

# Former Fort Devens Army Installation Project Status Update 19 July 2018

Restoration  
Advisory Board  
Meeting



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# Agenda

- Per- and Polyfluoroalkyl Substances (PFAS)
  - ▶ Remedial Investigation (RI) Work Plan
  - ▶ Community and private well inventory and sampling
  - ▶ Town of Ayer and Devens supply well sampling update







# Background – PFAS

- PFAS compounds are ubiquitous due to a wide variety of commercial/industrial and household consumer uses, such as:
  - ▶ Various plastics, carpeting, water-proof clothing, rain gear, Teflon pans, food wrappers
  - ▶ metal plating operations, electronics manufacturing
  - ▶ fire-fighting foams
    - MassDEP in partnership with MassDFS initiated a take-back program to assist fire departments with the proper disposal of stock AFFF that may contain PFAS
- Concerns
  - ▶ Very persistent and mobile in the environment
  - ▶ Known or suspected toxicity, especially for PFOS and PFOA
  - ▶ Bioaccumulation
  - ▶ Still an area of ongoing research





# Background – PFAS

- 2016 – EPA Lifetime Health Advisory (LHA) for PFOS & PFOA
  - ▶ LHA of 0.07 micrograms per liter ( $\mu\text{g/L}$ ) (70 parts per trillion [ppt])
  - ▶ Applies to PFOS and PFOA, and the sum of PFOS and PFOA in drinking water
  - ▶ Many different types of PFAS compounds exist
  - ▶ Typically sample for either 6 or 14 of these compounds
- 2018 – MassDEP issued public health guideline, Office of Research and Standards Guideline (ORSG) for drinking water
  - ▶ Individually or the sum of PFOS, PFOA, PFNA, PFHxS, and PFHpA of 70 ppt







# Remedial Investigation Work Plan

- Site Inspection (SI) recommended RI at several sites
- Field activities for the RI were grouped into three areas based on site locations, public water supply well locations, and direction of groundwater flow
  - ▶ Area 1 – Grove Pond wellfield, AOC 57, AOC 74, AOC 75
  - ▶ Area 2 – MacPherson water supply well, AOC 5, AOC 32/43A, AOC 43G, AOC 43J, AOC 76
  - ▶ Area 3 – AOC 20, AOC 21, AOC 30, AOC 31, AOC 50
  - ▶ Comprehensive public and private well inventory
- Draft RI WP and Area 1 Field Sampling Plan were submitted for agency review on June 29<sup>th</sup>







# PFAS RI Areas of Investigation

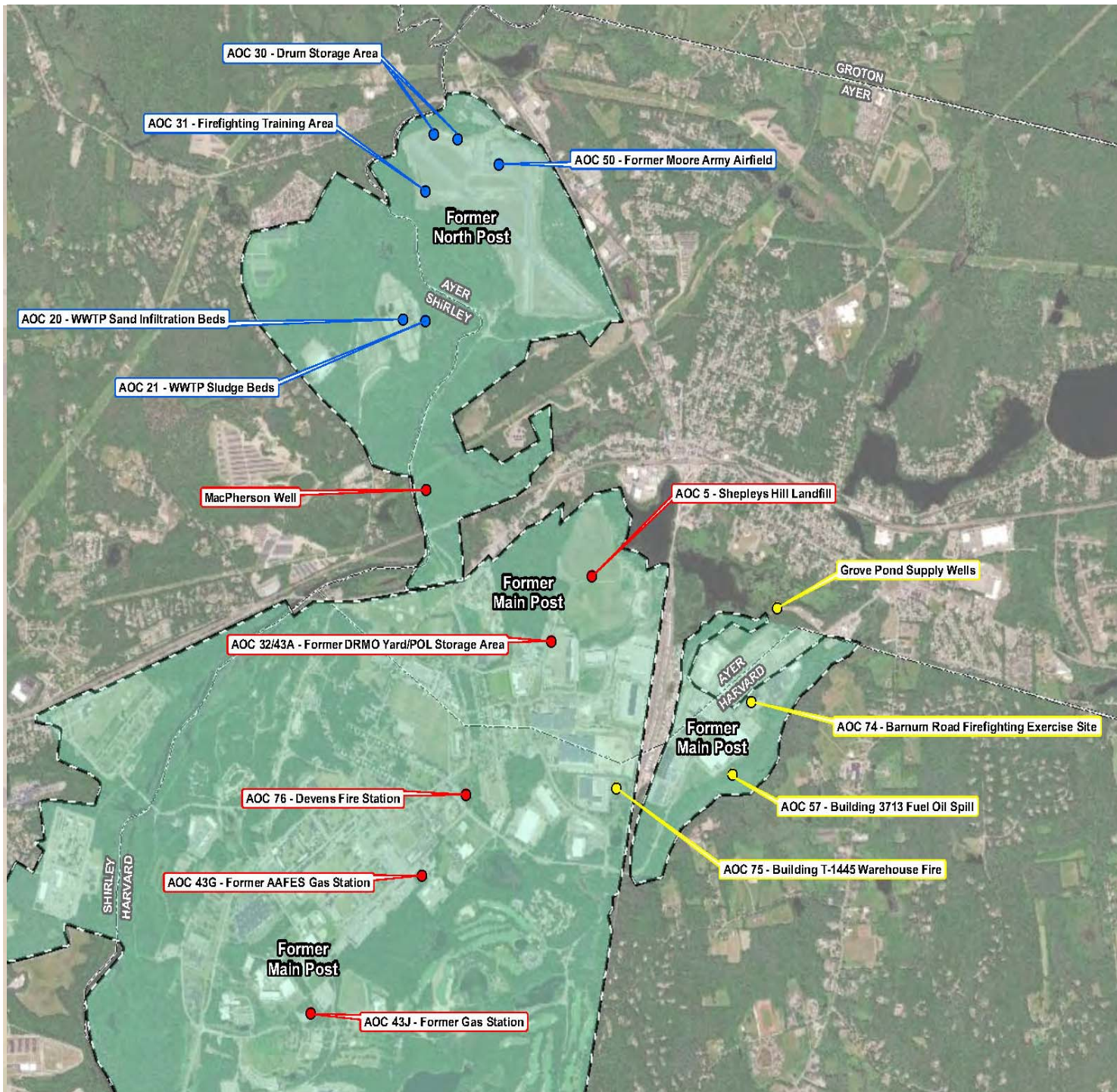
Area 1 = yellow

Area 2 = red

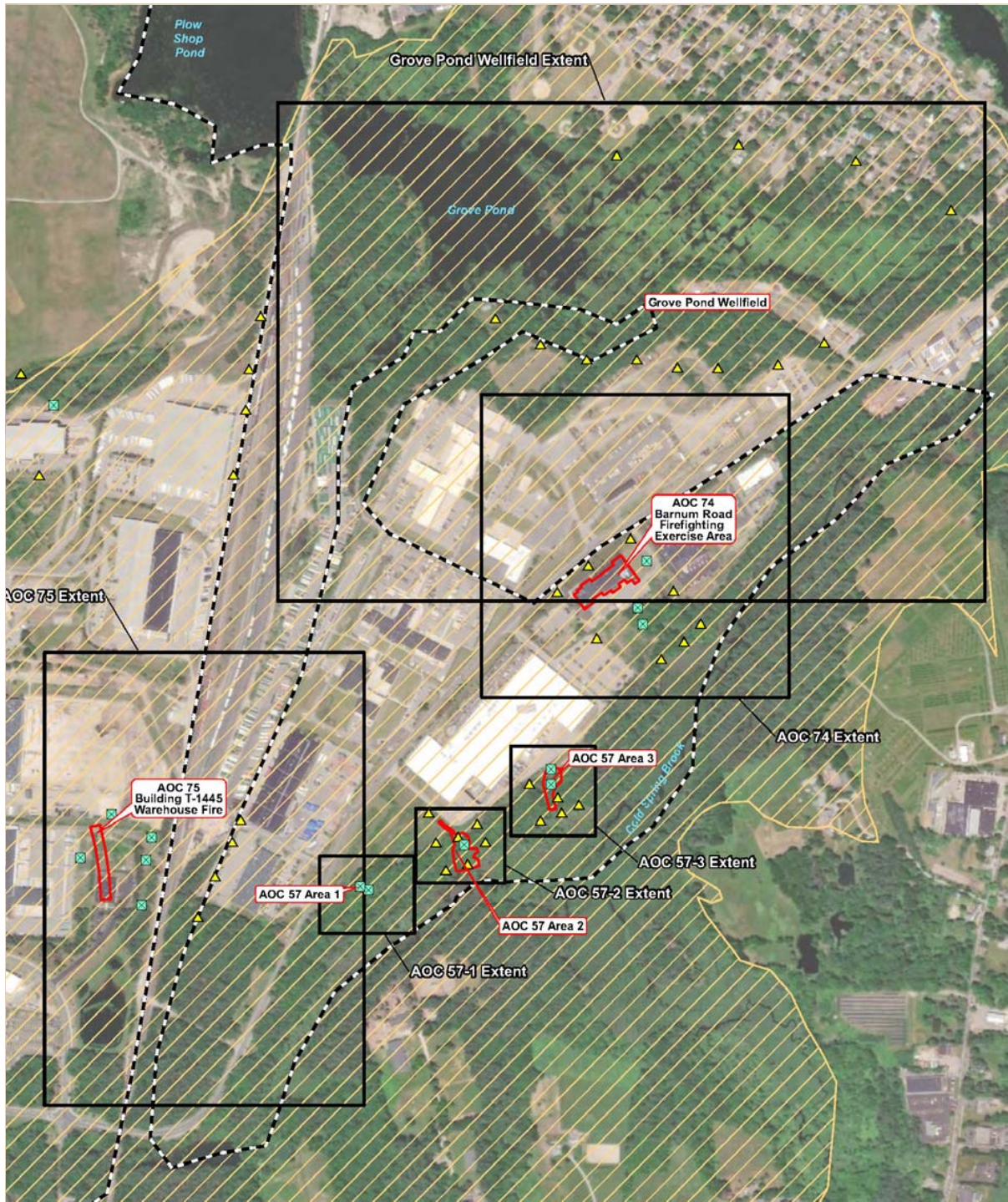
Area 3 = blue



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# Area 1

- Grove Pond Wellfield
- AOC 57
- AOC 74
- AOC 75



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# Proposed Area 1 Field Activities

## Phase 1

- Sample existing groundwater wells
  - ▶ Monitoring wells at AOC 57 (19 wells), Grove Pond Wellfield (~13 wells), no existing wells at AOCs 74 and 75
  - ▶ Irrigation well (AOC 74)
- Direct Push Vertical Profiling
  - ▶ AOC 57 (18 locations), AOC 74 (11 locations), AOC 75 (9 locations), upgradient of Grove Pond (initially 12 locations)
- Direct Push Soil Borings
  - ▶ AOC 57 Area 1 (2 locations), AOC 57 Area 2 (6 locations), AOC 57 Area 3 (4 locations), AOC 74 (7 locations), AOC 75 (7 locations)
- Surface Water and Sediment Sampling
  - ▶ Cold Spring Brook (8 locations), Grove Pond (5 locations), Balch Pond (1 location)







# Proposed Area 1 Field Activities (continued)

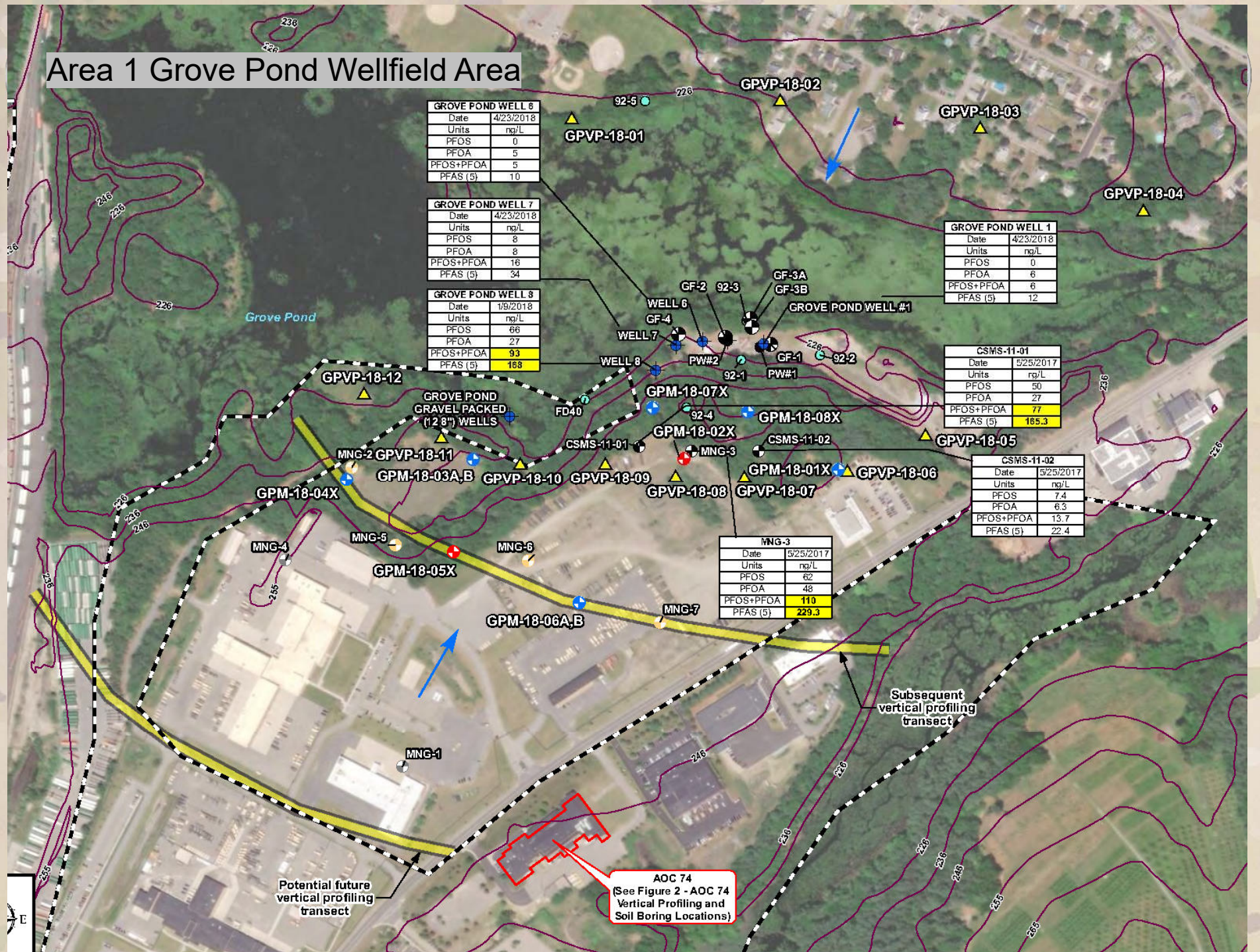
## Phase 2 – contingent upon the results of Phase 1

- Install overburden monitoring wells
  - ▶ Up to 27 monitoring wells in Area 1
- Install bedrock monitoring wells
  - ▶ Up to 3 monitoring wells based on the results of the groundwater profiling
- Sample new monitoring wells
- Conduct synoptic water level monitoring event





# Area 1 Grove Pond Wellfield Area







- Grove Pond Wellfield
- AOC 57
- AOC 74
- AOC 75

Bold/highlighted results exceed EPA LHA of 70 ng/L for separate or combined PFOS +PFOA and/or exceed M/CRSG of 70 ng/L for the combined concentrations of PFOS

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# Community and Private Well Inventory and Sampling

- Inventory of community and private wells within 1 mile of PFAS detections at Devens
- Sampling 28 community wells and selected private wells within that 1 mile radius of Devens, based on their proximity to Devens and PFAS detections







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# Summary of Public Supply Wells PFAS Sampling

- Ongoing quarterly sampling of public water supply wells (during operations) since September 2016
  - ▶ Grove Pond wellfield (Ayer)
  - ▶ MacPherson well (Devens)
- Results – below LHA
- On March 1, 2018 MassDEP issued letters to Ayer and Devens indicating that out of an abundance of caution MassDEP has summed 5 PFAS compounds and compared to 70 ppt and recommended concentrations in drinking water be reduced.
  - ▶ Using the five compounds (PFOS, PFOA, PFNA, PFHxS, and PFHpA), the drinking waters at the Grove Pond wellfield and MacPherson well exceeded 70 ppt.
- Ayer and Devens changed operations and issued public notices







# Public Supply Well PFAS Data

Location	Well ID	Date	PFOS (ug/L)	PFOA (ug/L)	PFOS+ PFOA (µg/L)	MassDEP ORSG (µg/L)
Ayer	Ayer Grove Finished	4/23/2018	0.005	0.006	0.011	0.023
	Ayer Grove Pond Well 6	4/23/2018	<0.004	0.005	0.005	0.012
	Ayer Grove Pond Well 7	4/23/2018	0.008	0.008	0.016	0.034
	Ayer Grove Pond Well 8*	1/9/2018	0.066	0.027	0.093	0.168
	Ayer Grove Pond Well 1	4/23/2018	<0.004	0.006	0.006	0.012
	Spectacle Pond Well 1A	3/1/2018	0.007	0.006	0.013	0.017
	Spectacle Pond Well 2A	3/1/2018	0.006	0.008	0.014	0.021
	Spectacle Pond Finished	3/1/2018	0.007	0.007	0.014	0.022
	Washington Street Tank	1/9/2018	0.020	0.012	0.032	0.060
	Pingry Hill Tank	1/9/2018	0.009	0.009	0.018	0.032
Devens	MacPherson Well 03G*	2/27/2018	0.039	0.02	0.059	0.108
	Patton Well 05G	5/14/2018	0.0048	0.01	0.0148	0.0263
	Shabokin Well 06G	5/14/2018	0.0057	0.0046	0.0103	0.0263

Shaded data cell indicates an exceedance of the USEPA Lifetime Health Advisory (0.070 µg/L) or MassDEP Office of Standards and Research Guideline for drinking water.

\* taken out of service on (February 26, 2018 for Well 8, February 27, 2018 for MacPherson)





# Summary of Public Supply Wells Operations

- MacPherson water supply well (Devens) was taken out of service on February 27, 2018
- Grove Pond Wellfield (Ayer)
  - ▶ Results were below LHA
  - ▶ Operations were revised
    - Well #8 was taken out of service on February 26, 2018
    - Well #1 was brought on-line
  - ▶ April 2018 sampling indicates that the distributed water is currently below the 70 ppt LHA and MassDEP ORSG value
  - ▶ Town of Ayer is evaluating treatment options at the Grove Pond wellfield
- Army will be conducting routine PFAS sampling of public water supply wells for Devens and Town of Ayer







# Next Steps

- RI Work Plan is under development
  - ▶ Area 1 Sampling and Analysis Plan (SAP) – comments from regulatory agencies due July 31<sup>st</sup>
  - ▶ Area 2 SAP – working meeting with regulatory agencies planned at the end of July
  - ▶ Area 3 SAP – under development, working meeting with regulatory agencies planned in late August
- Field Work to begin once work plan is accepted by regulatory agencies
- Community and Private Well Sampling – Summer 2018







# Former Fort Devens Army Installation Project Status Updates

## Questions?

