Restoration Advisory Board (RAB) Meeting Minutes
Former Fort Devens Army Installation, Devens, MA
Meeting Date – 16 January 2020

Location: MassDevelopment (Devens Commerce Center), 33 Andrews Pkwy, Devens, MA

Time: 6:30 PM – 8:30 PM

Attendees: see attached sign-in sheet

Introductory Remarks:

- Bob Simeone (Army BRAC) welcomed all attendees.
- Attendees introduced themselves.

Presentation: The Army, and KGS on behalf of the Army, presented and facilitated the RAB meeting. See attached presentation slides, dated 16 January 2020, which provided updates on the following topics related to PFAS investigations at the former Fort Devens:

1. PFAS
    a. Community Involvement Plan (CIP) Update
    b. Sampling Update for Private Wells and Community/Non-Community Systems
    c. Sampling Update of Town Public Water Supply Wells
    d. Water Supply Well Treatment Update
    e. Remedial Investigation (RI) Update
2. Five-Year Review

Note:

Discussions described herein were paraphrased where appropriate for the sake of clarity.

Community Involvement Plan Update

The Army noted that the draft Community Involvement Plan (CIP) was out for comment. It is available online at the ftdevens.org website. The review period extends to early February. A draft final CIP is planned for early May. The final CIP is planned for mid-June. Laurie Nehring (PACE) stated that it was difficult to find the Fort Devens website if you don't know the specific address. The Army replied that they will look into that issue.

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

The Army reviewed the various state and federal guidelines for PFAS. MassDEP noted that it is holding public meetings and the comment period for the proposed Maximum Contaminant Level (MCL) for PFAS in drinking water ends February 28th.

A member of the public asked about the difference between groundwater and surface water. The Army explained groundwater is water beneath the ground surface whereas surface water refers to water in brooks, streams, ponds, etc. and noted that groundwater has different standards than surface water.

The Army summarized previous sampling efforts for community/non-community systems and private wells, including the fall 2019 sampling of Harvard wells. The results from the Harvard well sampling were shown on a map and summary table. It was asked whether the sampling of the Harvard wells was going to be expanded. The Army indicated they are considering offering to resample residences where there were exceedances of MassDEP's proposed MCL. The Army is also considering offering sampling again to residences that previously declined offers to sample their wells or who didn't respond to the original requests if they are located near other areas where elevated levels of PFAS were detected. The Army is performing the sampling.

It was asked whether anyone has looked at Fort Devens for sources of PFAS. The Army explained that initially, records reviews and interviews were done as part of the Preliminary Assessment, then a Site Inspection was conducted that included sampling for PFAS in groundwater, soil, and surface water, and sediment. That work to identify potential sources of PFAS is what lead to the ongoing Remedial Investigation to determine the extent of PFAS at the former Fort Devens and whether it is affecting the local communities.

It was asked whether someone has looked at other public water supply wells. The Army replied that they have conducted sampling of the municipal water supply wellfields in Ayer, Devens, and Shirley and are evaluating the results.

A member of the public asked what was the highest concentration detected in the Harvard private wells. The Army replied that it was approximately 42 parts per trillion.

It was asked whether sampling of the Nashua River is taking place, as the Nashua River flows to the Merrimack River where water suppliers are drawing from the river. The Army indicated they are sampling the Nashua River and they do take PFAS impacts to the river seriously. The Army is prepared to take action with respect to PFAS impacts associated with/migrating from Fort Devens and is figuring out what are appropriate actions.

The Army summarized the ongoing and upcoming community/non-community systems and private well sampling for 2020. The Army also recently sent letters to select businesses and residences in Shirley and Ayer north and west of the airfield near the base boundary requesting access to sample their private wells.

Sampling of Town Public Water Supply Wells

The Army presented the results from sampling the Town of Ayer water supply wells. Data from Ayer's Spectacle Pond wells were also presented, although they are not affected by the conditions at Fort Devens. The "J" on data table indicates an estimated value resulting from the data validation process, but the data are still good to use.

It was asked whether the results from Grove Pond Well #7, which has the higher PFAS concentrations, are associated with long-chain PFAS compounds. MassDEP indicated that yes, PFHxA, PFHpA, and PFHxS are considered long-chain compounds. MassDEP said that long-chain compounds are more treatable by carbon filters than short-chain compounds.

A member of the public asked whether their pitcher with a filter at home would be effective for removing PFAS. The Army replied that the capacity of such carbon filters is small and that the filter would need to be changed often.

It was asked whether the finished water at the Grove Pond wells is diluted. The Army replied that the water from wells 6, 7, and 8 is combined before being sent out for public use, and the water from well 8 (clean after treatment) dilutes the PFAS concentrations present in wells 6 and 7, and results in a final water quality which does not exceed MassDEP's proposed MCL. The Army indicated the Town of Ayer is using well 8 for as much of the water supply as possible and only using the other wells when needed.

A member of the public asked about PFAS concentrations in Ayer's water tanks. The Army replied that the PFAS concentrations in the water tanks will decrease over time as well 8 is continued to be used.

It was asked why PFDA was not shown on the table and the Army explained only compounds that were detected are shown. The samples were analyzed for PFDA, but it was not detected.

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.

Remedial Investigation (RI) Update:

The Army provided an update of the RI sampling program to determine the nature and extent of PFAS contamination at the former Fort Devens. It was noted that the property was divided into three areas in order to facilitate the planning of sampling activities. Area 1 is along the eastern side of Fort Devens and by the Grove Pond wellfield. Area 2 is along the center of former Fort Devens, and includes the MacPherson well area. Area 3 includes the area around the former Moore Army Airfield (MAAF). The Army summarized work that was completed between October 1 and December 31, 2019 and listed various field activities that were planned for 2020.

The Army presented surface water and sediment results for Areas 1, 2, and 3. There are no federal or state criteria for surface water and sediment but EPA has provided Fort Devens-specific screening levels for PFOS, PFOA, and PFBS. All of the samples collected to date are considerably lower than those site-specific screening levels. A member of the public asked what the basis for EPA's Fort Devens-specific standards were. EPA replied that they are based on human health risk exposure, not ecological risk exposure. It was asked whether the Army would be evaluating ecological risks. The Army replied that it plans to conduct fish tissue sampling. Evaluating ecological risks from PFAS exposure is still an area of ongoing research in the scientific community. EPA stated that they have site-specific screening values for the consumption of fish.

The Army team is looking at the impact of AOC 43G on Robbins Pond. John Kastrinos (Haley & Aldrich, consultant to MassDevelopment) noted that the highest surface water PFAS concentrations were detected in Robbins Pond but there is no apparent difference in PFAS concentrations in the downstream brook, both upstream and downstream of the Devens Fire Station.

Laurie Nehring (PACE) asked whether seasonality of sampling has been considered as part of the surface water sampling. The Army replied that has not been evaluated and that there is insufficient knowledge about the hydrogeologic regime to know what effects seasonality might have on the sample results.

The Army reviewed the soil boring data from Areas 1, 2, and 3. MassDEP explained that the newly promulgated S-1/GW-1 standards are meant to be used to identify areas where groundwater should be investigated. The criteria for risk from exposure to soil with PFAS is much higher than the S-1/GW-1

standards. A member of the public asked about MassDEP's direct contact standard. MassDEP replied that the S-1 standard is 0.3 mg/kg (parts per million). Use of soil for food growing is factored into the direct contact screening number.

Laurie Nehring (PACE) asked if EPA and MassDEP are getting what they need for data. EPA replied that they need to evaluate the data collected, identify data gaps, and evaluate potential off-site migration.

A member of the public asked about potential interactions between the Army's cleanup of PCE at AOC 50 and PFAS concentrations at AOC 50. The Army replied that the PCE site at AOC 50 is being monitored and that the data does not indicate any interaction between PCE and PFAS.

The Army noted that the source of arsenic detected at AOC 50 is naturally occurring in the site's geology, but that it is released to groundwater via microbial activity associated with the degradation of PCE.

A member of the public asked how PFAS is analyzed in soil/sediment. The Army replied that laboratories use a solvent extraction method to capture PFAS off of the surface of soil/sediment particles.

The Army explained that AOC 40 is the former "Cold Spring Brook Landfill" which was used for construction/miscellaneous debris. The Army had cleaned up AOC 40 in the past, but it is being looked at again due to the more recent attention to PFAS.

Jessica Strunkin (MassDevelopment) noted that any reference to the Devens Fire Station as a potential source of PFAS contamination should include the fact that the Army operated the fire station at this same location before MassDevelopment began its own operations.

Five-Year Review:

The Army described the new Five-Year Review being conducted for environmental sites at Fort Devens that have a Record of Decision (ROD) signed. The draft Five-Year Review will be prepared in spring 2020 and the final version will be completed by September 2020.

It was asked whether PFAS will be included in the Five-Year Review. The Army replied there are no PFAS sites that have a ROD yet, but that the PFAS investigations will be mentioned in the report.

It was asked whether the Five-Year Review questionnaire can be put onto the Fort Devens website. The Army replied that they will look into doing that.

Additional Questions:

A member of the public asked what MassDEP is telling people who have water with PFAS greater than MassDEP's proposed MCL. Mary Jude Pigsley (MassDEP) replied that MassDEP has information on their website about bottled water and filters for PFAS. Mary Jude recommended that a NSF-certified filter be used and noted that such filters are only certified to reduce PFAS concentrations to meet EPA's benchmark of 70 parts per trillion (there are no home filters which are NSF-certified to reach MassDEP's proposed standard of 20 parts per trillion). The Army noted that many commonly used filters in homes have a small capacity and should be changed regularly. There are also larger, in-home systems that are commercially available and can be installed to remove PFAS. The Army noted that different processes are used to

remove arsenic and PFAS from drinking water and the presence of arsenic does not adversely affect the treatment process for PFAS.

Laurie Nehring (PACE) asked how people should discuss effects of exposure of PFAS with their doctor. MassDEP said the science is still developing on health effects and medical monitoring with respect to PFAS. Maya Fitzstevens (Silent Spring Institute) indicated that her organization is working on a PFAS research working group to develop more information for doctors to communicate with their patients on PFAS effects and are hoping to develop criteria for medical monitoring. It was noted that the Agency for Toxic Substances and Disease Registry (ATSDR) has fact sheets available on this topic.

The next RAB meeting was planned to be held on 21 May 2020, at 6:30 PM. The location is to be determined.

SIGN-IN SHEET

Former Fort Devens Army Installation
Restoration Advisory Board (RAB) Meeting
16 January 2020

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SIGN-IN SHEET

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Restoration Advisory Board (RAB) Meeting
16 January 2020

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Former Fort Devens Army Installation
Project Status Update
16 January 2020

Restoration
Advisory Board
Meeting

U.S.ARMY

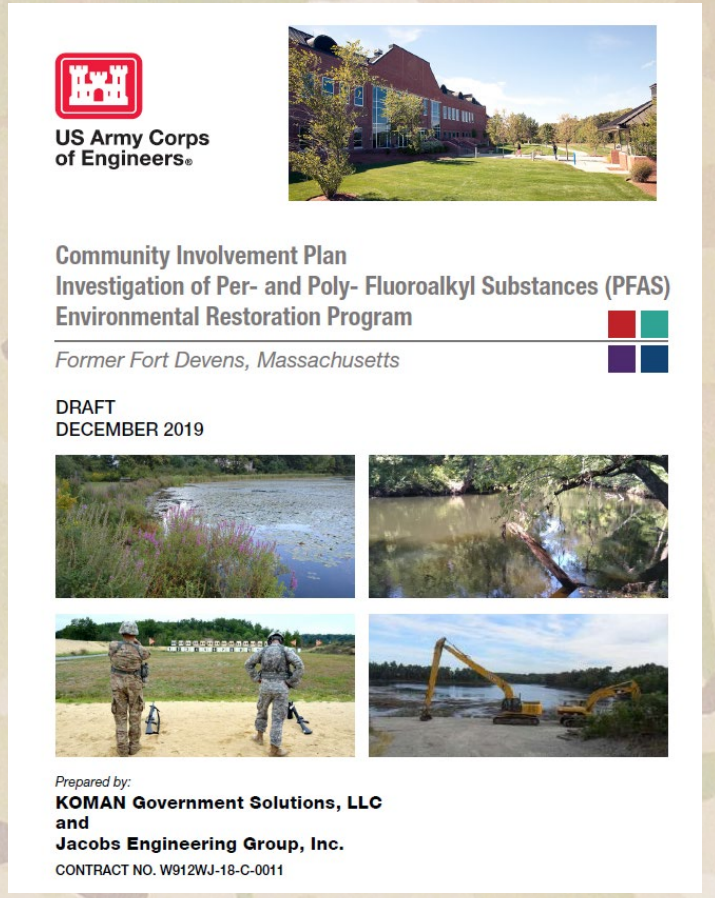
US Army Corps of Engineers
BUILDING STRONG®

Agenda

- Per- and Polyfluoroalkyl Substances (PFAS) Investigation and Sampling Updates
  - Community Involvement Plan (CIP)
  - Sampling results for private drinking water wells and community/non-community systems
  - Sampling results for municipal water supply wells
  - Municipal water supply well treatment
  - Remedial Investigation (RI)
- 2020 Five-Year Review

Community Involvement Plan

- Describes the Army's community outreach program regarding the ongoing environmental investigations at Fort Devens
- Draft CIP was submitted for review on Dec 19 to 100 people
  - ► Available online (ftdevens.org)
- Schedule
  - ► 45-day review period until early February
  - ► Draft Final CIP planned for early May
  - ► Final CIP planned for mid-June


US Army Corps of Engineers®

Community Involvement Plan
Investigation of Per- and Poly- Fluoroalkyl Substances (PFAS)
Environmental Restoration Program

Former Fort Devens, Massachusetts

DRAFT
DECEMBER 2019

Prepared by:
KOMAN Government Solutions, LLC
and
Jacobs Engineering Group, Inc.
CONTRACT NO. W912WJ-18-C-0011

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

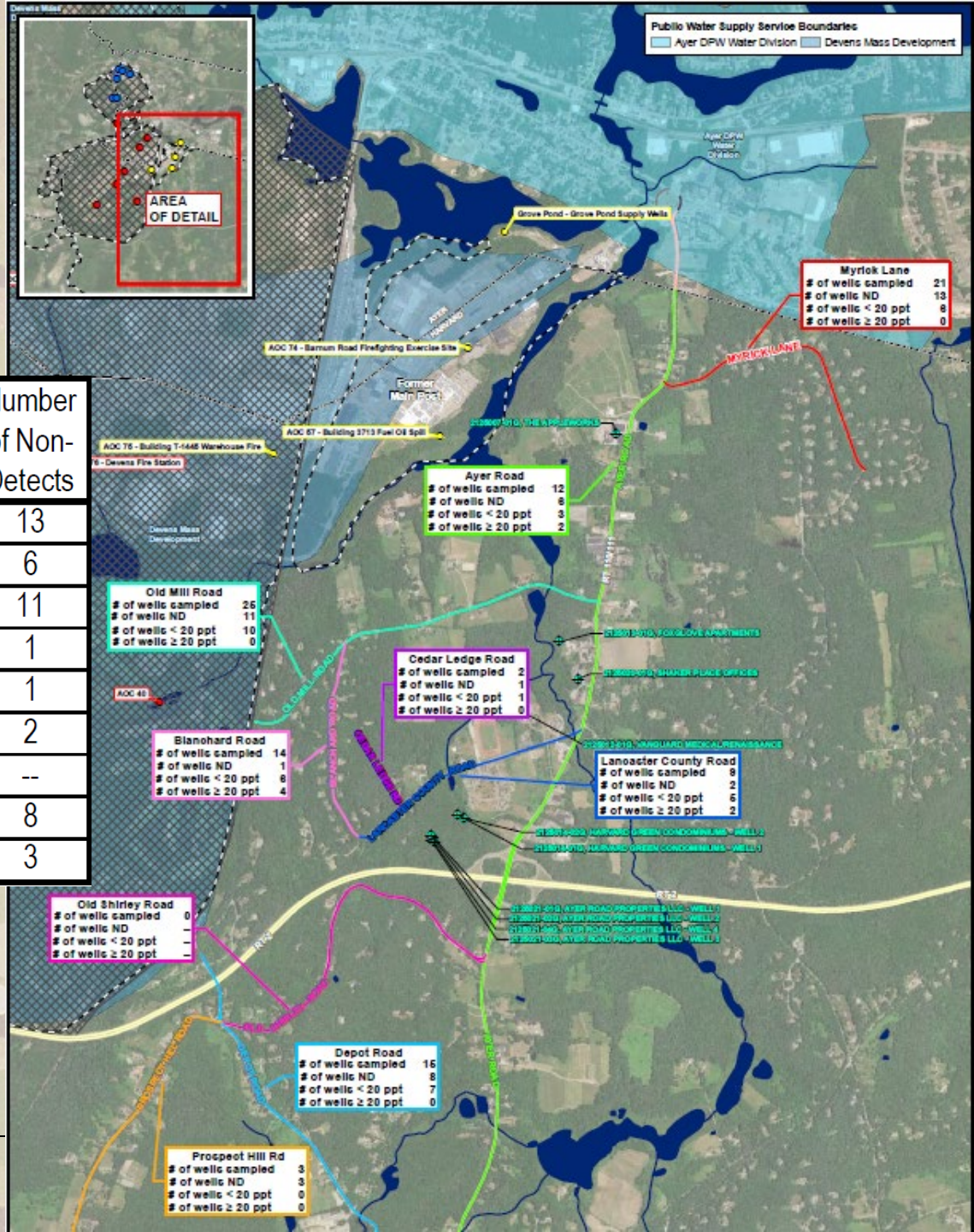
- Army conducting sampling since 2018
- Regulatory benchmarks
  - 2016 EPA Lifetime Health Advisory (LHA) guidance value for drinking water
    - 70 ppt (sum of PFOS, PFOA)
  - 2018 MassDEP Office of Research and Standards Guideline (ORSG) guidance value for drinking water
    - 70 ppt (sum of PFOS, PFOA, PFHpA, PFHxS, PFNA)
  - Dec. 2019 MassDEP proposed maximum contaminant level (MCL) for drinking water
    - 20 ppt (sum of PFOS, PFOA, PFHpA, PFHxS, PFNA, PFDA)
  - Dec. 2019 MassDEP GW-1 standard for groundwater
    - 20 ppt (sum of PFOS, PFOA, PFHpA, PFHxS, PFNA, PFDA)

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

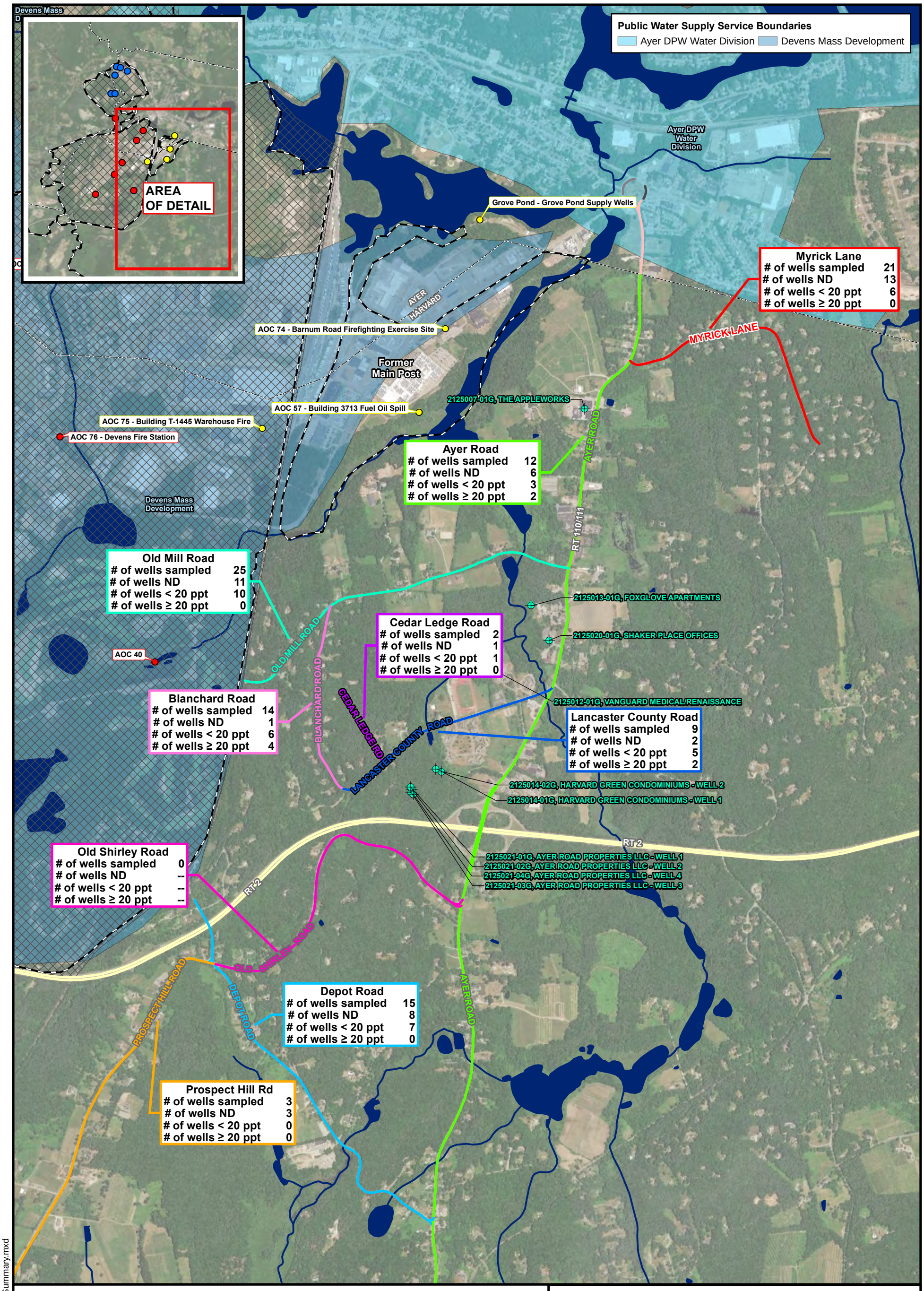
- 2018 (summer) – Sampled 21 wells in Shirley & Harvard
  - PFAS detected in some wells, but below EPA's LHA of 70 ppt and Mass ORSG of 70 ppt
  - Source of PFAS in the wells is uncertain based on hydrogeology
- 2018-2020 – Quarterly sampling of town water supply wells in Ayer and Devens
- 2019 (spring) – Follow-up sampling of 3 locations in Harvard and sampling 1 location quarterly
- 2019 (fall) – Sampling requested by Harvard Board of Health
  - Army contacted 196 well owners in Harvard
  - 101 wells were sampled between October 2019 and January 2020

Sampling of Wells in Harvard

Location	Number of Wells Sampled	Number Exceeding 20 ppt	Number Detects <20 ppt	Number of Non-Detects
Myrick Lane	21	0	6	13
Ayer Rd	12	2	3	6
Old Mill Rd	25	0	10	11
Blanchard Rd	14	4	6	1
Cedar Ledge Rd	2	0	1	1
Lancaster Cty Rd	9	2	5	2
Old Shirley Rd	0	--	--	--
Depot Rd	15	0	7	8
Prospect Hill Rd	3	0	0	3



No results exceeded the EPA LHA of 70 ppt.
Note: 10 well results are pending.



Legend

- Select Public Supply Well
- Area 1 - Grove Pond Supply Wells, AOCs 57, 74, and 75 to be addressed in the RI
- Area 2 - MacPherson Water Supply Well, SHL, AOCs 32, 76, 43G and 43J to be addressed in the RI
- Area 3 - AOCs 20, 21, 30, 31, and 50 to be addressed in the RI

ppt parts per trillion
ND Not Detected

- Devens - Census Designated Place
- City/Town Boundary
- National Hydrography Dataset Waterbody
- National Hydrography Dataset Stream/River
- Former Fort Devens Boundary

Notes:
- Figure does not include PFAS results after 11/22/19 sample collection event.
- Proposed MassDEP PFAS (6) MCL is 20 ppt

N W E S

0 750 1,500
Feet

2019 Summary of PFAS Results for Private Wells Sampled in Harvard, Massachusetts

Former Army Installation Devens
Devens, Massachusetts

KOMAN Government Solutions, LLC
293 Boston Post Road West, Suite 100, Marlborough, MA 01752

Date: 01/10/2020

Figure 1

KGS

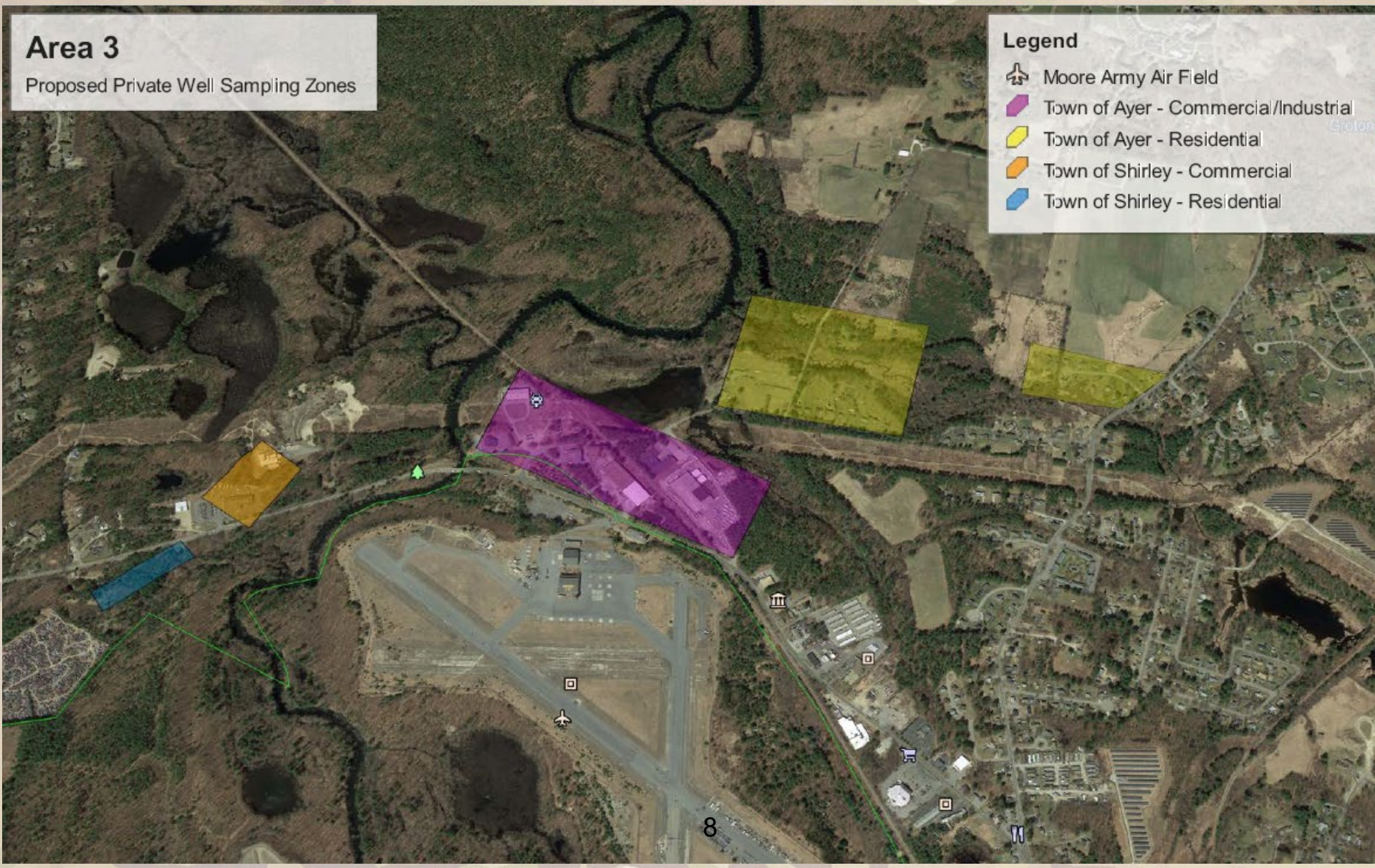
File: PFAS2018_HarvardPrivWells_PFASSummary.mxd

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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

- Ongoing sampling in 2019-2020
  - Harvard private well sampling
  - Quarterly sampling of Ayer's town wells
  - PFAS Remedial Investigation (RI) to locate possible source areas and define nature and extent of PFAS contamination associated with the former Fort Devens
- Planned additional sampling in 2020
  - Sampling private wells north and west of the former Army airfield

Proposed Private Well Sampling North of Airfield



Sampling of Municipal Water Supply Wells - Ayer Detections of PFAS, November 2019

	Grove Pond Wells (ppt)				Spectacle Pond Wells (ppt)		
	Well 6	Well 7	Well 8 (after treatment)	Finished Water (wells 6,7,8)	Well 1A	Well 2A	Finished Water (wells 1A, 2A)
	11/22/2019	11/22/2019	11/18/2019	11/22/2019	11/18/2019	11/18/2019	11/18/2019
NEtFOSAA	ND	1.13 J	ND	ND	ND	ND	ND
PFBS	2.22	2.33	ND	1.15 J	1.79 J	1.66 J	1.77 J
PFHxA	16.7	50.9	ND	8.17	2.95	23.4 J	13.4
PFHpA	10.6	43.7	ND	5.50	1.96	10.1 J	6.19
PFHxS	6.19	13.7	ND	2.90	4.16	2.34 J	3.48
PFOS	3.71	17.5	ND	2.00	6.70 J	6.99 J	7.77 J
PFOA	12.2	32.7	ND	6.28	7.24	10.0 J	8.91
PFNA	0.632 J	1.42 J	ND	ND	0.509 J	0.996 J	0.816 J
EPA LHA (70)	15.9	50.2	ND	8.28	13.9	17.0	16.7
Mass ORSG (70)	33.3	109	ND	16.7	20.6	30.4	27.2
Proposed Mass MCL (20)	33.3	109	ND	16.7	20.6	30.4	27.2

Results show the detected PFAS out of 18 analytes tested.

Yellow shading shows concentrations above the EPA LHA (Lifetime Health Advisory) (PFOS, PFOA of 70 ppt) and/or Mass ORSG (Office of Research and Standards Guideline) for drinking water (PFOS, PFOA, PFHpA, PFNA, PFHxS of 70 ppt) and/or proposed Mass maximum contaminant level (MCL) for the sum of PFOS, PFOA, PFHpA, PFNA, PFHxS, PFDA of 20 ppt.

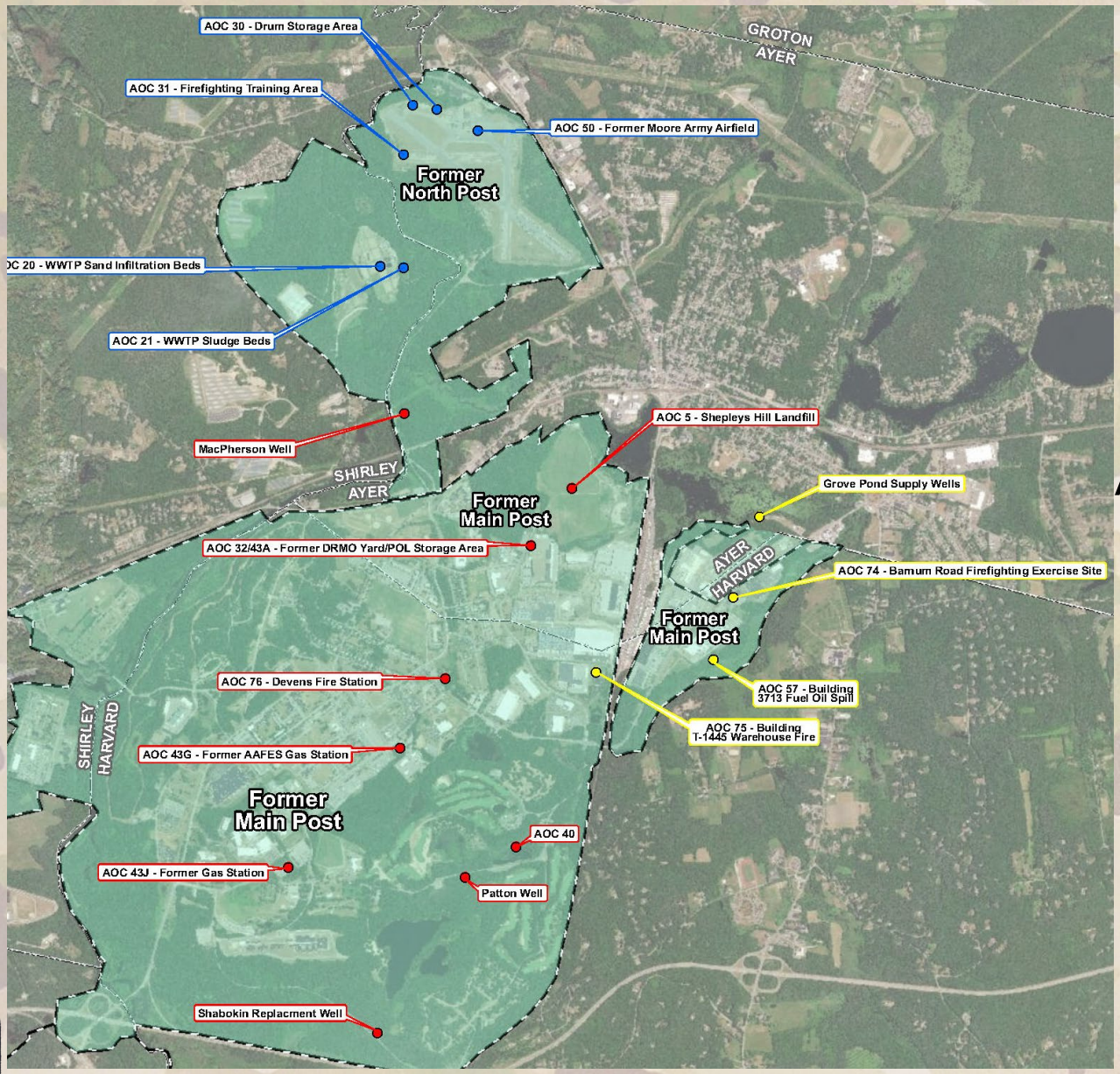
ND = non-detect, J = estimated value

Update on Grove Pond Wellfield - Time Critical Removal Action (TCRA)

- Ongoing <u>temporary</u> treatment of Well #8 using granular activated carbon (GAC)
  - On-line since June 2019; pumping ~ 200 to 300 gpm; >100M gallons treated
  - Winterized in November 2019
  - Well #8 raw water was 259 ppt for 5 OSRG PFAS compounds
  - Treated Well #8 water is non-detect (ND) for PFAS compounds

Update on Grove Pond Wellfield - Environmental Services Cooperative Agreement (ESCA)

- Supported by federal ESCA grant ~ $4.4M signed 5-Sep-2019
- <u>Permanent</u> upgrade to Grove Pond Water Treatment Plant – New Ion Exchange (IX) System
  - Installation of IX begun: Sept 2019
  - Anticipated completion: June 2020
  - Will treat up to 2M gallons per day



RI Areas of Investigation

Area 1 = yellow

Area 2 = red

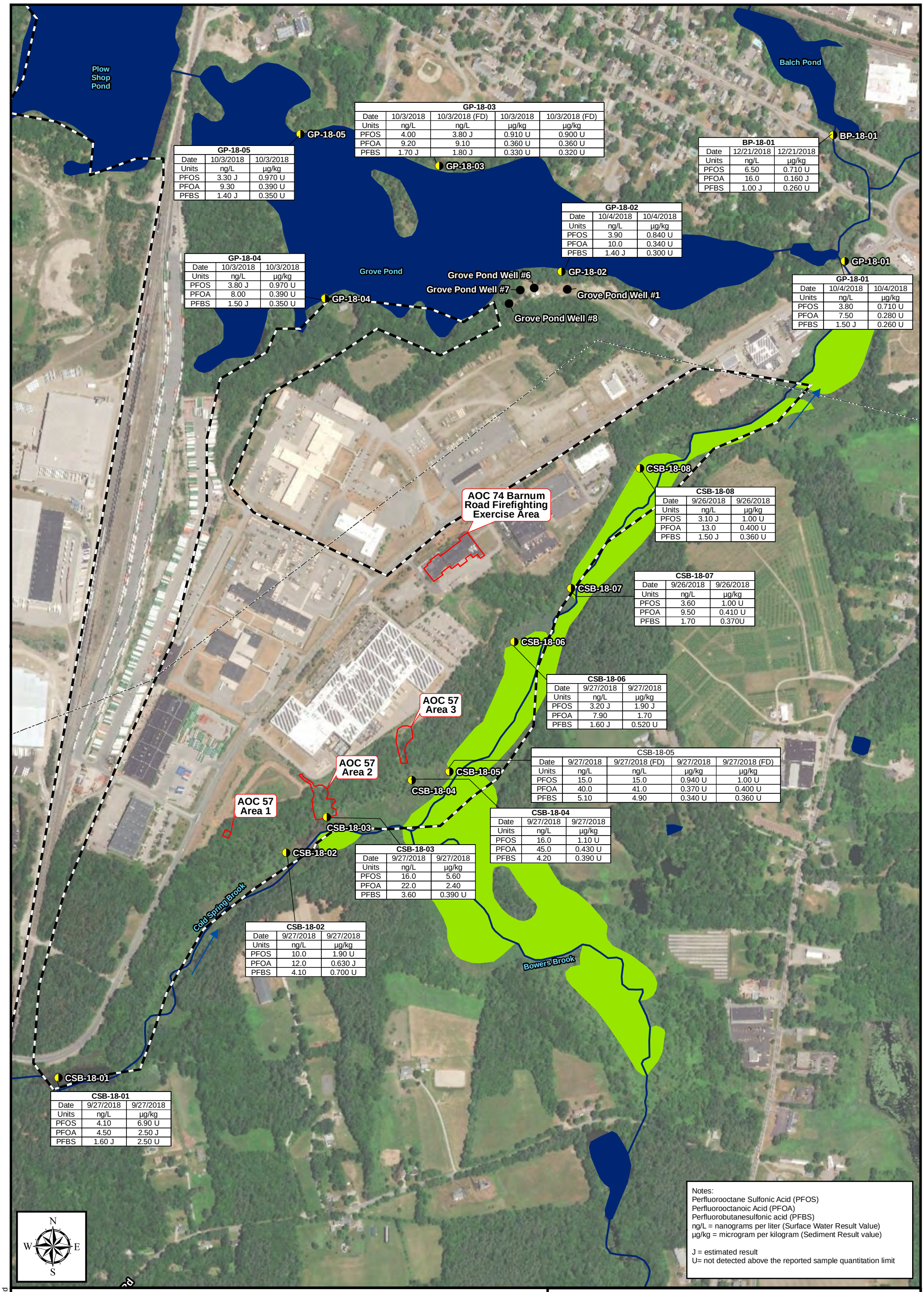
Area 3 = blue

Drilling and Sampling Activities

- Completed Oct 1 – Dec 31, 2019
  - 9 Vertical profiles conducted
  - 6 Monitoring wells and 24 piezometers installed
  - 56 Soil borings conducted
  - 31 Monitoring wells sampled
  - 22 Surface water and sediment samples collected
- Planned in 2020
  - Vertical profiles
  - Monitoring well and piezometer installation
  - Monitoring well sampling
  - Surface water and sediment sampling
  - Synoptic water level measurements
  - Cold Spring Brook investigation

Surface Water and Sediment

- Area 1 – Cold Spring Brook, Grove Pond
- Area 2 – Willow Brook, Plow Shop Pond, Robbins Pond, unnamed tributary, Nonacoicus Brook, Cold Spring Brook Pond, Mirror Lake
- Area 3 – Nashua River, unnamed streams and wetlands
- Proposed background locations – Nashua River, Walker Brook, Mulphus Brook, Bowers Brook, Squannacock River, Balch Pond, Flannagan Pond



GP-18-05		
Date	10/3/2018	10/3/2018
Units	ng/L	µg/kg
PFOS	3.30 J	0.970 U
PFOA	9.30	0.390 U
PFBS	1.40 J	0.350 U

GP-18-03				
Date	10/3/2018	10/3/2018 (FD)	10/3/2018	10/3/2018 (FD)
Units	ng/L	ng/L	µg/kg	µg/kg
PFOS	4.00	3.80 J	0.910 U	0.900 U
PFOA	9.20	9.10	0.360 U	0.360 U
PFBS	1.70 J	1.80 J	0.330 U	0.320 U

BP-18-01		
Date	12/21/2018	12/21/2018
Units	ng/L	µg/kg
PFOS	6.50	0.710 U
PFOA	16.0	0.160 J
PFBS	1.00 J	0.260 U

GP-18-02		
Date	10/4/2018	10/4/2018
Units	ng/L	µg/kg
PFOS	3.90	0.840 U
PFOA	10.0	0.340 U
PFBS	1.40 J	0.300 U

GP-18-04		
Date	10/3/2018	10/3/2018
Units	ng/L	µg/kg
PFOS	3.80 J	0.970 U
PFOA	8.00	0.390 U
PFBS	1.50 J	0.350 U

GP-18-01		
Date	10/4/2018	10/4/2018
Units	ng/L	µg/kg
PFOS	3.80	0.710 U
PFOA	7.50	0.280 U
PFBS	1.50 J	0.260 U

CSB-18-08		
Date	9/26/2018	9/26/2018
Units	ng/L	µg/kg
PFOS	3.10 J	1.00 U
PFOA	13.0	0.400 U
PFBS	1.50 J	0.360 U

CSB-18-07		
Date	9/26/2018	9/26/2018
Units	ng/L	µg/kg
PFOS	3.60	1.00 U
PFOA	9.50	0.410 U
PFBS	1.70	0.370U

CSB-18-06		
Date	9/27/2018	9/27/2018
Units	ng/L	µg/kg
PFOS	3.20 J	1.90 J
PFOA	7.90	1.70
PFBS	1.60 J	0.520 U

CSB-18-05				
Date	9/27/2018	9/27/2018 (FD)	9/27/2018	9/27/2018 (FD)
Units	ng/L	ng/L	µg/kg	µg/kg
PFOS	15.0	15.0	0.940 U	1.00 U
PFOA	40.0	41.0	0.370 U	0.400 U
PFBS	5.10	4.90	0.340 U	0.360 U

CSB-18-04		
Date	9/27/2018	9/27/2018
Units	ng/L	µg/kg
PFOS	16.0	1.10 U
PFOA	45.0	0.430 U
PFBS	4.20	0.390 U

CSB-18-03		
Date	9/27/2018	9/27/2018
Units	ng/L	µg/kg
PFOS	16.0	5.60
PFOA	22.0	2.40
PFBS	3.60	0.390 U

CSB-18-02		
Date	9/27/2018	9/27/2018
Units	ng/L	µg/kg
PFOS	10.0	1.90 U
PFOA	12.0	0.630 J
PFBS	4.10	0.700 U

CSB-18-01		
Date	9/27/2018	9/27/2018
Units	ng/L	µg/kg
PFOS	4.10	6.90 U
PFOA	4.50	2.50 J
PFBS	1.60 J	2.50 U

Notes:
Perfluorooctane Sulfonic Acid (PFOS)
Perfluorooctanoic Acid (PFOA)
Perfluorobutanesulfonic acid (PFBS)
ng/L = nanograms per liter (Surface Water Result Value)
µg/kg = microgram per kilogram (Sediment Result value)

J = estimated result
U= not detected above the reported sample quantitation limit

Legend

- Surface Water and Sediment Sample Location
- Water Supply Well
- Area of Contamination (AOC)
- City/Town Boundary
- Former Fort Devens Boundary
- Surface Water Flow Direction
- Stream/River
- Lake/Pond
- Swamp/Marsh

Area 1 Surface Water and Sediment Sampling Results
Devens PFAS RI

Former Fort Devens Army Installation
Devens, Massachusetts

KOMAN Government Solutions, LLC
293 Boston Post Road West, Suite 100, Marlborough, MA 01752

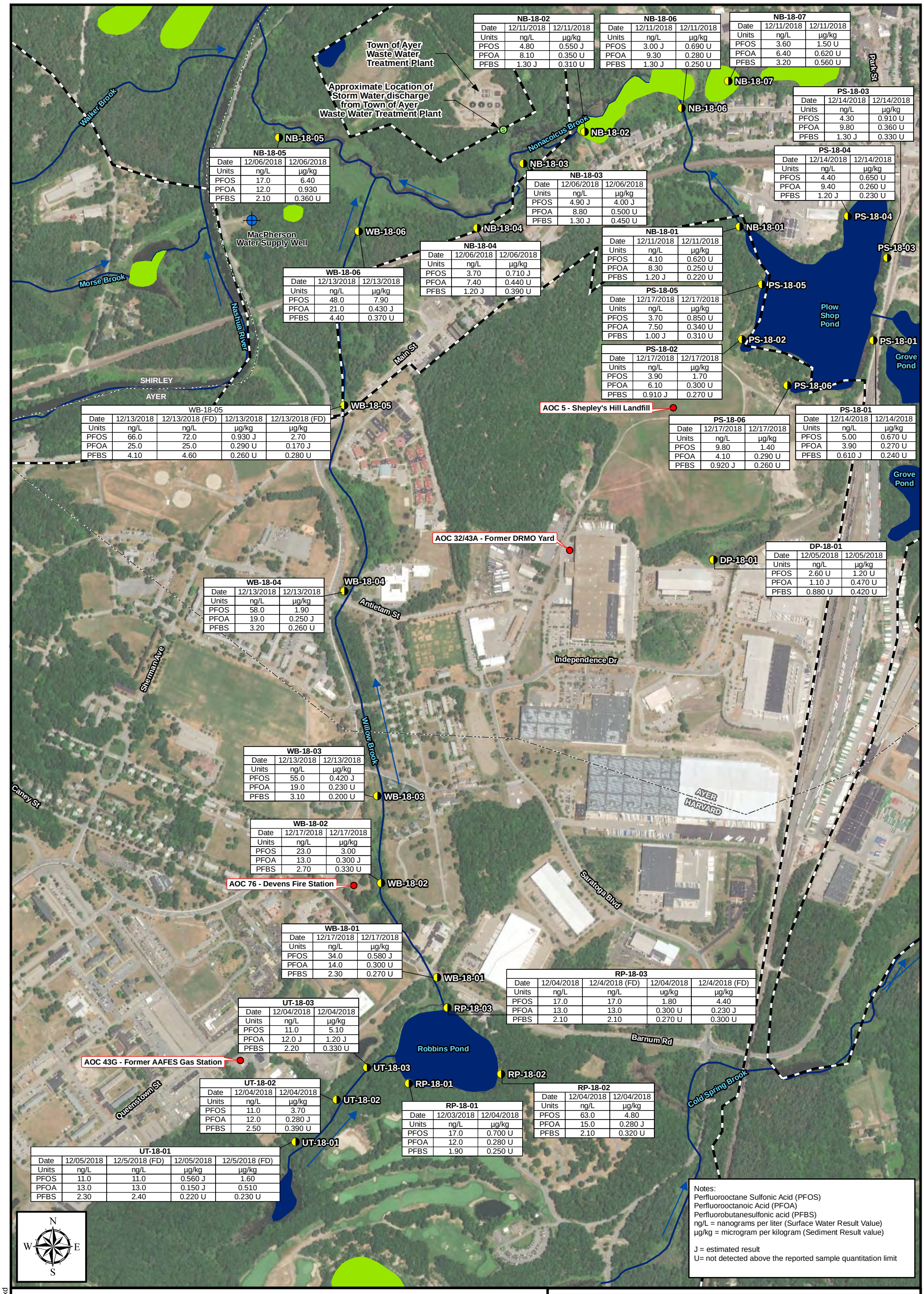
0 300 600
Feet

Date: 01/10/2020

Figure 1

File: RAB_MTG_Jan20_A1FSP_CSB_GP_SW.mxd

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



NB-18-02		
Date	12/11/2018	12/11/2018
Units	ng/L	µg/kg
PFOS	4.80	0.550 J
PFOA	8.10	0.350 U
PFBS	1.30 J	0.310 U

NB-18-06		
Date	12/11/2018	12/11/2018
Units	ng/L	µg/kg
PFOS	3.00 J	0.690 U
PFOA	9.30	0.280 U
PFBS	1.30 J	0.250 U

NB-18-07		
Date	12/11/2018	12/11/2018
Units	ng/L	µg/kg
PFOS	3.60	1.50 U
PFOA	6.40	0.620 U
PFBS	3.20	0.560 U

PS-18-03		
Date	12/14/2018	12/14/2018
Units	ng/L	µg/kg
PFOS	4.30	0.910 U
PFOA	9.80	0.360 U
PFBS	1.30 J	0.330 U

PS-18-04		
Date	12/14/2018	12/14/2018
Units	ng/L	µg/kg
PFOS	4.40	0.650 U
PFOA	9.40	0.260 U
PFBS	1.20 J	0.230 U

NB-18-05		
Date	12/06/2018	12/06/2018
Units	ng/L	µg/kg
PFOS	17.0	6.40
PFOA	12.0	0.930
PFBS	2.10	0.360 U

NB-18-03		
Date	12/06/2018	12/06/2018
Units	ng/L	µg/kg
PFOS	4.90 J	4.00 J
PFOA	8.80	0.500 U
PFBS	1.30 J	0.450 U

NB-18-01		
Date	12/11/2018	12/11/2018
Units	ng/L	µg/kg
PFOS	4.10	0.620 U
PFOA	8.30	0.250 U
PFBS	1.20 J	0.220 U

NB-18-04		
Date	12/06/2018	12/06/2018
Units	ng/L	µg/kg
PFOS	3.70	0.710 J
PFOA	7.40	0.440 U
PFBS	1.20 J	0.390 U

PS-18-05		
Date	12/17/2018	12/17/2018
Units	ng/L	µg/kg
PFOS	3.70	0.850 U
PFOA	7.50	0.340 U
PFBS	1.00 J	0.310 U

WB-18-06		
Date	12/13/2018	12/13/2018
Units	ng/L	µg/kg
PFOS	48.0	7.90
PFOA	21.0	0.430 J
PFBS	4.40	0.370 U

PS-18-02		
Date	12/17/2018	12/17/2018
Units	ng/L	µg/kg
PFOS	3.90	1.70
PFOA	6.10	0.300 U
PFBS	0.910 J	0.270 U

WB-18-05				
Date	12/13/2018	12/13/2018 (FD)	12/13/2018	12/13/2018 (FD)
Units	ng/L	ng/L	µg/kg	µg/kg
PFOS	66.0	72.0	0.930 J	2.70
PFOA	25.0	25.0	0.290 U	0.170 J
PFBS	4.10	4.60	0.260 U	0.280 U

PS-18-06		
Date	12/17/2018	12/17/2018
Units	ng/L	µg/kg
PFOS	9.80	1.40
PFOA	4.10	0.290 U
PFBS	0.920 J	0.260 U

PS-18-01		
Date	12/14/2018	12/14/2018
Units	ng/L	µg/kg
PFOS	5.00	0.670 U
PFOA	3.90	0.270 U
PFBS	0.610 J	0.240 U

DP-18-01		
Date	12/05/2018	12/05/2018
Units	ng/L	µg/kg
PFOS	2.60 U	1.20 U
PFOA	1.10 J	0.470 U
PFBS	0.880 U	0.420 U

WB-18-04		
Date	12/13/2018	12/13/2018
Units	ng/L	µg/kg
PFOS	58.0	1.90
PFOA	19.0	0.250 J
PFBS	3.20	0.260 U

WB-18-03		
Date	12/13/2018	12/13/2018
Units	ng/L	µg/kg
PFOS	55.0	0.420 J
PFOA	19.0	0.230 U
PFBS	3.10	0.200 U

WB-18-02		
Date	12/17/2018	12/17/2018
Units	ng/L	µg/kg
PFOS	23.0	3.00
PFOA	13.0	0.300 J
PFBS	2.70	0.330 U

WB-18-01		
Date	12/17/2018	12/17/2018
Units	ng/L	µg/kg
PFOS	34.0	0.580 J
PFOA	14.0	0.300 U
PFBS	2.30	0.270 U

RP-18-03				
Date	12/04/2018	12/4/2018 (FD)	12/04/2018	12/4/2018 (FD)
Units	ng/L	ng/L	ug/kg	µg/kg
PFOS	17.0	17.0	1.80	4.40
PFOA	13.0	13.0	0.300 U	0.230 J
PFBS	2.10	2.10	0.270 U	0.300 U

UT-18-03		
Date	12/04/2018	12/04/2018
Units	ng/L	µg/kg
PFOS	11.0	5.10
PFOA	12.0 J	1.20 J
PFBS	2.20	0.330 U

RP-18-01		
Date	12/03/2018	12/04/2018
Units	ng/L	µg/kg
PFOS	17.0	0.700 U
PFOA	12.0	0.280 U
PFBS	1.90	0.250 U

RP-18-02		
Date	12/04/2018	12/04/2018
Units	ng/L	µg/kg
PFOS	63.0	4.80
PFOA	15.0	0.280 J
PFBS	2.10	0.320 U

UT-18-02		
Date	12/04/2018	12/04/2018
Units	ng/L	µg/kg
PFOS	11.0	3.70
PFOA	12.0	0.280 J
PFBS	2.50	0.390 U

UT-18-01				
Date	12/05/2018	12/5/2018 (FD)	12/05/2018	12/5/2018 (FD)
Units	ng/L	ng/L	µg/kg	µg/kg
PFOS	11.0	11.0	0.560 J	1.60
PFOA	13.0	13.0	0.150 J	0.510
PFBS	2.30	2.40	0.220 U	0.230 U

Notes:
Perfluorooctane Sulfonic Acid (PFOS)
Perfluorooctanoic Acid (PFOA)
Perfluorobutanesulfonic acid (PFBS)
ng/L = nanograms per liter (Surface Water Result Value)
µg/kg = microgram per kilogram (Sediment Result value)

J = estimated result
U= not detected above the reported sample quantitation limit

Legend

- Surface Water and Sediment Sample Location
- City/Town Boundary
- Surface Water Flow Direction
- Stream/River
- Lake/Pond
- Swamp/Marsh
- Former Fort Devens Boundary

Area 2 Surface Water and Sediment Sampling Results
Devens PFAS RI

Former Fort Devens Army Installation
Devens, Massachusetts

KOMAN Government Solutions, LLC
293 Boston Post Road West, Suite 100, Marlborough, MA 01752

0 400 800
Feet

Date: 01/10/2020

Figure 2

File: RAB_MTG_Jan20_A2FSP_CSB_GP_SW.mxd

NR-19-12		
Date	10/14/2019	10/14/2019
Units	ng/L	µg/kg
PFOS	8.20	5.20
PFOA	14.0	0.340 J
PFBS	6.80	0.400 U

NR-19-13		
Date	10/14/2019	10/14/2019
Units	ng/L	µg/kg
PFOS	10.0	1.20 U
PFOA	15.0	0.240 U
PFBS	6.60	0.210 U

NR-19-11				
Date	10/14/2019	10/14/2019 (FD)	10/14/2019	10/14/2019 (FD)
Units	ng/L	ng/L	µg/kg	µg/kg
PFOS	8.20	7.90	1.20 J	1.20 J
PFOA	13.0	14.0	0.310 U	0.330 U
PFBS	7.40	7.20	0.280 U	0.290 U

NR-19-10		
Date	10/15/2019	10/15/2019
Units	ng/L	µg/kg
PFOS	8.10	0.720 J
PFOA	15.0	0.140 J
PFBS	7.30	0.260 U

NR-19-09		
Date	10/15/2019	10/15/2019
Units	ng/L	µg/kg
PFOS	9.00	0.700 J
PFOA	17.0	0.270 U
PFBS	8.10	0.240 U

NR-19-08		
Date	10/15/2019	10/15/2019
Units	ng/L	µg/kg
PFOS	8.10	2.10
PFOA	17.0	0.570
PFBS	7.90	0.310 U

NR-19-07		
Date	10/15/2019	10/15/2019
Units	ng/L	µg/kg
PFOS	10.0	2.10
PFOA	15.0	0.320 U
PFBS	7.70	0.290 U

AFW-19-02		
Date	10/18/2019	10/18/2019
Units	ng/L	µg/kg
PFOS	13.0	16.0
PFOA	9.30	1.20 J
PFBS	1.50	1.10 U

AFW-19-01		
Date	10/18/2019	10/18/2019
Units	ng/L	µg/kg
PFOS	6.70	5.30 J
PFOA	4.50	0.770 J
PFBS	0.510	0.980 U

UP-19-01		
Date	10/17/2019	10/17/2019
Units	ng/L	µg/kg
PFOS	82.0	1.30 U
PFOA	19.0	0.260 U
PFBS	3.10	0.230 U

NR-19-06		
Date	10/15/2019	10/15/2019
Units	ng/L	µg/kg
PFOS	56.0	0.930 J
PFOA	28.0	0.240 U
PFBS	8.40	0.220 U

NR-19-05		
Date	10/16/2019	10/16/2019
Units	ng/L	µg/kg
PFOS	7.20	1.80 J
PFOA	15.0	0.440 U
PFBS	9.20	0.400 U

NR-19-04		
Date	10/16/2019	10/16/2019
Units	ng/L	µg/kg
PFOS	6.40	2.90
PFOA	16.0	0.360 J
PFBS	9.70	0.300 U

US-19-01	
Date	10/18/2019
Units	µg/kg
PFOS	6.70
PFOA	0.460 J
PFBS	0.480 U

NR-19-03		
Date	10/16/2019	10/16/2019
Units	ng/L	µg/kg
PFOS	6.10	1.30 J
PFOA	16.0	0.360 J
PFBS	9.70	0.460 U

NR-19-02				
Date	10/16/2019	10/16/2019 (FD)	10/16/2019	10/16/2019 (FD)
Units	ng/L	ng/L	µg/kg	µg/kg
PFOS	6.40	6.80	1.80	2.10
PFOA	16.0	16.0	0.330 J	0.400 J
PFBS	9.90	11.0	0.290 U	0.300 U

NR-19-01		
Date	10/17/2019	10/17/2019
Units	ng/L	µg/kg
PFOS	7.90	4.20
PFOA	13.0	0.590 J
PFBS	7.10	0.590 U

Notes:
Perfluorooctane Sulfonic Acid (PFOS)
Perfluorooctanoic Acid (PFOA)
Perfluorobutanesulfonic acid (PFBS)
ng/L = nanograms per liter (Surface Water Result Value)
µg/kg = microgram per kilogram (Sediment Result value)

J = estimated result
U= not detected above the reported sample quantitation limit

Legend

- Surface Water and Sediment Sample Location
- City/Town Boundary
- Surface Water Flow Direction
- Stream/River
- Lake/Pond
- Swamp/Marsh
- Former Fort Devens Boundary

Area 3 Surface Water and Sediment Sampling Results
Devens PFAS RI

Former Fort Devens Army Installation
Devens, Massachusetts

KOMAN Government Solutions, LLC
293 Boston Post Road West, Suite 100, Marlborough, MA 01752

0 400 800
Feet

Date: 01/16/2020

Figure 3

File: RAB_MTG_Jan20_A3FSP_CSB_GP_SW.mxd

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Soil Sampling

- Area 1
  - Area of Contamination (AOC) 57 Areas 2 and 3, AOC 74, AOC 75, Grove Pond Area
- Area 2
  - AOC 32, AOC 43G, AOC 76, Patton Well Area, AOC 40
- Area 3
  - AOC 20, AOC 21, AOC 30, AOC 31, AOC 50

Plow Shop Pond

Grove Pond

Town of Ayer
Grove Pond Wellfield

AOC 74
Former Building 3773

AOC 57 Area 3

AOC 75
Building T-1445
Warehouse Fire

AOC 57 Area 1

AOC 57 Area 2

Cold Spring Brook

Bowers Brook

Massachusetts MCP S-1/GW-1
Perfluorooctanoic acid (PFOA) = 0.72 µg/kg,
Perfluorooctanesulfonic acid (PFOS) = 2 µg/kg,
Perfluorodecanoic acid (PFDA) = 0.3 µg/kg,
Perfluoroheptanoic acid (PFHpA) = 0.5 µg/kg,
Perfluorohexanesulfonic acid (PFHxS) = 0.3 µg/kg
Perfluorononanoic acid (PFNA) = 0.32 µg/kg

µg/kg = microgram per kilogram

N
W E
S

Legend

- Soil concentrations are equal to or greater than the Mass MCP S-1/GW-1
- Soil concentrations are less than the MassMCP S1/GW-1 standard.
- Soil Concentrations are non-detect
- Awaiting Data
- Location to be Drilled
- Water Supply Well
- Soil Boring
- Groundwater Flow Direction
- Former Fort Devens Boundary

Area 1 Soil Sampling Results

Former Fort Devens Army Installation
Devens, Massachusetts

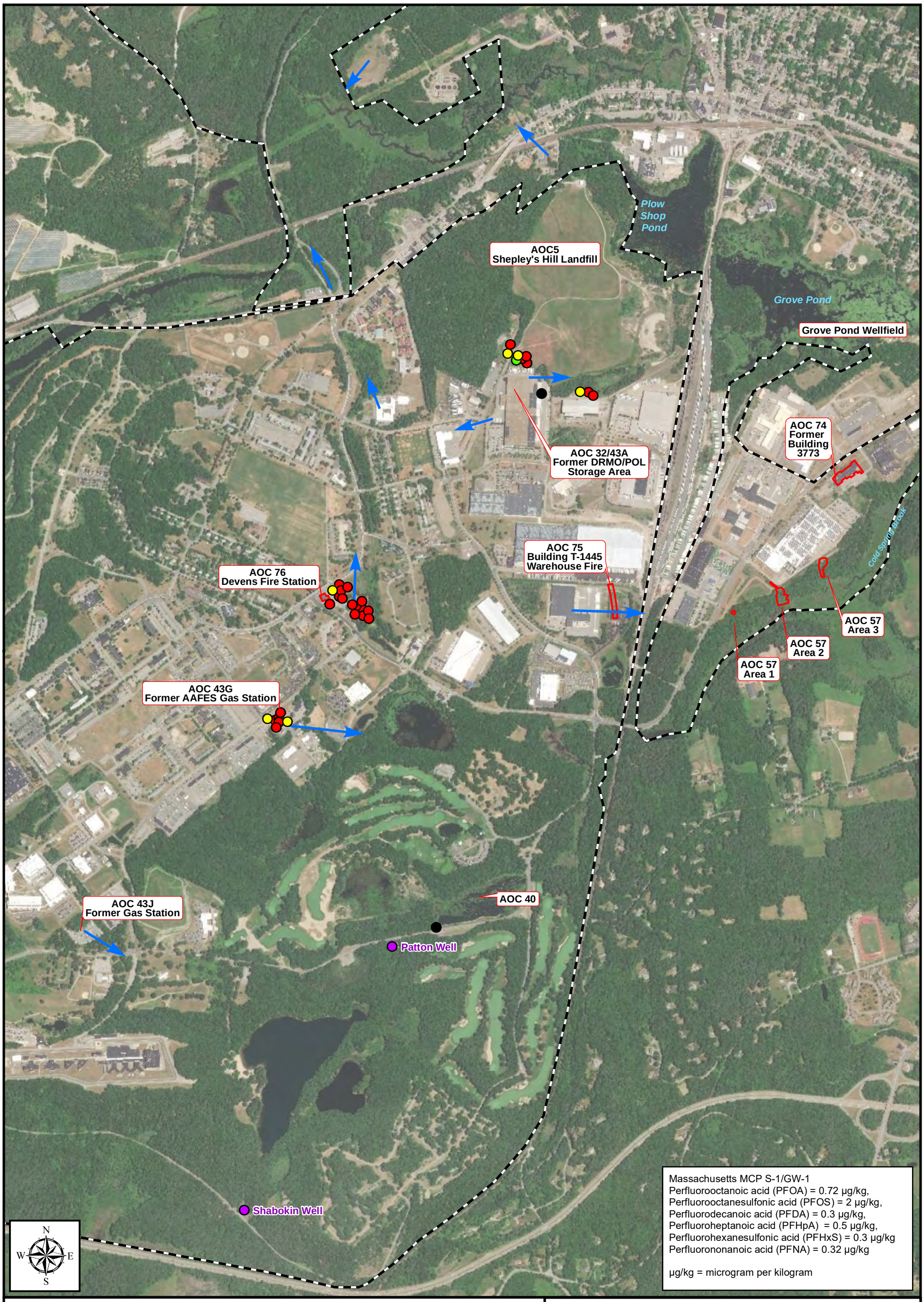
KOMAN Government Solutions, LLC
293 Boston Post Road West, Suite 100, Marlborough, MA 01752

0 350 700
Feet

Date: 01/10/2020

Figure

File: 0120_RAB_MTG_A1FSP_F1_Area1.mxd



Legend

- Soil concentrations are equal to or greater than the Mass MCP S-1/GW-1
- Soil concentrations are less than the MassMCP S1/GW-1 standard.
- Soil Concentrations are non-detect
- Awaiting Data
- Location to be Drilled
- Water Supply Well
- Soil Boring
- Groundwater Flow Direction
- Former Fort Devens Boundary

Area 2 Soil Sampling Results

Former Fort Devens Army Installation
Devens, Massachusetts

KOMAN Government Solutions, LLC
293 Boston Post Road West, Suite 100, Marlborough, MA 01752

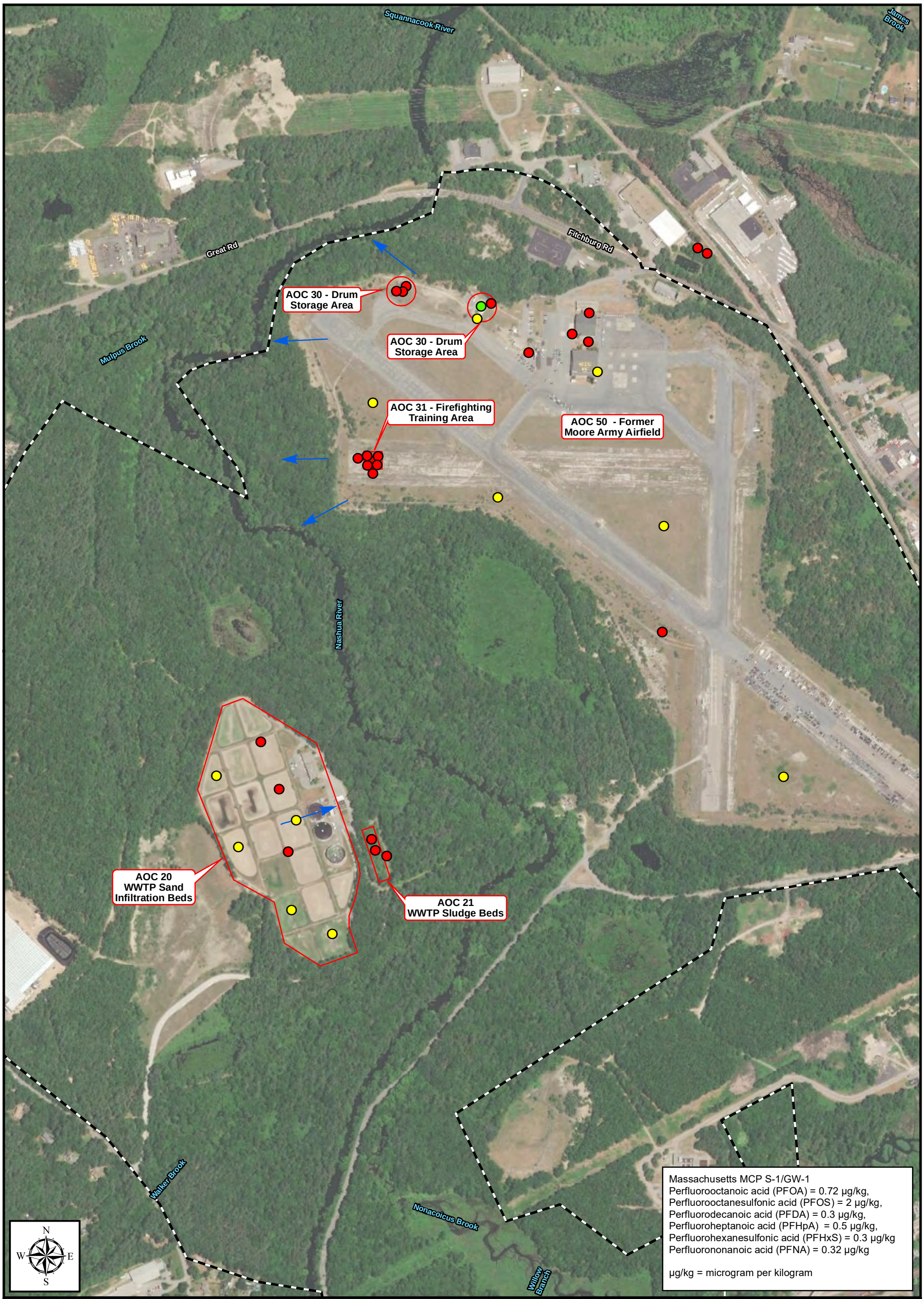
0 600 1,200
Feet

Date: 01/10/2020

Figure

File: 0120_RAB_MTG_A2FSP_F1_Area2.mxd

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Legend

- Soil concentrations are equal to or greater than the Mass MCP S-1/GW-1
- Soil concentrations are less than the MassMCP S1/GW-1 standard.
- Soil Concentrations are non-detect
- Awaiting Data
- Location to be Drilled
- Soil Boring
- Groundwater Flow Direction
- Area of Contamination (AOC)
- Former Fort Devens Boundary

Area 3 Soil Sampling Results

Former Fort Devens Army Installation
Devens, Massachusetts

KOMAN Government Solutions, LLC
293 Boston Post Road West, Suite 100, Marlborough, MA 01752

0 300 600
Feet

Date: 01/10/2020

Figure 1

File: 0120_RAB_MTG_A3FSP_F1_Area3.mxd

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

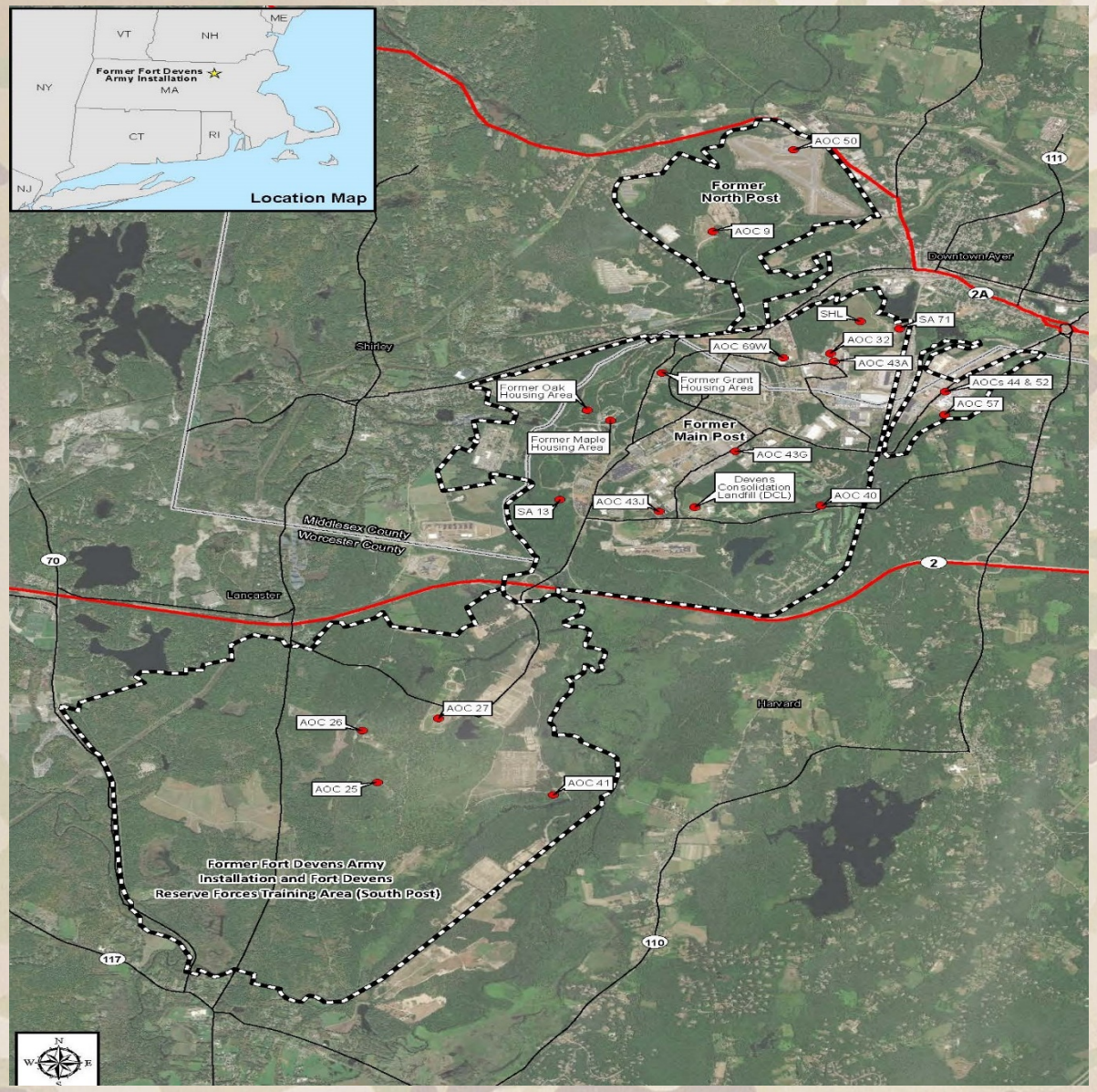
Fifth (2020) Devens Five-Year Review (FYR)

- Required by Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for sites where hazardous substances, pollutants, or contaminants remain above levels that allow for unlimited use and unrestricted exposure (UU/UE); remedy includes restrictions on land/natural resource use
- Evaluates implementation/performance of selected remedy to determine if remedy is or will be protective of human health and the environment
- Triggered by the signature of the first ROD (with use restriction) (1995 SHL→2000 FYR) and no later than five years following signature date of the previous FYR Report
- If deficiencies are found, FYR Report includes recommendations to address those deficiencies

Five-Year Review Locations

- Former Shepley's Hill Landfill (Areas of Contamination [AOCs] 4,5, and 18)
- Devens Consolidation Landfill and Contributor Sites (AOCs 9, 40, and SA 13)
- South Post Impact Area (AOCs 25, 26, 27, and 41)
- Former Barnum Road Vehicle Maintenance Yards (AOCs 44 and 52)
- Former DRMO Yards and Storage Area (AOCs 32 and 43A)
- Former Historic Gas Stations (AOCs 43G and 43J)
- Former Devens Elementary School Fuel Oil Spill (AOC 69W)
- Former Moore Army Airfield (AOC 50)
- Building 3713 Fuel Oil Spill Site (AOC 57)
- Former Devens Main Post Training Areas (former Grant, Oak, and Maple Housing Areas and 37-mm Impact Area)
- Railroad Roundhouse (SA 71)

Five-Year Review Locations



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Five-Year Review Schedule

- First Five-Year Review was triggered by signature of the ROD in 1995
- Previous Five-Year Reviews completed in 2000, 2005, 2010, and 2015
- Deadline for 5th Five-Year Review is September 2020
  - Site Interviews / Site Inspections – Winter/Spring 2020
  - Draft to Stakeholders – Late Spring 2020
  - Draft Final – Summer 2020
  - Final – to be signed in September 2020

Have Questions or Interested in Being Interviewed?

- Contact

  Robert Simeone

  Fort Devens BRAC Environmental Office

  - *978-615-6090*
  - *robert.j.simeone.civ@mail.mil*

Next Steps

- PFAS RI
  - Continue sampling efforts in Areas 1, 2, and 3
  - Compile and present current Area 1 data
- PFAS sampling/treatment
  - First Quarter 2020 (Feb) sampling of municipal water supply wells
  - Sampling of private wells north of airfield (Feb./March)
  - Continued operation of municipal treatment system at Ayer's Grove Pond Well #8
  - MassDevelopment continuing treatment at MacPherson and Patton water supply wells
- Community Involvement Plan
  - Receive comments by Feb. 3, then prepare Draft Final CIP
- Five-Year Review
  - Draft planned for spring 2020

Former Fort Devens Army Installation Project Status Updates

Questions?