



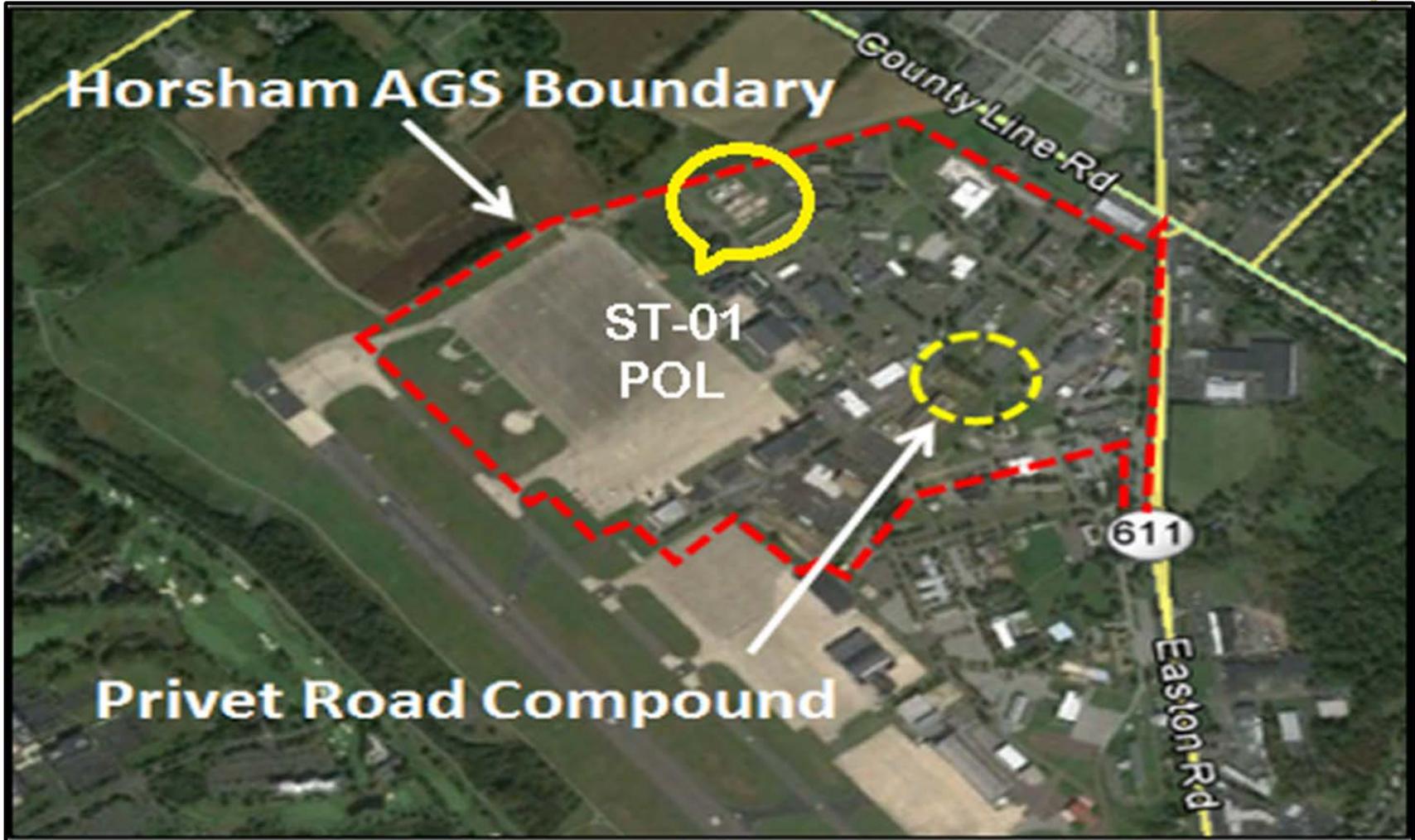
# Restoration Advisory Board Horsham Air Guard Station

Keith Freihofer

NGB/A4OR

13 December 2017

# Environmental Restoration Program Sites





# Air Force Reserve ST-01 POL



- Former Air Force Reserve Petroleum Tank Area
  - Site originated from a jet fuel spill in the 1970's
  - Injections of persulfate and Epsom salt replaced the biosparge system in 2016
  - Petroleum tanks were dismantled in 2016 allowing for removal of any petroleum impacted soil that may be present under the tanks. 175 tons of presumed petroleum impacted soil removed from beneath tanks and disposed of at licensed facility. Confirmatory sampling programmed in accordance with 25 Pennsylvania Code, Section 245.310 of the Department of Environmental Protection (DEP)'s Rules and Regulations.

# Privet Road Compound



- Former waste management area for Naval Air Station Joint Reserve Base Willow Grove
- Sampling completed in June 2016 indicates trichloroethene (TCE) and tetrachloroethene (PCE) exist in the groundwater but levels are below maximum contaminant levels (MCL) set by the U.S. Environmental Protection Agency for drinking water quality
- Leidos, Inc. is contracted for continued long-term monitoring. Biannual groundwater sampling and land use control inspections will continue to be conducted pending a final site remedy

# Privet Road Five Year Review



- Second Five-Year Review underway for Privet Road groundwater contamination by BB&E Inc. on behalf of the ANG
- The purpose is to evaluate the implementation and performance of the remedy to determine if it is and will continue to be protective of human health and the environment.
- Community was notified by advertisement placed in The Intelligencer on Nov 22, 2017
- Interviews with community members are being conducted by BB&E Inc. representative (Naila Hosein) to gather insight into current site conditions, problems, or related concerns. Interview questions include:
  - What effects have site operations had on the surrounding community?
  - Are you aware of community concerns regarding the site?
  - Do you feel well informed about the site's activities and progress?

# PFOS/PFOA on Horsham AGS



- In 2015, ANG completed a Preliminary Assessment of potential PFOS/PFOA release sites at the Horsham Air Guard Station (AGS). Ten potential source areas identified in the PA include:
  - Buildings that contained foam fire suppression systems
  - Areas that may have received runoff from foam releases
  - Stormwater sediment basin
  - Former waste water treatment plant
  - Former storage area for wastewater treatment sludge
  - These potential source areas are being further investigated by Leidos in a PFOS/PFOA Facility Investigation



# Potential PFOS/PFOA Source Areas



# Leidos Facility Investigation Project

## Scope



- Leidos tasked by the National Guard Bureau to complete a facility investigation (FI) for PFOS/PFOA at the Horsham Air Guard Station.
- The FI is being conducted in response to paragraph 41 of the Administrative Order issued by the U.S. Environmental Protection Agency (EPA) dated May 29, 2015.
- Project scope outlined in the Statement of Objectives for Perfluorinated Compound Facility Investigation at Horsham Air Guard Station for Project ZAQA20159150 (NGB 2015) and finalized in the March 2015 work plan approved by EPA and PADEP.
- Scope includes: records review; sampling of soil, sediment, fire suppression storage tanks, surface water, and groundwater across Base.
- The scope also includes: borehole geophysics, packer testing, rock coring, water level monitoring and potentiometric mapping, stratigraphic correlation, contaminant pathway analysis and receptor evaluation.

# Completed Tasks



- Initial results reported in Technical Memorandum (soil, surface water, sediment, existing wells, and tank sampling). Draft Memo – June 2016, Final Memo – October 2016.
- Shallow (11), intermediate (8), deep (7), and multi-level perimeter (8) wells installed. All new wells sampled twice.
- Rock coring at PMWs and geophysical logging conducted at 15 locations
- Packer Testing conducted at base supply wells and DMW-7.
- Completed water level monitoring study.
- Submitted Draft Final Facility Investigation Report (Preparing responses to stakeholder comments)
- Selected monitoring network and completed annual GW sampling event.
- Submitted Draft GW Sampling Report (Pending Draft Final to EPA).

# Completed Tasks (continued)



- Prepared Work Plan for comprehensive stormwater study
- Conducted 2 stormwater sampling events:
  - Baseflow event 4-5 October 2017 (draft results available)
  - Precipitation event 24-25 October 2017 (results not yet available)
- Initiated NPDES permitting task
  - Conducted site walk
  - Submitted draft work plan

# Monitoring Network for Annual GW Sampling Events



**LEGEND:**

- Monitoring Well
- Building\*
- Installation\*
- Generalized Regional Groundwater Flow Direction
- Surface Water Flow Direction
- DM-7 Highlighted Monitoring Well

**NOTES:**

\* Source: Common Installation Picture (CIP) geodatabase provided by ANG GeoBase on 09/14/2015.  
 1. Background Source: ESRI World Imagery (USDA NAIP, 08/2015).

0 150 300 600 Feet

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HORSHAM AIR GUARD STATION  
 HORSHAM TOWNSHIP,  
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MONITORING WELL LOCATIONS

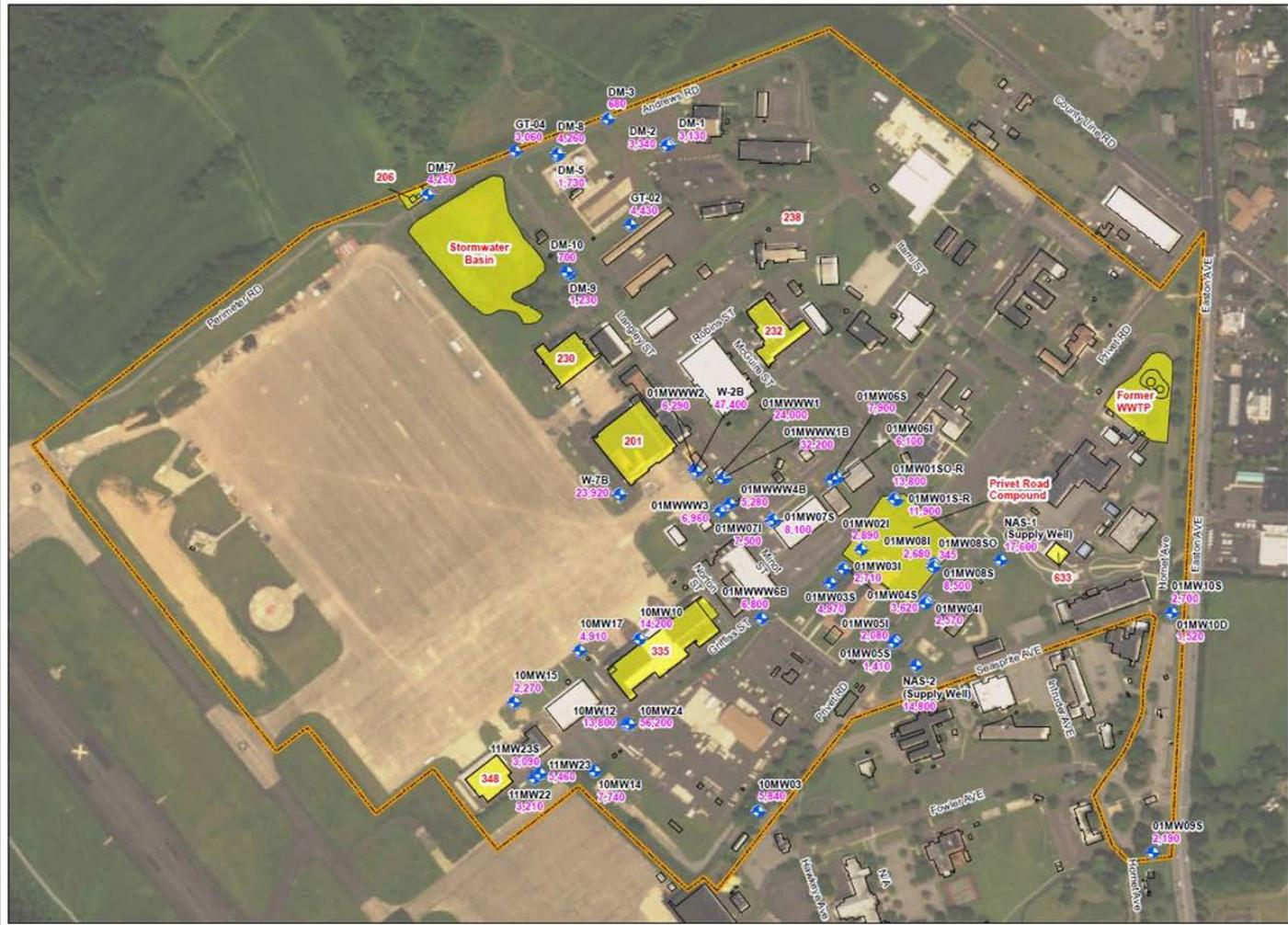
FIGURE: 1 | DATE: 7/20/2017

# Status Update



- Draft Final FIR reviewed by EPA, PADEP, and stakeholders
  - Responses to comments underway
  - Elevated concentrations detected at PMW-01
  - Widespread detections between 1,000 and 5,000 ng/l
  - Deep zone contained several samples below Health Advisory
  
- Stormwater study workplan completed
  - Reviewed by EPA/PADEP/USGS and ANG.
  - Total of 4 sampling events
    - Baseflow event during early Fall 2017 and Winter 2018
    - Precipitation event during early Fall 2017 and Winter 2018
    - Monitor surface water concentrations on-Base, off-base, entering and leaving Base.
    - Completed Fall baseflow and precipitation events.

# Groundwater Sampling Results: April/May 2016



**LEGEND:**

- Monitoring Well
- Potential PFC Source Area
- Building\*
- Installation\*

288.3 ..... Combined PFOS/PFOA Concentration (ng/L)

**NOTES:**

\* Source: Common Installation Picture (CIP) geodatabase provided by ANG GeoBase on 06/14/2015.

- Values posted are the sum of the PFOS and PFOA concentration in ng/L.
- Background Source: ESRI World Imagery (USDA NAIP, 09/2015).

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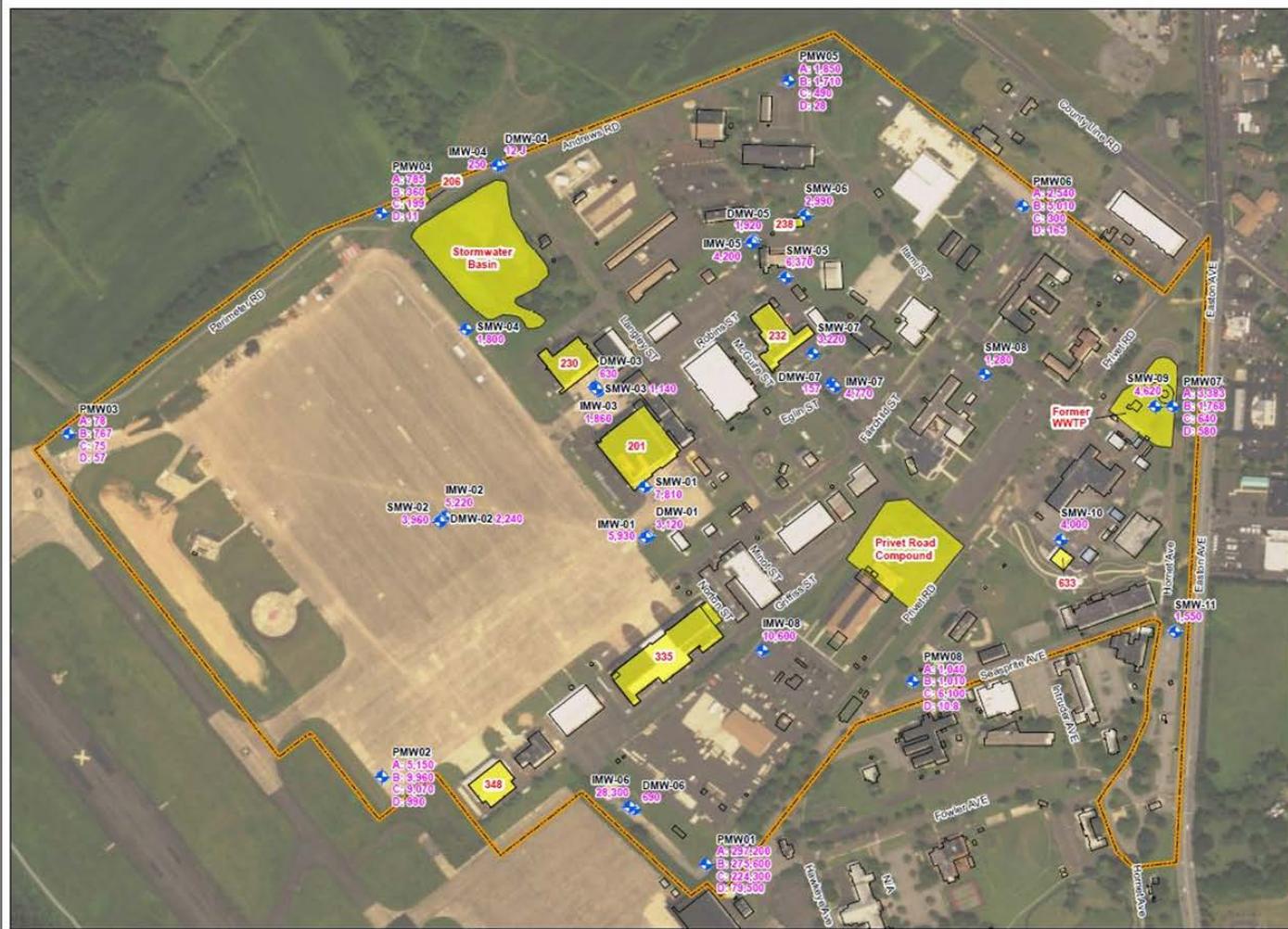
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HORSHAM AIR GUARD STATION  
HORSHAM TOWNSHIP,  
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COMBINED PFOS/PFOA  
CONCENTRATIONS:  
EXISTING WELLS (APRIL - MAY 2016)

FIGURE: 7      DATE: 7/13/2017

# Groundwater Sampling Results: New Wells



**LEGEND:**

- Monitoring Well
- Potential PFC Source Area
- Building\*
- Installation\*

288.3 ..... Combined PFOS/PFOA Concentration (ng/L)

**NOTES:**

- \* Source: Common Installation Picture (CIP) geodatabase provided by ANG GeoBase on 09/14/2015.
- 1. Values posted are the sum of the PFOS and PFOA concentration in ng/L.
- 2. Samples were collected as follows: SMWs collected in August 2016, IMW/DMWs collected October-November 2016, and PMWs collected April 2017.
- 3. In accordance with NGB guidance, initial and confirmatory samples were collected from each well. Values posted represent the higher concentrations of the two samples.
- 4. Background Source: ESRI World Imagery (USDA NAIP, 08/2015).

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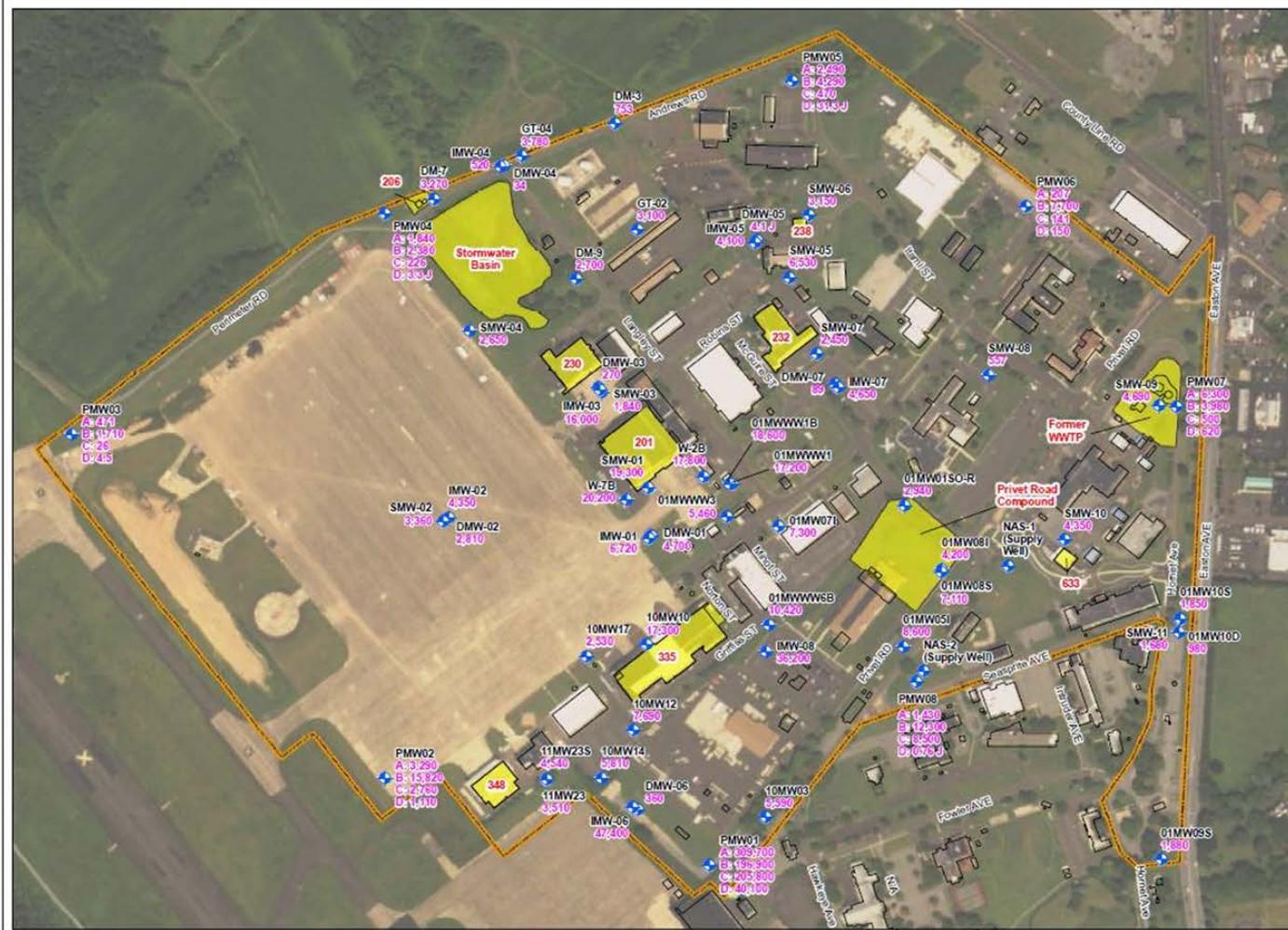
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HORSHAM AIR GUARD STATION  
HORSHAM TOWNSHIP,  
PENNSYLVANIA

COMBINED PFOS/PFOA  
CONCENTRATIONS: NEW WELLS

FIGURE: 8 | DATE: 7/13/2017

# Groundwater Sampling Results: 2nd Annual Event



**LEGEND:**

- Monitoring Well
- Potential PFOS/PFOA Source Area
- Building\*
- Installation\*

**980** ..... Combined PFOS/PFOA Concentration (ng/L)

**NOTES:**

- \* Source: Common Installation Picture (CIP) geodatabase provided by ANG GeoBase on 09/14/2015.
- 1. Values posted are the sum of the PFOS and PFOA concentration in ng/L.
- 2. Background Source: ESRI World Imagery (USDA NAIP, 08/2015).

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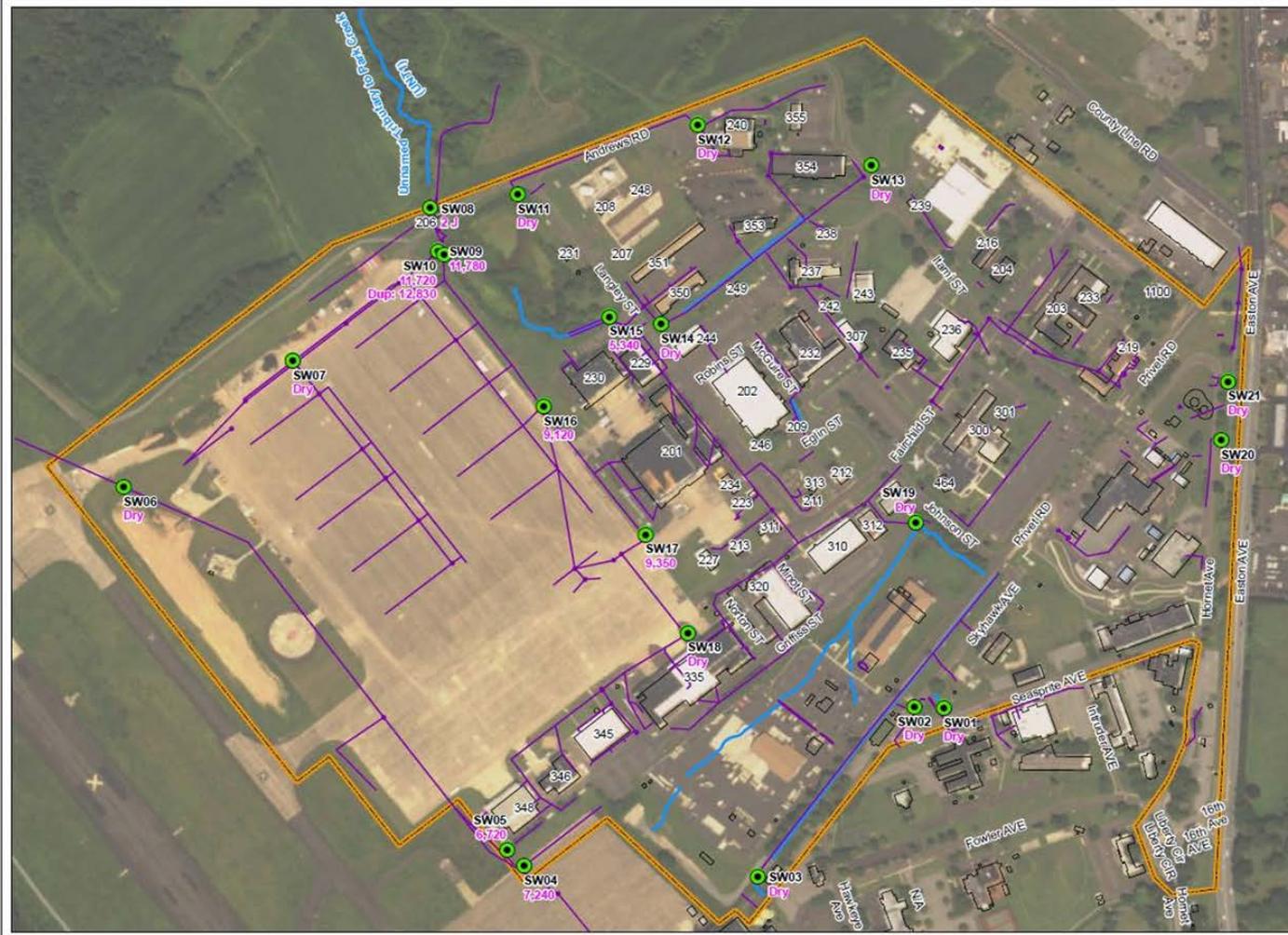
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COMBINED PFOS/PFOA  
CONCENTRATIONS  
(JULY – AUGUST 2017)

FIGURE 4-5 | DATE: 10/12/2017

# Draft Surface Water Sampling Results: On-Base



**LEGEND:**

- Stormwater Sample Location
- Stream\*
- Storm Sewer Line\*
- Building\*
- ▭ Installation\*

7,240 ..... Combined PFOS/PFOA Concentration (ng/L)

**NOTES:**

\* Source: Common Installation Picture (CIP) and Mission (MDS) geodatabases provided by ANG GeoBase on 08/14/2015. Storm drainage system from DWG provided on 08/28/2017.

1. Values posted are the sum of the PFOS and PFOA concentration in ng/L.
2. Background Source: ESRI World Imagery (USDA NAIP, 08/2015).



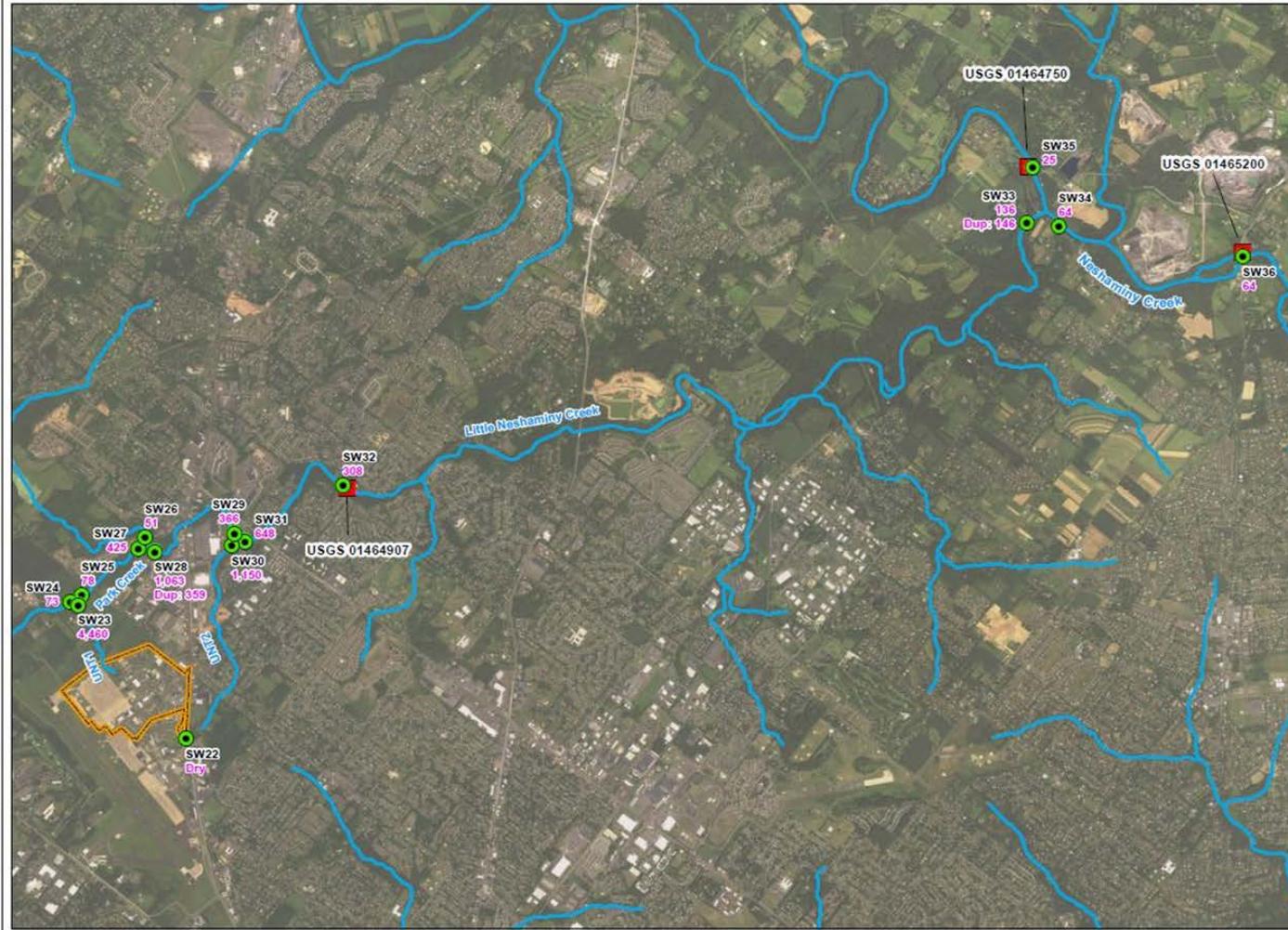
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HORSHAM AIR GUARD STATION  
HORSHAM TOWNSHIP,  
PENNSYLVANIA

COMBINED PFOS/PFOA  
CONCENTRATIONS FOR  
ON BASE SAMPLE LOCATIONS  
(BASELINE EVENT)

FIGURE: 1 | DATE: 11/13/2017

# Draft Surface Water Sampling Results: Off-Base



**LEGEND:**

- Stormwater Sample Location
- USGS Gage Location
- Stream\*
- ▭ Installation\*

136 ..... Combined PFOS/PFOA Concentration (ng/L)

**NOTES:**

- \* Source: Common Installation Picture (CIP) geodatabase provided by ANG GeoBase on 09/14/2015. Streams were adapted from the National Hydrography Dataset.
- 1. Values posted are the sum of the PFOS and PFOA concentration in ng/L.
- 2. Background Source: ESRI World Imagery (USDA NAIP, 08/2015).

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HORSHAM AIR GUARD STATION  
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COMBINED PFOS/PFOA  
CONCENTRATIONS FOR  
FARFIELD SAMPLE LOCATIONS  
(BASELINE EVENT)

FIGURE 2      DATE: 11/13/2017

# Next Steps



- Provide a comment response matrix and submit Final FIR.
- Finalize 2nd Annual GW Sampling Report. Submit to EPA/PADEP
- Awaiting comments on Draft work plan for NPDES permitting and sampling.
- Submit Draft Final work plan for NPDES sampling to PADEP
- Conduct NPDES sampling in Jan/Feb 2018
- Conduct surface water sampling event in March 2018

## Questions on Base PFOS/PFOA Investigation?

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# PFOS/PFOA in Surface Water on Horsham AGS



- PFOS/PFOA has been detected in surface water leaving the Horsham Air Guard Station. This water flows from a storm water detention basin on the northwest boundary of the Base to Park Creek which flows to the Little Neshaminy Creek.
  - ANG is taking action to reduce this release of PFOS/PFOA to the Creek:
    - Temporary carbon filtration was installed on the outfall in September 2017. The system is designed to treat the dry weather flow; heavy storm flow will bypass the treatment. Sampling indicates the water leaving the Base at this point is 2 ng/L for combined PFOS/PFOA.
    - Leidos to study the storm water basin, determine the source of dry weather flow and propose long term engineered solutions to filter effluent from detention basin.

# PFOS/PFOA in Drinking Water



- The Air National Guard has a \$13.5 million Cooperative Agreement with Warrington Township to:
  - Connect residents with PFOS/PFOA impacted drinking water wells above the Health Advisory to municipal water and abandon the impacted private wells
  - Install water mains as needed
  - Installation and maintenance of carbon filters on five Township wells
  - Install municipal water system interconnections with North Wales Water Authority to ensure Warrington Township has adequate access to water until carbon filtration is installed on municipal wells
- The Horsham AGS water supply wells are filtered with carbon and have extracted and treated over 20 million gallons of water



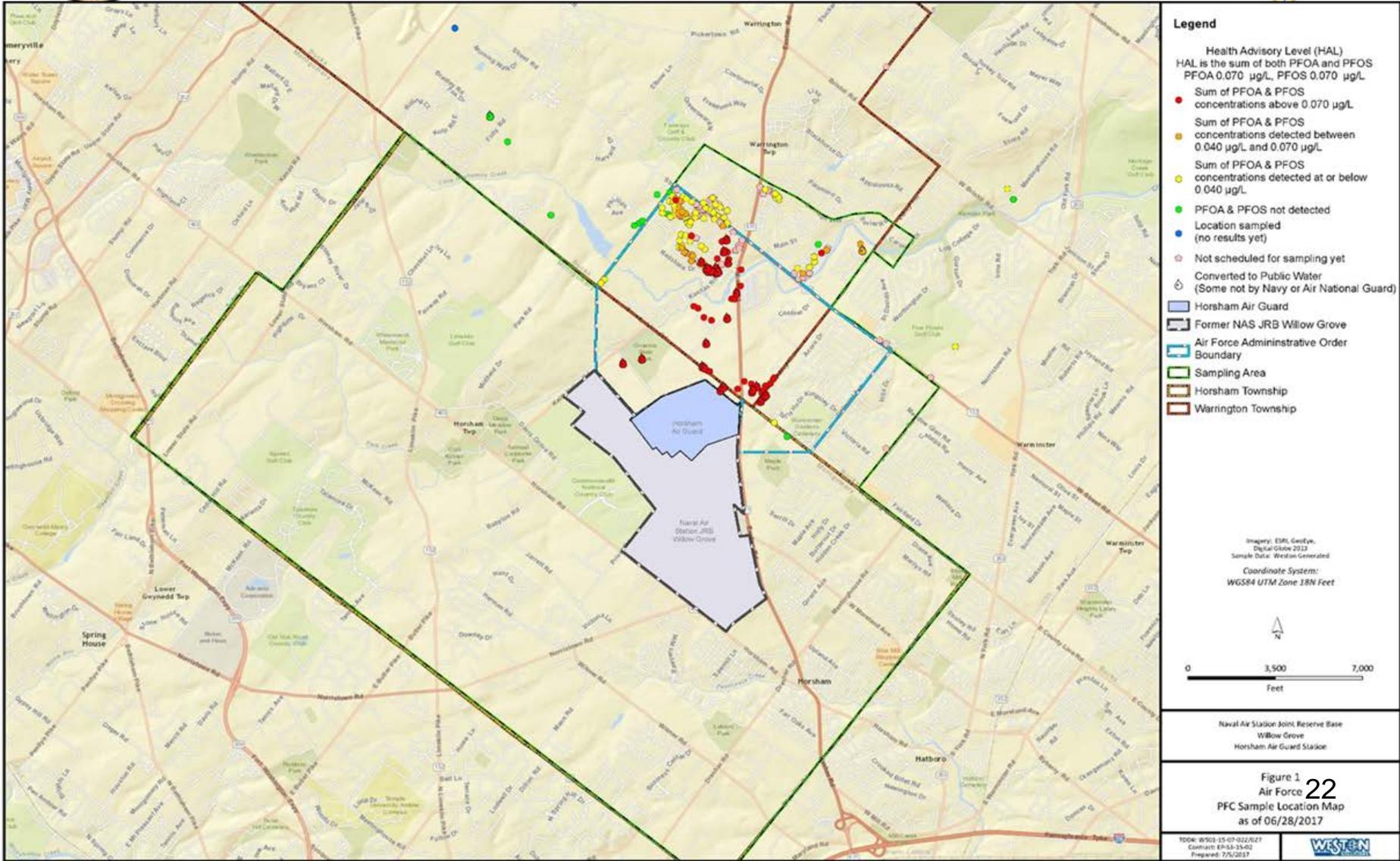
# Private Well Sampling



- ANG has contract in place with Amec Foster Wheeler to provide PFOS/PFOA testing of private drinking water wells and supply bottled water to properties with PFOS/PFOA at or above the lifetime health advisory level (HAL) for residents within our area of responsibility in Horsham, Warminster, and Warrington
    - The number of private wells sampled by ANG are:
      - Horsham: 5, all above HAL; 4 have been connected to municipal water (remaining one not in use)
      - Warrington: 136, 45 are above HAL; 29 have been connected
      - Warminster: 14\*, 11 are above HAL; 4 have been connected
- \*Some of these properties are on Valley Road with Warminster mailing addresses but are located in Warrington Township
- Sampling contact for ANG area of responsibility: David Side at [David.Side@amecfw.com](mailto:David.Side@amecfw.com) or (610) 877-6111

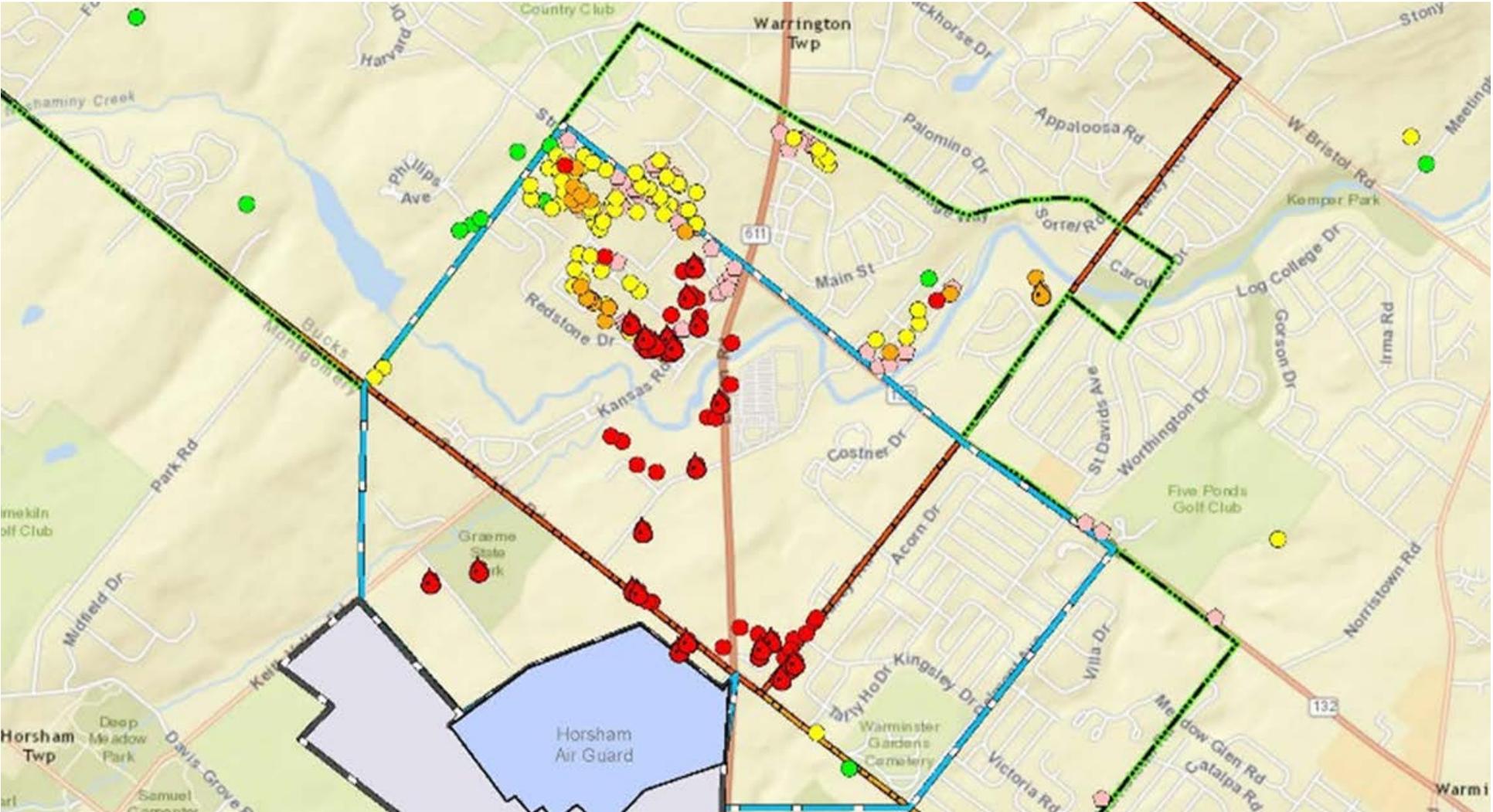


# Private Well Sampling Map





# Private Well Sampling Map





# Questions?

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