



# Capital Program Update

Lynnfield Center Water District  
Building a More Resilient Water Supply

Anne Malenfant P.E.,  
PMP

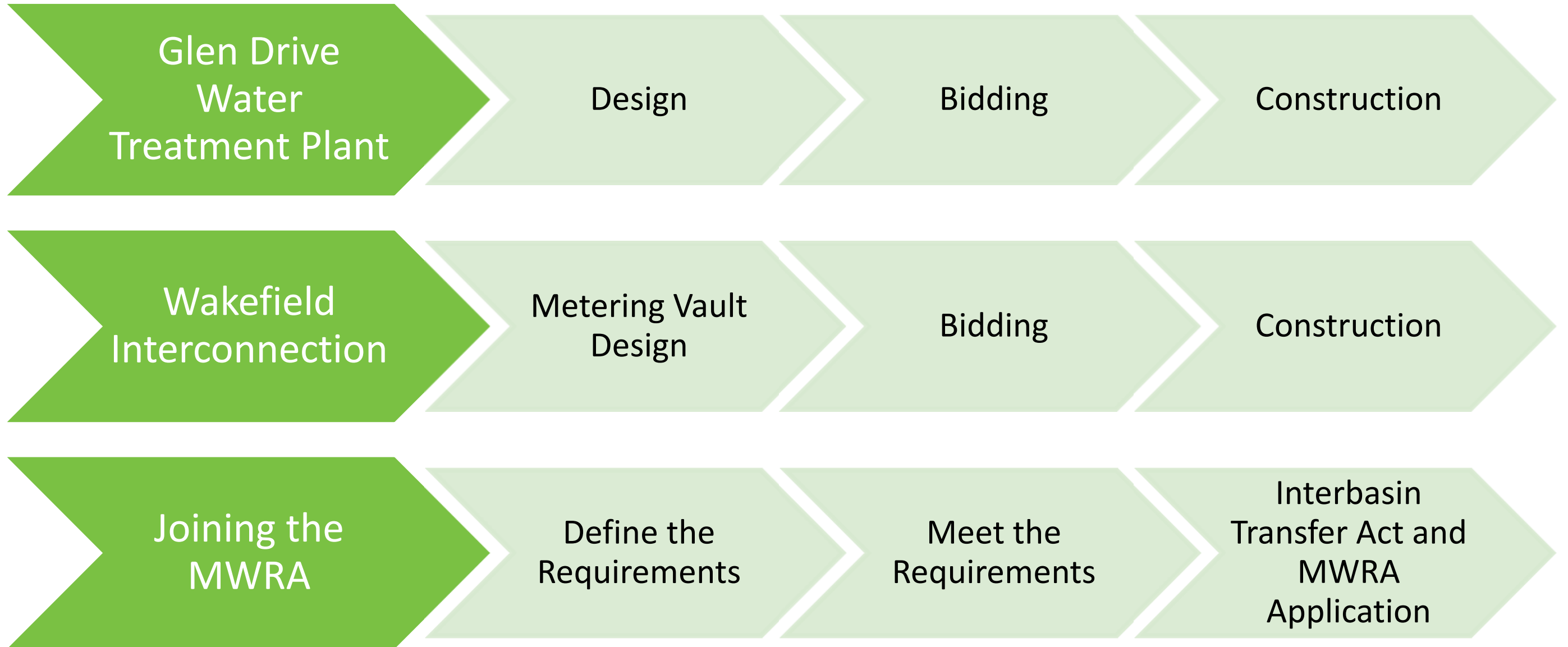
Al LeBlanc, P.E., BCEE

*July 26, 2022*

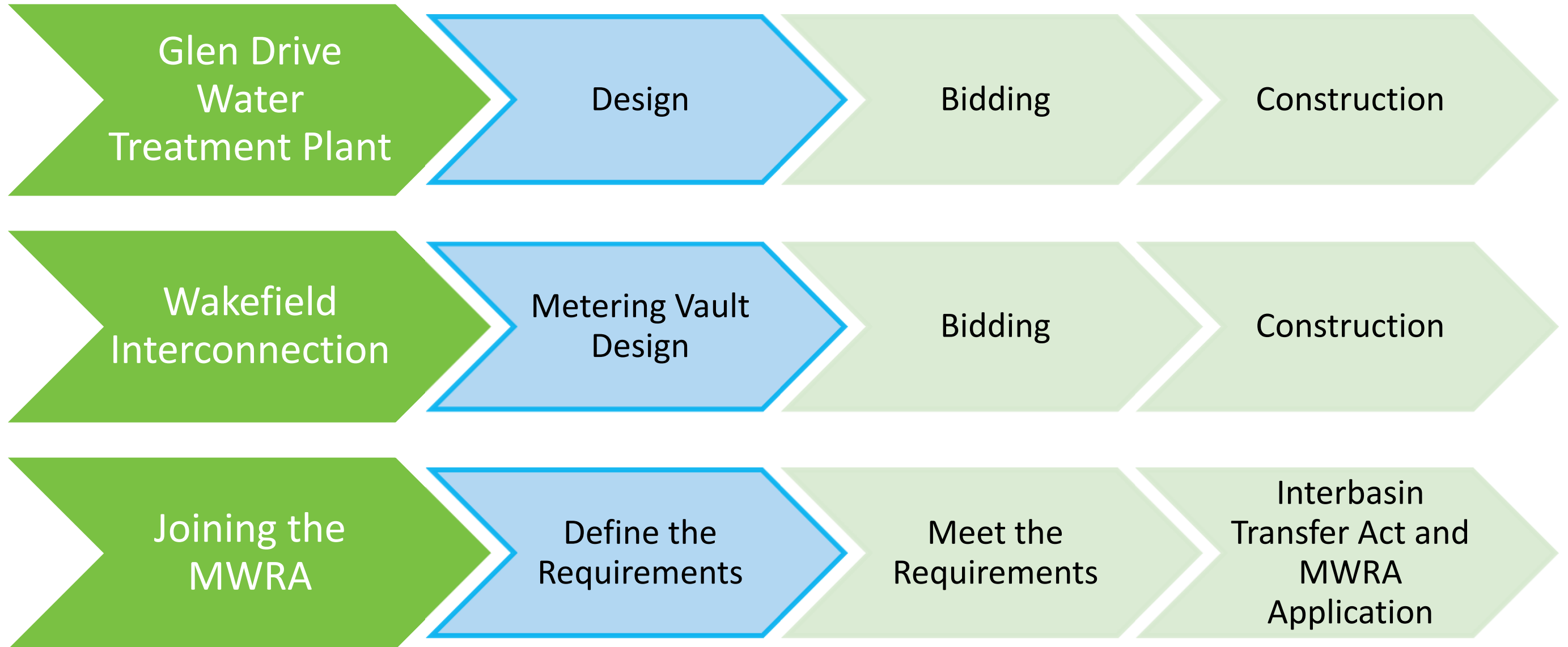


**CDM  
Smith**<sup>®</sup>

# Capital Program Projects



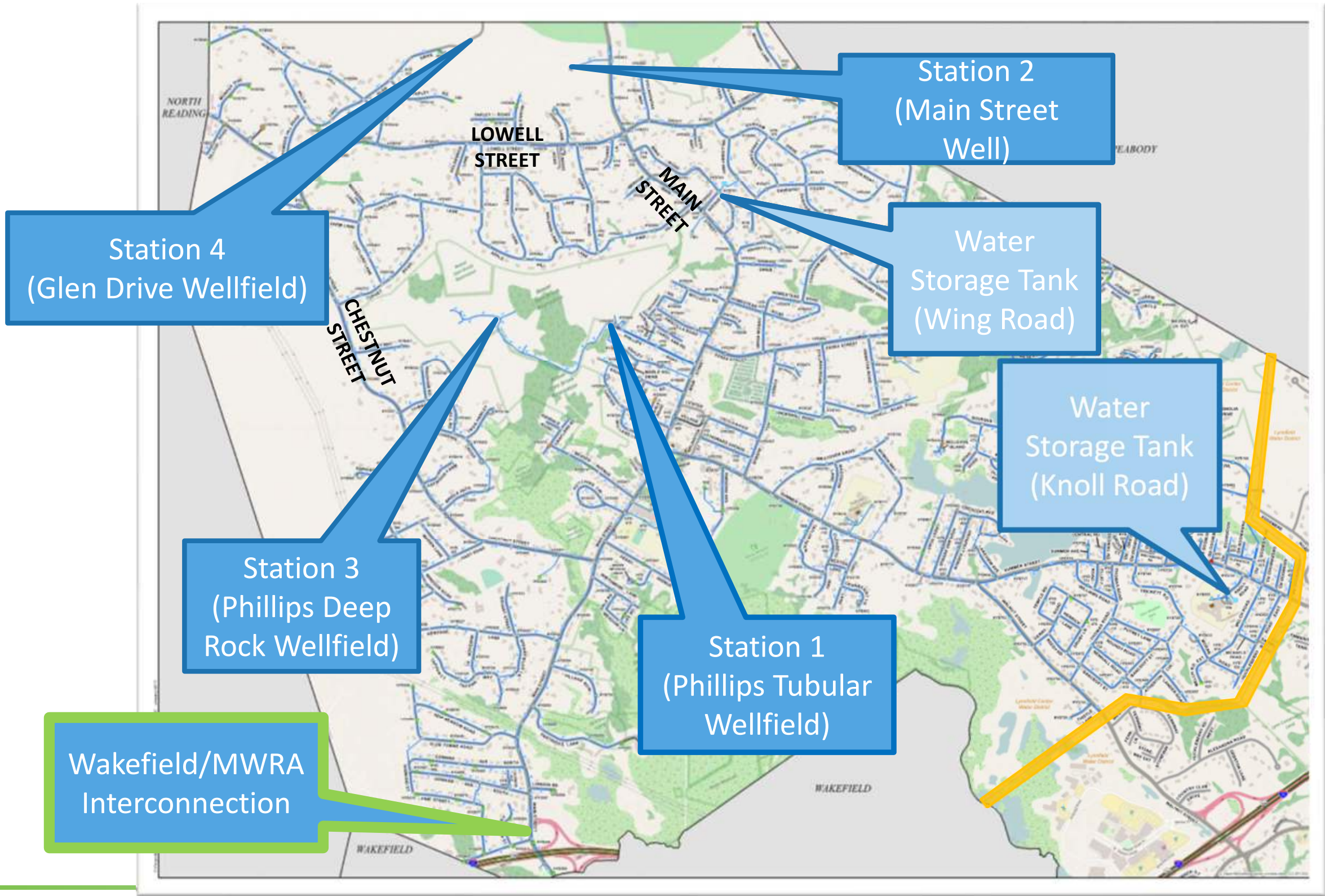
# Capital Program Projects



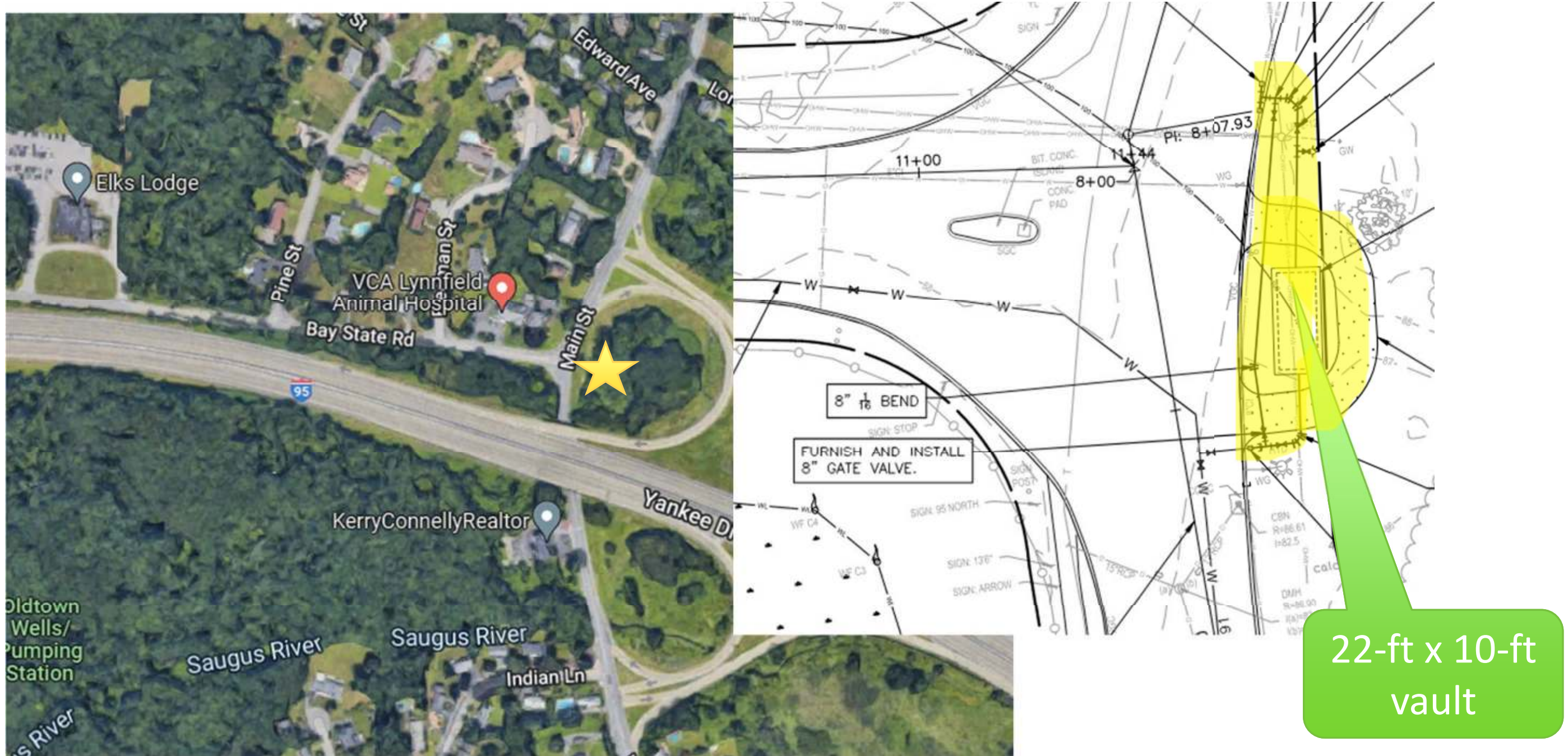
# MWRA/Wakefield Interconnection Design

- Goal is to establish an additional water source for LCWD
- Project will construct a vault to meter and provide location to monitor water quality
- Vault will be located at Main Street and Bay State Road
- MassDOT right-of-way (ROW)

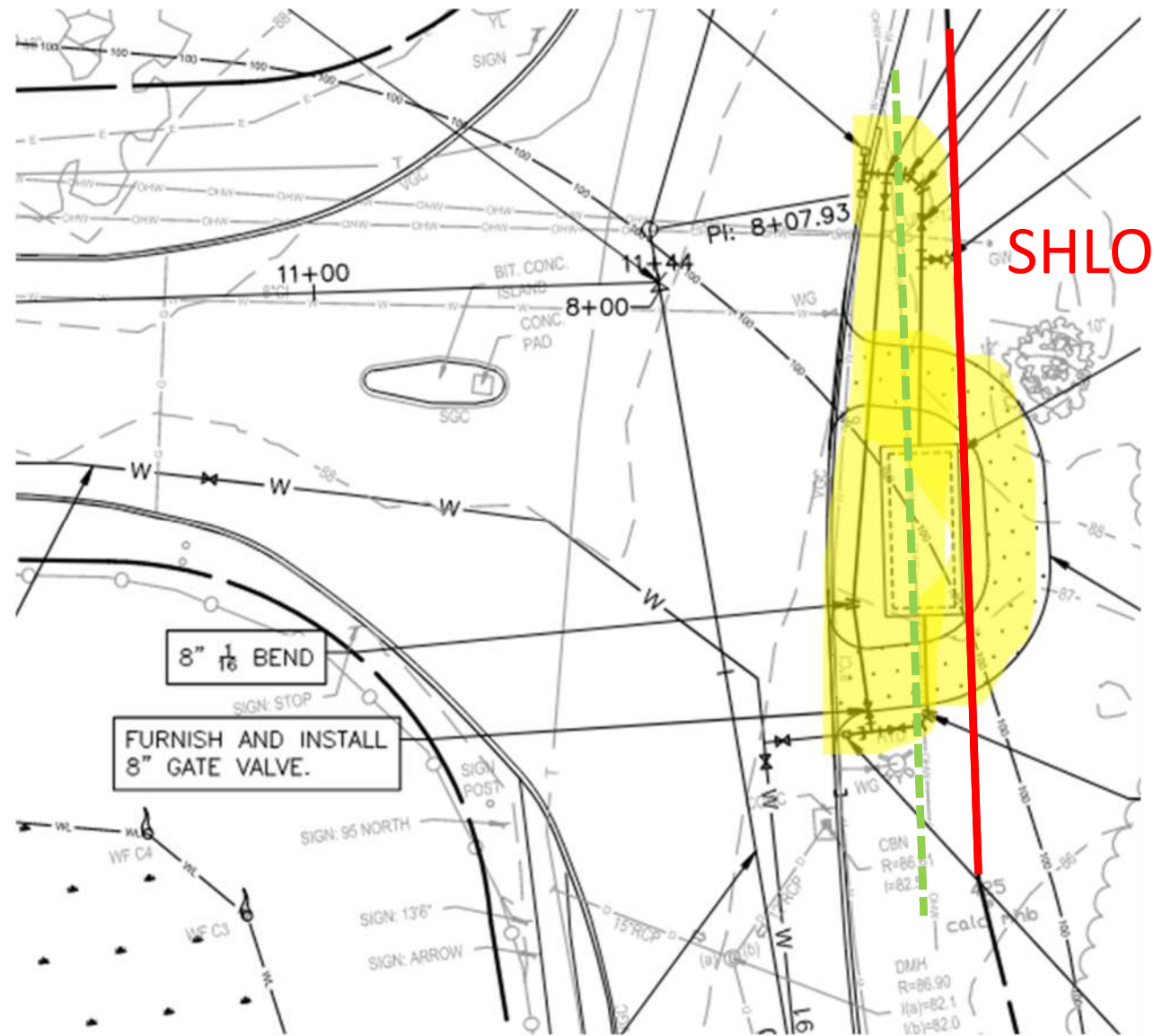




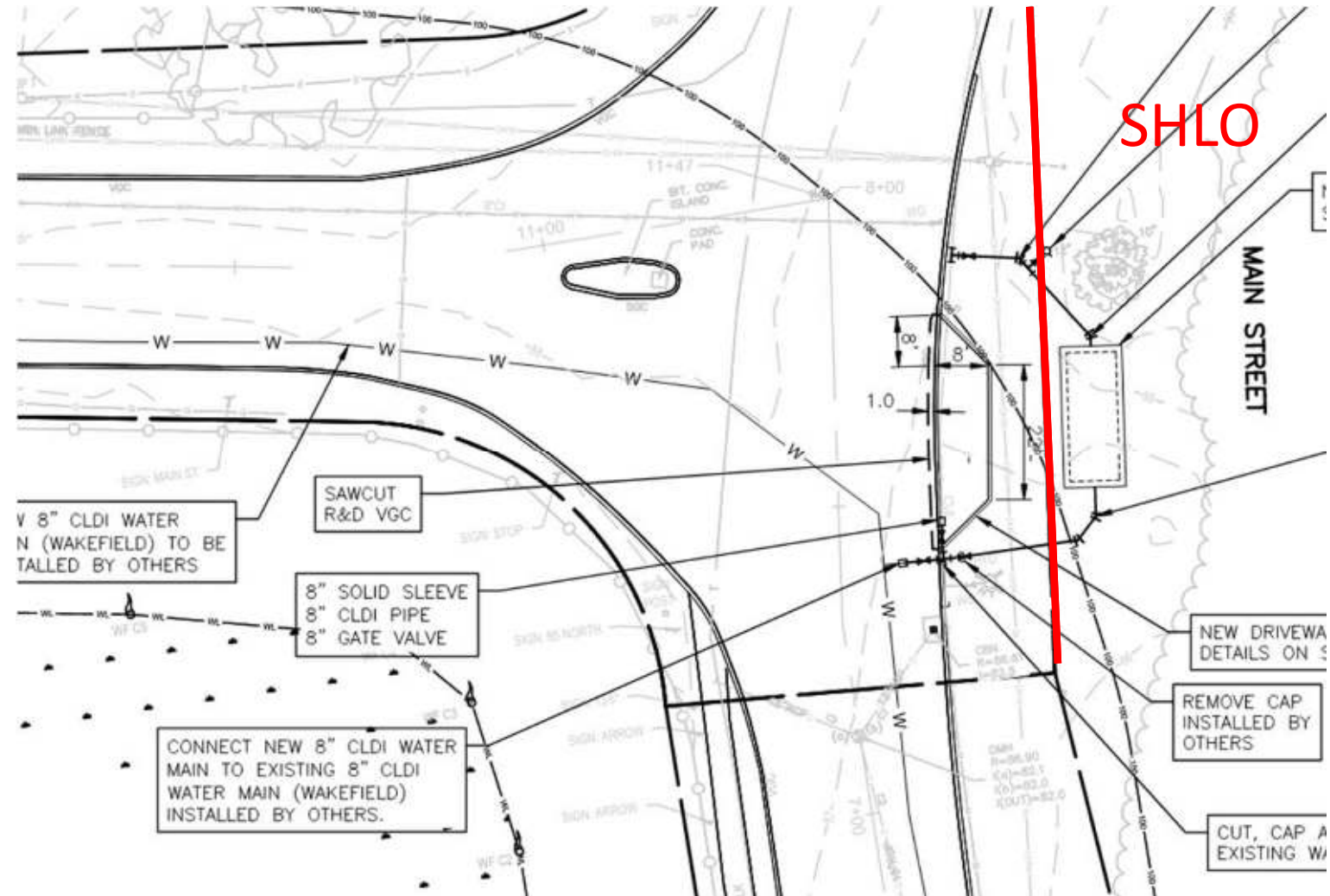
# MWRA/Wakefield Interconnection Design



# MWRA/Wakefield Interconnection Design

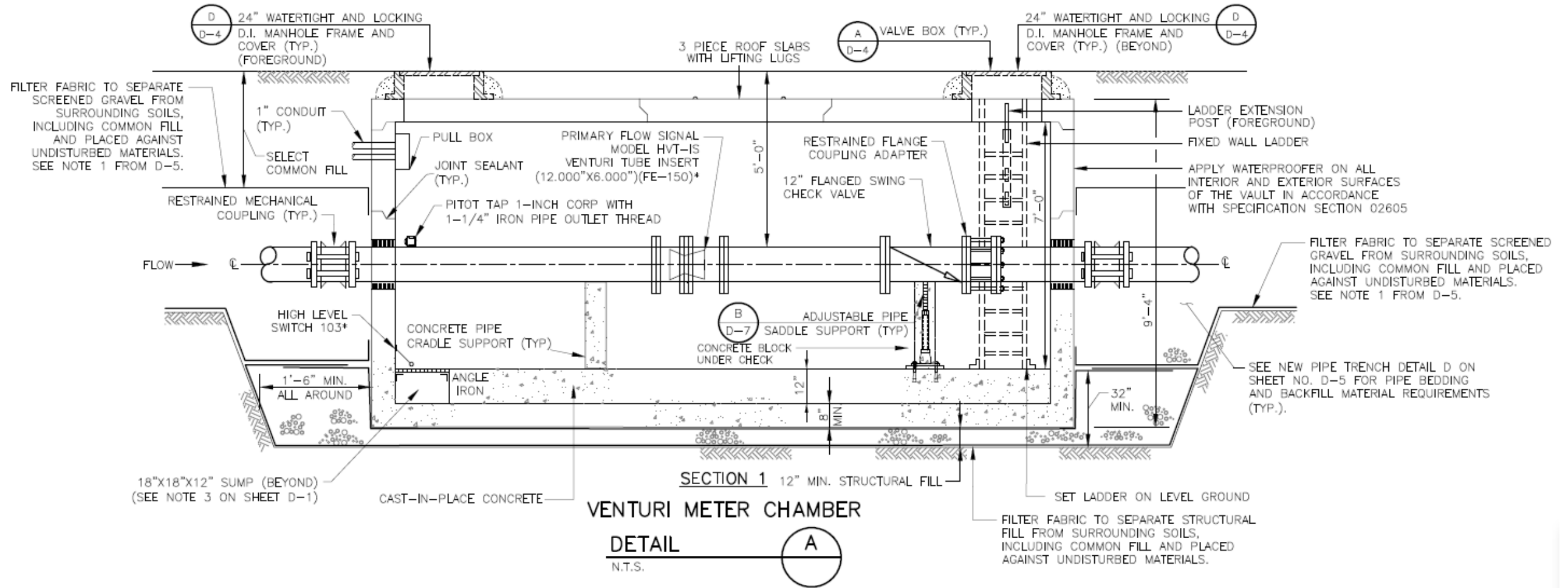


# MWRA/Wakefield Interconnection Design



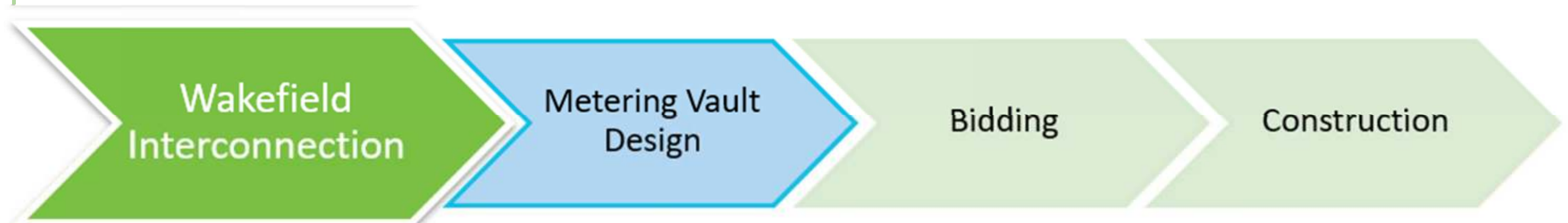


# MWRA/Wakefield Interconnection Design



# Interconnection Project Status

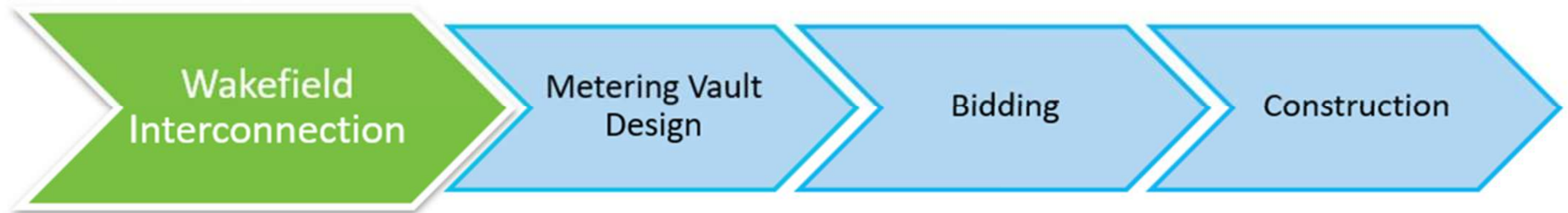
- Relocating vault to SHLO for ease of construction and access
- Coordinate with MassDOT to locate vault in “SHLO”
- Requires survey (MassDOT-approved) of proposed modification
- Extended review period by MassDOT



# Interconnection Project Status

## Next Steps:

- Develop bid documents for Winter 2022/2023 bid
- Construction Spring/Summer 2023
- Parallel project: Complete Interbasin Transfer Act approval
- Parallel project: MWRA admission process
- Parallel project: SCADA connection and upgrades



# Joining the MWRA

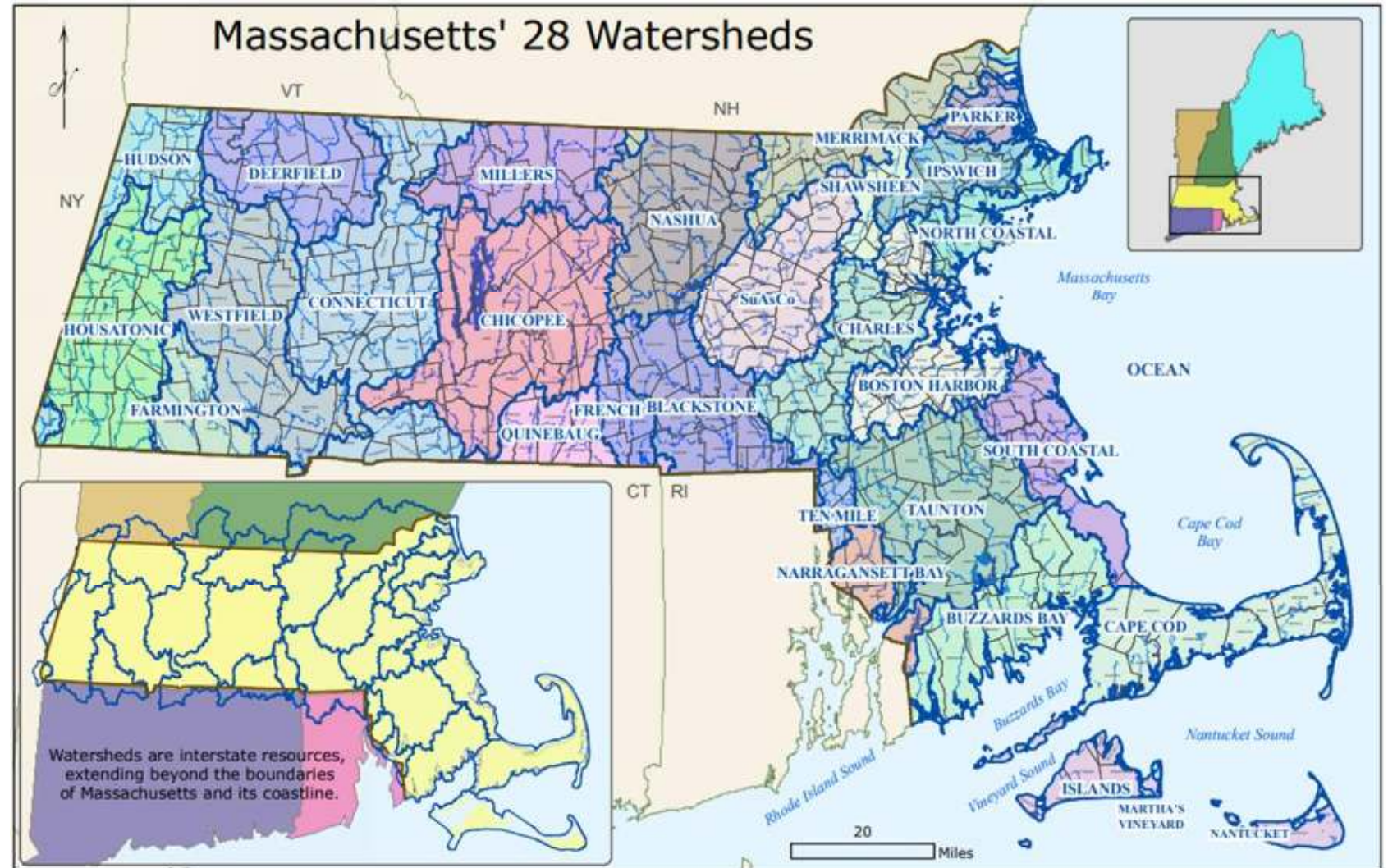
Phase 1 – Determine  
the requirements with  
WRC



- What is the process?
  - LCWD will be taking water from MWRA which withdraws from a different water basin
  - Requires review under the Interbasin Transfer Act (ITA), governed by Water Resources Commission (WRC) for applicability, insignificance and approval
  - Demonstrate acceptance of admission to MWRA by Board of Commissioners
  - Obtain approval of the Legislature and Governor
  - Submit application to the MWRA Advisory Board and Board of Directors community

# WRC Process for ITA

- ✓ Determination of Applicability
- MEPA
  - Environmental Notification Form (ENF)
  - Draft Environmental Impact Report (DEIR)
  - Final Environmental Impact Report (FEIR)
- EIR as Application to WRC for ITA
- WRC Hearings
- WRC Approval for ITA

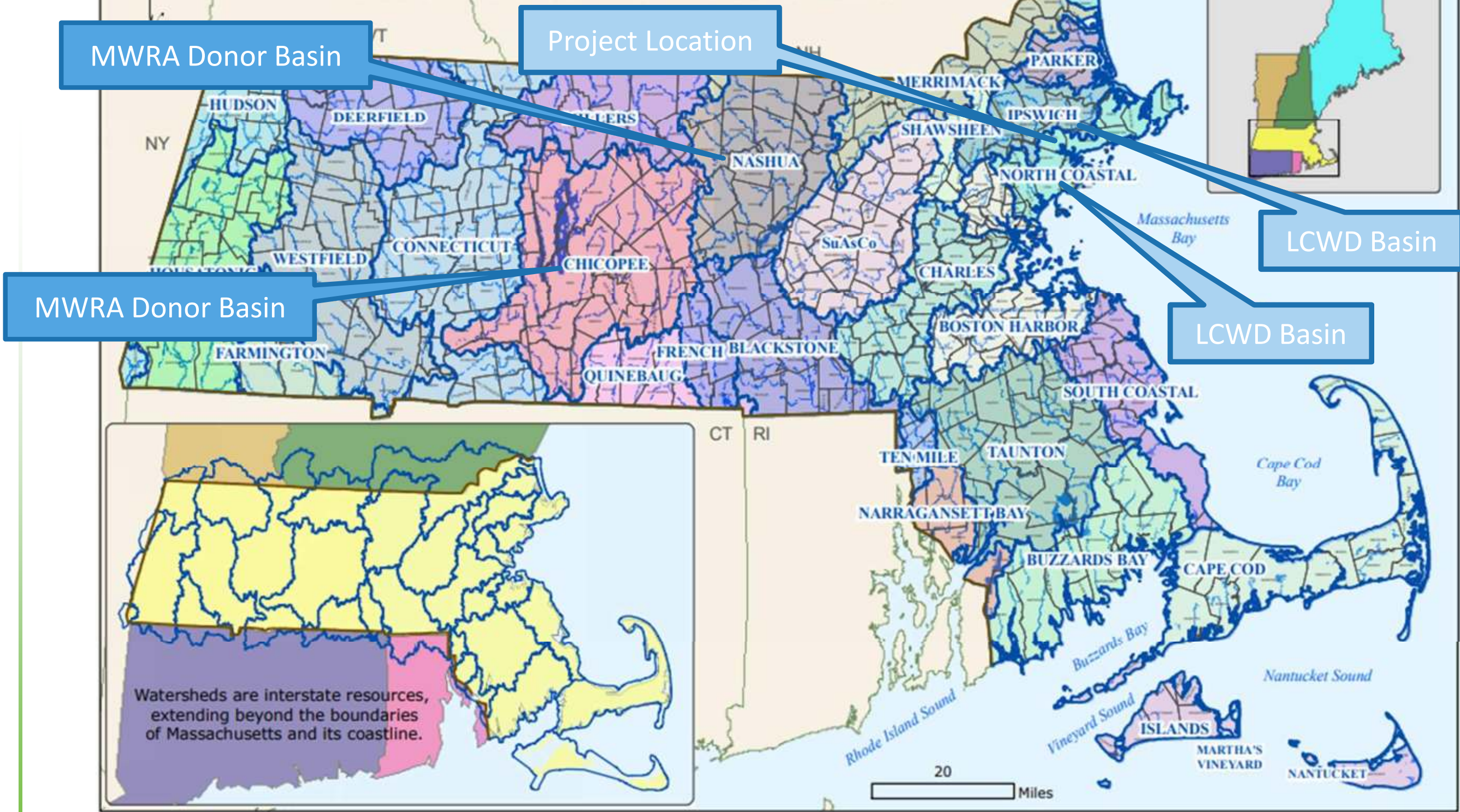


# MWRA Admission – Phase 1

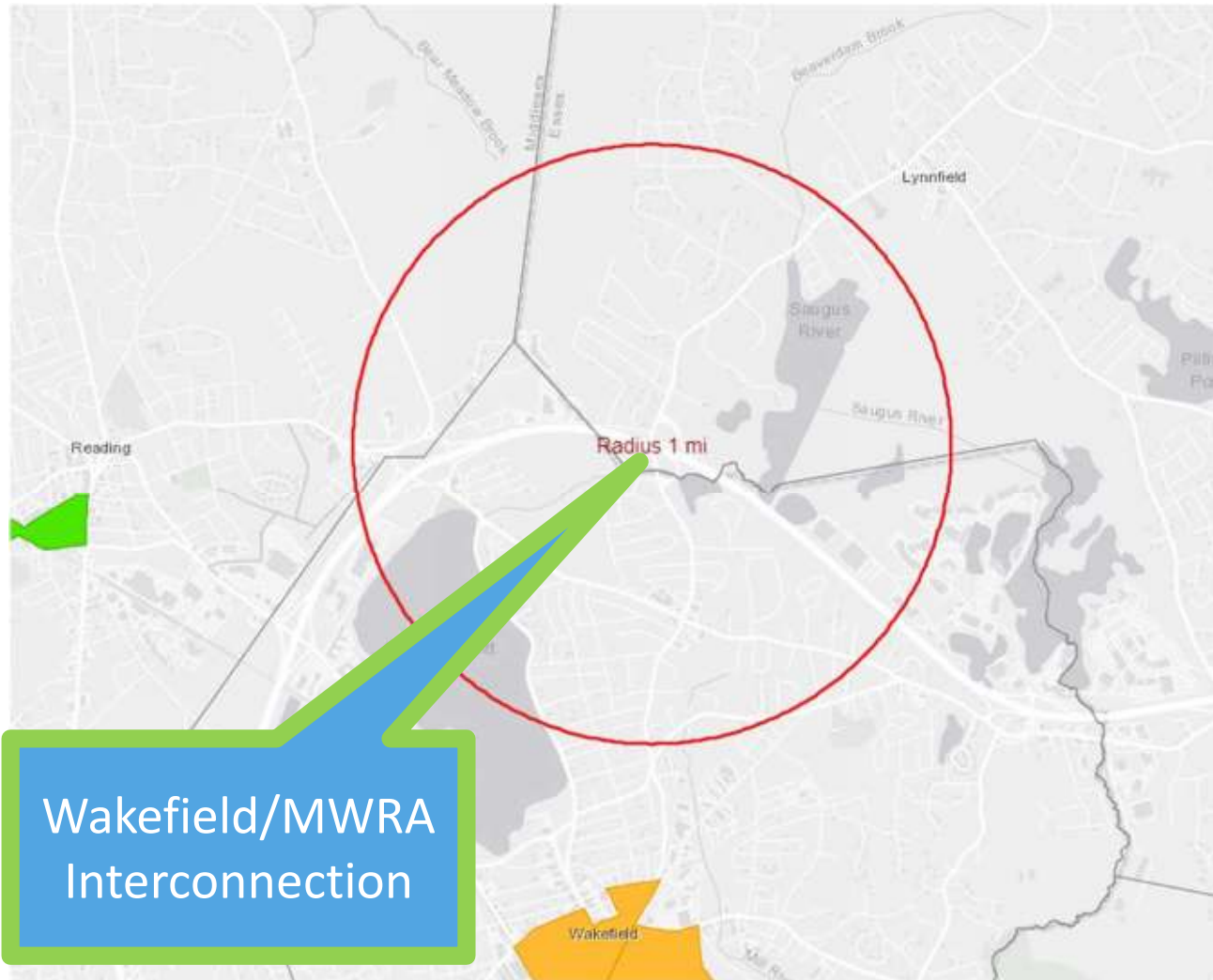
- Completed to Date:
  - Met with WRC, MWRA and MEPA (individually and all together)
    - Familiarized each with the goals of the project
    - Developed understanding of timelines and requirements
    - Review of Environmental Justice (EJ) requirement and project “area”
  - Determined expanded ENR would benefit the process, possible combined Draft and Final EIR



# Massachusetts' 28 Watersheds

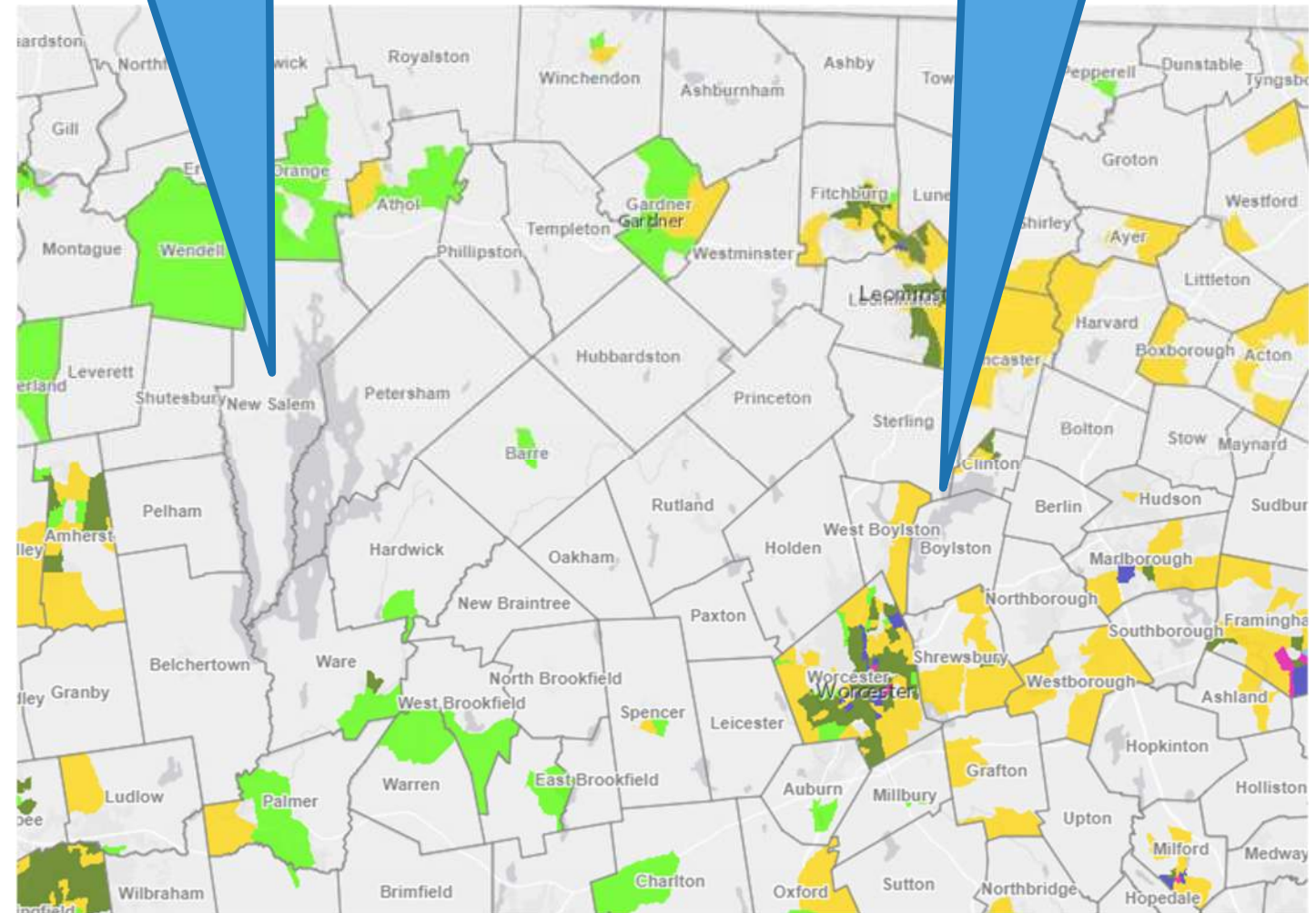


# EJ Communities Adjacent to Project Area



Quabbin Reservoir

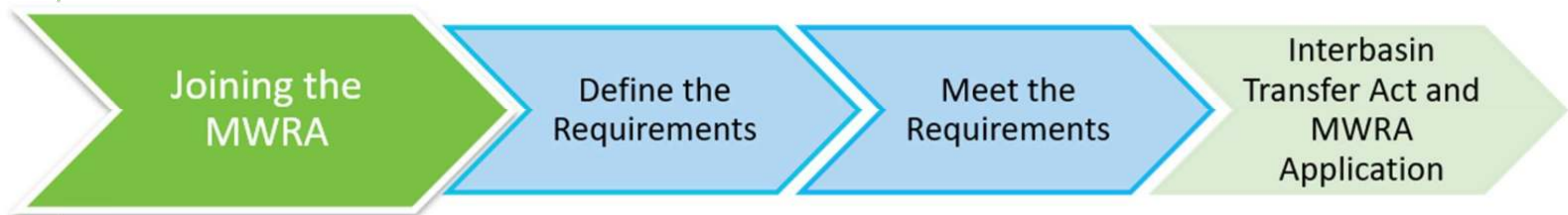
Wachusett Reservoir



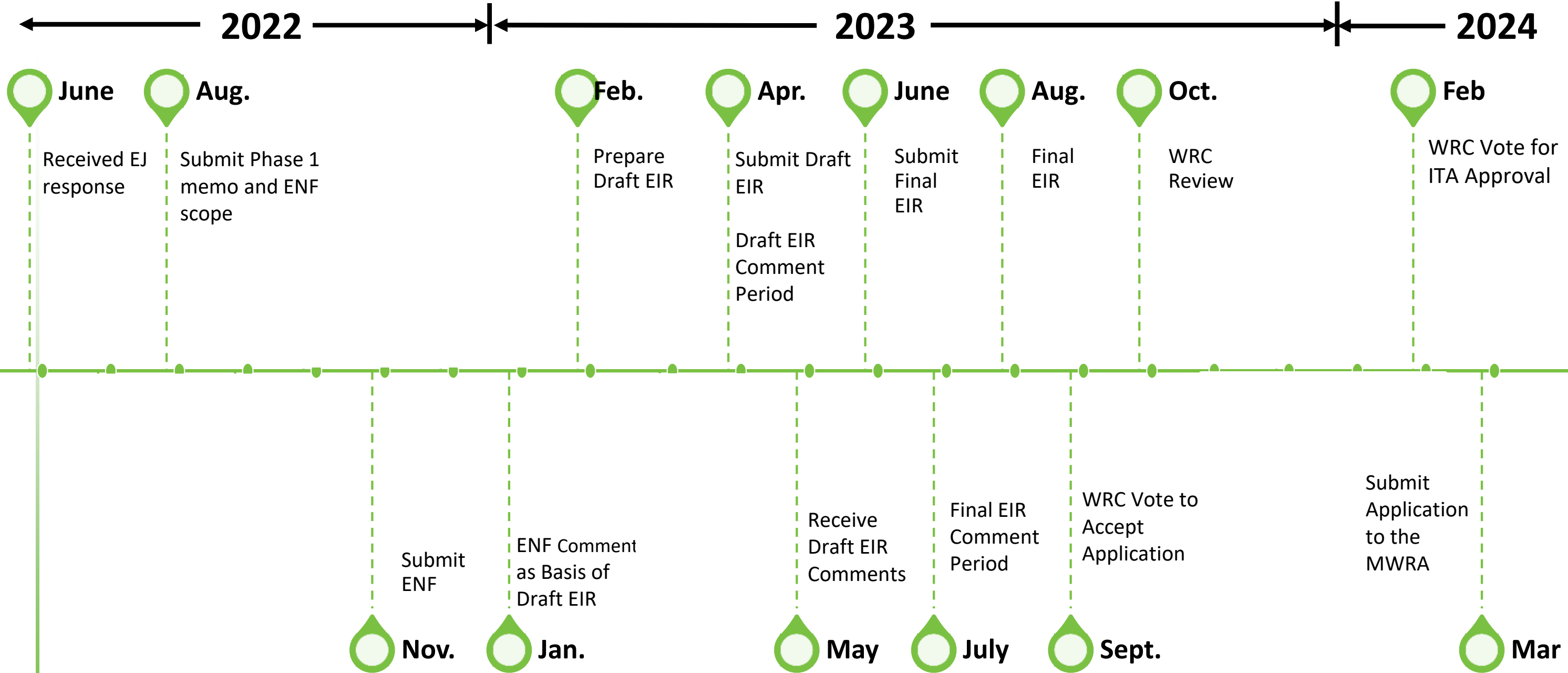


# MWRA Admission – Phase 1

- Next Steps:
  - Issue memo from Phase 1 – August 2022
  - Establish scope for the ENF
  - Prepare ENF



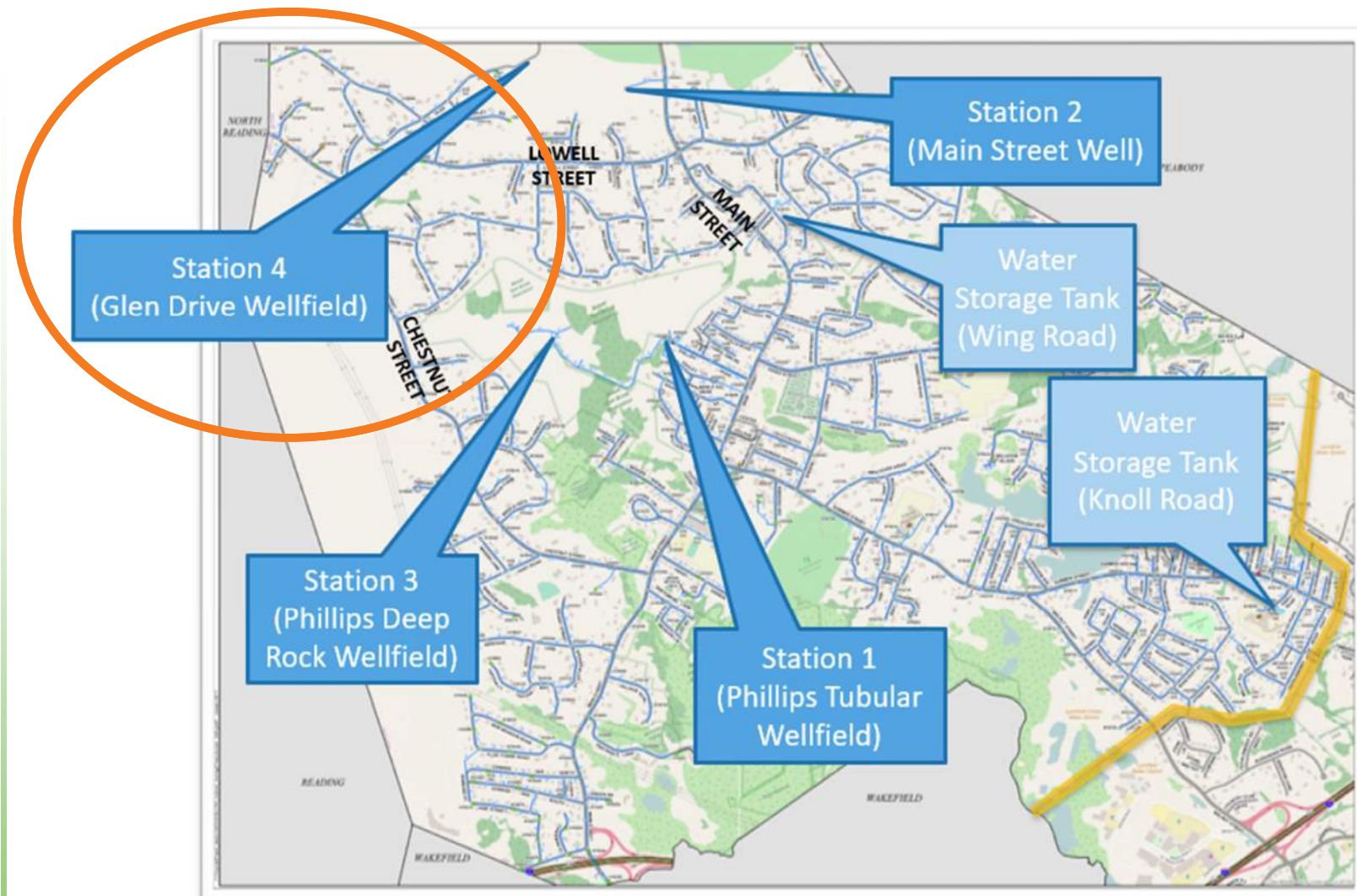
# Joining the MWRA – Possible Schedule





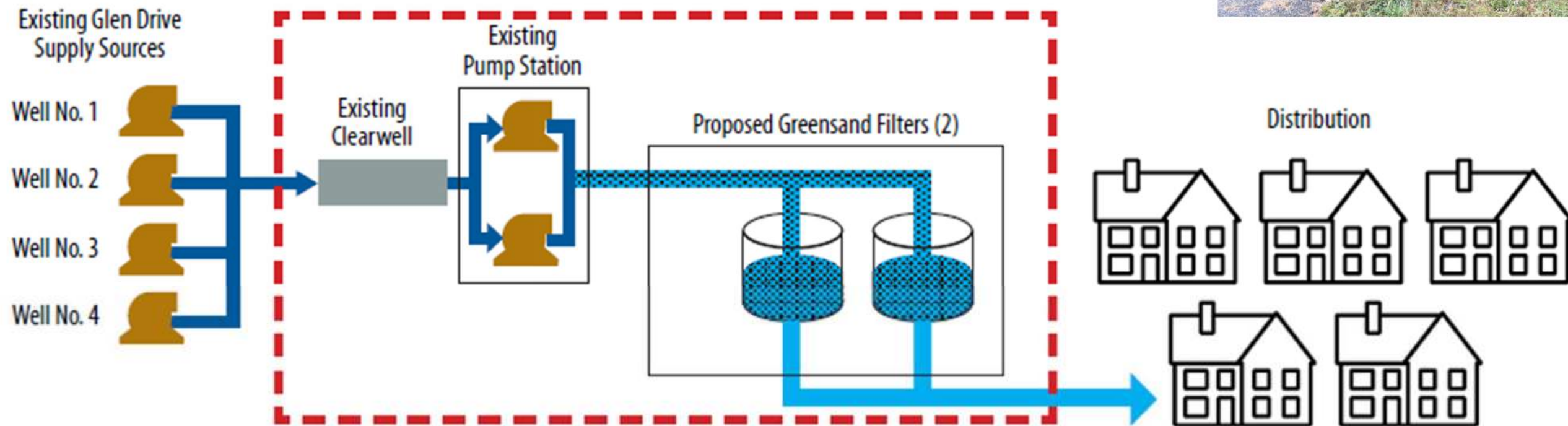
# Glen Drive WTP Update

# Glen Drive Water Treatment Plant Design

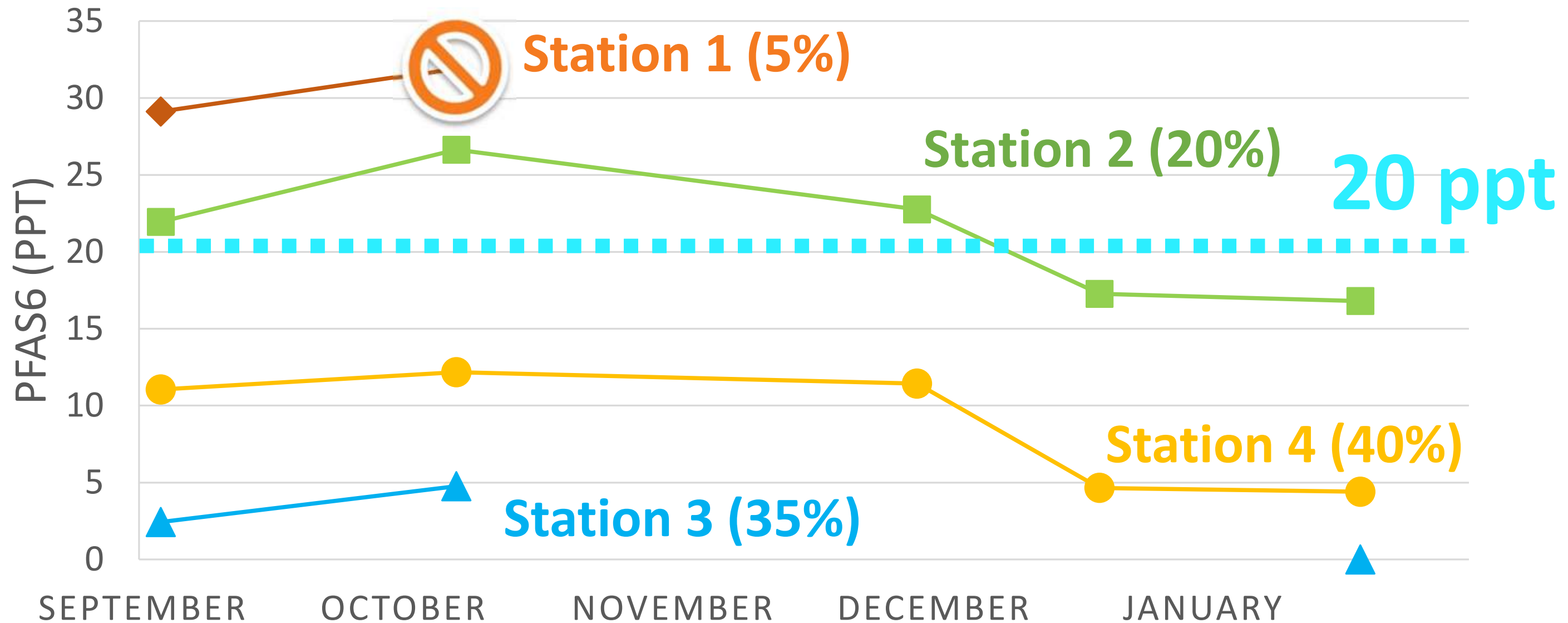


# Glen Drive Water Treatment Plant Design

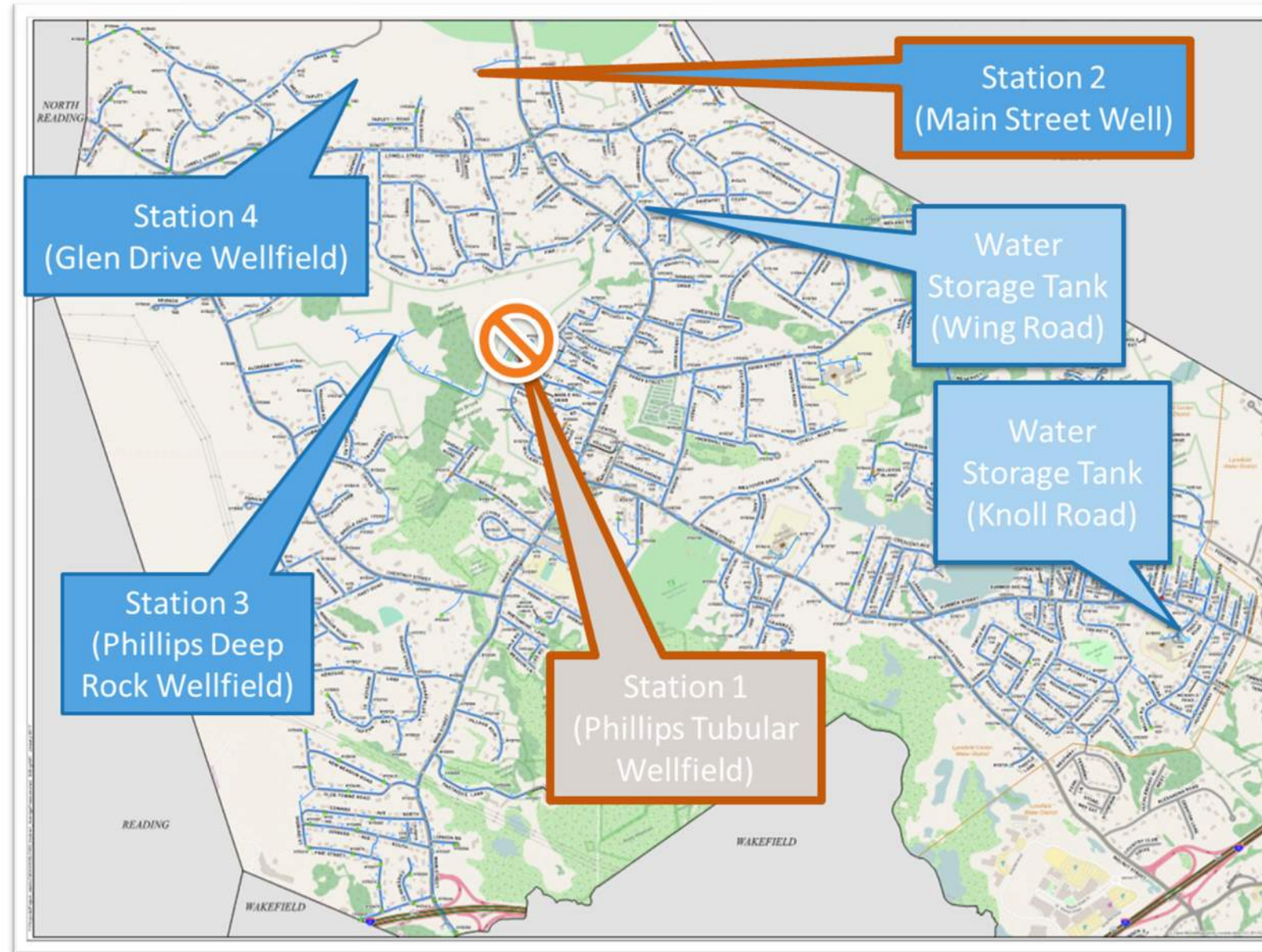
- Existing Glen Drive Pump Station
- Addition of greensand filters to remove iron and manganese



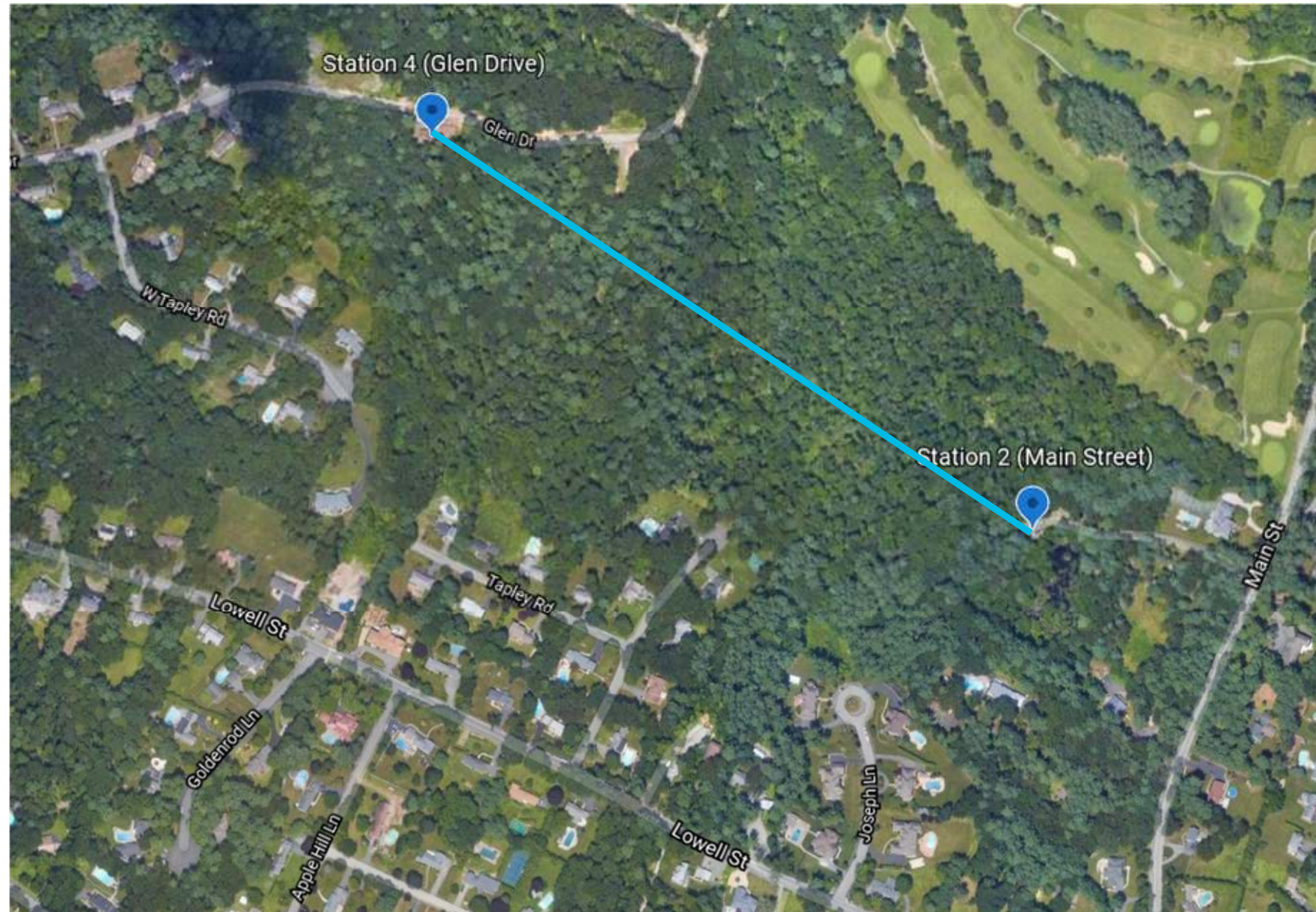
# But What About PFAS?



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# But What About PFAS?

- How to address Station 2?
- Extended interim treatment – time to evaluate permanent options
  - Station 2 treatment at Station 4 (Glen Drive)
  - Increase Wakefield/MWRA interconnection
  - Permanent treatment at Station 2
  - More wells at Station 3 and Station 4



# But What About PFAS?

- Add separate PFAS building to Glen Drive WTP design
  - Maintain similar schedule
  - Be prepared for funding opportunities
- If no funding or select alternative PFAS mitigation  
→ remove building from design
- Buildings can be combined after securing funding



# PFAS, Funding Options and Evolving Regulations

- FY23 State Revolving Fund – 0% loan for PFAS construction projects
  - Application due August 12, 2022
  - Package project – Station 2 pipeline and Glen Drive WTP
  - Iron and manganese removal needed before PFAS treatment
- State continuing efforts to pursue funding opportunities
- EPA proposed MCL by end of 2022
- MWRA proposal to waive entrance fees for 5 years
- Glen Drive design – PFAS must progress with greensand

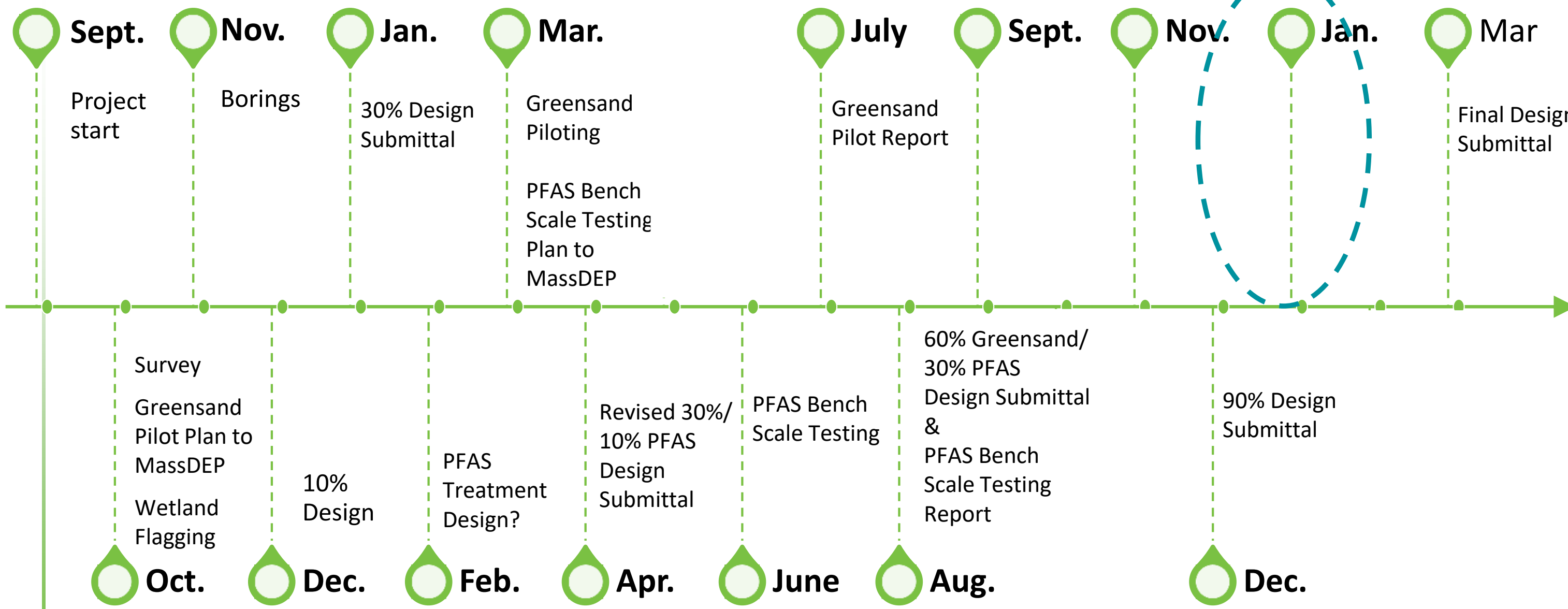
# Glen Drive Water Treatment Plant Design

Proposed EPA MCL and Draft SRF Funding List

2021

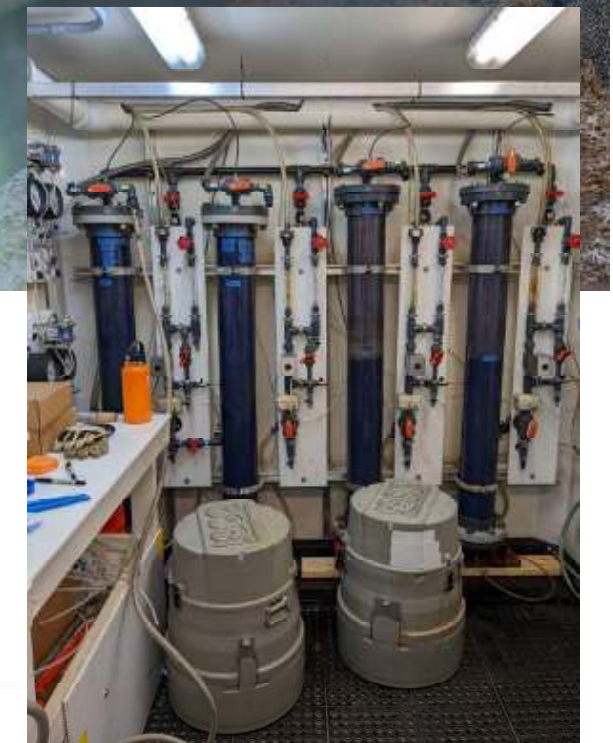
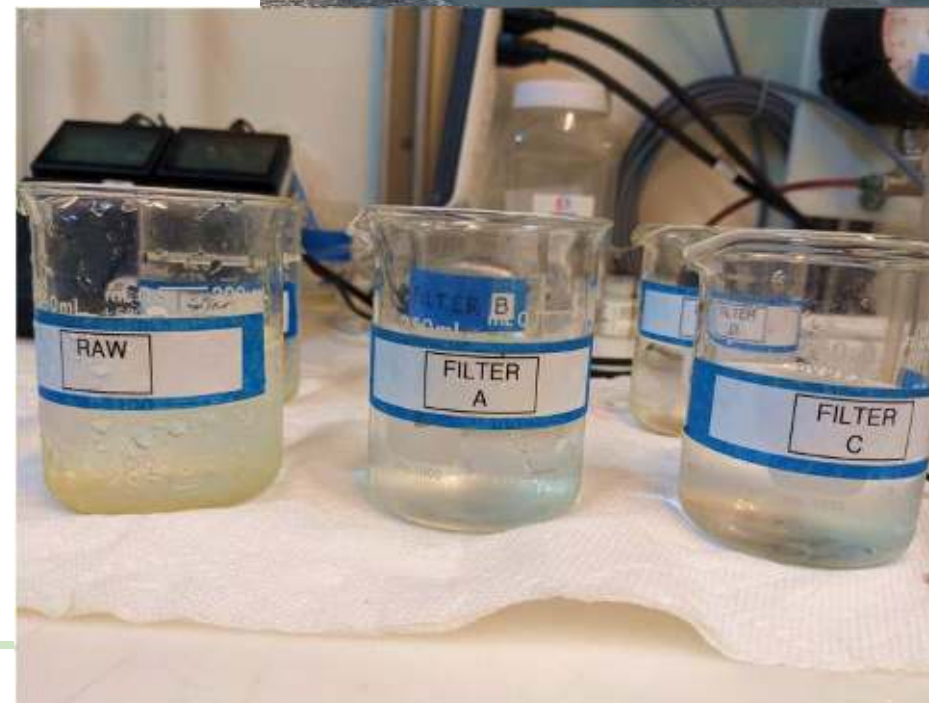
2022

2023



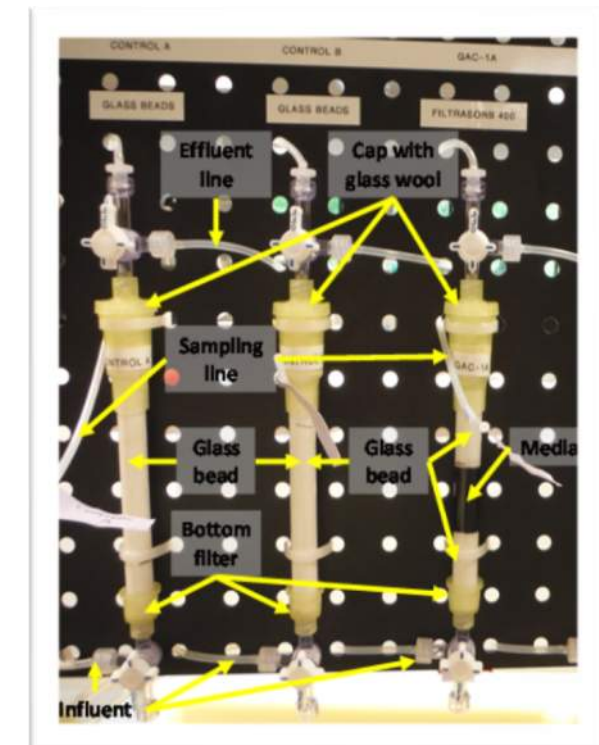
# Piloting and Benchscale Testing

- Iron and Manganese Piloting:
  - Completed March – April 2022
  - Pilot Report to MassDEP - July 2022
  - Iron and manganese removal goals achieved
  - GreensandPlus selected as media
  - Filtered water – PFAS benchscale testing



# Piloting and Benchscale Testing

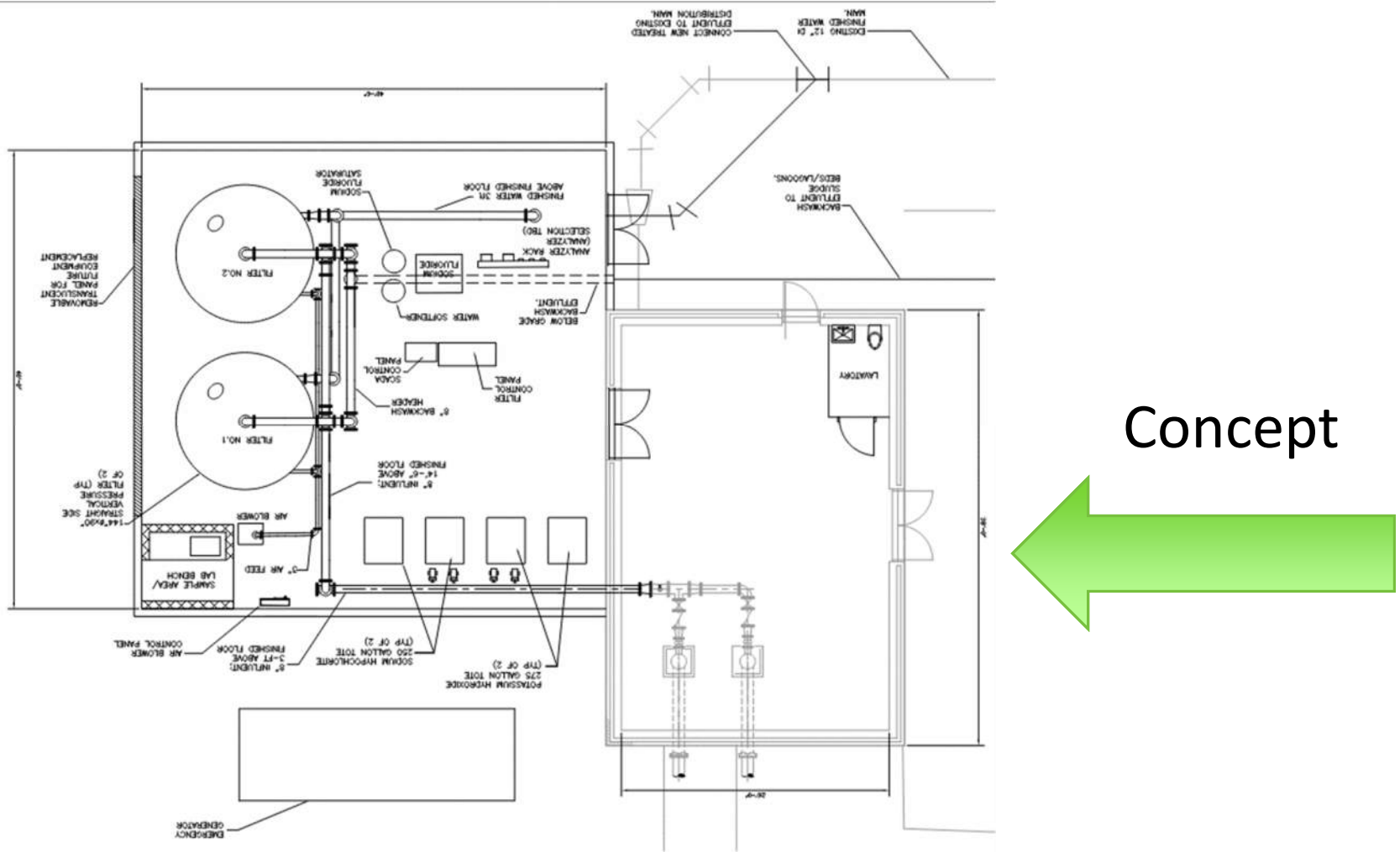
- PFAS Benchscale Testing
  - Testing completed July 2022
  - August 2022 report
  - GAC provided non-detect PFAS6
  - Initial results:
    - Calgon F400 outperformed Norit Hydrodarco 4000 (carbon will last longer before PFAS breakthrough/replacement)
    - Calgon F400 lasts longer for Station 4 than Station 2 (TOC difference)



# Glen Drive WTP 60% Design Update

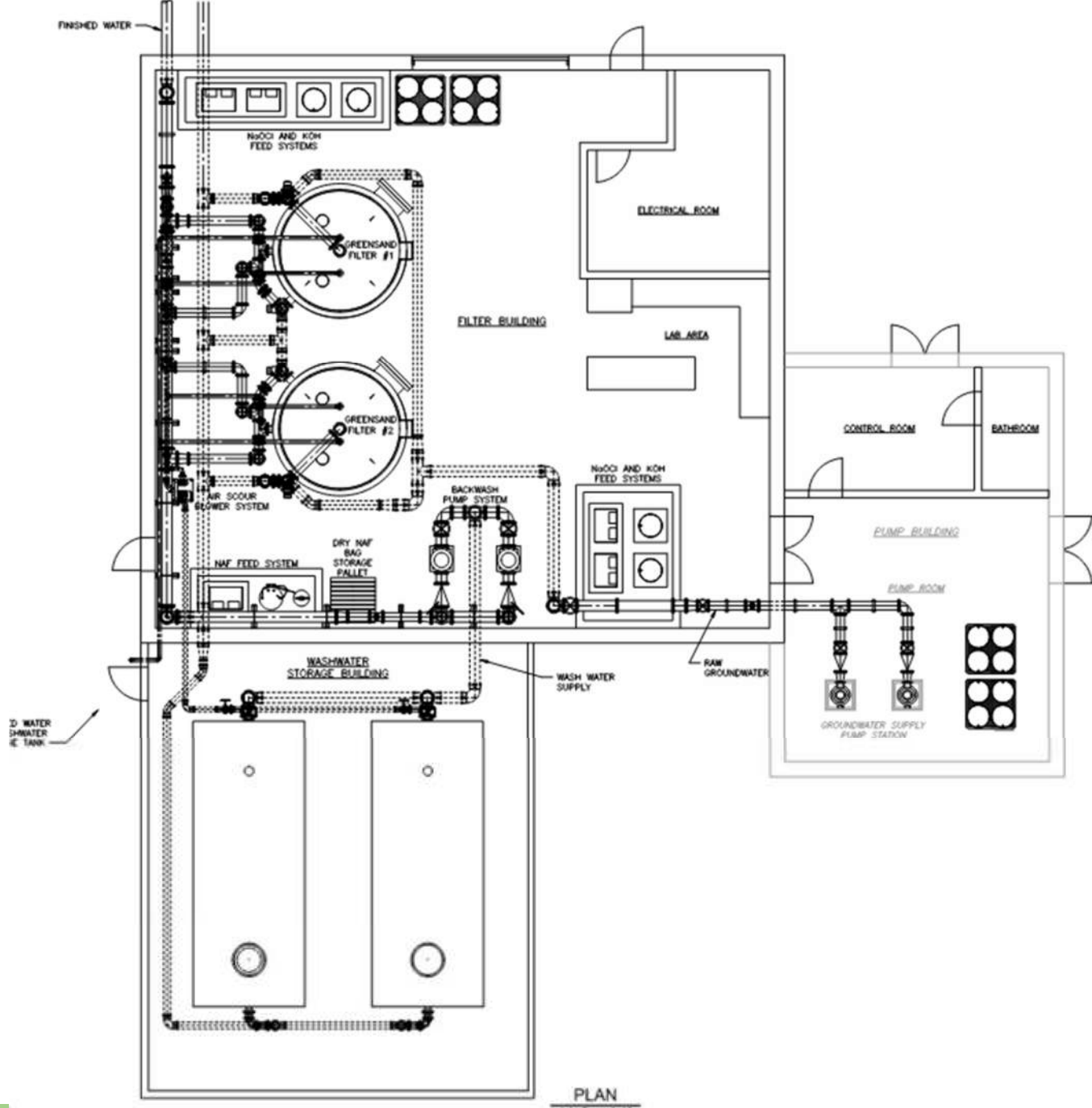
- Met with Town Officials on June 30
  - Project overview and discussion of items for input
- Filter Building HVAC
  - Dehumidification “desiccant air” system
  - H-4 rating requires constant outside air changes
- Generator will be natural gas
  - Quote from National Grid
  - Comparison conducted to diesel and propane
  - Natural gas best capital and O&M selection
- Hazard Class IV rating
  - WTP will be needed for fire suppression/pressure with Station 2 and Station 4
  - Requires Hazard Class IV rating

# Glen Drive WTP – Concept to 60% Design



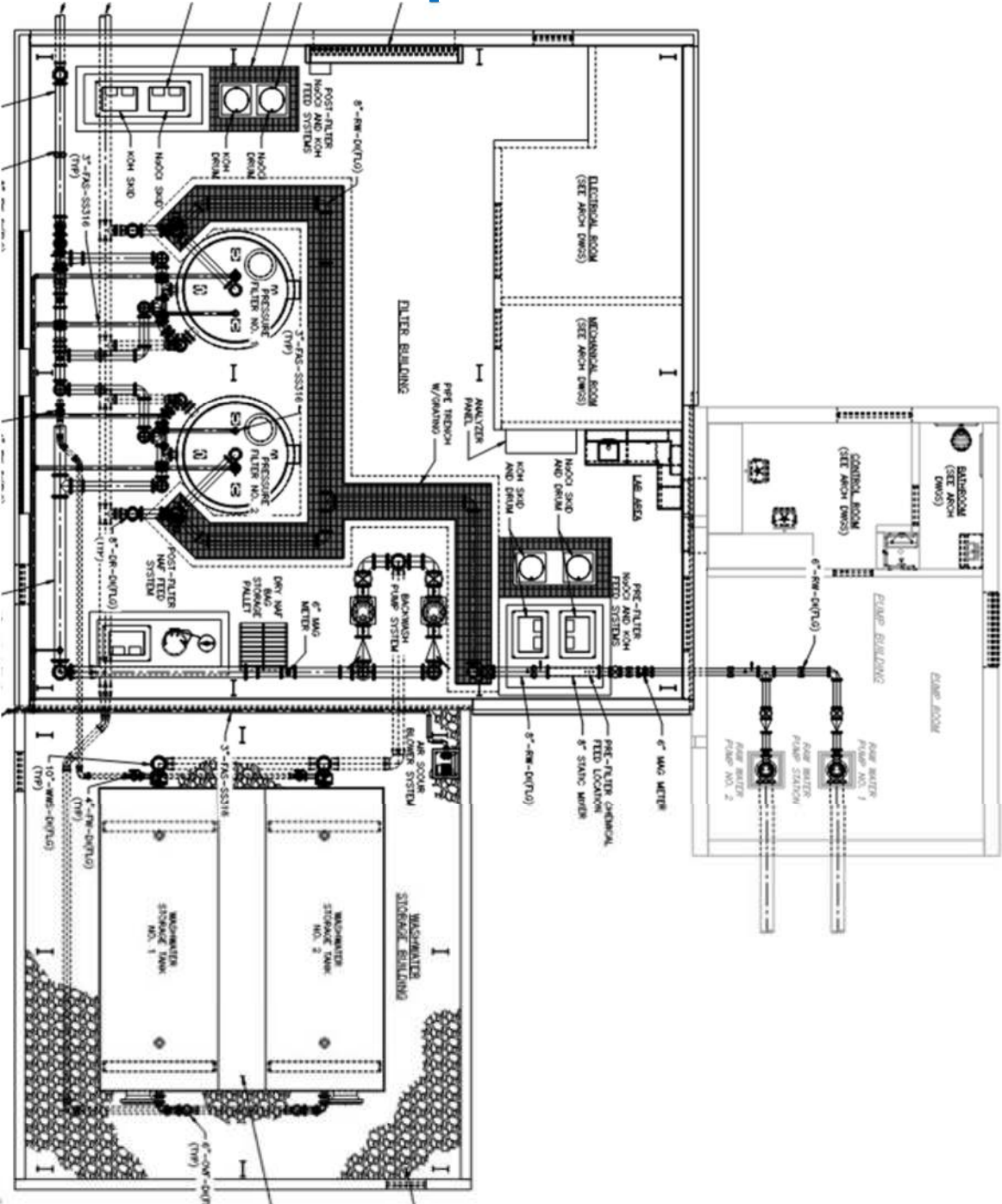


# Glen Drive WTP – Concept to 60% Design



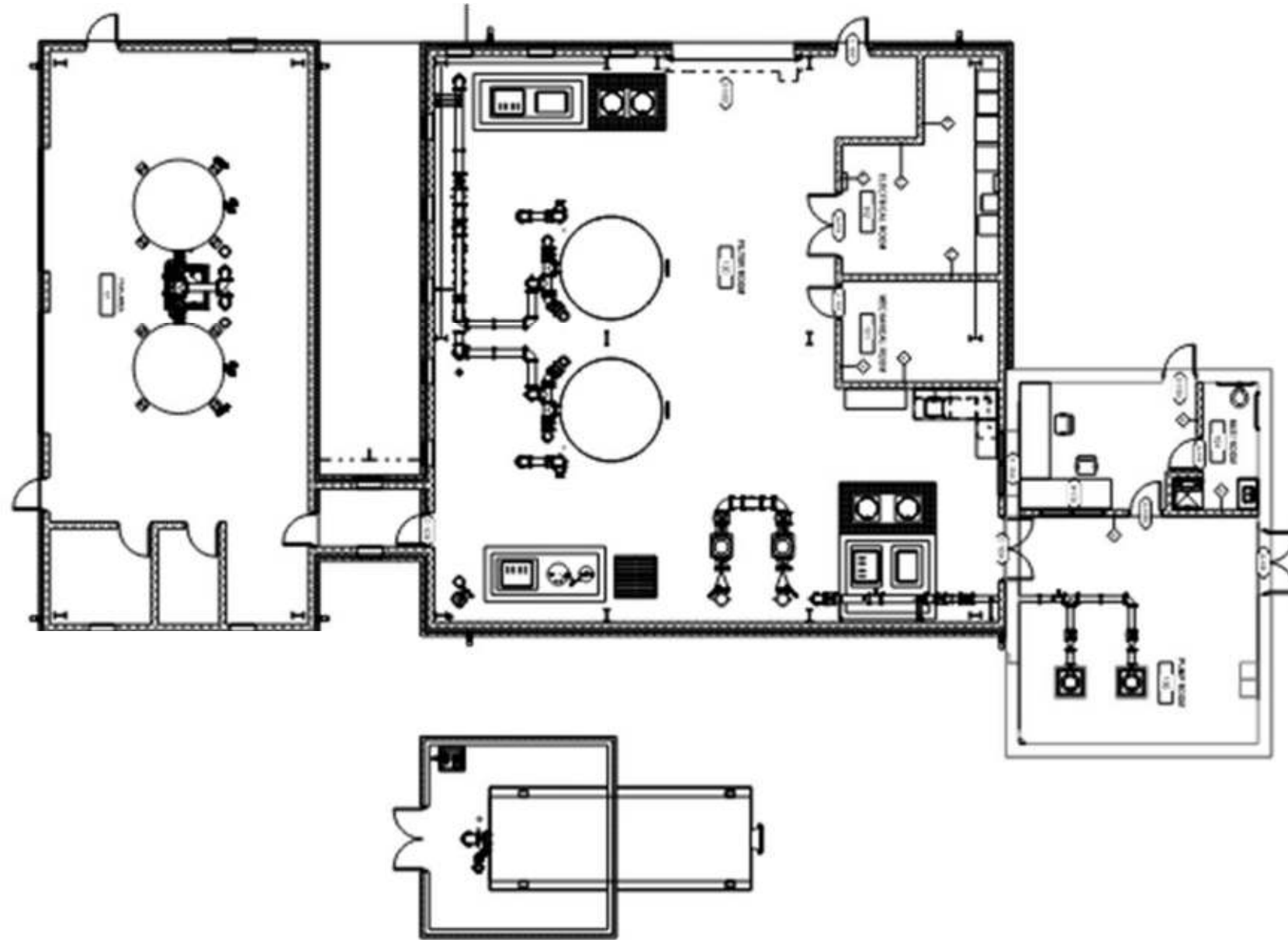
10% Layout

# Glen Drive WTP – Concept to 60% Design



30% Layout

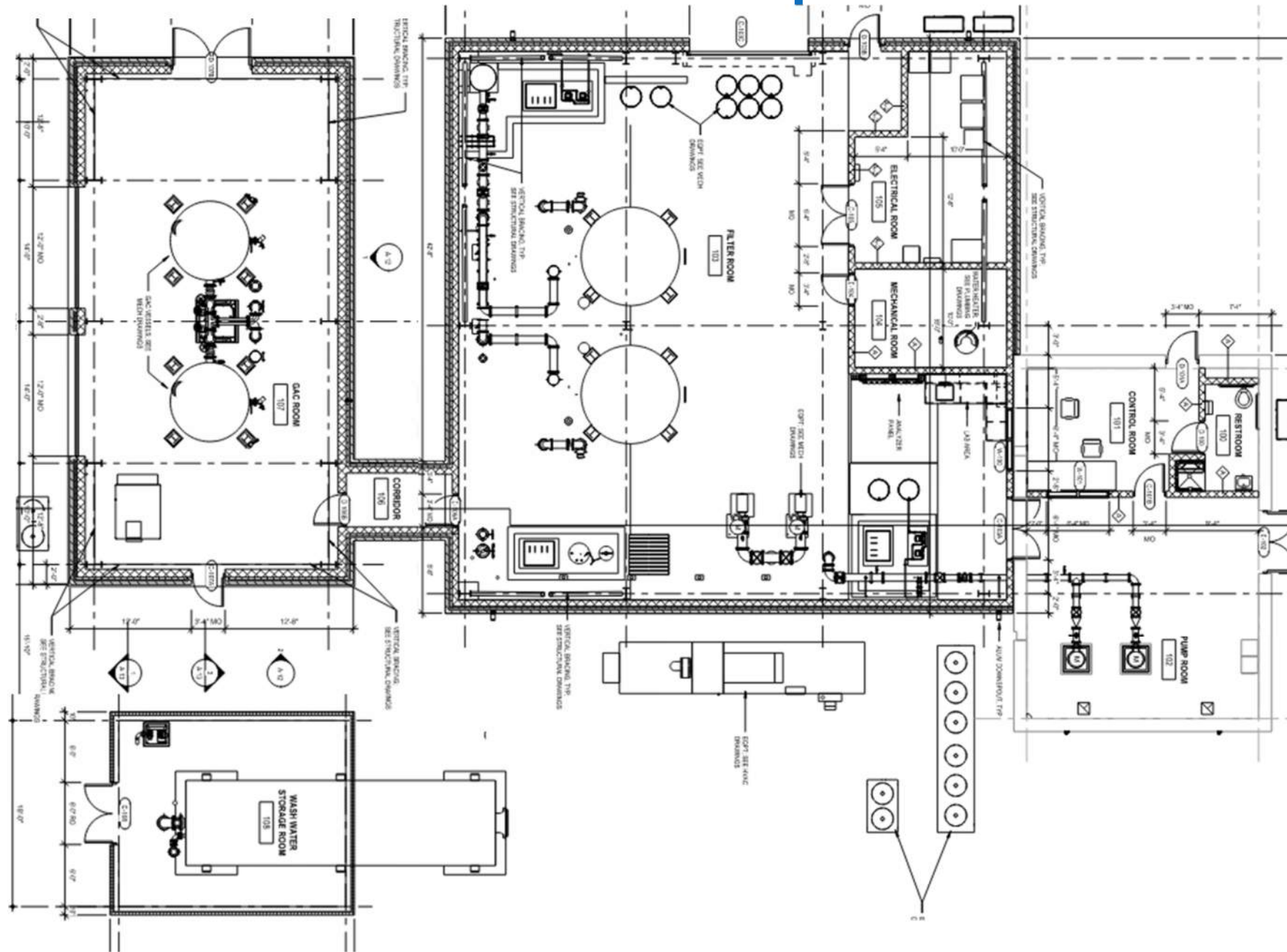
# Glen Drive WTP – Concept to 60% Design



30% Layout w/  
10% PFAS



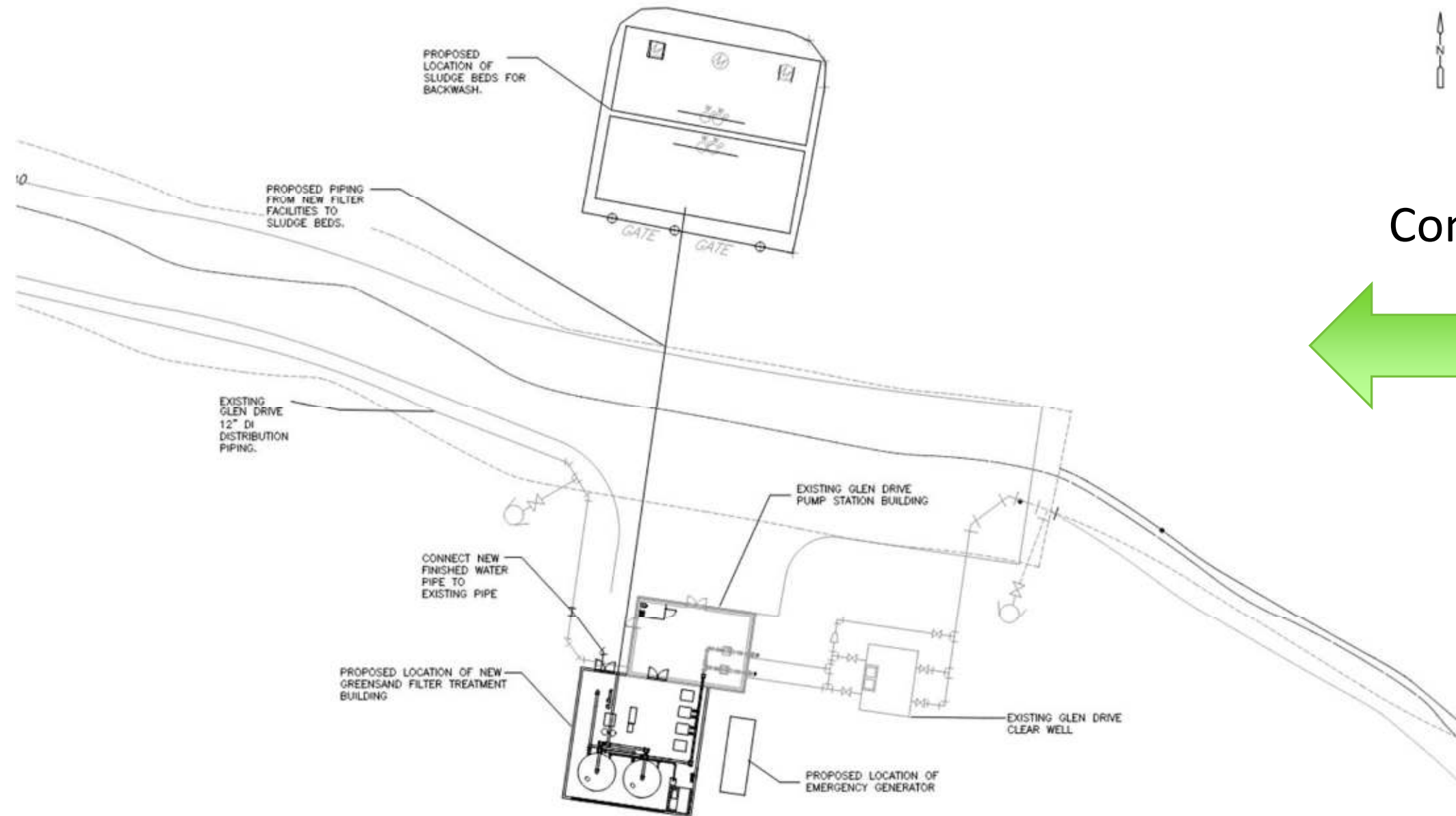
# Glen Drive WTP – Concept to 60% Design



60% Layout w/  
30% PFAS

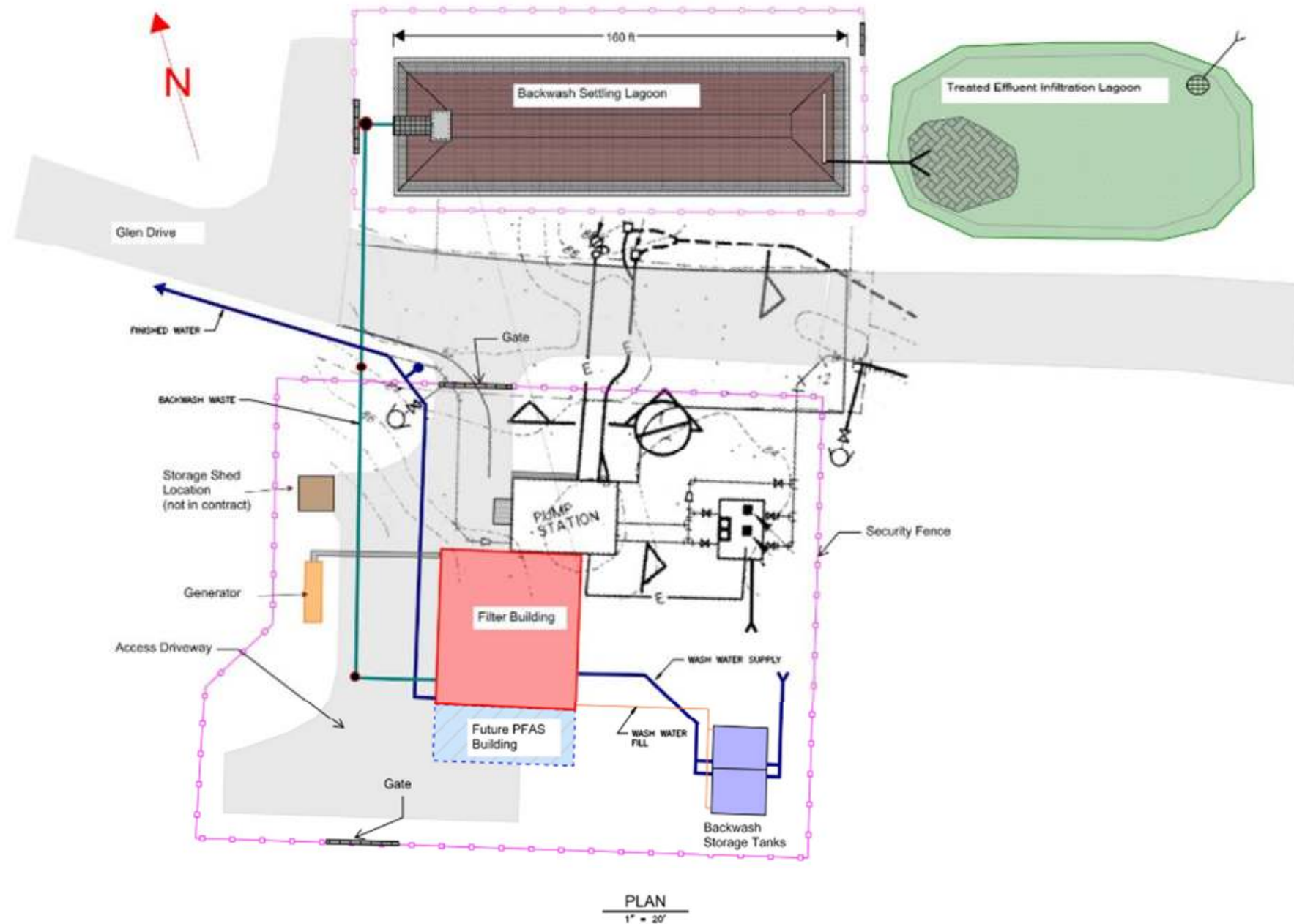


# Glen Drive WTP – Concept to 60% Design



Concept  
←

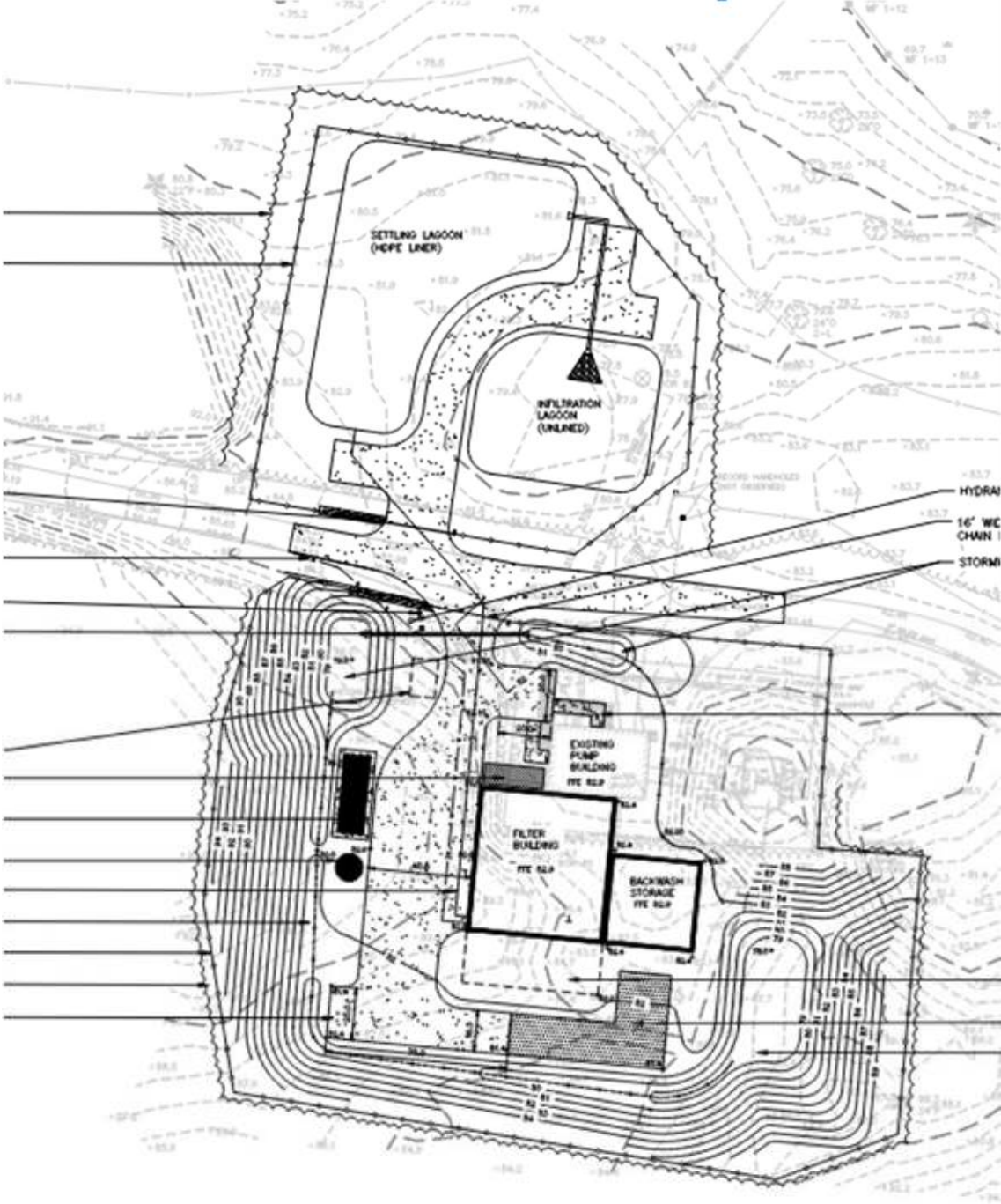
# Glen Drive WTP – Concept to 60% Design



10% Design



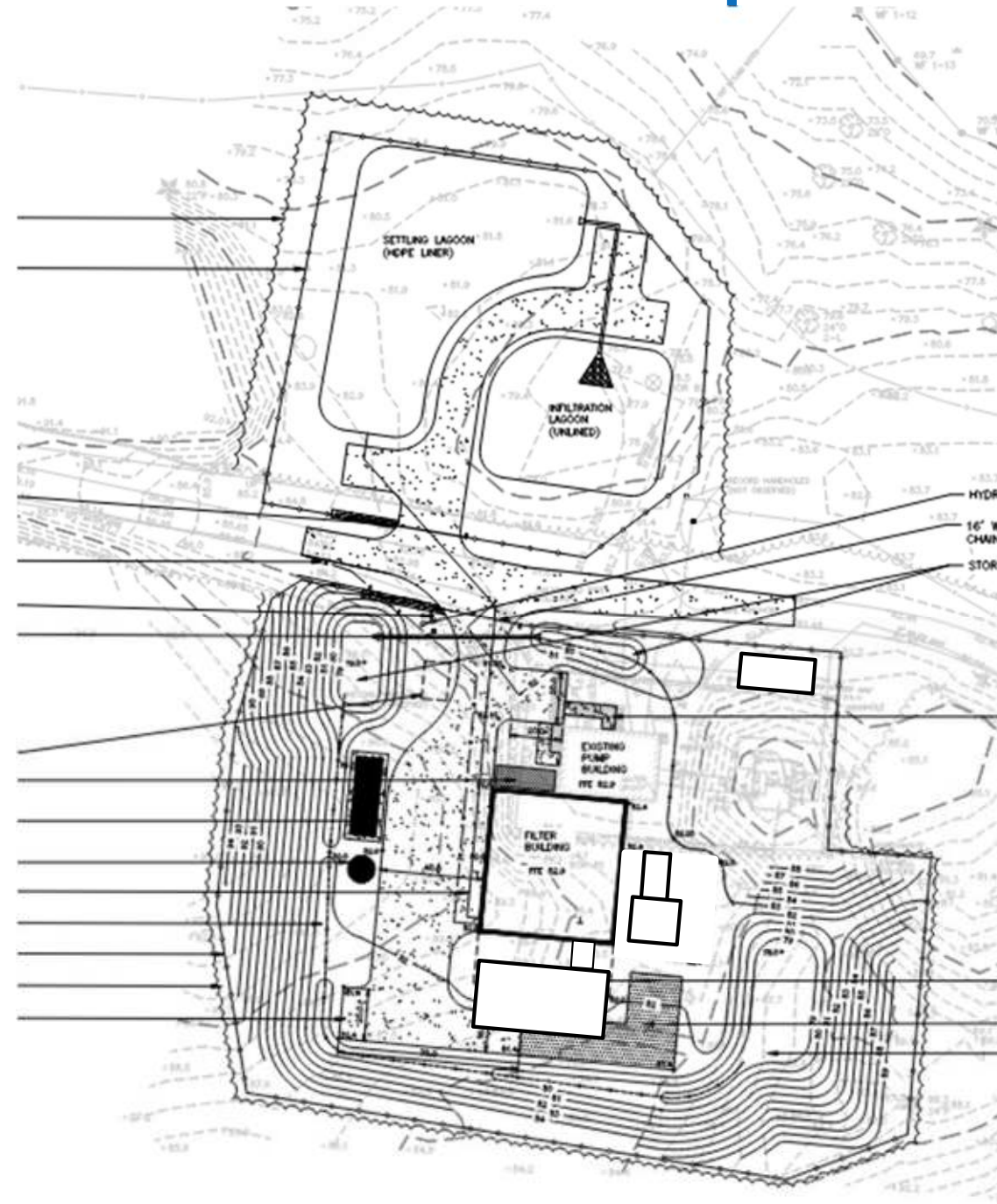
# Glen Drive WTP – Concept to 60% Design




30% Design



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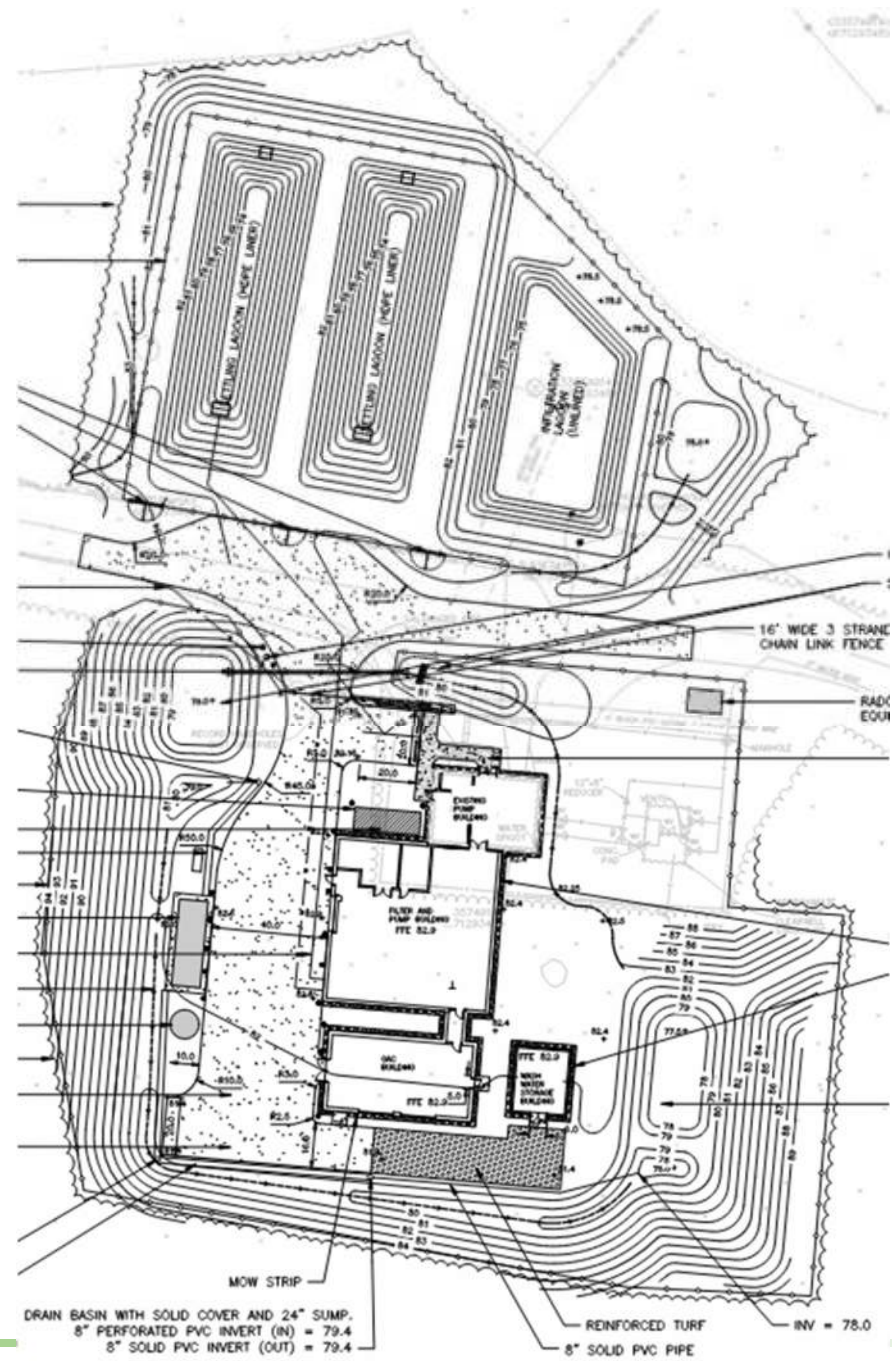


30% Design w/  
10% PFAS





# Glen Drive WTP – Concept to 60% Design



60% Design w/  
30% PFAS



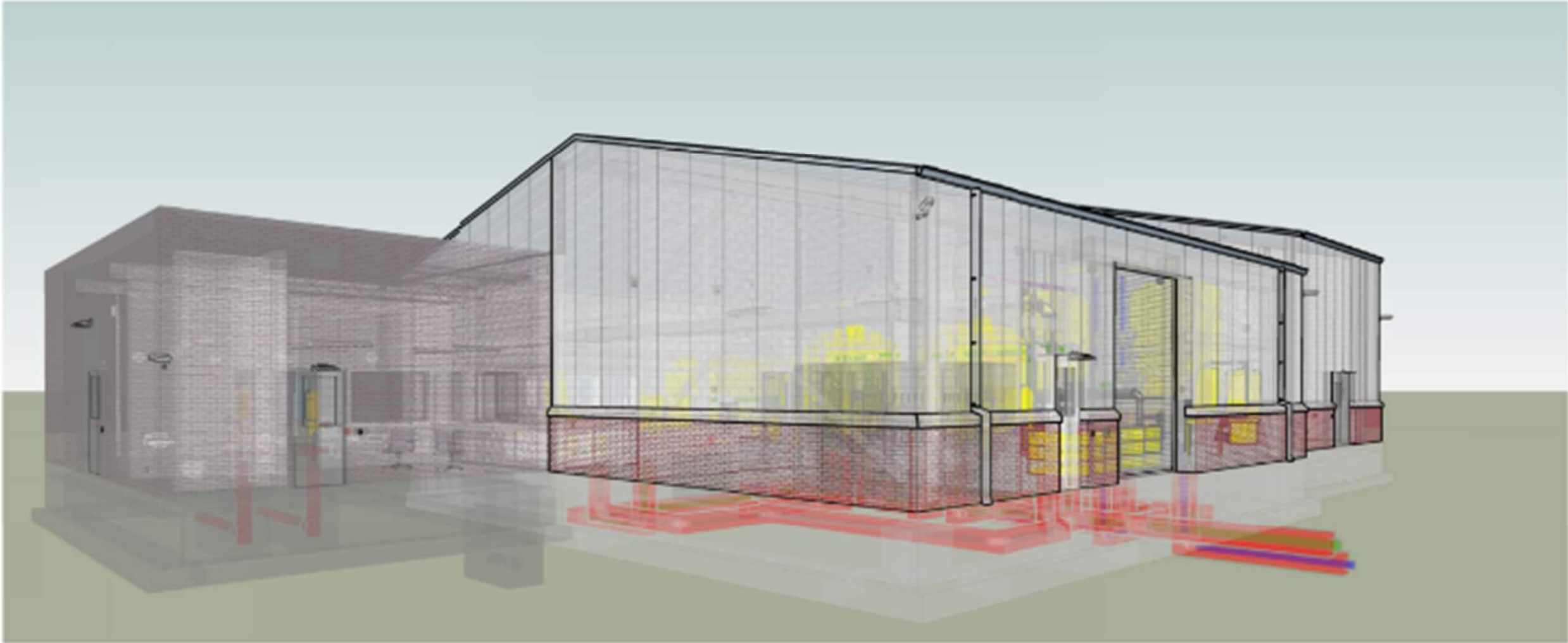
PLAN

# Glen Drive WTP – 60% Design with PFAS



VIEW LOOKING SOUTHEAST

# Glen Drive WTP – 60% Design with PFAS



VIEW LOOKING SOUTHEAST

# Glen Drive WTP – 60% Design with PFAS



VIEW LOOKING NORTHWEST

# Glen Drive WTP – 60% Design with PFAS



VIEW LOOKING NORTHWEST

# May 2021 to Now – What Has Changed?

- Glen Drive WTP Design
  - Raw water pumps
  - Backwash system (pumps and tank)
  - Building size increase
  - Electrical service upgrade
  - Lagoon design (settling/infiltration)
  - Treating Station 2
  - PFAS treatment
  - SRF funding
  - Hazard Class rating
  - HVAC/H-4 requirements

# Key Capital Program Dates

- January 2023 – Bid Interconnection Vault
- March 2023 – Glen Drive WTP Final Design
- Summer 2023 – Interconnection Vault Constructed
- February 2024 – WRC Vote for ITA Approval
- March 2024 – Application to MWRA
- Spring 2025 – Glen Drive WTP Online
- Early 2025 – Admission to MWRA

# Capital Plan Recap

- All three projects underway
- By our next meeting (November 2022):
  - SRF application submitted
  - Station 2 connection to Station 4 option evaluation
  - Station 2 mitigation options evaluation
  - Interconnection plans and specs (MassDOT approval)
  - ENF for MEPA/ITA
  - Glen Drive WTP nearing 90% design

Thank You

Questions