

Former Fort Devens Army Installation Project Status Update

November 2020



**US Army Corps
of Engineers®**



Today's Topics

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Welcome!

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**Community
Involvement
Plan (CIP)**

3

**Per- and
Polyfluoroalkyl
Substances (PFAS)
Updates**

- Sampling update:
 - ✓ Private/community/
non-community wells
 - ✓ Municipal water supply wells
- Grove Pond Wellfield
treatment plant update
- Remedial Investigation (RI)

4

**Upcoming
Work**

5

**Questions
and
Answers**



Community Involvement Plan (CIP)



3

The CIP describes the Army's community outreach program regarding the ongoing environmental investigations at Fort Devens.

Dec 2019	Draft CIP issued (completed) <ul style="list-style-type: none">✓ Submitted for review to 100 stakeholders✓ Included results of public interviews and questionnaires
Mar 2020	Public review period (completed)
May 26, 2020	Response to comments (completed) <ul style="list-style-type: none">✓ Held a discussion on July 21
Sep 2020	Draft Final CIP issued (completed)
Nov 2020	Final CIP planned





CIP Implementation



1. Set up satellite information station at the Ayer Public Library

- Fact sheets
- Work plans
- Data reports
- All available for public review

2. Improve/update project website

- Post documents and updates
- Add a comment/questions page
- Include more visuals such as thumbnails, photo gallery, infographics, etc.
- Add a What's New? feature

3. Increase communication about upcoming public meetings and comment periods

- Website postings
- Emails
- Public notices
- Post cards

4. Update Restoration Advisory Board (RAB)

- RAB member invites
- Create a RAB charter
- Reestablish RAB co-chairs
- Improve how RAB meetings are advertised, held, & documented
- RAB rule handbook will be guide

(<https://www.epa.gov/fedfac/restoration-advisory-board-rab-implementation-guidelines>)

5. Hold informal open house with poster board sessions to promote discussions

- Consider virtual meetings and workshops as a way to foster collaboration to prepare for these sessions and perhaps host them

6. Issue periodic fact sheets and/or email updates to community mailing list; post on project website

- Recent fact sheets in July 2020 (PFAS RI overview), Sept 2020 (PFAS update), Nov 2020 (private well sampling)



Fort Devens Project Website




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The project website (ftdevens.org) has moved to:

www.nae.usace.army.mil/missions/projects-topics/former-fort-devens-environmental-cleanup/

[Home](#) / [Missions](#) / [Projects/Topics](#) / Former Fort Devens Environmental Cleanup



Public Information

The Army holds quarterly Restoration Advisory Board (RAB) meetings to update the public on the status of the cleanup. Information on the next quarterly meeting is below. Please come join us.

Former Fort Devens Environmental Cleanup

Pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, otherwise known as CERCLA or Superfund, the former Fort Devens (Devens) was placed on the National Priorities List (NPL) on December 21, 1989, because of environmental contamination at several locations. CERCLA provides a consistent, science-based approach across the Nation for cleanup and includes environmental regulators and public participation. DoD follows the CERCLA process to fully investigate a release and determine the appropriate cleanup actions based

Related Links

- [2020 Five-Year Review Public Notice](#)
- [Fact Sheets](#)
- [RAB Meeting Minutes](#)

Post on the website:

- ✓ Public meeting announcements
- ✓ Meeting minutes
- ✓ Fact sheets and community updates
- ✓ Army point of contact
- ✓ Environmental investigation documents (such as fact sheets, data reports, work plans, and maps)

Consider adding:

- ✓ Comment/questions page
- ✓ More visuals such as thumbnails, photo gallery, infographics, etc.
- ✓ What's New? feature



Sampling Update: Private/Community/Non-Community Wells



Army has been sampling nearby drinking water wells since 2018 out of an abundance of caution.

Regulatory benchmarks:

- ✓ 2016 U.S. Environmental Protection Agency (EPA) Lifetime Health Advisory (LHA) guidance value for drinking water is 70 parts per trillion (ppt) for the sum of PFOS+PFOA
- ✓ 2020 Massachusetts Department of Environmental Protection (MassDEP) established a maximum contaminant level (MCL) for drinking water and GW-1 standard for groundwater at 20 ppt (sum of PFOS, PFOA, PFHpA, PFHxS, PFNA, + PFDA)

To date, the Army has sampled 138 private wells in Ayer, Shirley, and Harvard plus 7 community wells in Harvard and Lancaster:

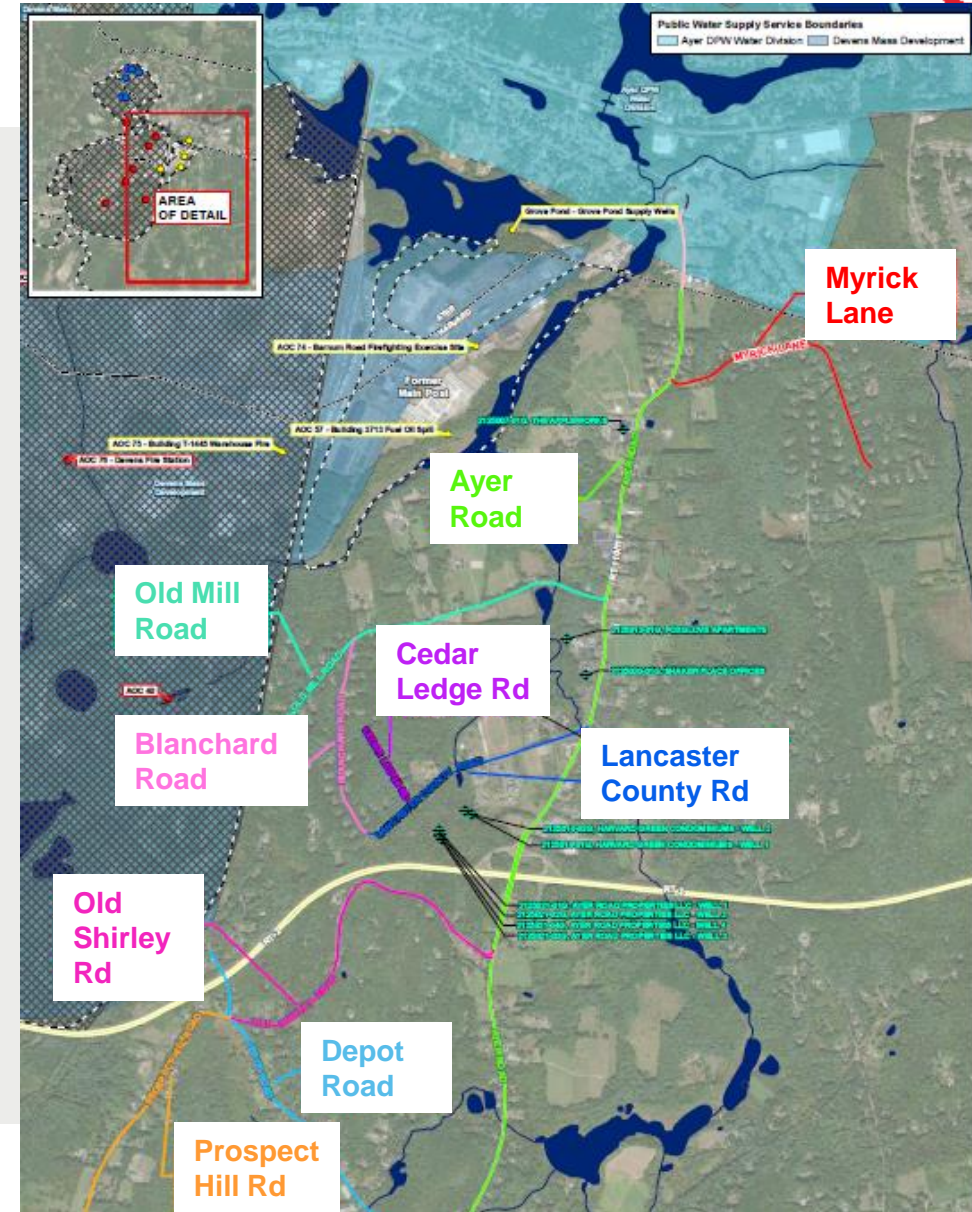
- ✓ No exceedances of the EPA LHA
- ✓ 19 private wells and 2 community wells exceed the MassDEP standard



Sampling Results: Harvard

Harvard Private Well PFAS Results Summary				
Location	Number of Wells Sampled	Number Exceeding 20 ppt	Number Detects <20 ppt	Number of Non-Detects
Myrick Lane	21	0	7	14
Ayer Rd	18	3	8	7
Old Mill Rd	27	0	14	13
Blanchard Rd	22	11	9	2
Cedar Ledge Rd	2	0	1	1
Lancaster Cty Rd	12	3	7	2
Old Shirley Rd	1	0	0	1
Depot Rd	19	1	9	9
Prospect Hill Rd	3	0	0	3
Subtotals	125	18	55	52

No results exceeded the EPA LHA of 70 ppt.



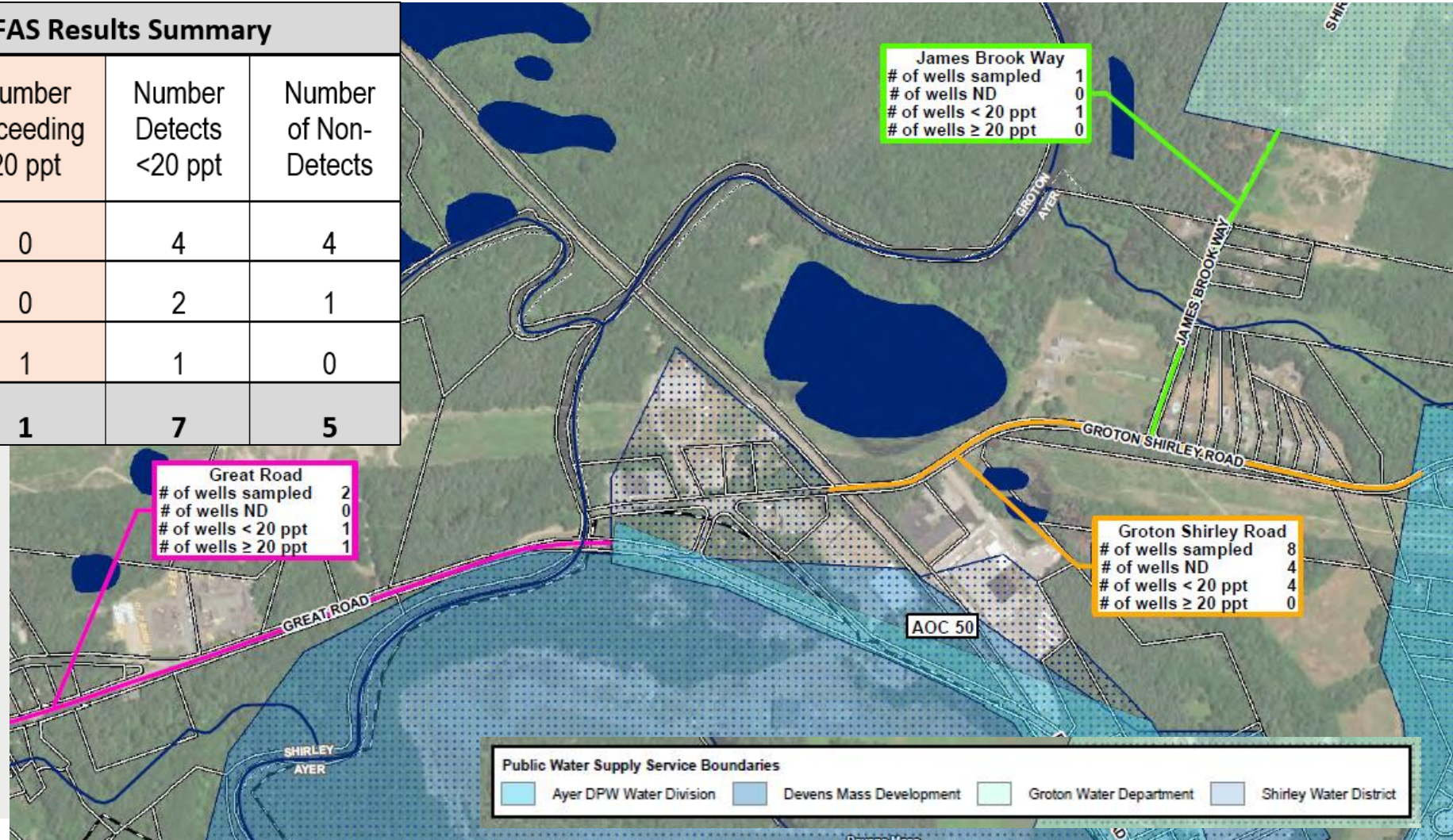


Sampling Results: Ayer and Shirley

Ayer/Shirley Private Well PFAS Results Summary

Location	Number of Wells Sampled	Number Exceeding 20 ppt	Number Detects <20 ppt	Number of Non-Detects
Groton Shirley Rd	8	0	4	4
James Brook Way	3	0	2	1
Great Rd	2	1	1	0
Subtotals	13	1	7	5

No results exceeded the EPA LHA of 70 ppt.





Sampling Results: Municipal Water Supply Wells (Ayer)

PFAS Detections (June [Q2] 2020)



	Grove Pond Wells (ppt)						Spectacle Pond Wells (ppt)		
	Well 1	Well 6	Well 7	Well 8 (pre-treatment)	Well 8 (post-treatment)	Finished Water (wells 1,6,7,8)	Well 1A	Well 2A	Finished Water (wells 1A, 2A)
	6/9/2020	6/9/2020	6/9/2020	6/9/2020	6/9/2020	6/9/2020	6/9/2020	6/9/2020	6/9/2020
PFBS (unregulated)	1.60 J	1.91	2.29	3.52	ND	1.24 J	1.88	2.04	1.73 J
PFHxA (unregulated)	ND	4.68	44.0	106	ND	18.0	2.71	20.1	11.3
PFHpA	1.05 J	2.16	33.2	81.9	ND	14.0	1.44 J	7.13	4.35
PFHxS	4.87	4.68	8.92	23.5	ND	4.56	3.57	2.22	2.58
PFOS	3.67	3.52	14.9	51.7	ND	5.75	5.85	7.06	6.24
PFOA	6.87	7.34	33.2	65.6	ND	14.1	6.64	9.28	8.12
PFNA	0.654 J	0.576 J	1.40 J	1.94 J	ND	0.618 J	0.469 J	0.983 J	0.775 J
PFDA	ND	ND	0.609 J	ND	ND	ND	ND	ND	ND
EPA LHA (70)	10.5	10.9	48.1	117	ND	19.9	12.5	16.3	14.4
Mass MCL/GW-1 (20)	17.1	18.3	92.2	225	ND	39	18.0	26.7	22.1

Notes:

- Results show the detected PFAS out of 18 analytes tested.
- Yellow shading shows concentrations above the EPA LHA (PFOS, PFOA of 70 ppt) and/or Massachusetts MCL for drinking water (PFOS, PFOA, PFHpA, PFNA, PFHxS, PFDA of 20 ppt). PFBS and PFHxA are unregulated PFAS compounds.
- ND = non-detect, J = estimated value, GW = ground water



Sampling Results: Municipal Water Supply Wells (Ayer)

PFAS Detections (Sept [Q3] 2020)



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	Grove Pond Wells (ppt)						Spectacle Pond Wells (ppt)		
	Well 1	Well 6	Well 7	Well 8 (pre-treatment)	Well 8 (post-treatment)	Finished Water (wells 6, 8)	Well 1A	Well 2A	Finished Water (wells 1A, 2A)
	9/2/2020	9/2/2020	9/2/2020	9/2/2020	9/2/2020	9/2/2020	9/2/2020	9/2/2020	9/2/2020
PFBS (unregulated)	1.75 J	1.75 J	1.75 J	1.75 J	1.75 J	1.75 J	1.75 J	1.75 J	1.75 J
PFHxA (unregulated)	5.72 J	5.46 J	9.10	124	ND	3.94	3.29	23.2	15.6
PFHpA	4.42 J	3.54 J	5.58	116	ND	2.58	1.99	9.88	6.62
PFHxS	7.54 J	6.41 J	7.23	25.1	ND	3.83	5.09	2.35	3.5
PFOS	3.62 J	3.90 J	6.82	44.2	ND	2.92	7.34	6.36	6.66
PFOA	12.2 J	9.99 J	8.58	74.6	ND	5.84	6.04	9.07	8.09
PFNA	0.686 J	0.756 J	0.637 J	2.14	ND	ND	0.459 J	0.972 J	0.715 J
PFDA	ND	ND	ND	ND	ND	ND	ND	ND	ND
EPA LHA (70)	15.8	13.9	15.4	119	ND	8.76	13.4	15.4	14.8
Mass MCL/GW-1 (20)	28.5	24.6	28.8	262	ND	15.2	20.9	28.6	25.6

Notes:

- Results show the detected PFAS out of 18 analytes tested.
- Yellow shading shows concentrations above the EPA LHA (PFOS, PFOA of 70 ppt) and/or Massachusetts MCL for drinking water (PFOS, PFOA, PFHpA, PFNA, PFHxS, PFDA of 20 ppt). PFBS and PFHxA are unregulated PFAS compounds.
- ND = non-detect, J = estimated value, GW = ground water



Sampling Results: Municipal Water Supply Wells (Ayer)

PFAS Detections (June and Sept 2020)



Grove Pond Wellfield

Water from Well 8 is treated using a carbon filter.

Pre- and post-treatment samples are collected.

Water is treated for PFAS before the water is combined with water from the other wells.

Results from the Finished Water represent a combination water flow from online wells (wells 1, 6, 7, and/or 8) that is entering the municipal water system for public use.

Spectacle Pond Wellfield

The PFAS impacts at these wells are not attributed to the Army.

The Town of Ayer is beginning construction on a treatment system for PFAS at these wells and is working with MassDEP to investigate the potential source of PFAS at these wells.



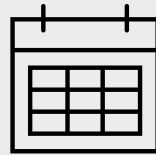
Grove Pond Wellfield Treatment Plant Update: Time-Critical Removal Action (TCRA)



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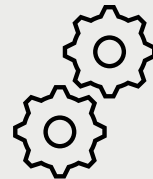
Initial temporary (interim) treatment of
Well #8 using granular activated carbon (GAC)



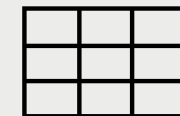
Online June 2019
to October 2020



More than 173 M gallons
were treated



Pumped approx.
200 to 300
gallons per minute (gpm)



For the six PFAS compounds
(Oct 2020):

- ✓ Well #8 raw water = 229 ppt for 6 PFAS compounds
- ✓ Well #8 treated water = non-detect (ND)



Grove Pond Wellfield Treatment Plant Update: Environmental Services Cooperative Agreement (ESCA)

The project is supported by a federal ESCA grant (~ \$4.4M), which was signed on September 5, 2019.



Permanent Upgrade to Grove Pond Water Treatment Plant New Anion Exchange (AIX) System

- DEP approved operation of system on Oct. 1.
- Treatment system is in manual operation. Full automatic operation in late December.
- Capable of treating up to 2 million gallons per day (gpd).

ANION EXCHANGE SYSTEM





MassDevelopment Sampling Results: Devens Water Supply Wells

PFAS Detections (July - Sept 2020, MacPherson Well)

	MacPherson Well (raw)	MacPherson Well (treated)	MacPherson Well (raw)	MacPherson Well (treated)	MacPherson Well (raw)	MacPherson Well (treated)	MacPherson Well (raw)	MacPherson Well (treated)	MacPherson Well (raw)	MacPherson Well (treated)	MacPherson Well (raw)	MacPherson Well (treated)
	7/1/2020	7/1/2020	7/15/2020	7/15/2020	7/29/2020	7/29/2020	8/12/2020	8/12/2020	8/26/2020	8/26/2020	9/9/2020	9/9/2020
PFHxA (unreg.)	--	4.30	--	5.96	--	7.79	--	7.98	--	ND	--	ND
PFHpA	13.3	ND	12.2	0.95	12.8	1.88	14.6	2.04	15.1	ND	10.5	ND
PFHxS	38.8	ND	39.5	0.59	43.3	2.01	41.8	1.54	37.2	ND	33.2	ND
PFOS	33.0	ND	33.1	ND	37.0	0.65	36.3	ND	32.3	ND	28.4	ND
PFOA	19.0	ND	18.6	ND	23.3	1.86	20.6	0.95	18.3	ND	16.6	ND
PFNA	2.17	ND	1.99	ND	2.21	ND	2.56	ND	2.34	ND	1.90	ND
PFDA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EPA LHA (70)	52.0	ND	51.7	ND	60.3	2.51	56.9	0.95	50.6	ND	45.0	ND
Mass MCL/ GW-1 (20)	106.27	ND	105.39	1.535	118.61	6.398	115.86	4.53	105.24	ND	90.60	ND

Notes:

- Yellow shading shows concentrations above the EPA LHA (PFOS, PFOA of 70 ppt) and/or the Massachusetts MCL for drinking water (PFOS, PFOA, PFHpA, PFNA, PFHxS, PFDA of 20 ppt). PFHxA is an unregulated PFAS compound.
- GAC filter media was replaced on 8/19/2020 as part of routine maintenance.
- GW = ground water
- ND = non-detect
- -- = not analyzed/not reported



MassDevelopment Sampling Results: Devens Water Supply Wells



PFAS Detections (July - Sept 2020, Patton and Shabokin wells)

	Patton Well (raw)	Patton Well (treated)	Patton Well (treated)	Patton Well (treated)
	7/8/2020	7/8/2020	8/5/2020	9/9/2020
PFHxA (unreg.)	--	2.05	2.14	2.57
PFHpA	3.9	ND	ND	ND
PFHxS	5.58	ND	ND	ND
PFOS	3.3	ND	ND	ND
PFOA	7.6	ND	ND	ND
PFNA	ND	ND	ND	ND
PFDA	ND	ND	ND	ND
EPA LHA (70)	10.9	ND	ND	ND
Mass MCL/ GW-1 (20)	20.4	ND	ND	ND

Notes:

- Yellow shading shows concentrations above the EPA LHA (PFOS, PFOA of 70 ppt) and/or the Massachusetts MCL for drinking water (PFOS, PFOA, PFHpA, PFNA, PFHxS, PFDA of 20 ppt). PFHxA is an unregulated PFAS compound.
- GW = ground water
- ND = non-detect
- -- = not analyzed/not reported

	Shabokin Well (raw)	Shabokin Well (treated)	Shabokin Well (raw)	Shabokin Well (treated)	Shabokin Well (raw)	Shabokin Well (treated)	Shabokin Well (raw)	Shabokin Well (treated)
	7/8/2020	7/8/2020	7/23/2020	7/23/2020	8/19/2020	8/19/2020	9/2/2020	9/2/2020
PFHxA (unreg.)	--	ND	--	ND	--	ND	--	ND
PFHpA	1.28	ND	1.40	ND	1.32	ND	1.27	ND
PFHxS	13.80	ND	14.00	ND	13.40	ND	13.20	ND
PFOS	5.02	ND	4.94	ND	4.47	ND	4.35	ND
PFOA	5.05	ND	5.37	ND	4.78	ND	5.57	ND
PFNA	ND	ND	ND	ND	ND	ND	ND	ND
PFDA	ND	ND	ND	ND	ND	ND	ND	ND
EPA LHA (70)	10.07	ND	10.31	ND	9.25	ND	9.92	ND
Mass MCL/ GW-1 (20)	25.15	ND	25.71	ND	23.97	ND	24.39	ND

PFAS RI Areas of Investigation

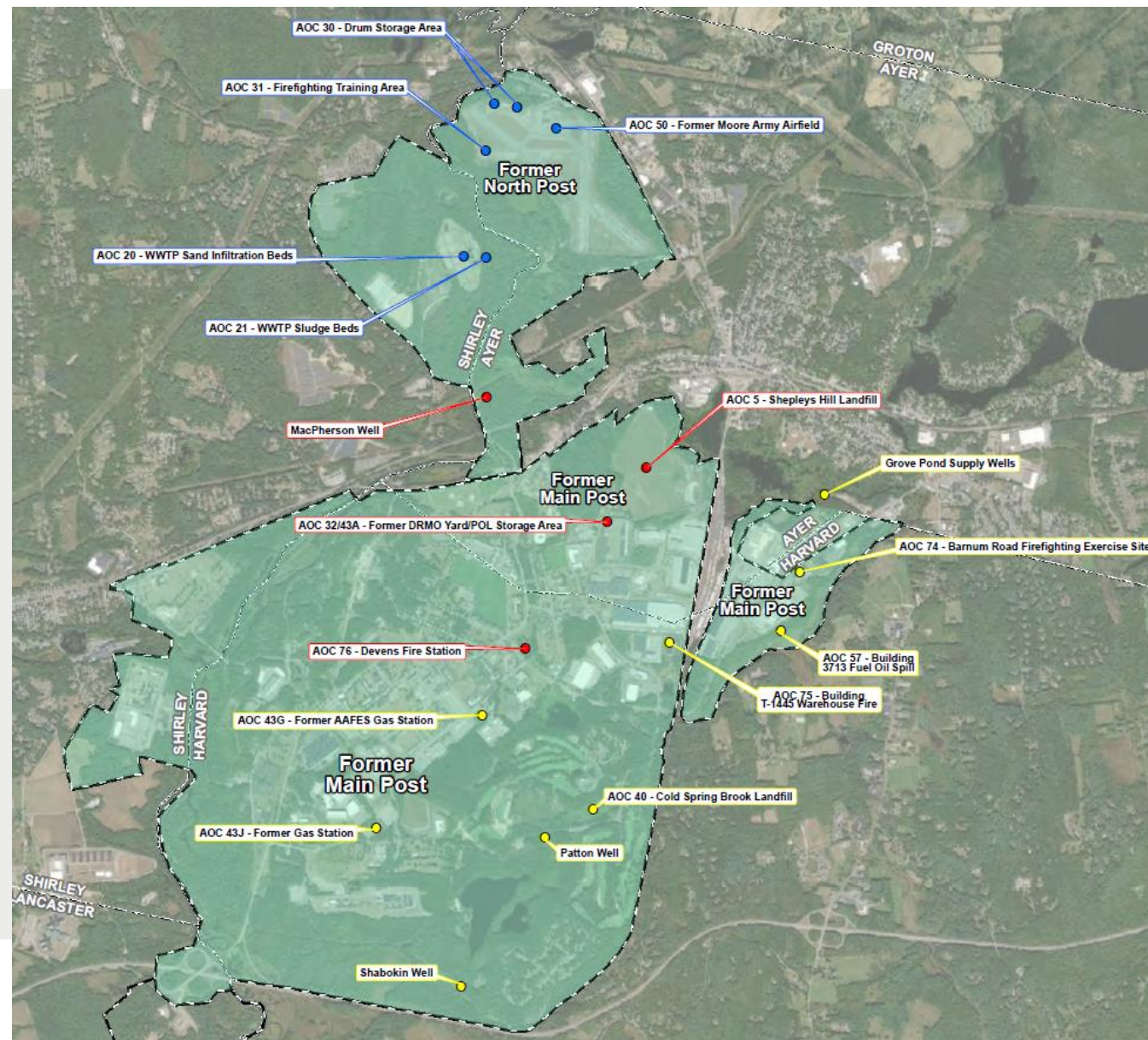
In 2018, the investigation was divided into three areas to expedite the field work.

Area 1

Area 2

Area 3

- Initial field activities have been performed in the three areas.
- Need for additional activities was identified based on the review of the current results.
- Next steps are being discussed.





REMEDIAL INVESTIGATION FIELD ACTIVITIES



Groundwater Sampling

- Existing and new wells (overburden, shallow bedrock) were sampled (391 samples)
- Vertical profiling was performed, samples collected every 10 feet from water table to refusal (1,620 samples)

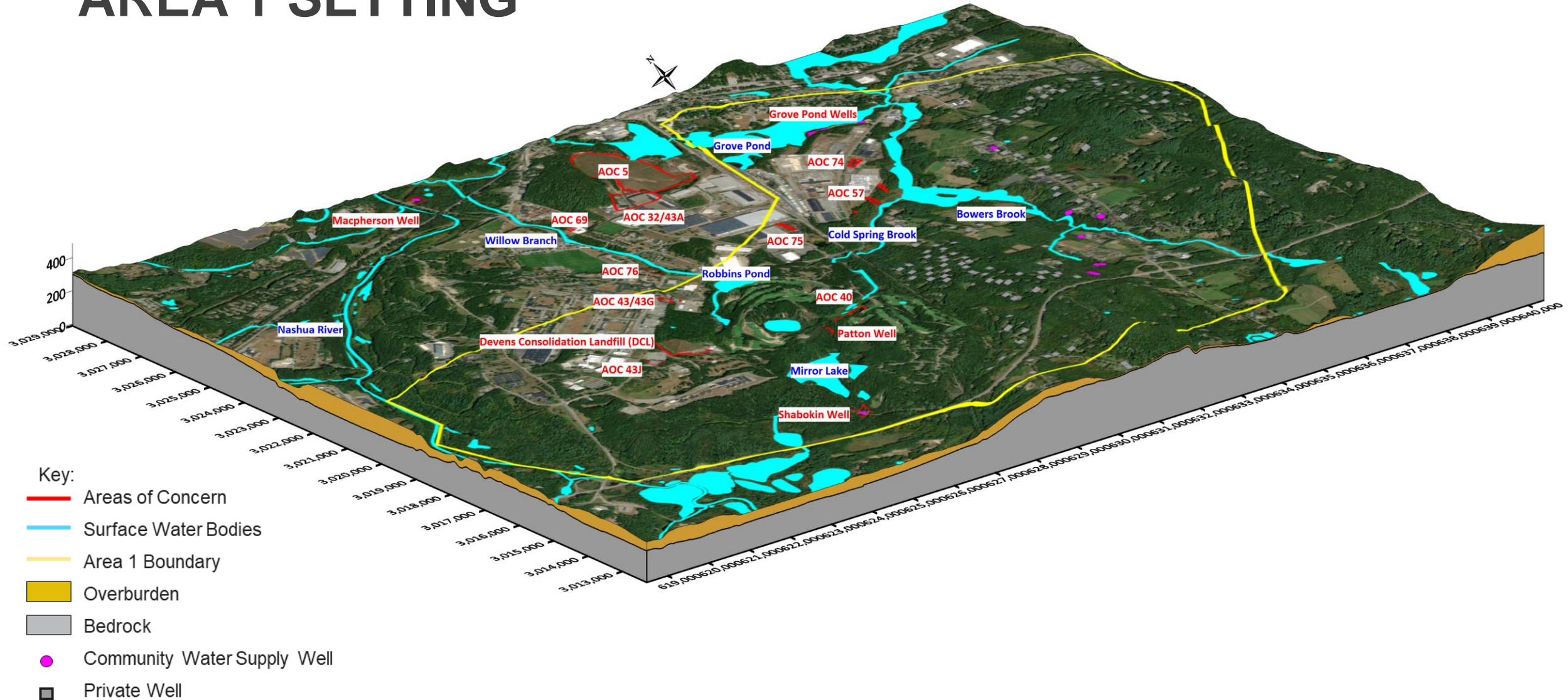
Surface and subsurface soil sampling (411 samples)

Surface water and sediment sampling (74 samples)

Hydraulic Assessment

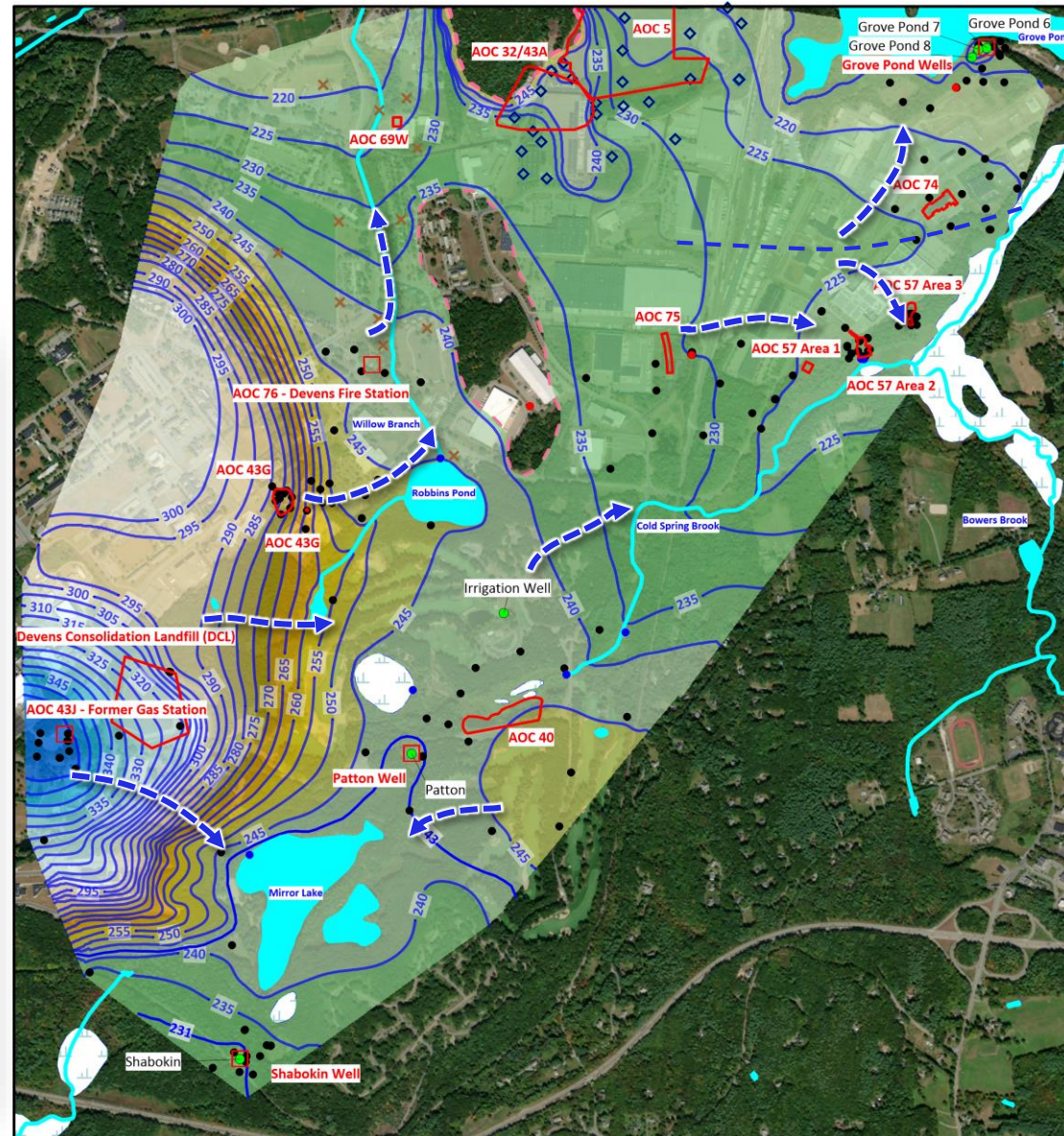
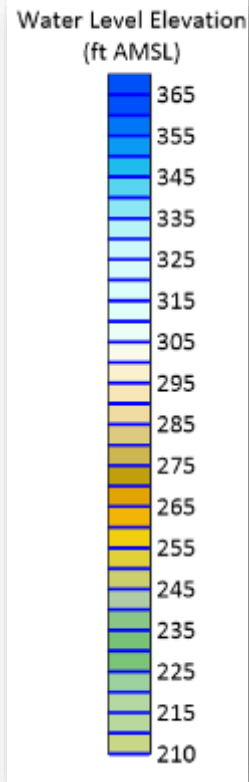
- Synoptic water level events (11 events)

AREA 1 SETTING



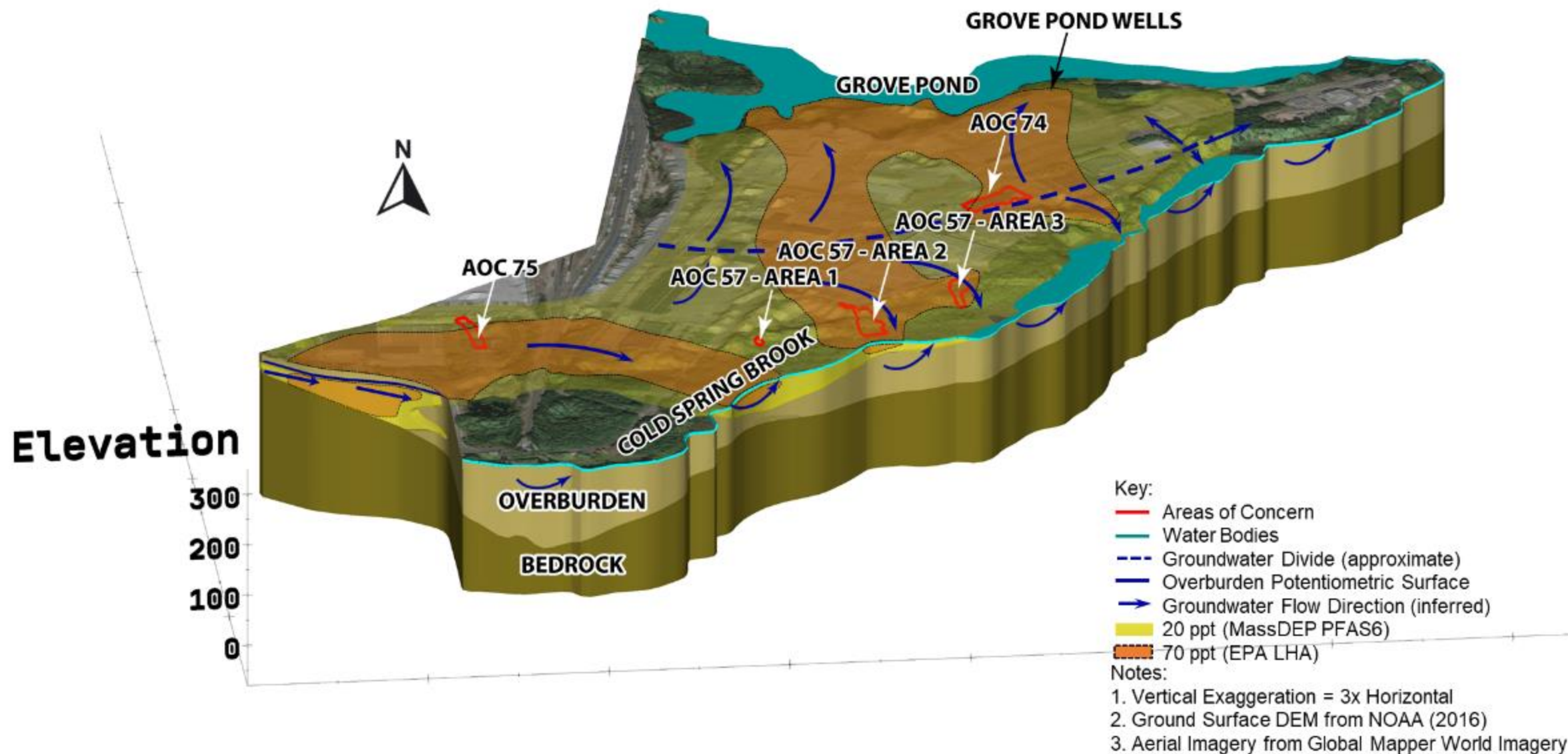


- Key:
- Areas of Concern
 - Surface Water Bodies
 - Community Water Supply Well
 - Overburden Monitoring Well
 - Bedrock Monitoring Well
 - Non-Area 1 OB Monitoring Wells
 - GW Elevation Contour (March 2020)
 - Inferred Groundwater Flow Vector



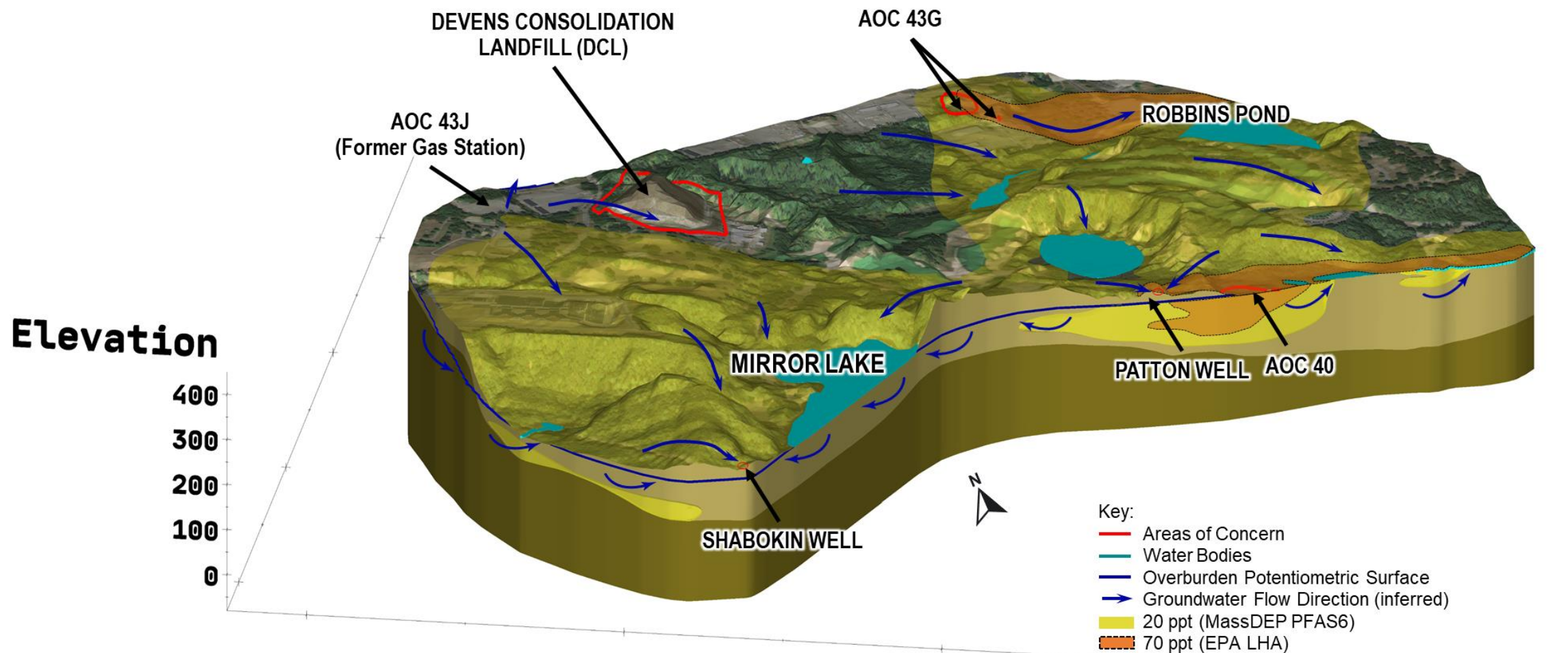


AREA 1 NORTH 3-D CONCEPTUAL SITE MODEL





AREA 1 SOUTH 3-D CONCEPTUAL SITE MODEL



Notes:

1. Vertical Exaggeration = 3x Horizontal
2. Ground Surface DEM from NOAA (2016)
3. Aerial Imagery from Global Mapper World Imagery



Upcoming Work



PFAS Remedial Investigation

Reviewing RI data with regulators and discussing next steps.

Installation of bedrock wells planned following acceptance of work plan.

PFAS Sampling/ Treatment

Temporary (interim) PFAS filtration system (GAC) will continue to operate at Ayer's Grove Pond Well #8 until December when the permanent system is completed.

Fourth Quarter 2020 (December) sampling of municipal (Ayer) public water supply wells will be performed by Army.

MassDevelopment will continue PFAS treatment at MacPherson, Patton, and Shabokin water supply wells.

CIP

Final version is planned for the end of November 2020 and will be posted on the website

www.nae.usace.army.mil/missions/projects-topics/former-fort-devens-environmental-cleanup/

Next RAB Meeting is planned for February 25, 2021.