





# Dry Weather Flows to Chelsea Screen House





# Wet Weather Flow Paths Through Chelsea Screen House





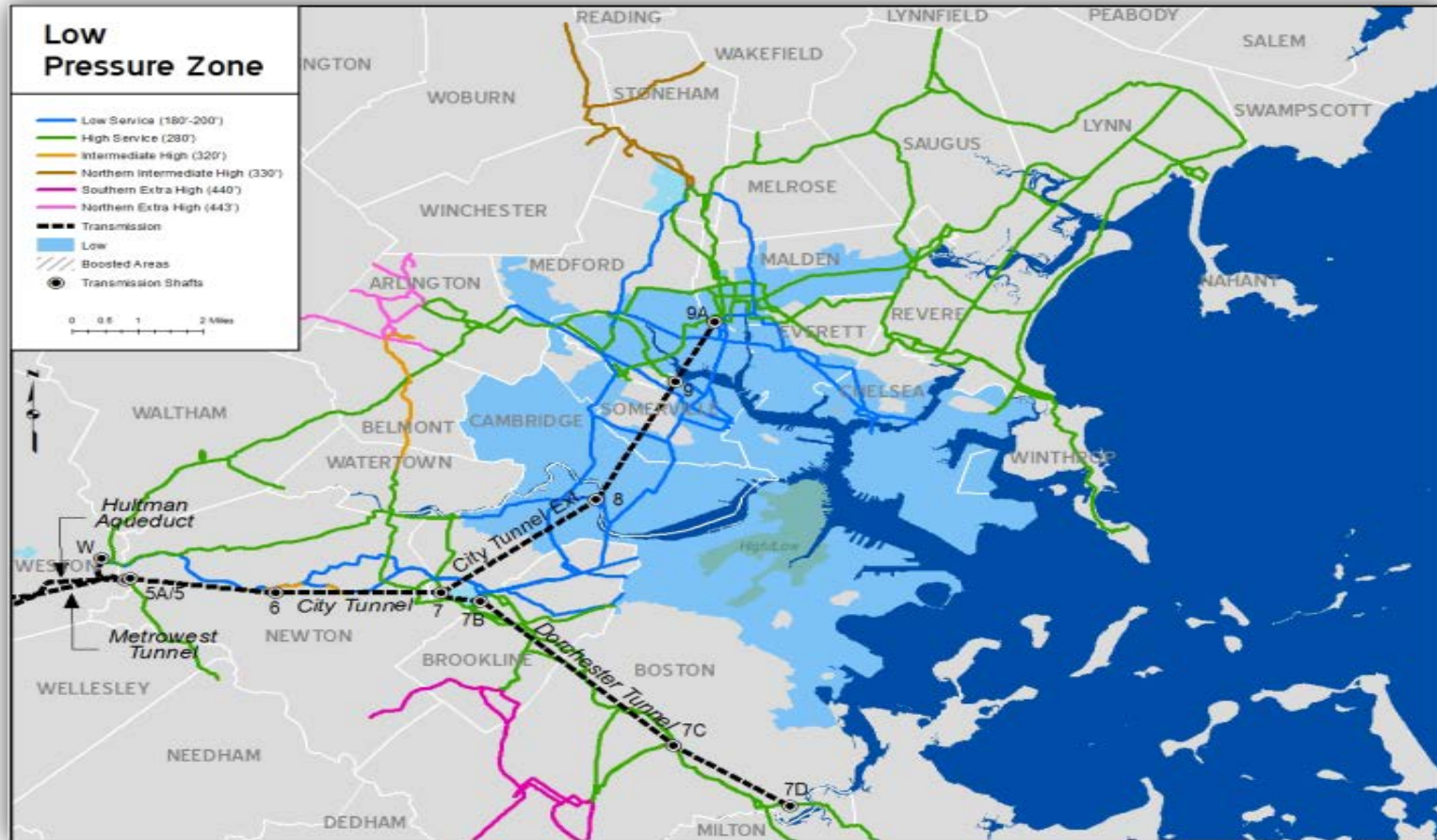


## Spot Pond Low Service Tank Supply





# Lower Service Pressure Zone



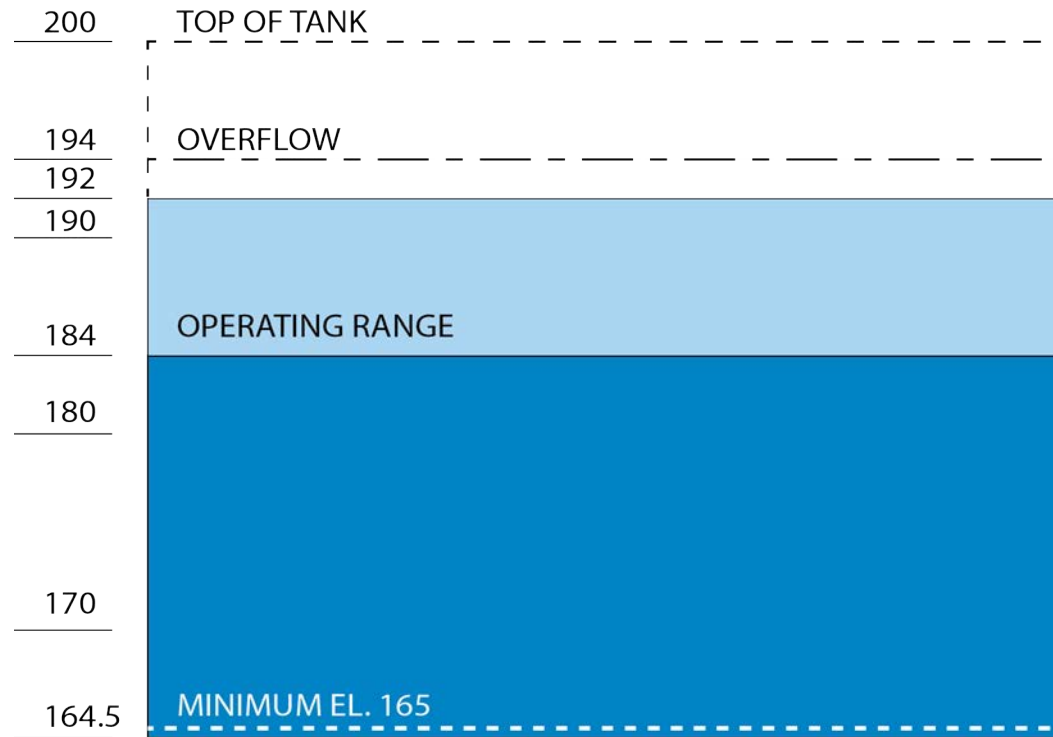


## Low Service Tank

- 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



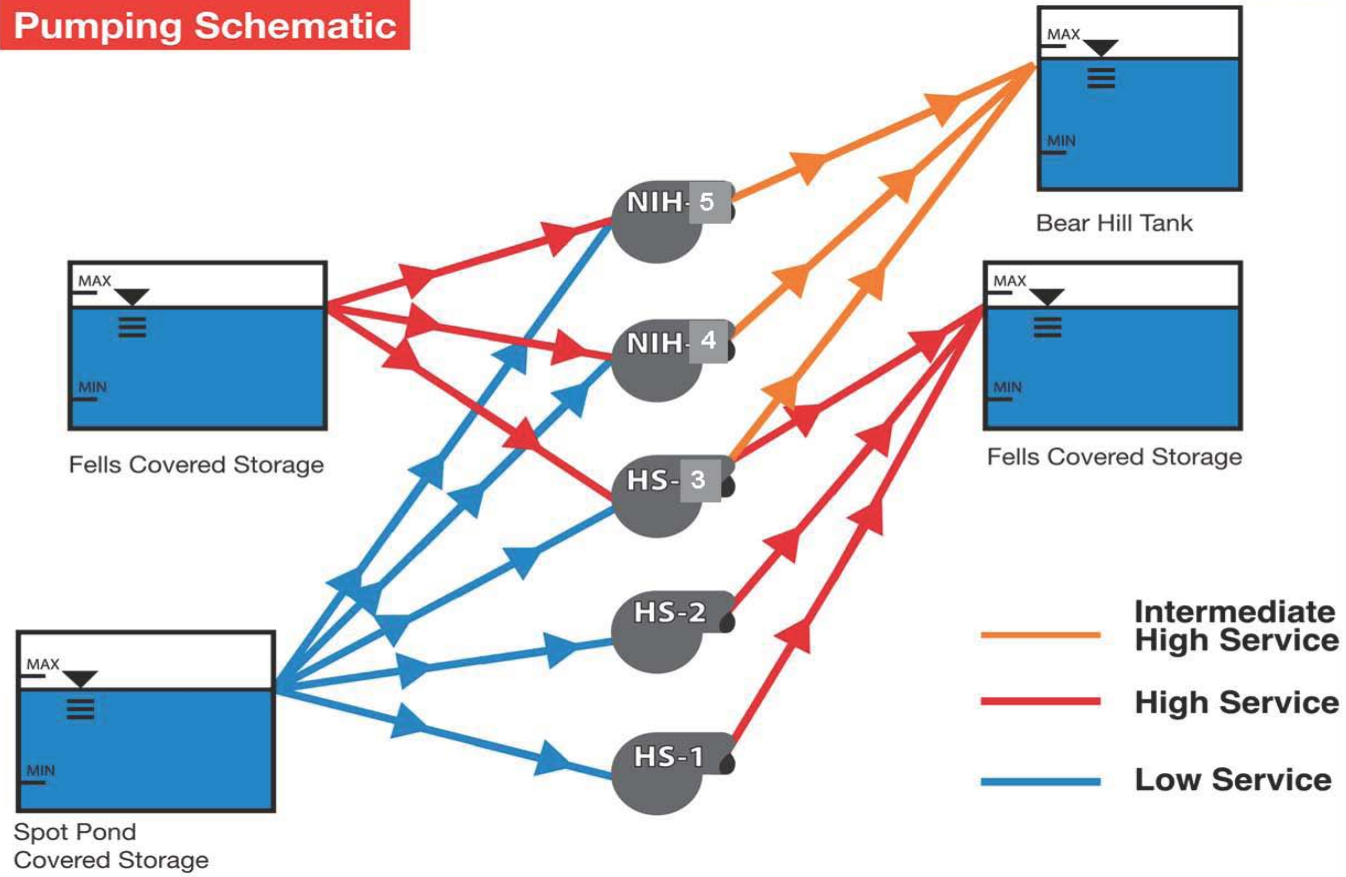
Spot Pond Covered Storage Facility





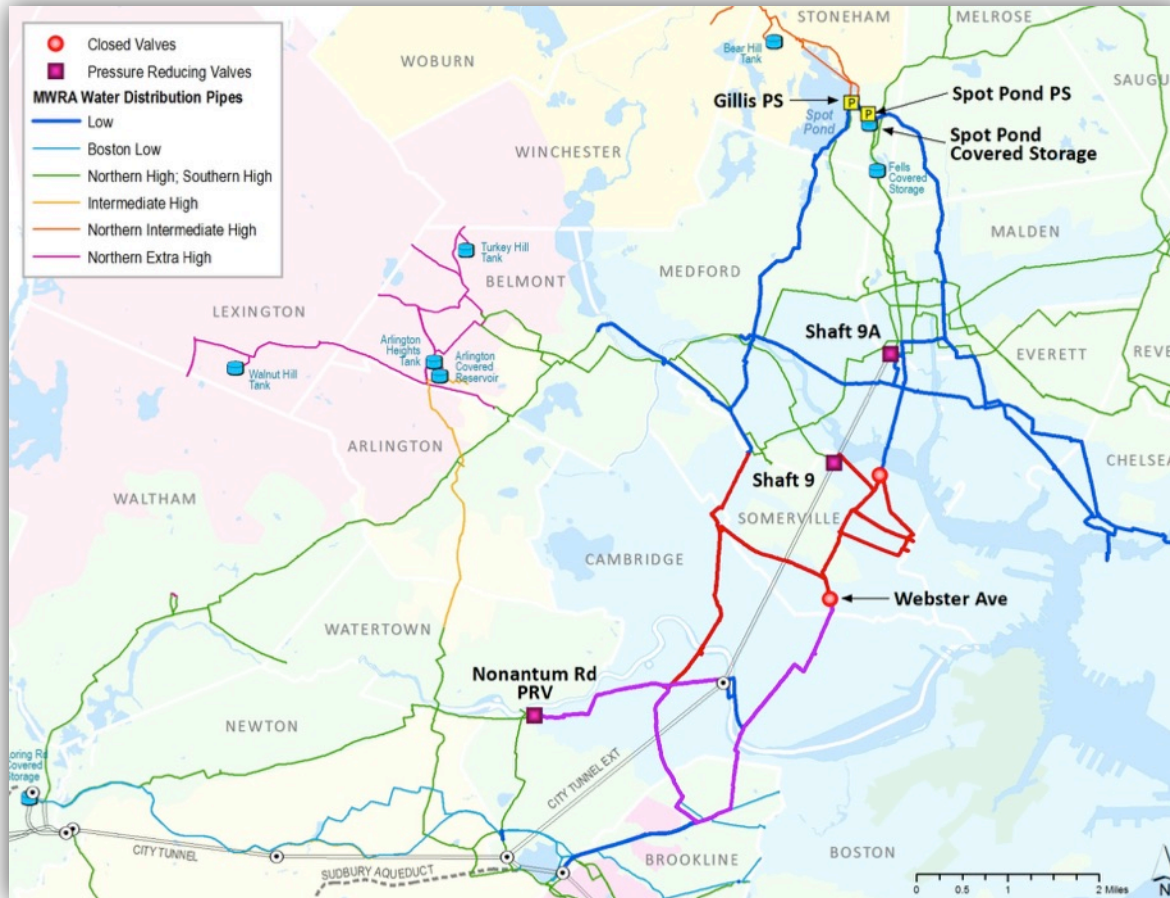
# Pumping

## Pumping Schematic





# Low Service Area prior to Transition





# Nonantum Road PRV



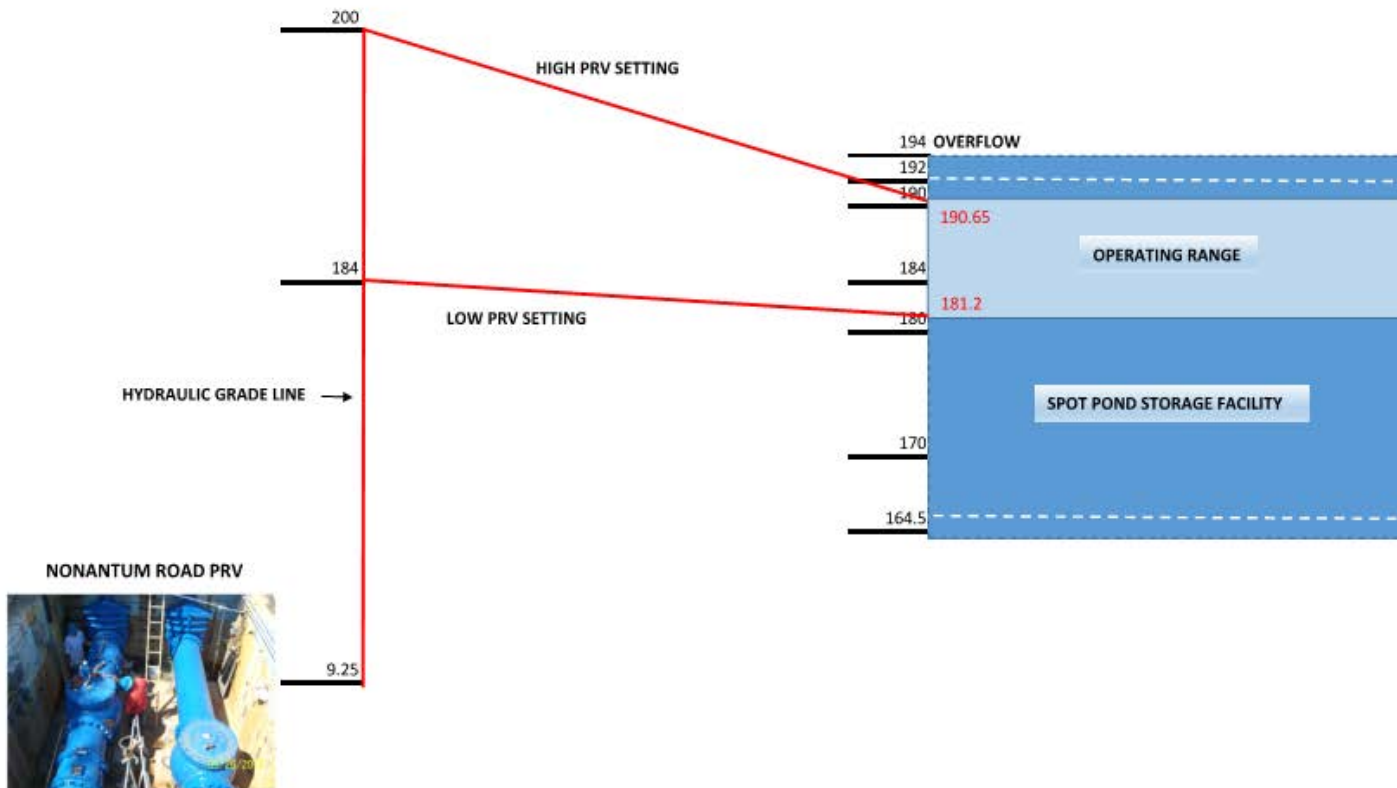


## Nonantum Road PRV

- 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



# Nonantum Road Settings



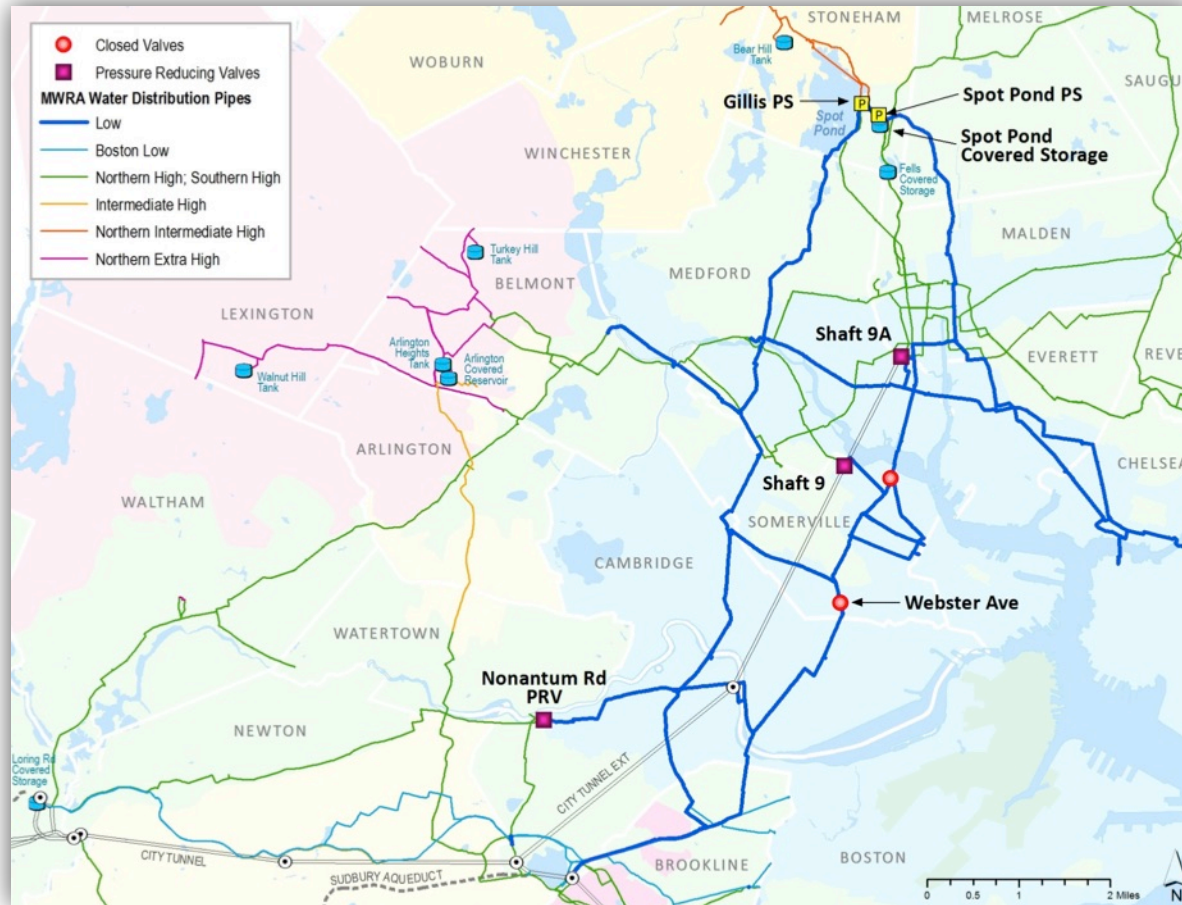


## Transition steps

- 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