parts of Somerville

• Last step – Tank is ready to come on line. The gradeline is increase at Nonantum Road from 190 FT to 200 FT BCB. Open to Shaft 9 service area.
  – Brighton, Charlestown and Somerville will see a 2-4 psi increase
  – East Boston, Chelsea, Everett, Malden, Medford will see 1-2 psi increase
Unified Low Service Area
Changes in Operation

• How do the changes affect the communities
  – Pressure increases from 4 psi to 6 psi.
  – Boston, Somerville, Malden and Medford may experience flow reversals within their systems.
  – Potential for leaks during the first few weeks with the new increased pressures. Two weeks after the Shaft 9A was raised, 4 small leaks were reported. Medford reported 3 and Chelsea 1; all on older mains
  – Potential for discolored water. Communities have not reported any water quality issues to date