

Restoration Advisory Board (RAB) Meeting Minutes

Former Fort Devens Army Installation, Devens, MA

Meeting Date – 19 November 2020

Location: virtual meeting, link via Zoom

Time: 6:30 PM – 8:00 PM

Attendees:

- Army – Bob Simeone
- Army Corps – Penny Reddy, Bryan Purtell, Mike Kulbersh, Dan Groher, Brent Smith
- EPA – Carol Keating, Kelsey Dumville
- MassDEP – Dave Chaffin, Diane Baxter
- MassDevelopment – Roy Herzig, Jessica Strunkin
- PACE – Laurie Nehring, Julie Corenzwit, Richard Doherty
- Harvard Board of Health – Libby Levison, Chris Mitchell
- KGS – Jim Ropp, Lynne Klosterman, Katie Thomas, Larry Pannell
- Arcadis – Andy Vitolins
- Jacobs – Amy Brand
- Haley & Aldrich – John Kastrinos, Chris Turner
- Harvard Press – Joan Eliyesil
- Citizens – Michelle Eberle, Bill Duston, Marion Stoddart, Mary Iannuzzi, R. Frazer, and other unidentified attendees.

Presentation: On behalf of the Army, we are holding this meeting virtually with the community to accommodate circumstances due to COVID 19. Tonight, in attendance we have representatives from the Army, the Army Corps of Engineers (USACE), the Environmental Protection Agency (EPA), the Massachusetts Department of Environmental Protection (MassDEP), MassDevelopment, and the People of Ayer Concerned about the Environment (PACE). The presentation is being given by Lynne Klosterman (KGS), Dan Groher (USACE), and Andy Vitolins (Seres/Arcadis).

See attached presentation slides, dated 19 November 2020, which provided updates on the following topics related to PFAS investigations at the former Fort Devens:

1. Community Involvement Plan (CIP) Update
2. Per- and Polyfluoroalkyl Substances Updates
 - a. Sampling Update for Private Wells and Community/Non-Community Systems
 - b. Sampling Update of Town Public Water Supply Wells
 - c. Water Supply Well Treatment Update
 - d. Remedial Investigation (RI) Update
3. Upcoming Work

Note:

Discussions described herein have been paraphrased as needed for clarity.

Community Involvement Plan Update

The Community Involvement Plan or CIP describes the Army's community outreach program regarding the ongoing environmental investigations at Fort Devens. The draft plan was submitted for review to about 100 stakeholders in the community and included results from public interviews and the questionnaire that can be found on the Former Fort Devens website. The public review period was completed after three months and responses to all comments were completed by the Army in May 2020. A draft Final CIP was issued in September and currently the Final CIP is planned to be submitted at end of November 2020.

The CIP includes six key areas.

1. Currently, documents are stored at the Army BRAC office. To make the investigation reports more accessible to the public, the Army plans to set up a satellite information station at the Ayer Public Library and the types of documents will include fact sheets, work plans, data reports, all which will be available for public review. This is planned for 2021.
2. Improve and update the project website. The website link has been updated and public information and contact information is available there. The Army plans to post documents and important updates, feature a comment/question page, add more visual aids such as photo gallery and infographics. This is an ongoing communication task as the website has been set up and documents are being made available there.
3. Increase communication about upcoming public meetings and comment periods. The Army plans to communicate routinely through website postings, emails, public notices and post cards. This is an ongoing communication task.
4. Update the RAB. Every few years it is important to refresh the objectives of the RAB. For the past few years, the RAB has been somewhat informal and there is interest in expanding its role in the Fort Devens cleanup process. The Army intends to reach out for new RAB invites, create a RAB charter, better engage RAB co-chairs and improve how RAB meetings are advertised, held and documented. The RAB rule handbook will be used as a guide in this process. This is planned for 2021.
5. In addition to RAB meetings, the Army plans to hold informal open house sessions with poster board presentations to promote more discussions with the community. Collaborative virtual meetings and workshops will be considered to prepare for the open house sessions planned for 2021.
6. To inform the public, the Army will issue periodic fact sheets and/or email updates to community mailing list and posted on the project website. The Army has released three fact sheets in July, September, and November of this year. A fourth fact sheet is planned to be released shortly. This is an ongoing communication task.

The Fort Devens project website has moved (note the new web address). A comments/questions page will be added that will compile public questions and provide answers. If you have trouble connecting to the site, try different internet browsers.

Sampling Update for Private Wells and Community/Non-Community Systems

The Army has been sampling private, community, and non-community wells for PFAS since 2018 out an abundance of caution. The EPA Lifetime Health Advisory (LHA) is a federal guideline for the sum of two

PFAS compounds, PFOS and PFOA, and the federal advisory for drinking water is 70 parts per trillion (ppt). The advisory limit was set in 2016.

In October 2020, the MassDEP established a maximum contaminant level or state standard of 20 ppt for six PFAS compounds. The sum of six PFAS compounds (PFOA, PFOS, PFHxS, PFHpA, PFNA, and PFDA) is used for drinking water and groundwater GW-1 cleanup standards.

The Army has sampled 138 private wells in the towns of Ayer, Shirley, and Harvard. Seven community wells have been sampled in Harvard and Lancaster. Note that no exceedance of the EPA advisory limit has occurred. However, of the 138 private wells, 19 wells and 2 community wells have exceeded the MassDEP standard.

The Army began sampling wells in Harvard in October 2018 and collected samples as recently as October 2020. As of October 2020, 125 private wells in Harvard were sampled overall and additional retesting was conducted at wells over 20 ppt. The concentrations of PFAS exceeded 20 ppt at Ayer Rd, Blanchard Rd, Lancaster County Rd, and Depot Rd. Roads that had less than 20 ppt or non-detects include Myrick Lane, Old Mill Road, Cedar Ledge Rd, Old Shirley Rd, and Prospect Hill Rd to the south of Route 2. The two general areas where PFAS was detected above 20 ppt are Blanchard/Lancaster County Rd area and the northern portion of Ayer Rd. No locations had PFAS results exceeding the EPA LHA of 70 ppt.

The Army has sampled private wells in Shirley and Ayer north of the former Moore Army Airfield bound by the Nashua River to the west and Fitchburg Rd to the north/northwest. Samples were collected from 13 private wells in spring of 2020. No results exceeded the EPA advisory limit of 70 ppt. Only one well located on Great Road exceeded the MassDEP standard of 20 ppt.

Although there were detections above 20 ppt in samples from Harvard and Shirley, the source of that PFAS is currently not known. The Army is continuing to investigate the extent of PFAS associated with Fort Devens.

Sampling of Town Public Water Supply Wells

The Army has been helping to sample the town of Ayer public water supply wells located at Grove Pond and Spectacle Pond since 2018. Spectacle Pond is located about 3 miles east of Devens. The PFAS found at Spectacle Pond is not associated with the former Fort Devens.

The results from June 2020 were reviewed. Only eight PFAS compounds were detected. Two of these compounds are unregulated and the additional six listed are the EPA advisory compounds and MassDEP regulated compounds. The yellow highlighted cells show PFAS concentrations exceeding EPA LHA of 70 ppt or the MassDEP standard of 20 ppt. Well 8 pretreatment sample exceeded both state and federal criteria, but post treatment samples show all PFAS results were non detect. The finish stream at Grove Pond distributed to the public is made up of the combined flow from wells 1, 6, 7, and 8, which did exceed the MassDEP standard. Spectacle Pond had one well exceed the MassDEP standard and the finish stream of both wells also exceeded the MassDEP standard.

The results from September 2020 were reviewed. The finished water distributed for public use included Well 6 and 8 at Grove Pond and it met both EPA and MassDEP standards. At Spectacle Pond, two wells contributed to the finish water stream, which continued to exceed the MassDEP standard of 20 ppt.

Water Supply Well Treatment Update

The Army summarized the ongoing treatment at the Town of Ayer Grove Pond Wellfield and summarized the status of the permanent upgrade to the Grove Pond Water Treatment Plant. Water from Well 8, the most contaminated well, treated using a granular activated carbon (GAC) filter by the Army. This water then goes to plant where it is mixed with other water from the plant and then to the Ayer water distribution system. The town uses a mixture of wells to meet the demands of the town. The PFAS impacts at Spectacle Pond Wellfield 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 to these wells.

The temporary treatment system at Well 8 is very effective at taking PFAS out of water. All of the post-treatment results have been non-detect. The temporary system went online in June 2019, it was winterized, and operates at 200 to 300 gpm. It is the primary well the town uses.

The Army supported the expansion of the Grove Pond Wellfield Treatment Plant to remove PFAS from the water through a federal Environmental Services Cooperative Agreement (ESCA). The Town of Ayer turned on the new anion exchange system (AIX) treatment system in October intermittently. The AIX system will remove PFAS from all of the water from all of the wells. It is currently operated part time (during the day) and is anticipated to be in full operation in December. At that time the temporary GAC system at Well 8 will no longer be needed.

MassDevelopment has been doing their own treatment and sampling of their water supply wells. The MacPherson well results for July, August, and September 2020 were reviewed. The treated water results meet EPA and MassDEP standards. The water is treated using GAC filters.

The Patton and Shabokin results were reviewed for July, August, and September 2020. The treated water was non-detect for PFAS.

Remedial Investigation (RI) Update:

The PFAS RI at Devens divided into three investigation areas: Area 1, Area 2, and Area 3. Since 2018, initial field activities have been performed in all three areas. Current results have identified the need for additional investigative activities and next steps are being discussed. The Army is working with EPA, MassDEP, and MassDevelopment through our Devens BRAC Cleanup Team (BCT) meetings to review all the data collected so far in the three areas and to determine where more sampling and investigation is needed.

The number of samples collected from different environmental media were discussed. Sampling of groundwater was performed through collection of samples from monitoring wells and through vertical profiling. Vertical profiling is conducted with a drill rig that enables collection of groundwater every ten feet from the top of the water table to drill rig refusal.

Area 1 Conceptual Site Model (CSM):

Andy Vitols indicated SERES/Arcadis is assisting the Army with this work. The BCT, including EPA, MassDEP, MassDevelopment, and PACE, have not reviewed the data used to develop the CSM maps presented tonight.

The CSM is a model to evaluate exposure pathways and gaps in existing data and fate of contaminants in environments. CSM is a living document, consisting of interpretations of data as the investigation progresses. Data is collected and a CSM is developed and the CSM is updated as more data is collected.

The Area 1 CSM is presented in a block model showing overburden (everything that is not bedrock) and bedrock. Devens is in a bedrock valley with several hundred feet thick of overburden. On either side of Devens the overburden thins, or bedrock is present at the surface.

The map view depicts groundwater flow in overburden. The main trends are that groundwater flows from the higher elevation areas in west toward lower elevation areas. In the northern part of the area there is a groundwater divide where groundwater flows north to Grove Pond and east to Cold Spring Brook in the Areas of AOC 57 and AOC 75. In the southern portion there is a groundwater divide where groundwater flows south to Mirror Lake. Groundwater flows north with Willow Branch.

A 3-D block model CSM for the northern portion of Area 1 was reviewed. Overburden thins to the west. Groundwater flow patterns shown on the map in 3-D view show the groundwater flows upward to Cold Spring Brook. Data used to develop the model includes groundwater from wells, groundwater from vertical profiles, bedrock depths from drilling, and groundwater flow from synoptic water level measurement events. The groundwater divide is depicted on the block model showing groundwater flow to the north toward Grove Pond and south of the divide groundwater flows to the east to Cold Spring Brook.

Another 3-D block model for the southern end of Area 1 follows Cold Spring Brook to the south and shows the Patton and Shabokin wells. As expected, the CSM shows groundwater flow to the water supply wells and shows groundwater discharging to surface water bodies.

Upcoming work:

- PFAS RI – The Army is reviewing data with the BCT and is discussing next steps. Installation of bedrock wells is planned following acceptance of a work plan.
- PFAS Sampling/treatment – Temporary (interim) PFAS filtration system using 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 – The 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/

The next RAB Meeting is planned for February 25, 2021.

Questions: Below is a summary of questions from the Zoom chat feature during the presentation and from discussion after the presentation. Questions are shown here as they were presented/typed in the online meeting chat interface:

From Laurie Nehring: 06:37 PM. Have you spoken to the Ayer Library to coordinate the and get their support and approval? Do they have space? Thank you for increased outreach. The website had changed. Can we look at it together, perhaps at the end? I'm finding it hard to use (used it today).

Yes, Army has talked with the Ayer Library. The library has limited shelf space but should be able to accommodate some documents. The Army will be working with the Ayer Library to determine the best documents that can be made available at the library. Fact sheets and announcements are planned to be made available at the library along with selected, most relevant reports. Many documents are also available on the Army's website. The Army can assist individuals with navigating the website at a separate time.

Laurie Nehring indicated the link to access data was taken off the website and requested it be added back to the website. Bob Simeone (Army) indicated the Army will consider the request.

From Carol Keating (EPA): 06:37 PM. Has the RAB ever had a "charter" with established "co-chairs"?

Bob Simeone (Army) replied that there was a charter and co-chairs and that it evolved to a more informal process. The Army's intent is to update the RAB. Carol thinks current RAB is working and is asking why it is being changed. Bob indicated it was an outflow of comments received during development of the CIP. The group involved with the RAB will determine how formal or informal the future RAB will be.

Laurie Nehring requested meetings occur more than four times a year. Bob Simeone indicated the future RAB will determine future meeting needs. Right now there is not enough new information to hold meetings monthly. Bob also indicated the Army will take that comment under consideration.

From Laurie Nehring: 06:38 PM. Were the fact sheets email out to all of us on the RAB list?

Jim Ropp (KGS) replied that the fact sheets were emailed to everyone on the contact list. The fact sheets were also put on the Army's website and provided to the towns to put on their websites. Laurie asked if the fact sheets went to everyone receiving documentations. Jim indicated that they were, and he would resend the fact sheets to Laurie.

From Libby Levison: 06:38 PM. Has there been discussion that different town might need different Fact sheets? Eg, Ayer residents have different questions than do Harvard residents. Libby indicated she worked for the Harvard Board of Health.

Jim Ropp (KGS) replied that the fact sheets to date have not been tailored to different towns. He did indicate future fact sheets can be tailored to address specific issues as they arise. Jim said he is sending the first four fact sheets. The entity sending follow-on fact sheets has yet to be determined.

From Mary Iannuzzi: 06:38 PM. Will you please send the slide deck to tonight's meeting participants?

Jim Ropp (KGS) replied that the slides will be posted to the Army's website.

From Carol Keating: 06:39 PM. Could the ftdevens.org website still be accessed?

Jim Ropp (KGS) replied that the original website is still accessible.

From Laurie Nehring: 06:42 PM. Myrick Lane is a long way from Brook. Might there be a different source?

Jim Ropp (KGS) replied that it is possible the PFAS detects at Myrick Lane are from a different source. PFAS can be found in many common household and commercial products. Fire fighting foams which have been used on Fort Devens are also used by municipal fire departments in some cases. The Army is continuing to conduct the Remedial Investigation to determine the extent of PFAS on the former Fort Devens and whether it is impacting offsite areas.

From dleva: 06:45 PM. Regarding testing on the MA Dep limit, is there information on the relative abundance of the 6 PFAS compounds that suggests the same environmental release/source, or are different releases implicated?

Jim Ropp (KGS) replied that the private and town well sampling includes 18 different PFAS compounds. Each sample shows relative abundance of the different analytes. The Army is evaluating the relative abundance of the different PFAS compounds, although fingerprinting the relative abundance in a sample to a particular source can be difficult due to different formulations of PFAS compounds in household/commercial products over the years and due to the transformation of some PFAS compounds over time in the environment.

Laurie Nehring indicated she reviewed a Spectacle Pond study that presented different PFAS data on pie graphs on maps and used color coding to show quantities of different PFAS compounds. She said the figures clearly show the different chemical ratios indicating three different sources. She requested the data at Devens be presented in a similar manner. Bob Simeone indicated the Army is doing similar work now and will likely be presenting some of that information during the next RAB meeting.

From Carol Keating: 06:49 PM. Has the permanent treatment plant constructed at the Town of Ayer Grove Pond wellfield been officially "approved" (i.e. permitted) by MassDEP?

Dan Groher (USACE) replied that he believes the plant has been approved with MassDEP, but that it might be a temporary or provisional approval. Dan indicated the plant is not operating full time due to some equipment automation issues.

From Laurie Nehring: 06:50 PM. Is this AFTER the new filtration system for Grove Pond? (Sept 2 data).

Dan Groher replied that all of the data presented are from before the AIX system was on-line.

Laurie Nehring ask if we have data from after the new treatment system was turned on. Jim Ropp (KGS) indicated we presented the most recent data the Army has. Dan Groher indicated the Army is not performing the sampling on the new treatment system.

Carol Keating (EPA) asked if the Army is sampling the Spectacle Pond wells. Lynne Klosterman (KGS) indicated the Army will sample Spectacle Pond wells in December.

Carol Keating (EPA) asked if the Army is sampling private wells. Lynne Klosterman (KGS) replied that the Army is sampling the community wells on a regular basis, also all private wells were sampled that the Army received permission to sample. Many of the wells which had detections of PFAS above 20 ppt have also been resampled. Carol Keating asked if private well owners had asked to have their wells further sampled. Jim Ropp replied that they have not.

Laurie Nehring asked if any sampling between private wells and Cold Spring Brook is occurring. Carol Keating (EPA) said EPA wants that sampling to occur. Carol indicated EPA has received the data report but has not had a presentation or discussion of the data with the BCT yet. The Army wants to meet to go through the results and discuss with next steps with the BCT. EPA wants to expand the investigation to the east of Cold Spring Brook and go deeper.

From Mary Iannuzzi: 06:53 PM. Is "the town" Ayer?

Jim Ropp replied yes, the Grove Pond wells are for Ayer.

From dleva: 06:57 PM. Curious - the AIX system is probably backflushed occasionally, or the exchange medium is replaced. How is the backflush disposed of (or the spent exchange medium)? Same for the spent activated charcoal. 07:56 PM. Disposal of spent filtration media touches on the larger question of how to dispose of PFAS materials generally.

Dan Groher (USACE) indicated the filter material is sent back to vendor and treated and replaced with new media. AIX will be backflushed frequently to remove anything that is clogging it such as precipitated iron. The PFAS is not removed from the filter media by backwashing at the treatment plant. Regarding the activated carbon filters, once the carbon is spent, it is sent back to Calgon (the carbon vendor) who treats it via high temp thermal desorption (a.k.a. "reactivation").

Dan Groher noted that for now, AIX resin is typically either disposed of off site, which almost always means incinerated; the other option, that Ayer is not using, is on-site steam regeneration of the resin. On-site regeneration is being performed at Pease Air Force Base in New Hampshire.

From Mary Iannuzzi: 06:59 PM. Does the new treatment facility in Ayer treat the Devens wells?

Bob Simeone replied no, the Devens and Ayer systems are separate. The Devens wells have their own treatment (filtration) systems.

From Carol Keating: 07:00 PM. Are there plans for Army, through a similar (ESCA) or other funding mechanism, to fund the design/construction of permanent treatment on the Devens' water supply wells?

Bob Simeone replied no, not at this time although there are ongoing discussions between MassDevelopment and Army.

From Mary Iannuzzi: 07:01 PM. Where is the Devens treatment plant?

[As noted above, the MacPherson, Patton, and Shabokin wells have their own treatment units at the wellhead locations.]

From Laurie Nehring: 07:01 PM. What ground water model will (or is) the data being run through to determine migration patterns? Laurie indicated that the groundwater modeling is important for the Silent Spring research she is involved with. Laurie requested a separate meeting on the groundwater model.

Andy Vitolins (Seres/Arcadis) indicated the CSM is not an analytical model.

Mike Kulbersh (USACE) indicated the model is developed using information on ground surface, top of rock based on drilling, and groundwater flow directions based on synoptic gauging events. The Army is working on a numerical flow model. It will cover from the Shabokin well to the south to the northern extent of Area 3. After calibration, the numerical model will be able to simulate

flow and transport of contaminants in the groundwater. The Army will be using new software developed by USGS, specifically Mod-Flow Unstructured Grid. The first cut will be available by April/May 2021. The Army will be working with EPA on the model.

From Chris Mitchell: 07:15 PM. Looks like most of the data is from overburden wells, what has or will be done to evaluate the bedrock aquifer?

Jim Ropp (KGS) replied that the Army is having ongoing discussions with the BCT to develop work plans to conduct bedrock investigations.

Roy Herzig (MassDevelopment) asked about the schedule for the RI and remedies.

Bob Simeone (Army) replied the Army is working with EPA, MassDEP, and MassDevelopment to develop a schedule. The RI is ongoing and the remedy and record of decision (ROD) will be in a few years.

Laurie Nehring (PACE) asked, what is going on in Area 3 with high PFAS levels and not being contained. Is Army doing anything to address contamination now. They sent a comment letter. Bob Simeone (Army) replied that the Army had received letters from PACE and the Nashua Watershed Association. The responses are being developed at the Pentagon (Army HQ) and a formal reply will be sent. He indicated the Army is going to continue the RI and are working on developing a schedule.

From Laurie Nehring: 07:15 PM. In the future, can you please change your color coding so this is easier to read?

[This question was not answered during the meeting but will be considered for future presentations.]

From Michelle Eberle: 07:17 PM. Is any research being done on the long-term health effects on Ayer and Devens residents from drinking the water?

Laurie Nehring (PACE) replied yes, for Ayer residents. In the last year Laurie has become involved with Silent Spring association, which specializes in human health exposure to toxins. Silent Spring has received a grant from the Agency for Toxic Substances and Disease Registry (ATSDR). Silent Spring is studying Hyannis and Ayer and will be looking for residents to come forward to be involved with study. They will ask for blood and urine study and a health survey. The plan to implement in Ayer next fall.

Laurie Nehring asked for a RAB meeting in January.

Bob Simeone replied that RABs are quarterly for now.

[The meeting was ended at 8 PM and there was not time to address the following questions. The following answers are provided for the meeting notes.]

From Joan Eliyesil: 07:28 PM. Will testing continue on private wells in Harvard?

No further private well samples are planned at this time.

From Roy Herzig: 07:28 PM. Can you describe what a "data gap" is and how they are addressed?

This will be discussed in upcoming BCT meetings regarding the recently submitted Preliminary Site Characterization Summary reports.

From Joan Eliyesil: 07:29 PM. Is there any testing planned for groundwater on the eastern side of Cold Spring Brook?

Yes. The schedule is to be determined.

From Joan Eliyesil: 07:35 PM. Will tonight's slides be available on the website?

Yes.

From Rich Doherty: 07:36 PM. The data from Blanchard Road in Harvard calls the Army's Conceptual Site Model into question and highlights the need for monitoring wells on the east side of Cold Spring Brook to evaluate if Devens may be the source. Can this work be scheduled in the near future?

The schedule will be discussed with the BCT.

From Libby Levison: 07:49 PM. At the Jan 2020 RAB meeting, there was discussion of sediment testing. Is that on-going?

Sediment samples discussed at the January 2020 RAB have been collected. Potential further sediment sampling will be discussed with the BCT.

From Michelle Eberle: 08:05 PM. Is any research being done on the long-term health effects on Ayer and Devens residents from drinking the water?

See the above response by Laurie Nehring regarding the Silent Spring study.

The meeting convened at 8:00 PM. Presentation slides and meeting minutes will be posted to the website.

RESTORATION ADVISORY BOARD

Former Fort Devens Army Installation



Join us for the next Fort Devens RAB meeting!

- **Who:** RAB meetings are open to the public
- **What:** Information regarding environmental investigations at Fort Devens
 - Update on the Fort Devens Community Involvement Plan
 - Update on PFAS sampling and Remedial Investigation
 - Q&A
- **When:** Thursday, November 19, 2020 at 6:30 PM
- **Where:** A virtual meeting will be held
 - RSVP to jropp@komangs.com and a Zoom link will be provided to you before the meeting date



Former Fort Devens Army Installation Project Status Update

November 2020



US Army Corps
of Engineers®



Today's Topics

1

Welcome!

2

**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




5

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



**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:

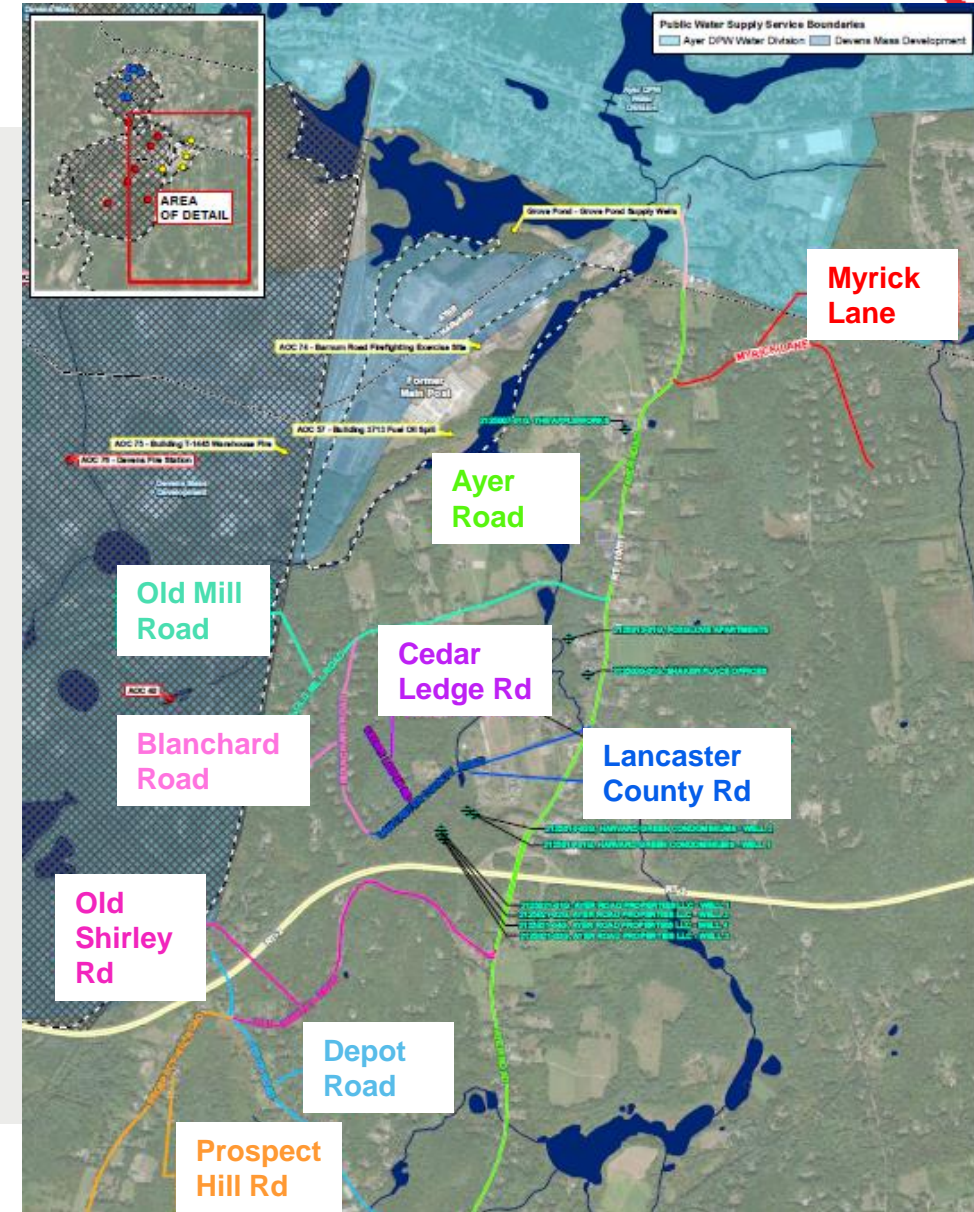
- ✓ No exceedances of the EPA LHA
- ✓ 19 private wells and 2 community wells exceed the MassDEP standard



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.



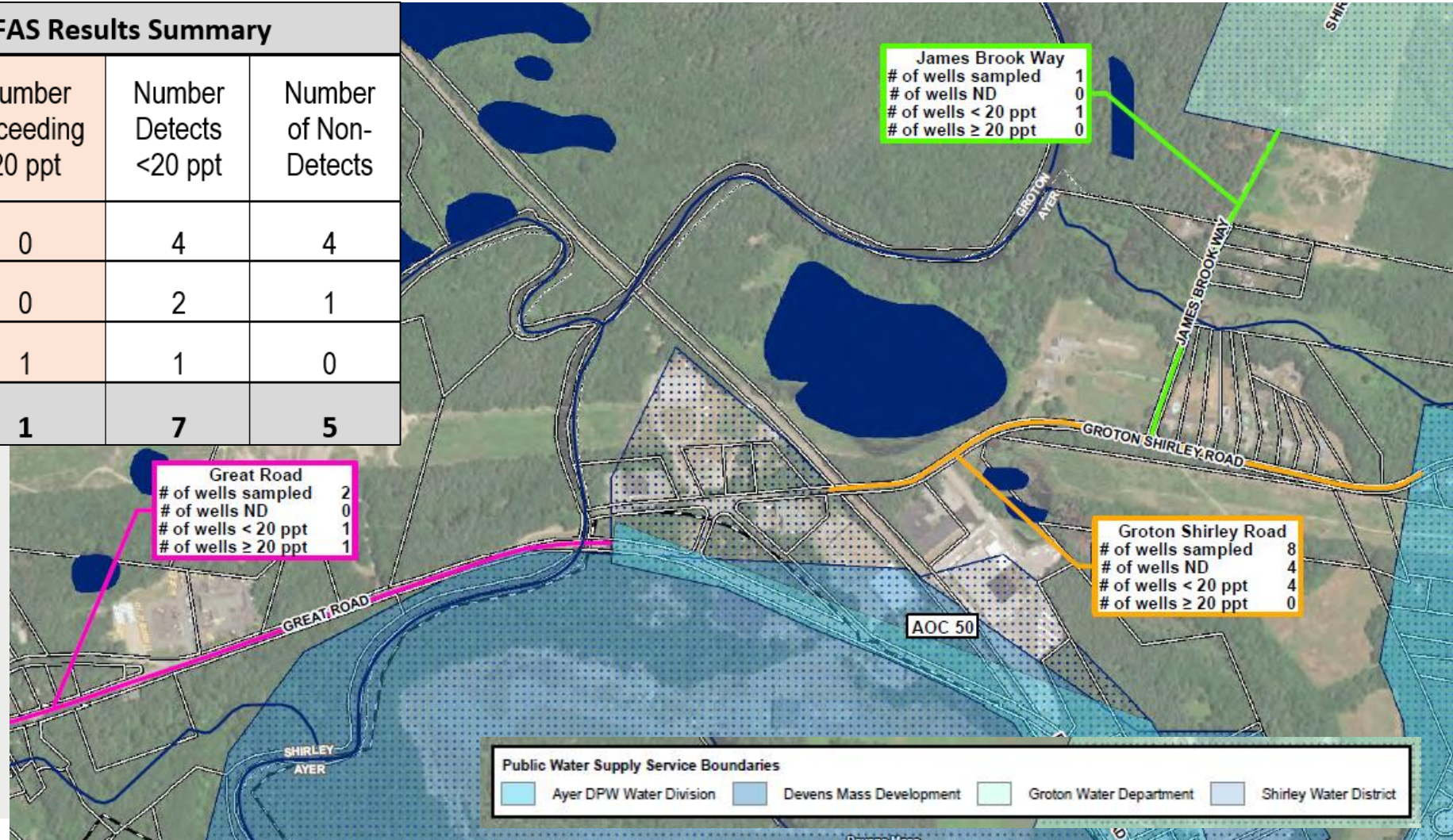


Sampling Results: Ayer and Shirley

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)



	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.



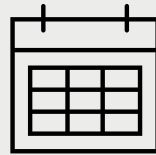
Grove Pond Wellfield Treatment Plant Update: Time-Critical Removal Action (TCRA)



12



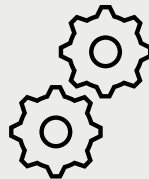
Initial temporary (interim) treatment of
Well #8 using granular activated carbon (GAC)



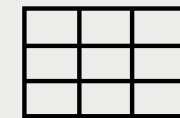
Online June 2019
to October 2020



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



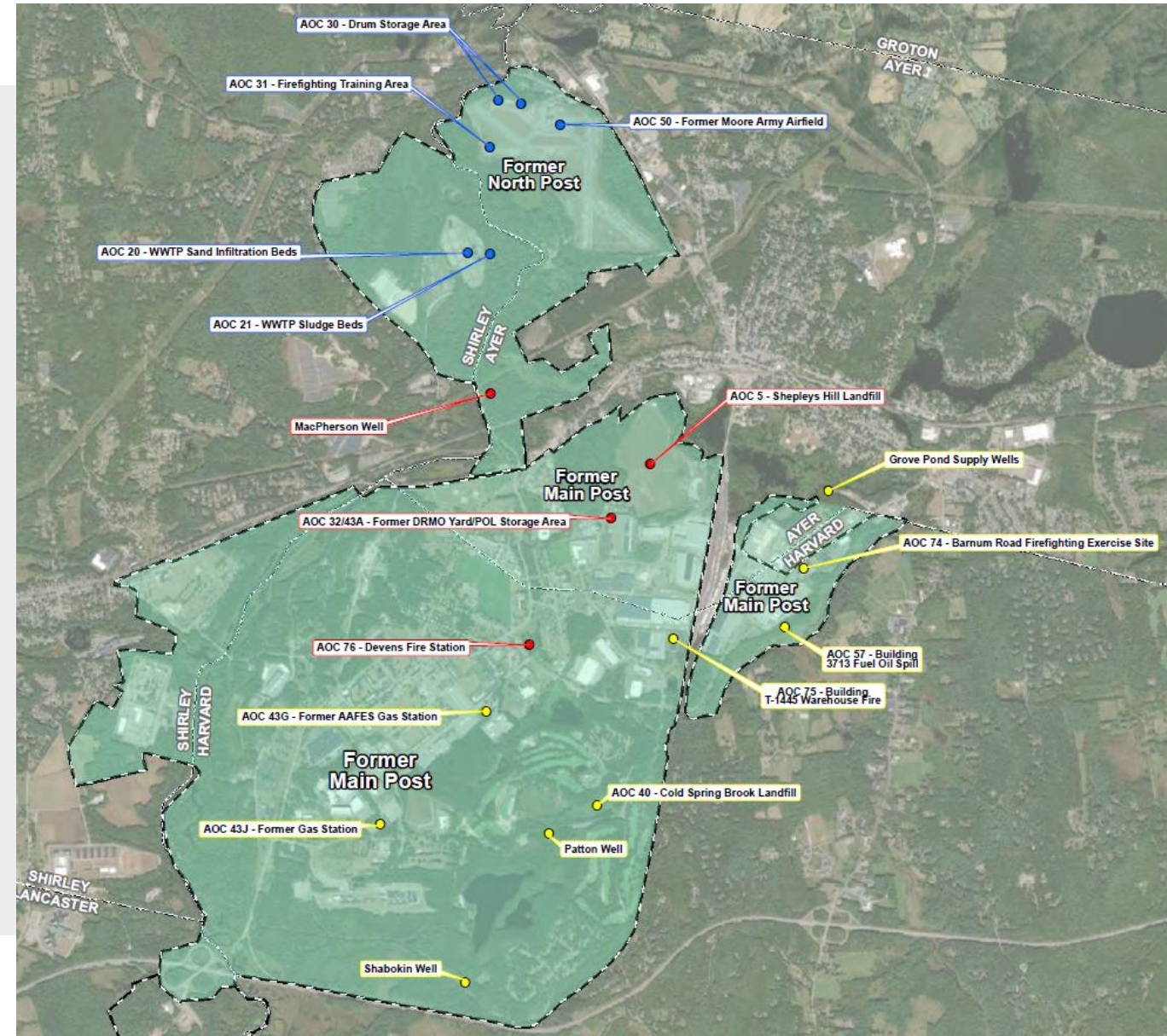
In 2018, the investigation was divided into three areas to expedite the field work.

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)

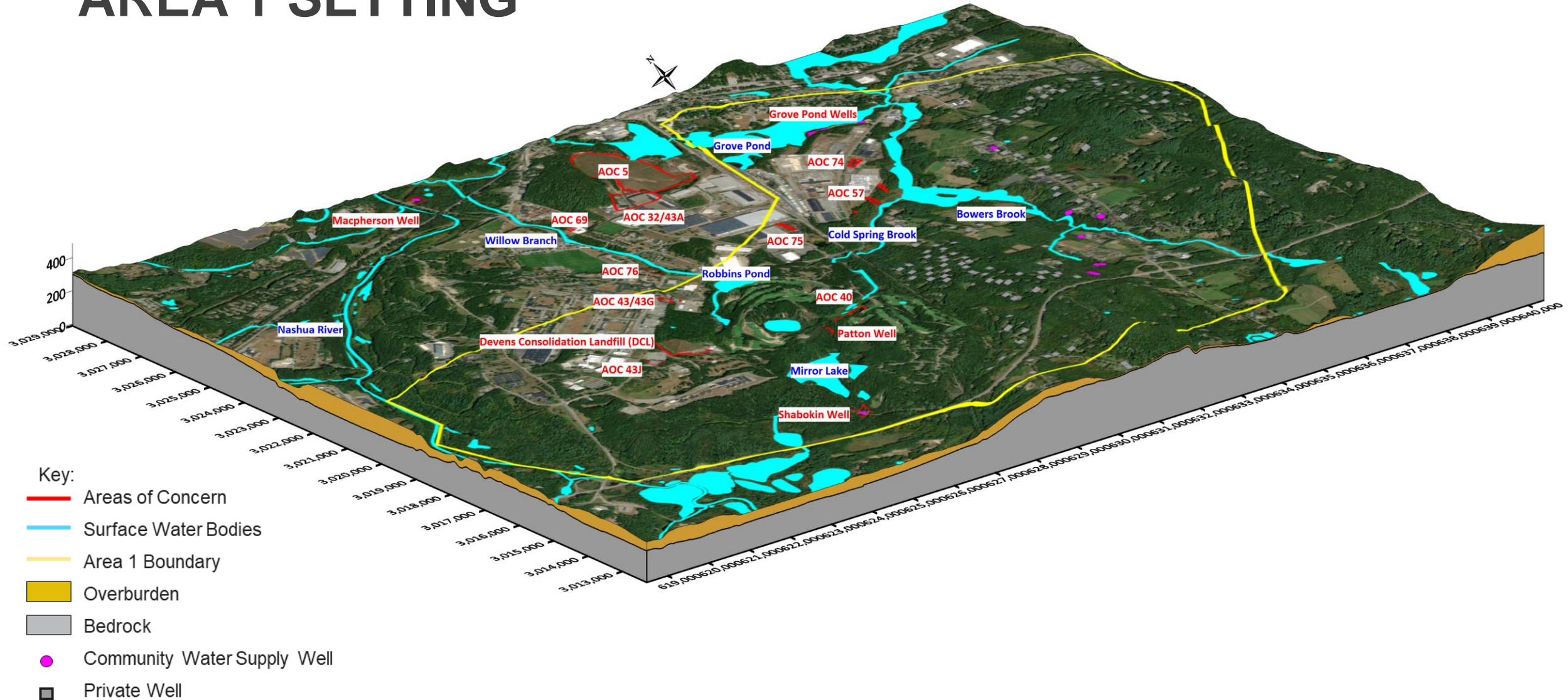
Surface and subsurface soil sampling (411 samples)

Surface water and sediment sampling (74 samples)

Hydraulic Assessment

- Synoptic water level events (11 events)

AREA 1 SETTING



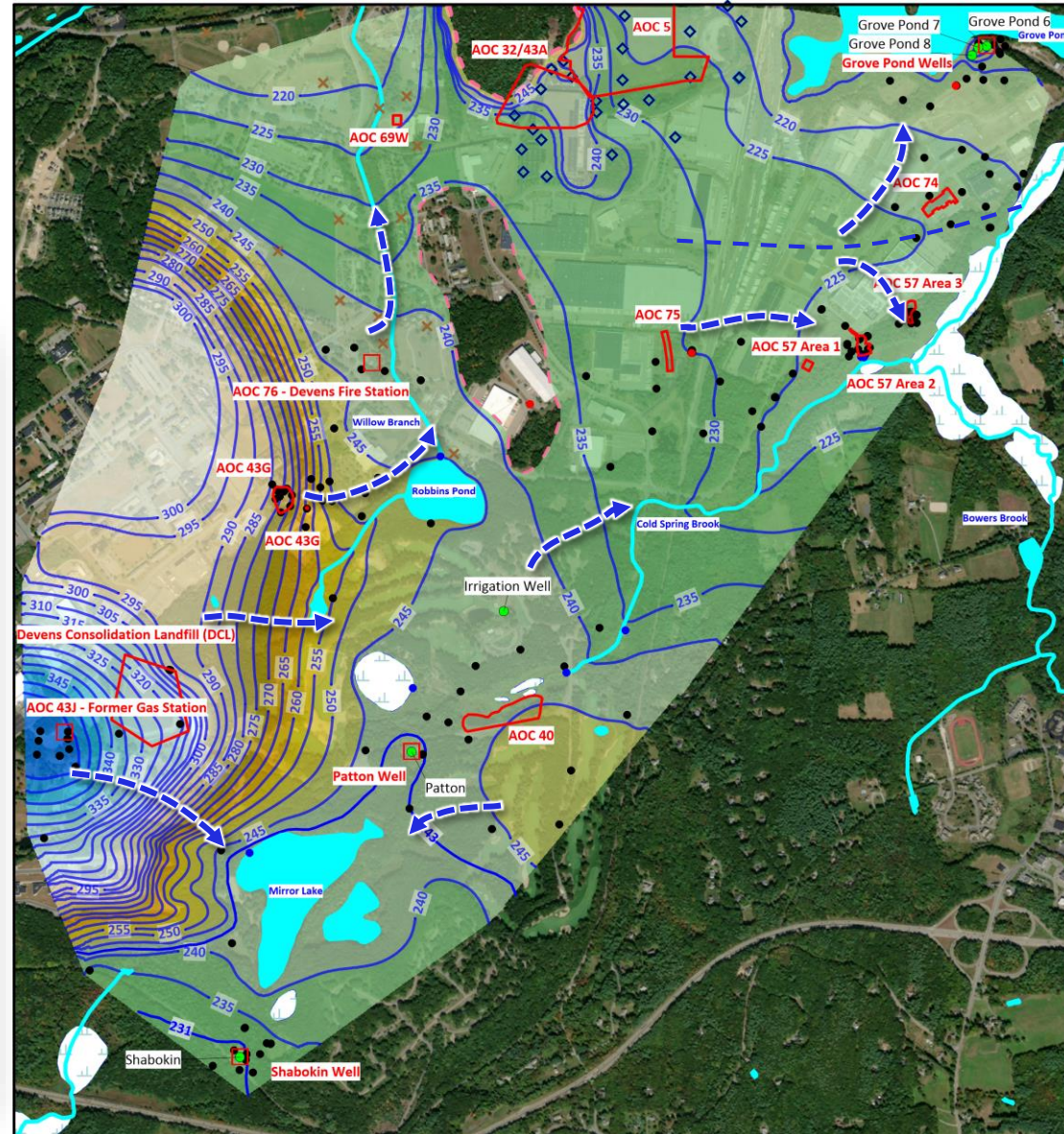
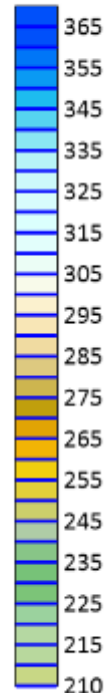


AREA 1 OVERBURDEN HYDROGEOLOGY



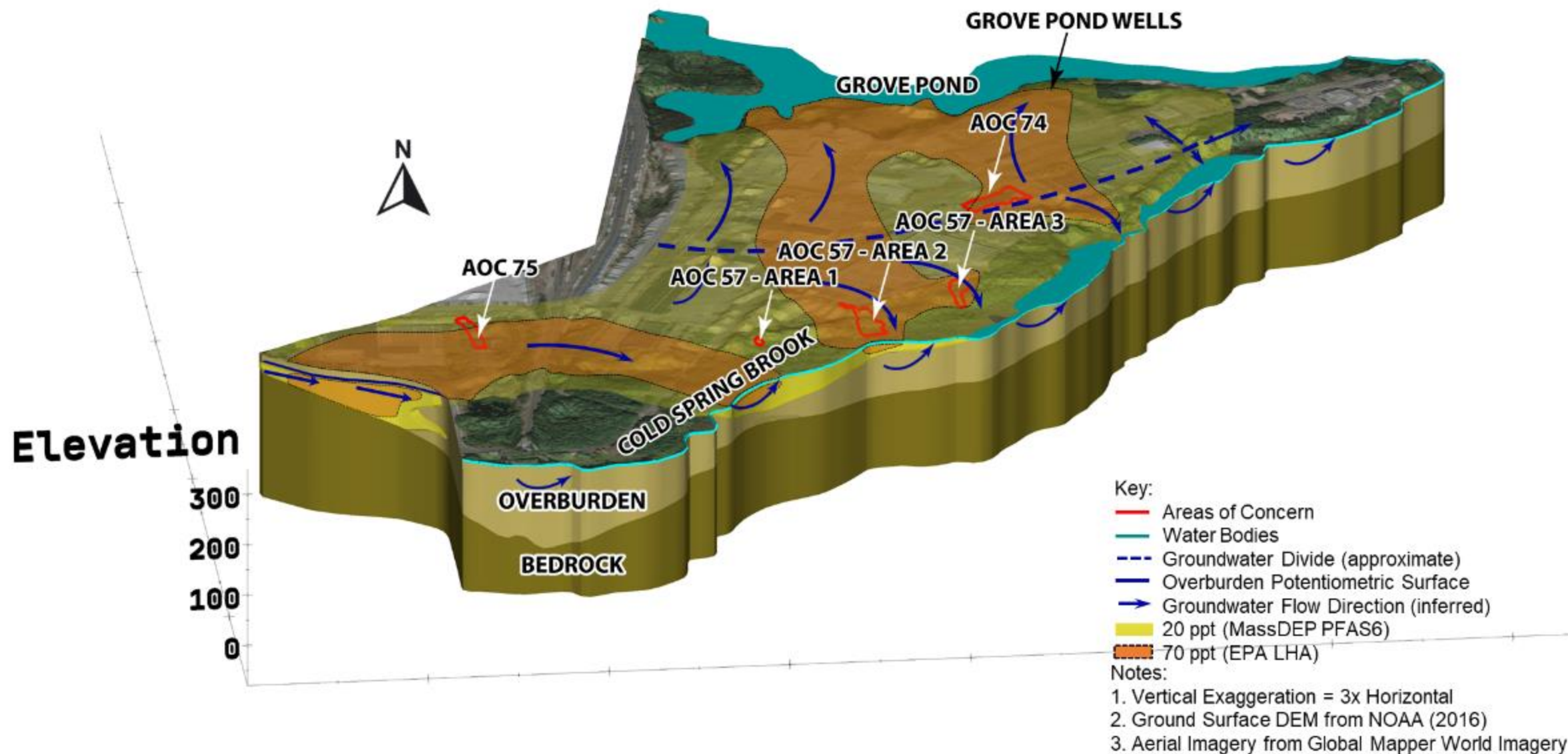
- Key:
- Areas of Concern
 - Surface Water Bodies
 - Community Water Supply Well
 - Overburden Monitoring Well
 - Bedrock Monitoring Well
 - Non-Area 1 OB Monitoring Wells
 - GW Elevation Contour (March 2020)
 - Inferred Groundwater Flow Vector

Water Level Elevation
(ft AMSL)



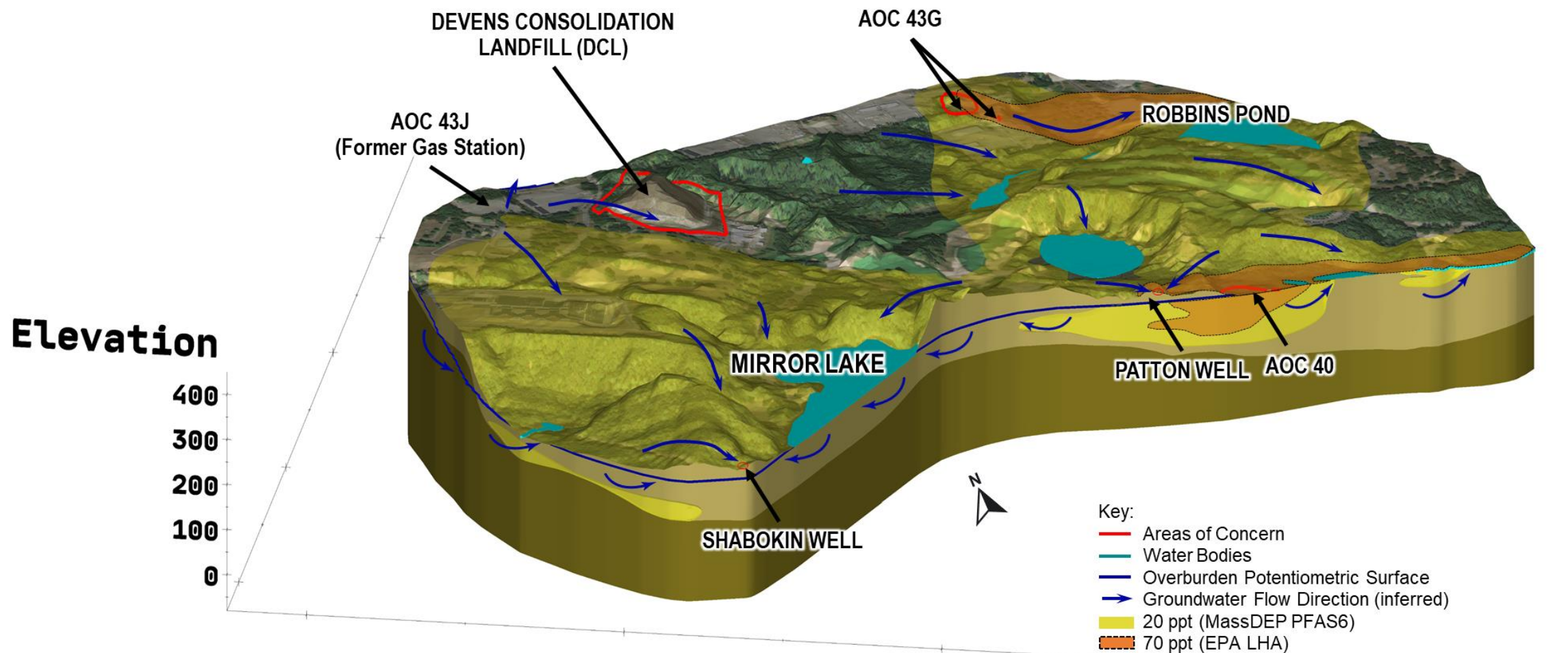


AREA 1 NORTH 3-D CONCEPTUAL SITE MODEL





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.