FINAL
Site Inspection Report
Army Aviation Support Facility #1
Hammond, Louisiana

Site Inspection for Perfluorooctanoic Acid (PFOA), Perfluorooctanesulfonic Acid (PFOS), Perfluorobutanesulfonic Acid (PFBS), Perfluorohexanesulfonic Acid (PFHxS), Perfluorononanoic Acid (PFNA), and Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)
ARNG Installations, Nationwide

June 2023

Prepared for:

Army National Guard Headquarters
111 S. George Mason Drive
Arlington, VA 22204

UNCLASSIFIED

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LIST OF ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
%	percent
µg/kg	microgram(s) per kilogram
AASF	Army Aviation Support Facility
AFFF	aqueous film forming foam
AOI	Area of Interest
ARNG	Army National Guard
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSM	conceptual site model
DoD	Department of Defense
DPT	direct-push technology
DQI	Data quality indicator
DQO	data quality objective
EA	EA Engineering, Science, and Technology, Inc., PBC
HDPE	high-density polyethylene
HFPO-DA	hexafluoropropylene oxide dimer acid
IDW	investigation-derived waste
LAARNG	Louisiana Army National Guard
LC/MS/MS	liquid chromatography tandem mass spectrometry
ng/L	nanogram(s) per liter
OSD	Office of the Secretary of Defense
PA	preliminary assessment
PFAS	per- and polyfluoroalkyl substances
PFBS	perfluorobutanesulfonic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
PVC	polyvinyl chloride
QA	quality assurance
QC	quality control

QSM	Quality Systems Manual
RI	remedial investigation
SI	site inspection
SL	screening level
TOC	total organic carbon
TPP	Technical Project Planning
UFP-QAPP	Uniform Federal Policy Quality Assurance Project Plan
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
Wood	Wood Environment & Infrastructure Solutions, Inc.
WSP	WSP USA Environment & Infrastructure, Inc.

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EXECUTIVE SUMMARY

The Army National Guard (ARNG) G-9 is performing Preliminary Assessments (PAs) and Site Inspections (SIs) at ARNG facilities nationwide based on the current or potential historical use of per- and polyfluoroalkyl substances (PFAS), with a focus on the six compounds presented in the memorandum regarding Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (Assistant Secretary of Defense, 2022) from the Office of the Secretary of Defense (OSD) dated 6 July 2022. The six compounds listed in the OSD memorandum include perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), perfluorononanoic acid (PFNA), perfluorohexanesulfonic acid (PFHxS), hexafluoropropylene oxide dimer acid (HFPO-DA)[1] and perfluorobutanesulfonic acid (PFBS). These compounds are collectively referred to as "relevant compounds" throughout this document and the applicable Screening Levels (SLs) are provided below in **Table ES-1**.

The PA identified two Areas of Interest (AOIs) where PFAS-containing materials may have been used, stored, disposed, or released historically (see **Table ES-2** for AOI locations). The objective of the SI is to identify whether there has been a release to the environment from the AOIs identified in the PA and determine whether further investigation is warranted, a removal action is required to address immediate threats, or no further action is required based on SLs for the relevant compounds. This SI was completed at the Army Aviation Support Facility (AASF) #1 in Hammond, Louisiana and determined that further investigation is warranted for AOI 1: C12 Hangar, but no further evaluation is warranted for AOI 2. Hammond AASF #1, Louisiana will also be referred to as the "Facility" throughout this document.

The Facility, operated by Louisiana ARNG, encompasses approximately 147 acres owned by the Hammond Municipal Airport in Hammond, Louisiana. Operations at Hammond AASF #1 began in 2009; the land was previously undisturbed (AECOM, 2020). Hammond AASF #1 is a controlled access facility and is adjacent to both the Hammond Northshore Regional Airport and an Air National Guard facility. The Hammond Airport is owned by the city of Hammond and is a public use, joint civil-military, general aviation airport. Hammond AASF #1 houses and maintains aircraft.

The PA identified two AOIs for investigation during the SI phase. SI sampling results from the two AOIs were compared to OSD SLs. **Table ES-2** summarizes the SI results for each AOI. Based on the results of this SI, and following the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process, further evaluation is warranted in a remedial investigation for AOI 1. Based on the results of this SI, no further evaluation under CERCLA is warranted for AOI 2.

[1] Of the six PFAS compounds presented in the 6 July 2022 OSD memorandum, HFPO-DA (commonly referred to as GenX) was not included as an analyte at the time of this SI, as screening values were established after SI planning and execution. However, ARNG will add HFPO-DA to the list of constituents sampled during the next phase of CERCLA if warranted.

Table ES-1. Screening Levels for Soil and Groundwater

Analyte[2]	Residential (Soil) (0-2 feet bgs) (µg/kg)[1]	Industrial/Commercial Composite Worker (Soil) (2-15 feet bgs) (µg/kg)[1]	Tap Water (Groundwater) (ng/L)[1]
PFOA	19	250	6
PFOS	13	160	4
PFBS	1,900	25,000	601
PFHxS	130	1,600	39
PFNA	19	250	6

Notes:
1. Assistant Secretary of Defense, July 2022. Risk Based Screening Levels in Groundwater and Soil using United States Environmental Protection Agency's (USEPA's) Regional Screening Level Calculator. Hazard Quotient (HQ) = 0.1. May 2022.
2. Screening values for HFPO-DA were established after site inspection planning and execution and thus HFPO-DA is not included as an analyte. Future CERCLA phases will include HFPO-DA if warranted.

Abbreviations:
µg/kg = microgram(s) per kilogram
bgs = below ground surface
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
HFPO-DA hexafluoropropylene oxide dimer acid
ng/L = nanogram(s) per liter
PFBS = perfluorobutanesulfonic acid
PFHxS = perfluorohexanesulfonic acid
PFNA = perfluorononanoic acid
PFOA = perfluorooctanoic acid
PFOS = perfluorooctanesulfonic acid

Table ES-2. Summary of Site Inspection Findings and Recommendations

AOI	Potential Release Area	Soil – Source Area	Groundwater – Source Area	Groundwater – Facility Boundary	Future Action
1	C12 Hangar	◐	●	●	Proceed to RI
2	Main Hangar and Flight Line-Apron	○	◐	◐	NFA

Legend:
● = detected; exceedance of screening levels.
◐ = detected; no exceedance of screening levels.
○ = not detected.

Abbreviations:
AOI = area of interest
NFA = no further action
RI = remedial investigation

1. INTRODUCTION

1.1 PROJECT AUTHORIZATION

The Army National Guard (ARNG) G-9 is the lead agency in performing Preliminary Assessments (PAs) and Site Inspections (SIs) at ARNG facilities nationwide based on the current or potential historical use of per- and polyfluoroalkyl substances (PFAS) with a focus on the six compounds presented in the memorandum regarding Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (Assistant Secretary of Defense, 2022) from the Office of the Secretary of Defense (OSD) dated 6 July 2022. The six compounds listed in the OSD memorandum are referred to as "relevant compounds" throughout this document and include perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), perfluorobutanesulfonic acid (PFBS), perfluorononanoic acid (PFNA), perfluorohexanesulfonic acid (PFHxS), and hexafluoropropylene oxide dimer acid (HFPO-DA)[1]. The ARNG performed this SI at the Hammond Army Aviation Support Facility (AASF) #1 in Hammond, Louisiana. Hammond AASF #1 is also referred to as the "Facility" throughout this report.

The SI project elements were performed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (U.S. Environmental Protection Agency [USEPA], 1980), as amended, the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations Part 300; USEPA, 1994), and in compliance with U.S. Department of Army requirements and guidance for field investigations.

1.2 SITE INSPECTION PURPOSE

A PA was performed at Hammond AASF #1 (AECOM, 2020) that identified two Areas of Interest (AOIs) where PFAS-containing materials may have been used, stored, disposed or released historically. The objective of the SI is to identify whether there has been a release to the environment from the AOIs identified in the PA and determine whether further investigation is warranted, a removal action is required to address immediate threats, or no further action is required based on screening levels (SLs) for the relevant compounds.

[1] Of the six PFAS compounds presented in the 6 July 2022 OSD memorandum, HFPO-DA (commonly referred to as GenX) was not included as an analyte at the time of this SI, as screening values were established after SI planning and execution. However, ARNG will add HFPO-DA to the list of constituents sampled during the next phase of CERCLA if warranted.

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2. FACILITY BACKGROUND

2.1 FACILITY LOCATION AND DESCRIPTION

Hammond AASF #1 is co-located with Hammond Northshore Regional Airport and an Air National Guard facility. Hammond AASF #1 is just north of Highway 190 at 1399 Industrial Park Road Hammond, LA 70701, in Tangipahoa Parish (**Figure 2-1**). Hammond AASF #1 is located on 147 acres of land owned by the Hammond Municipal Airport. Operations at Hammond AASF #1 began in 2009; the land was previously undisturbed (AECOM, 2020).

2.2 FACILITY ENVIRONMENTAL SETTING

Hammond AASF #1 lies within the Gulf Coast Physiographic Province, a region characterized by gently sloping, low relief land. The landscape has been formed primarily by fluvial deposits. There are numerous marshes, swamps, and lakes in the vicinity of Hammond AASF #1, and the region's streams are characterized as sluggish. The elevation of the Facility is approximately 45 feet above mean sea level (AECOM, 2020) (**Figure 2-2**).

2.2.1 Geology

Hammond AASF #1 is located within the East Gulf Coastal Plain section of the Coastal Plain Physiographic province of Louisiana. Specifically, the Facility is located above Pleistocene Terrace deposits, which make up approximately 20 percent (%) of Louisiana's surficial geology. The geology is characterized by unconsolidated sediments of lithologic variability as a result of the alluvial depositional environment, with intermittent occurrences of back-swamp deposits. This setting produced deposits exhibiting vertical and lateral stratigraphic changes over short distances. The terraces are a result of the paleo-Mississippi River (AECOM, 2020). During the SI, soils encountered consisted of sandy silts and loam and clay, and borings were completed at depths between 2 and 32 feet below ground surface (bgs). Samples for grain size analyses were collected at two locations, AOI01-01 and AOI02-02, and analyzed via ASTM International Method D-422. The results indicate that the soil samples are primarily composed of silt (51.13% to 73.42%), clay (18% to 25.5%), and sand (1.03% to 25.04%). These results and Facility observations are consistent with the reported depositional environment of the region. Boring logs are presented in **Appendix F** and grain size results are presented in **Appendix G**.

2.2.2 Hydrogeology

Hammond AASF #1 is located within the Coastal Lowlands Aquifer system. These aquifers consist of primarily alluvial and deltaic deposits that are as much as 13,000 feet deep in southern Louisiana. Underneath the Hammond area lies the Chicot Equivalent, Evangeline Equivalent, and the Jasper Equivalent Aquifer Systems. The primary aquifer used in the Hammond area is the Tchefuncta aquifer, which is a part of the Jasper Equivalent Aquifer System. Groundwater flow at the Facility (**Figure 2-3**) is inferred to be to the south as indicated in the PA report (AECOM, 2020). Groundwater flow based on measured groundwater elevations was inferred to be to the southeast during the August 2021 SI sampling event and to the northeast during the April 2022 SI sampling event (**Figure 2-4** and **Figure 2-5**).

Municipal water supplies in this area are obtained from wells with depths of 2,500 to 2,600 feet bgs. In a 2009 investigation, groundwater was encountered at depths between 5 to 20 feet bgs at the neighboring Air National Guard facility. The PA indicated that the shallowest water bearing unit occurs at 7 to 18 feet bgs (AECOM, 2020). The measured depth to groundwater in temporary monitoring wells installed during the SI ranged from approximately 2 to 27 feet bgs.

No potable wells are located within the Facility boundary. The Facility receives potable water from a municipal source. Three industrial use wells are located within the Facility. One irrigation well was also identified during the PA within the Facility; however, the ARNG indicated that this well could not be located. An EDR™ report conducted a well search as part of the PA for a 1-mile radius surrounding the Facility. Using additional online resources, such as state and local GIS databases, wells were researched to a 4-mile radius of the Facility as part of the PA. The EDR™ report lists two public supply wells, one to the west-southwest, and one to the east-northeast, at distances of 0.87 mile and 0.91 mile, respectively. Several domestic wells are listed on the EDR™ within 1 mile of the Facility boundaries. The wells identified during the PA are depicted on **Figure 2-3**. These wells are typically screened in the Chicot Equivalent Aquifer System (AECOM, 2020).

2.2.3 Hydrology

Hammond AASF #1 is located in the Lower Mississippi Lake Maurepas watershed, in a former wetlands area. There are no natural surface water bodies at the Facility. A drainage channel flows along the western and southern boundaries of the Facility (**Figure 2-6**). The watershed eventually drains to Lake Maurepas, which drains to Lake Pontchartrain and ultimately to the Gulf of Mexico (AECOM, 2020).

2.2.4 Climate

The climate in Hammond, LA is humid and warm. The average annual temperature is 66.75 degrees Fahrenheit (°F). Seasonally, temperatures vary, with average summer highs of 91.3°F and average winter lows of 63°F. Average precipitation is 62.72 inches per year (AECOM, 2020).

2.2.5 Current and Future Land Use

Hammond AASF #1 is a controlled access facility and is adjacent to both the Hammond Northshore Regional Airport and an Air National Guard facility. The Hammond Airport is owned by the city of Hammond and is a public use, joint civil-military, general aviation airport. Hammond AASF #1 has been operational since 2009, and it houses and maintains aircraft. Future land use is not anticipated to change (AECOM, 2020). The Facility is fenced with restricted access.

2.2.6 Sensitive Habitat and Threatened/Endangered Species

A wildlife survey has not occurred at the Facility. The following species are listed as federally endangered, threatened, proposed, recovery, and/or candidate species in Tangipahoa County, Louisiana (USFWS, 2022):

Mammals:

- Tricolored bat, *Perimyotis subflavus* (proposed endangered)
- West Indian manatee, *Trichechus manatus* (threatened)
- Louisiana black bear, *Ursus americanus luteolus* (recovery)

Ferns and Allies:

- Louisiana quillwort, *Isoetes louisianensis* (endangered)

Birds:

- Red-cockaded woodpecker, *Picoides borealis* (endangered)
- Brown pelican, *Pelecanus occidentalis* (recovery)

Fishes:

- Gulf sturgeon, *Acipenser oxyrinchus* (threatened)

Insects:

- Monarch butterfly, *danaus plexippus* (candidate)

Reptiles:

- Gopher tortoise, *Gopherus polyphemus* (threatened)
- Ringed map turtle, *Graptemys oculifera* (threatened)

2.3 HISTORY OF PFAS USE

Two potential PFAS release areas were identified at the Facility during the PA (AECOM, 2020). Interviews and records obtained during the PA indicate that the C12 Hangar (AOI 1) and the Main Hangar and Flight Line-Apron (AOI 2) have fire-suppression systems charged with aqueous film forming foam (AFFF) that may have accidentally spilled or discharged to the ground surface.

AOI 1 houses C12 aircraft maintenance operations. According to the PA report, the C12 Hangar was constructed between 2007 and 2009 and is charged with a Chemguard AFFF suppression deluge system with a 441-gallon-capacity tank. The system is manually operated by a hose inside the hangar, and according to the LAARNG, the AFFF storage tank is located in an adjacent room (#15) within the C12 Hangar (AECOM, 2020). The ARNG also indicated a 36-gallon fire suppression tank is located against a wall within the hangar.

AOI 2 houses helicopter maintenance operations. According to the PA report, the Main Hangar was constructed between 2007 and 2009 and is charged with a Buckeye 3% AFFF concentrate suppression deluge system fed by a 999-gallon tank (AECOM, 2020).

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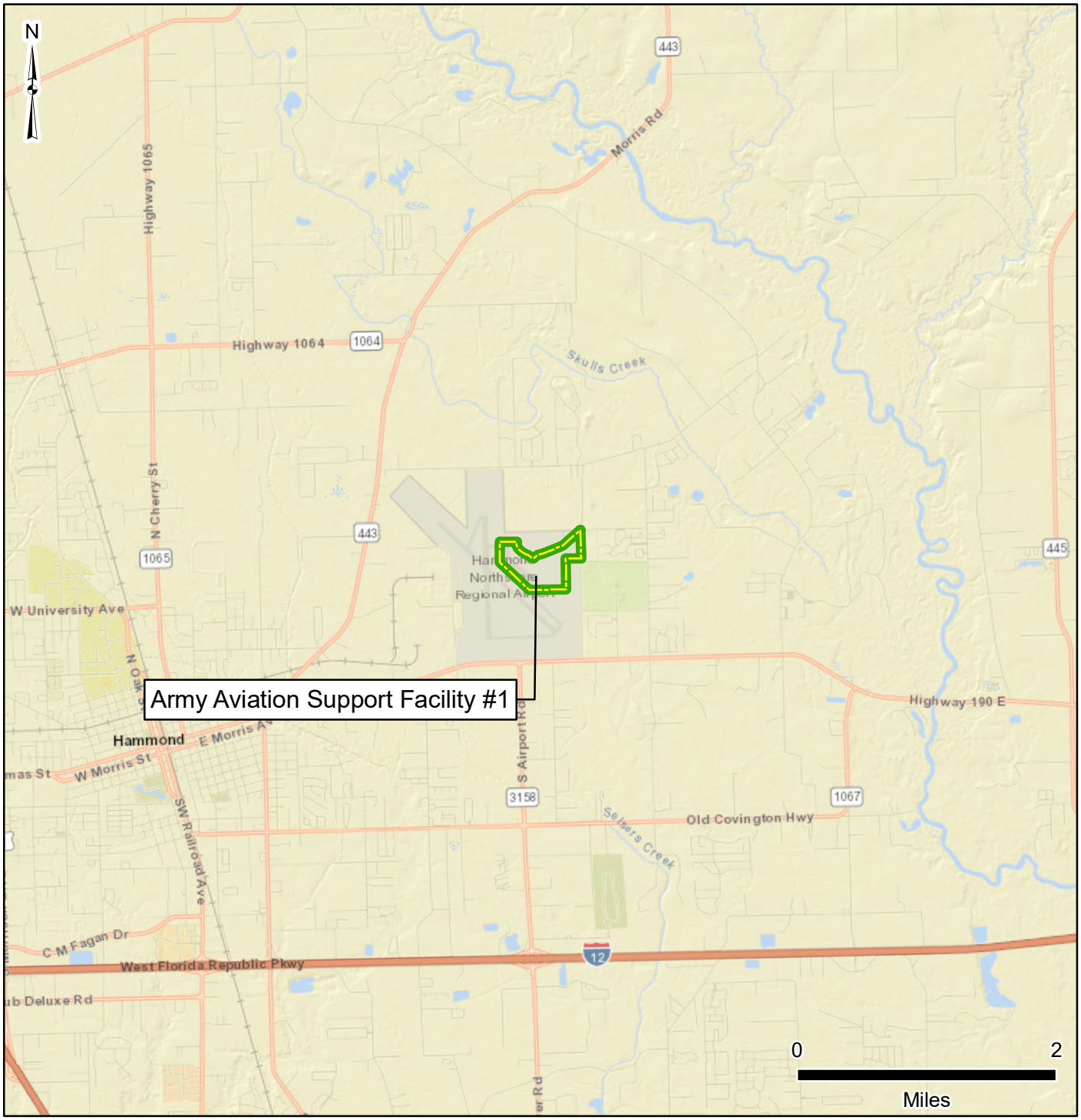
Figure 2-1
Facility Location



Facility Data

Facility Boundary

Data Sources:
ESRI 2020
AECOM 2020

Date:.....October 2022
Prepared By:.....WSP
Prepared For:.....USACE
Projection:.....WGS 84 UTM 15N

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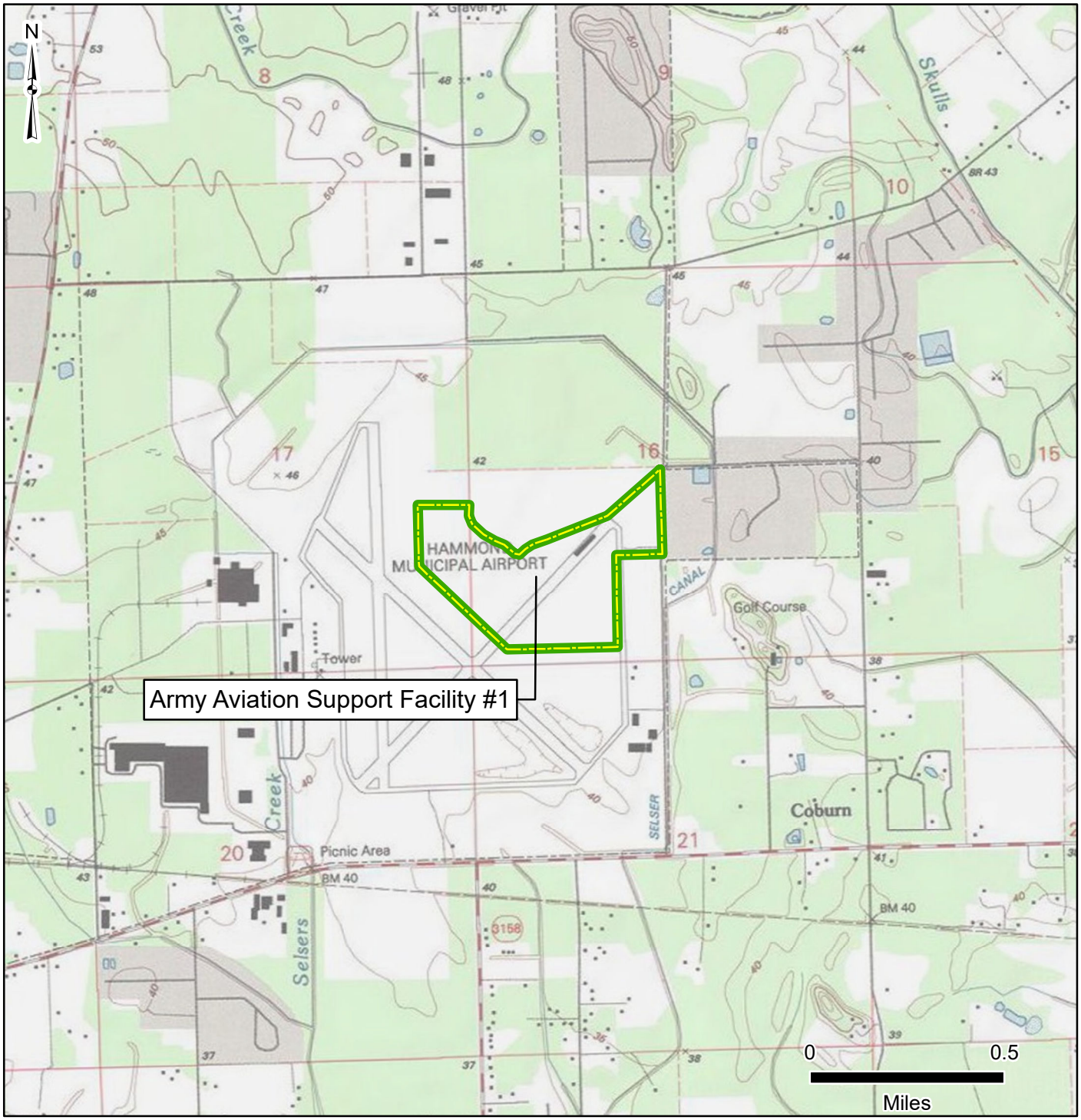
Figure 2-2
Topography



Facility Data

Facility Boundary

Note:
Contour interval (feet amsl): 5 feet

Data Sources:
ESRI 2020
AECOM 2020

Date:.....October 2022
Prepared By:.....WSP
Prepared For:.....USACE
Projection:.....WGS 84 UTM 15N

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Army National Guard Site Inspections
Site Inspection Report
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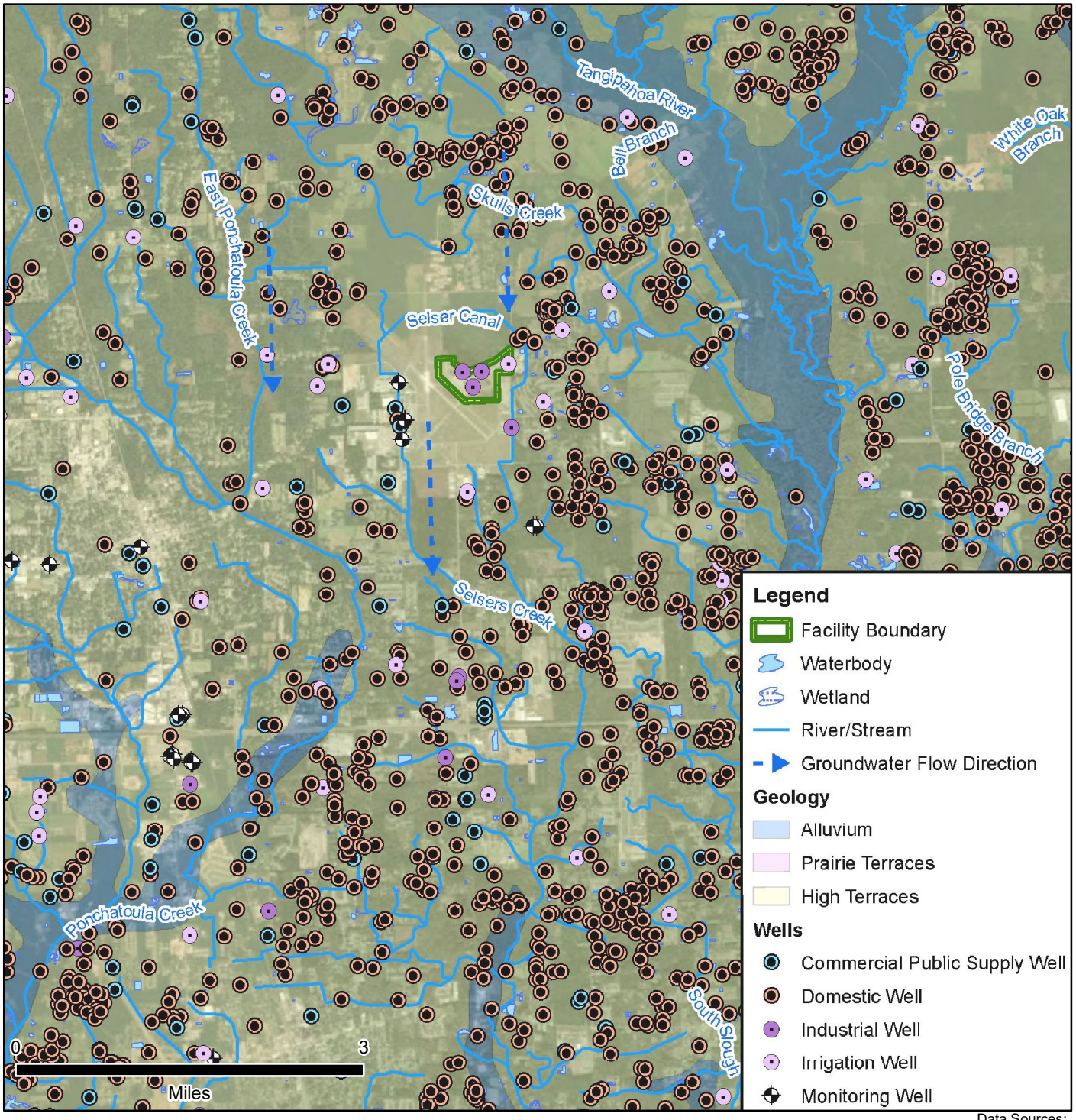
Figure 2-3
Groundwater Features



Scale: Approximate. For general reference only.
Note: Figure shown adapted from AECOM Preliminary Assessment Report (2020) Figure: 1-2.

Data Sources:
ESRI 2020
AECOM 2020

Date:.....November 2022
Prepared By:.....Wood
Prepared For:.....USACE

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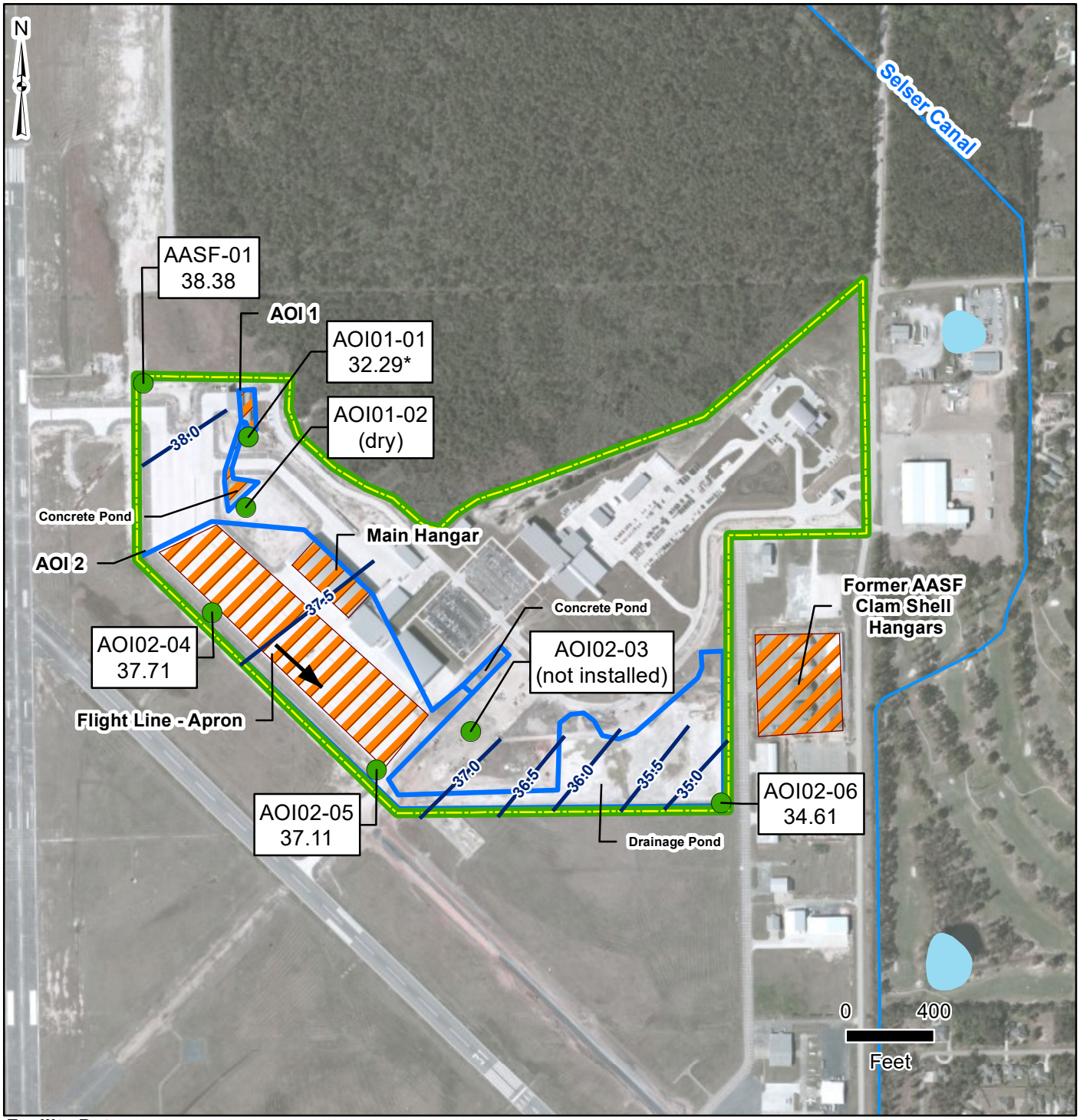
Figure 2-4
Groundwater Elevations - August 2021



Facility Data
- Facility Boundary
- Area of Interest (AOI)
- Potential PFAS Release Site

Hydrology/Hydrogeology
- Water Body
- Groundwater Elevation Contour Interval (0.5 foot)
- River/Stream
- Surface Water Flow Direction
- Inferred Shallow Groundwater Flow Direction

Sample Location
- Soil Boring and Temporary Monitoring Well

Note: Certain features digitized from georeferenced AECOM Preliminary Assessment Report (2020) figures.

Date:.....November 2022
Prepared By:.....WSP
Prepared For:.....USACE

* The groundwater elevation at AOI01-01 appears to be an anomaly with respect to the other wells and therefore was not included in the contour.

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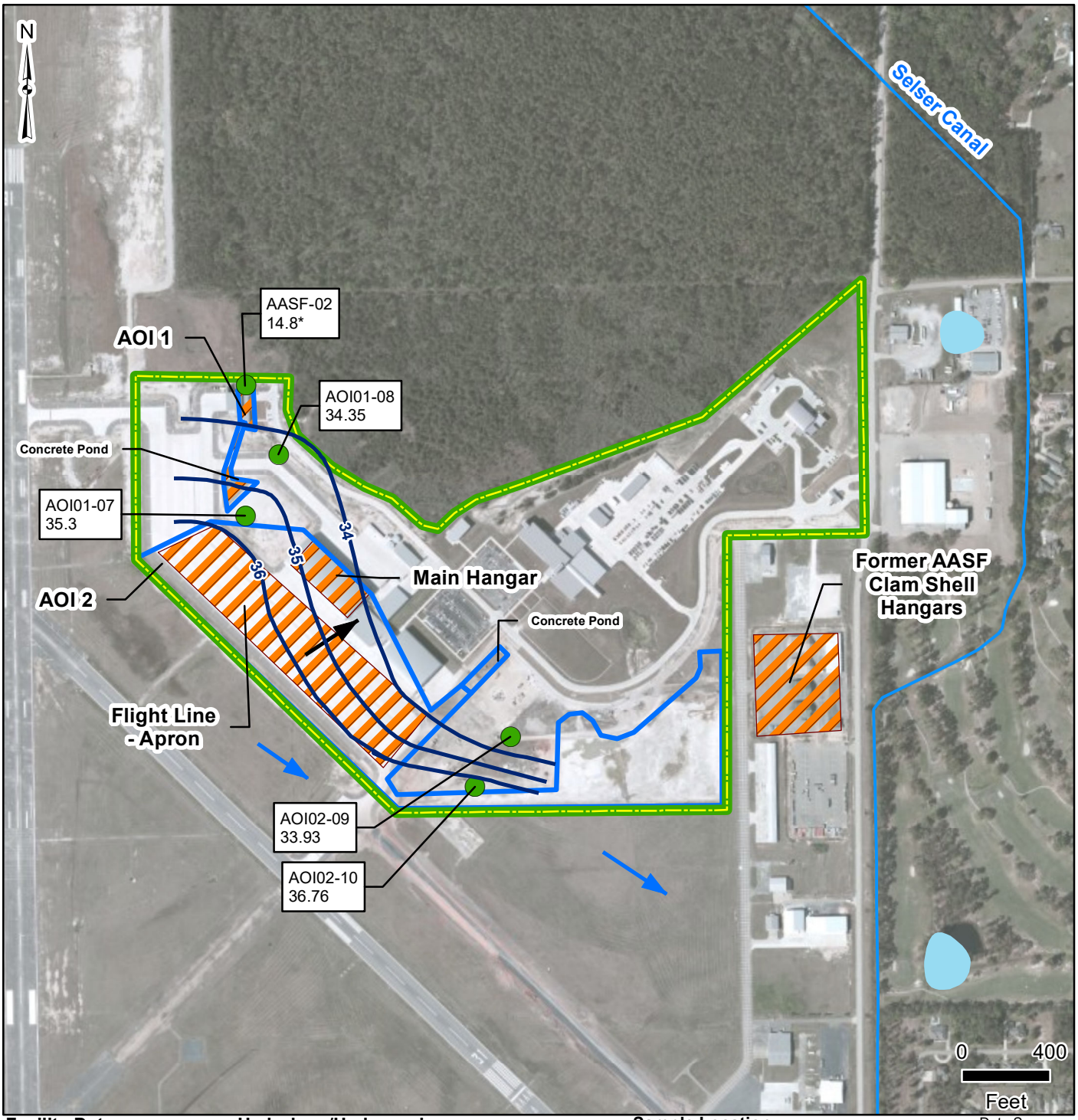
Figure 2-5
Groundwater Elevations - April 2022



Facility Data
- Facility Boundary
- Area of Interest (AOI)
- Potential PFAS Release Site

Hydrology/Hydrogeology
- Groundwater Elevation Contour Interval (1 foot)
- Surface Water Flow Direction
- Inferred Shallow Groundwater Flow Direction
- River/Stream
- Water Body

Sample Location
- Soil Boring and Temporary Monotoring Well

Data Sources:
ESRI 2020
AECOM 2020

Date:.....October 2022
Prepared By:.....WSP
Prepared For:.....USACE

* The groundwater elevation at AASF-02 appears to be an anomaly with respect to the other wells and therefore was not included in the contour.

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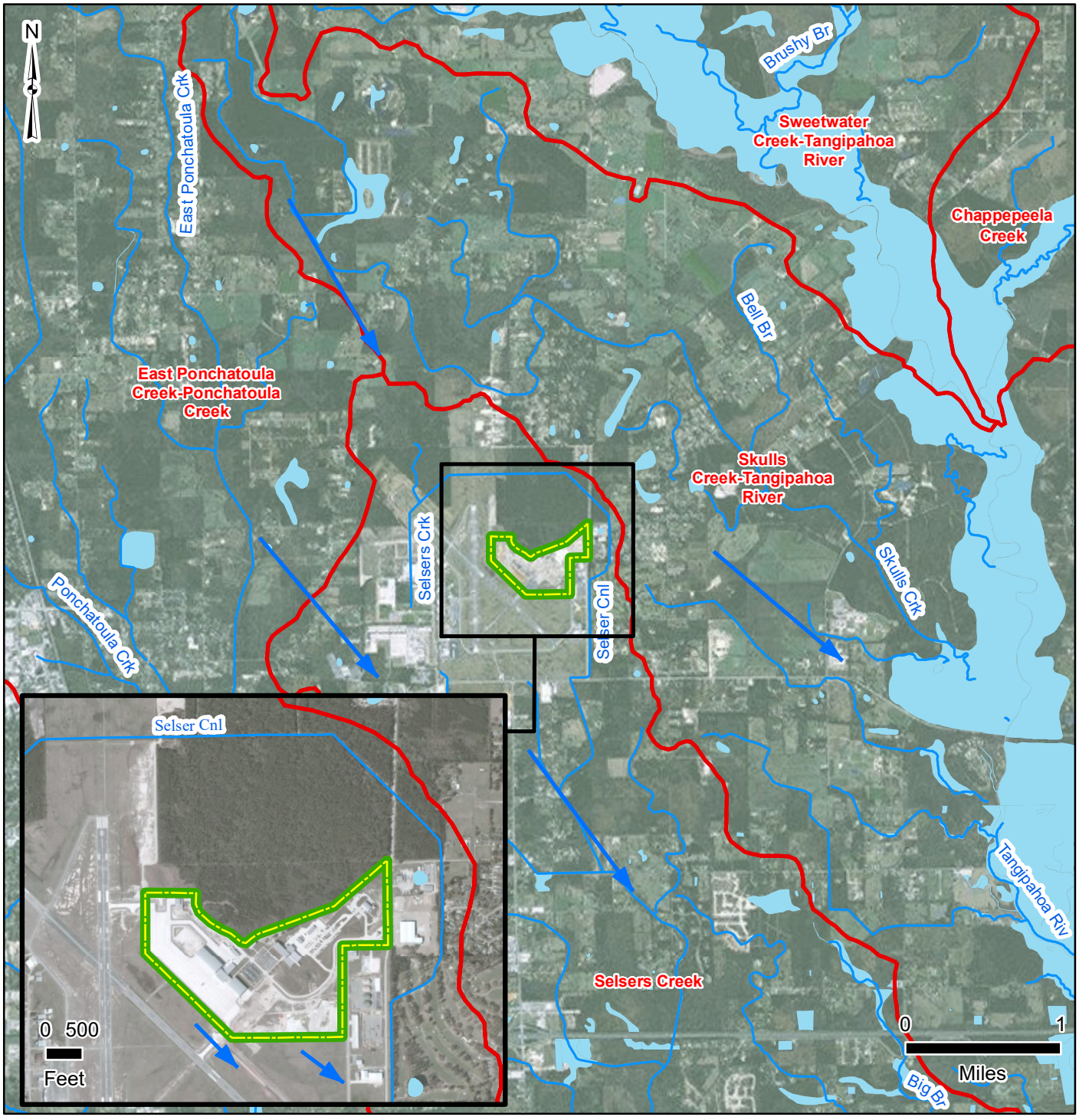
Figure 2-6
Surface Water Features



Facility Data

Facility Boundary

Hydrology/Hydrogeology

Surface Water Flow Direction
River/Stream
Water Body
Watershed

Data Sources:
ESRI 2020
AECOM 2020

Date:.....October 2022
Prepared By:.....WSP
Prepared For:.....USACE

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3. SUMMARY OF AREAS OF INTEREST

The PA evaluated areas where PFAS-containing materials may have been used, stored, disposed, or released historically. Based on the PA findings, two potential release areas were identified at Hammond AASF #1 and designated as: AOI 1 C12 Hangar and AOI 2 Main Hangar and Flight-Line Apron. The AOIs are shown on **Figure 3-1**.

3.1 AOI 1 – C12 HANGAR

AOI 1 houses C12 aircraft maintenance operations. The geographic coordinates of the approximate center of the building are 30°31'31.4''N; 90°24'57.2''W. According to the PA report, the C12 Hangar was constructed between 2007 and 2009 and is charged with a Chemguard AFFF suppression deluge system with a 441-gallon-capacity tank. The system is manually operated by a hose inside the hangar, and according to the ARNG the AFFF storage tank is located in an adjacent room (#15) within the C12 Hangar (AECOM, 2020). The ARNG also indicated a 36-gallon fire suppression tank is located against a wall within the hangar.

Every two years, a "full flow" test of the system is conducted using a replacement environmentally friendly foam that is not AFFF. Further details regarding this replacement foam were not able to be gathered during the PA. During these tests, the replacement foam flows through the system in a contained loop so that no foam is released to drains or the environment. It is unknown whether an initial acceptance test of the suppression system was conducted, which may have left behind residual PFAS (AECOM, 2020).

There have been no reported releases of the AFFF suppression system in the C12 Hangar. Evidence of slight leaking was observed underneath the AFFF tank in the utility room. A drip pan was staged underneath the tank. According to information obtained during the PA, the leak is intermittent, the AFFF tank has not leaked to the extent of needing to be refilled, and the drip pan has never been full to the point of needing to be emptied. During the PA Facility visit, AFFF residue was observed in the drip pans. The utility room has a concrete floor, and no floor drains were observed (AECOM, 2020).

3.2 AOI 2 – MAIN HANGAR AND FLIGHT LINE-APRON

AOI 2 houses helicopter maintenance operations. The geographic coordinates of the approximate center of the building are 30°31'31.4''N; 90°24'57.2''W. According to the PA report, the Main Hangar was constructed between 2007 and 2009 and is charged with a Buckeye 3% AFFF concentrate suppression deluge system fed by a 999-gallon tank (AECOM, 2020).

It was reported that every two years a "full flow" test of the system is conducted using a replacement environmentally friendly foam which is not AFFF. Further details regarding this replacement foam were not able to be gathered during the PA. During these tests, the replacement foam is flowed through the system in a contained loop so that no foam is released to drains or the environment. It is unknown whether an initial acceptance test of the suppression system was conducted, which may have left behind residual PFAS (AECOM 2020).
There have been no reported releases of the AFFF suppression system in the Main Hangar.

Evidence of slight leaking and corrosion/staining was observed underneath the tank on the concrete floor, underneath the feeder pipes to the hangar, and at the joints of the pipes. Drip pans are in place to catch any leaks from the pipes. According to the PA report, the leaks are intermittent and have never warranted a refill of the AFFF tank. The drip pans have never been full to the point of needing to be emptied. The utility room has a concrete floor with no floor drains (AECOM, 2020).

3.3 ADJACENT SOURCES

Eight potential off-facility sources of PFAS are adjacent to the Facility and are not under the control of the Louisiana ARNG (LAARNG). A description of each off-facility source is presented below and shown on **Figure 3-1**.

3.3.1 Former AASF Clam Shell Hangars

The Former AASF Clam Shell Hangars were temporary structures that were operational from 2006 to 2010, adjacent to the eastern boundary of the current Hammond AASF #1 at an interpreted hydraulically cross-gradient to downgradient (shallow groundwater flow) direction. Four hangars appear on the aerial imagery. According to interviews with Facility personnel during the PA, approximately seven Tri-Max^{TM} 30 units were staged near the Clam Shell Hangars during this time. However, there were no reports of AFFF releases during this time. The City of Hammond Fire Chief reported knowledge of nozzle testing activities using water, not AFFF, at this location (AECOM, 2020). The Former AASF Clam Shell Hangars are not proposed for sampling under this SI. The National Guard Bureau issued a 01 February 2021 Memorandum of Record for the Clam Shell Hangar facility that stated the location does not warrant further investigation in the SI phase. A copy of the Memorandum of Record was included in the Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP) Addendum (EA/Wood, 2021a).

3.3.2 Aircraft Crash Site

During the PA, the City of Hammond Fire Chief reported knowledge of a fatal crash involving a single small aircraft on 14 October 2015, in which an unknown amount of AFFF was used during the emergency response. The crash location was identified to the northwest of the Facility at a distance of approximately 0.35-mile (AECOM, 2020) at an interpreted hydraulically upgradient (shallow groundwater flow) location. During this SI, one boring (AASF-01) was placed on the presumed upgradient end of the Hammond AASF #1 installation to assess potential impacts to soil and groundwater from the aircraft crash site.

3.3.3 405 South Oak Street

During the PA, the City of Hammond Fire Chief, a LAARNG Environmental Management representative, and the LAARNG Southern Region Environmental Coordinator reported occasional off-facility training with AFFF by Hammond Fire Department and LAARNG personnel. The amount of AFFF used and the frequency of these events is unknown. The training location was reported at 405 South Oak Street, approximately 3 miles southwest of the Facility boundary (AECOM, 2020) at an interpreted hydraulically cross-gradient to downgradient

(shallow groundwater flow) location. The 405 South Oak Street location was not sampled during this SI.

3.3.4 Nickel Plating

During the PA, the City of Hammond Fire Chief reported knowledge of chrome and nickel-plating operations in the local area. During desktop review, a nickel-plating company, Electroless Nickel Plating, was identified approximately 5.45 miles to the southwest of the Facility (AECOM, 2020) at an interpreted hydraulically cross-gradient to downgradient (shallow groundwater flow) location. Electroless Nickel Plating was not sampled during this SI.

3.3.5 Chrome Plating

During desktop review, a chrome-plating company, The Chrome Shop, was identified approximately 11.9 miles to the southeast of the Facility (AECOM, 2020) at an interpreted hydraulically downgradient (shallow groundwater flow) location. The Chrome Shop was not sampled during this SI.

3.3.6 Hammond Airport U.S. Customs Building

During the interviews conducted for the PA, LAARNG Environmental Management personnel reported that the U.S. Customs Building at the Hammond Regional Airport had an AFFF-charged fire suppression system. U.S. Customs personnel were not able to provide further information. The building is located approximately 0.62 mile to the southwest of the Facility at an interpreted hydraulically cross-gradient to downgradient (shallow groundwater flow) location. No information was gathered during the PA about potential PFAS presence or use at the Hammond Regional Airport, other than at the U.S. Customs Building (AECOM, 2020). The Hammond Airport U.S. Customs Building is considered an area with no suspected release and was not sampled during this SI.

3.3.7 Hammond Fire Station

The Hammond Fire Station has bulk storage of AFFF and houses firetrucks that hold AFFF. Information on the amount and type of AFFF stored at the station was not obtained during the PA. There were no reported leaks, spills, or releases of AFFF at the Hammond Fire Station. The building is located approximately 0.54 mile to the south of the Facility (AECOM, 2020) at an interpreted hydraulically cross-gradient to downgradient (shallow groundwater flow) location. The Hammond Fire Station is considered an area with no suspected release and was not sampled during this SI.

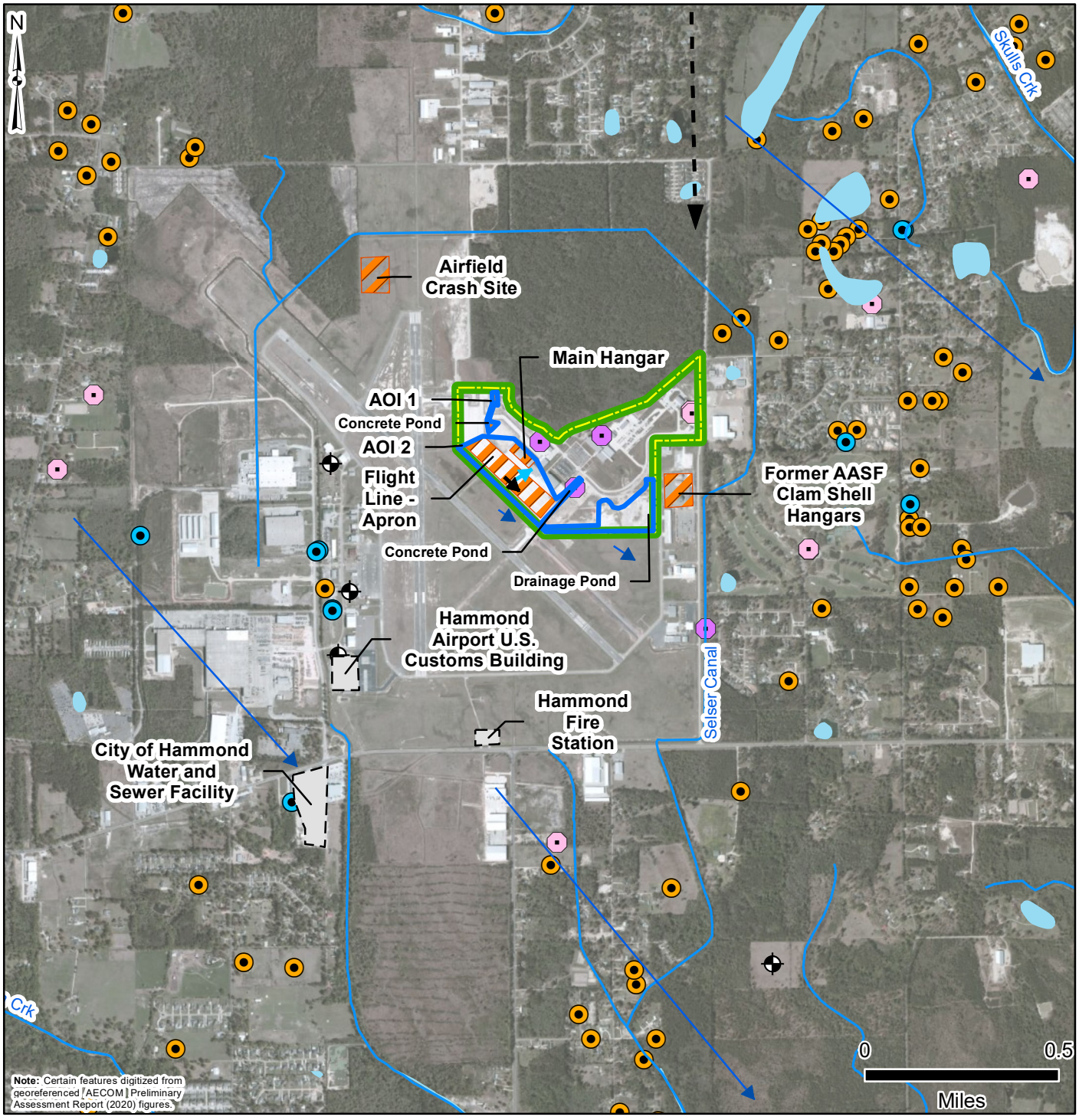
3.3.8 City of Hammond Water and Sewer

Municipal sewer and wastewater treatment facilities have the potential to receive PFAS from any source within the treatment district. The City of Hammond Water and Sewer maintenance facility is located approximately 0.95 mile southwest of the Facility at an interpreted hydraulically cross-gradient to downgradient (shallow groundwater flow) location, however, no information regarding treatment or discharge of wastewater by the City of Hammond was

gathered during the PA (AECOM, 2020). The City of Hammond Water and Sewer facility is considered an area with no suspected release and was not sampled during this SI.

Army National Guard Site Inspections
Site Inspection Report
Army Aviation Support Facility #1
Hammond, Louisiana

Figure 3-1
Areas of Interest



Facility Data

- Area of Interest (AOI)
- Facility Boundary
- Potential PFAS Release Site
- No Suspected Release

Hydrology/Hydrogeology

- Inferred Shallow Groundwater Flow Direction (based on April 2022 Site Inspection Event)
- Inferred Shallow Groundwater Flow Direction (based on August 2021 Site Inspection Event)
- Surface Water Flow Direction
- Inferred Shallow Groundwater Flow Direction (based on Preliminary Assessment)
- River/Stream
- Water Body

Well Type

- Commercial Public Supply Well
- Domestic Well
- Industrial Well
- Irrigation Well
- Monitoring Well

Data Sources:
ESRI 2020
AECOM 2020

Date:....November 2022
Prepared By:.....WSP
Prepared For:.....USACE

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4. PROJECT DATA QUALITY OBJECTIVES

As identified during the data quality objective (DQO) process and outlined in the SI UFP-QAPP Addendum (EA/Wood, 2021a), the objective of the SI is to identify whether there has been a release to the environment at the AOIs identified in the PA. For each AOI, ARNG determines if further investigation is warranted, a removal action is required to address immediate threats, or whether no further action is warranted. This SI evaluated groundwater and soil for the presence or absence of relevant compounds at each of the sampled AOIs.

4.1 PROBLEM STATEMENT

ARNG will recommend an AOI for Remedial Investigation (RI) if related soil and groundwater samples have concentrations of the relevant compounds above the OSD risk-based SLs. The SLs are presented in Section 6.1 of this report.

4.2 INFORMATION INPUTS

Primary information inputs for the SI include the following:

- The PA report for Hammond AASF #1 (AECOM, 2020);
- Analytical data from groundwater and soil samples collected as part of this SI in accordance with the site-specific UFP-QAPP Addendum (EA/Wood, 2021a) and Supplemental UFP-QAPP Addendum (EA/Wood, 2022); and
- Field data collected during the SI, including groundwater elevation and water quality parameters measured at the time of sampling.

4.3 STUDY BOUNDARIES

The scope of the SI was bounded horizontally by the property limits of the Facility (**Figure 2-2**). The scope of the SI was bounded vertically by the depth of temporary monitoring wells installed within groundwater, where encountered (maximum depth of 32 feet bgs). Off-site sampling was not included in the scope of this SI. If future off-site sampling is required, the proper stakeholders will be notified, and necessary rights of entry will be obtained by ARNG with property owner(s). Temporal boundaries were limited to the earliest available time field resources were available to complete the study.

4.4 ANALYTICAL APPROACH

Samples were analyzed by Eurofins, accredited under the Department of Defense (DoD) Environmental Laboratory Accreditation Program (Accreditation Number 1.01) and the National Environmental Laboratory Accreditation Program (Certificate Number 021). Data were compared to applicable SLs within this document and decision rules as defined in the UFP-QAPP Addendum (EA/Wood, 2021a).

4.5 DATA USABILITY ASSESSMENT

The Data Usability Assessment, which is provided in **Appendix A**, is an evaluation at the conclusion of data collection activities that uses the results of both data verification and validation in the context of the overall project decisions or objectives. Using both quantitative and qualitative methods, the assessment determines whether project execution and the resulting data have met installation specific DQOs. Both sampling and analytical activities are considered to assess whether the collected data are of the right type, quality, and quantity to support the decision-making (DoD, 2019a; DoD, 2019b; USEPA, 2017).

The environmental data collected during the SI were found to be acceptable and usable for this SI evaluation with the qualifications documented in the Data Usability Assessment and its associated data validation reports. These data are of sufficient quality to meet the objectives and requirements of the UFP-QAPP Addendum (EA/Wood, 2021a).

5. SITE INSPECTION ACTIVITIES

This section describes the environmental investigation and sampling activities that occurred as part of the SI. The SI sampling approach was based on the findings of the PA and was implemented in accordance with the following approved documents.

- *Final Preliminary Assessment Report, Army Aviation Support Facility #1, Hammond, Louisiana,* dated July 2020 (AECOM, 2020)
- *Final Programmatic Uniform Federal Policy-Quality Assurance Project Plan, Site Inspections for Per- and Polyfluoroalkyl Substances Impacted Sites, ARNG Installations, Nationwide,* dated December 2020 (EA, 2020)
- *Final Site Inspection Uniform Federal Policy-Quality Assurance Project Plan Addendum, Army Aviation Support Facility #1, Hammond, Louisiana, Per- and Polyfluoroalkyl Substances Impacted Sites, ARNG Installations, Nationwide,* dated July 2021 (EA/Wood, 2021a)
- *Accident Prevention Plan, Programmatic Uniform Federal Policy Quality Assurance Project Plan, Site Inspections for Per- and Polyfluoroalkyl Substances Impacted Sites, ARNG Installations, Nationwide, Revision 1,* dated November 2021 (EA, 2021)
- *Final Accident Prevention Plan/Site Safety and Health Plan, Hammond Army Aviation Support Facility #1, Louisiana, Site Inspections for Per- and Polyfluoroalkyl Substances Impacted Sites, ARNG Installations, Nationwide, Revision 1,* dated April 2021 (EA/Wood, 2021b).

The SI field activities were conducted in two field events. Initial SI field activities were conducted from 9 through 13 August 2021. Following the first field event, it was determined that additional investigation activities were warranted to address certain data gaps following the initial investigation, and therefore supplemental SI field activities were performed from 19 through 22 and 26 April 2022. SI activities consisted of utility clearance, DPT boring and soil sample collection, temporary monitoring well installation, grab groundwater sample collection, and land surveying. Field activities were conducted in accordance with the UFP-QAPP Addendum (EA/Wood, 2021a), and Supplemental UFP-QAPP Addendum (EA/Wood, 2022) except as noted in **Section 5.8**.

The following samples were collected during the SI and analyzed for 24 compounds via liquid chromatography/tandem mass spectrometry (LC/MS/MS) compliant with QSM Version 5.3 Table B-15 to fulfill the project DQOs:

- Thirty (30) soil samples from eleven (11) locations (soil borings);
- Ten (10) grab groundwater samples from temporary well locations;
- Twenty-three (23) quality assurance/quality control (QA/QC) samples.

Figure 5-1 provides the sample locations for all media across the Facility. **Table 5-1** presents the list of samples collected for each medium. Field documentation is provided in **Appendix B**. A log of Daily Notice of Field Activity was completed throughout the SI field activities, which is provided in **Appendix B1**. Sampling forms are provided in **Appendix B2**, land survey data are provided in **Appendix B3**, and a Non-Conformance Report is provided in **Appendix B4**. Additionally, a photographic log of field activities is provided in **Appendix C**.

5.1 PRE-INVESTIGATION ACTIVITIES

In preparation for the SI field activities, project team members participated in Technical Project Planning (TPP) meetings, performed utility clearance, and sampled decontamination source water. Details of these activities are presented below.

5.1.1 Technical Project Planning

The U.S. Army Corps of Engineers (USACE) TPP Process, Engineer Manual 200-1-2 (DA 2016) defines four phases to project planning: (1) defining the project phase; (2) determining data needs; (3) developing data collection strategies; and (4) finalizing the data collection plan. The process encourages stakeholder involvement in the SI, beginning with defining overall project objectives, including DQOs, and formulating a sampling approach to address the AOIs identified in the PA.

A combined TPP Meeting 1 and 2 was held on 21 May 2021, prior to the initial SI field activities. Meeting minutes are provided in **Appendix D**. The combined TPP Meeting 1 and 2 was conducted in general accordance with Engineer Manual 200-1-2 (DA, 2016). The stakeholders for this SI included ARNG, LAARNG, USACE, Louisiana Department of Environmental Quality, and representatives familiar with the Facility, the regulations, and the community. Stakeholders were provided the opportunity to make comments on the technical sampling approach and methods at the combined TPP Meeting 1 and 2. The outcome of the combined TPP Meeting 1 and 2 was memorialized in the UFP-QAPP Addendum (EA/Wood 2021a). A separate planning meeting was held on 31 March 2022, prior to the supplemental SI field activities. Meeting minutes for this event are provided in **Appendix D**.

A TPP Meeting 3 was held after the field event to discuss the results of the SI. Meeting minutes for the TPP 3 are included in Appendix D of this report. Future TPP meetings will provide an opportunity to discuss results and findings, and future actions, where warranted.

5.1.2 Utility Clearance

WSP USA Environment & Infrastructure, Inc. (WSP), formerly doing business as Wood Environment & Infrastructure Solutions, Inc., contacted the Louisiana 811 Utility Notification Center to notify them of intrusive work at the Facility. As part of the supplemental SI event WSP contracted Blood Hound, a private utility location service, to perform utility clearance at the Facility. Utility clearance was performed at each of the proposed supplemental boring locations on 12 April 2022 with input from the WSP field team. General locating services and ground-penetrating radar were used to complete the clearance. Additionally, the first 5 feet of each

boring were pre-cleared by WSP's drilling subcontractor, Walker-Hill Environmental, Inc., using a hand auger to verify utility clearance in shallow subsurface where utilities would typically be encountered.

5.1.3 Source Water and PFAS Sampling Equipment Acceptability

The potable water source used for decontamination of drilling equipment was confirmed to be PFAS-free prior to the start of field activities. Samples from a potable water source at the C12 Hangar, were collected on 06 July 2021 (prior to mobilization for the initial SI) and on 02 March 2022 (prior to mobilization for the supplemental SI) and analyzed for PFAS by LC/MS/MS compliant with QSM 5.3 Table B-15 (DoD, 2020). The results of the samples of the potable water source used for decontamination of drilling equipment during the SI are provided in **Appendix E**. A discussion of the results is presented in the Data Usability Assessment (**Appendix A**).

Materials that were used within the sampling zone were confirmed as acceptable for use in the PFAS sampling environment. The checklist of acceptable materials for use in the PFAS sampling environment was provided in the Standard Operating Procedures appendix to the Programmatic UFP-QAPP (EA 2020).

5.2 SOIL BORINGS AND SOIL SAMPLING

Soil samples were collected via direct-push technology (DPT) drilling methods in accordance with Standard Operating Procedure 047, Direct-Push Technology Sampling (EA 2014*).* A Geoprobe® 7822DT dual-tube sampling system was used to collect continuous soil cores to the target depth. A hand auger was used to collect soil from the top 5 feet of the boring in compliance with utility clearance procedures. The soil boring locations are shown on **Figure 5-1**, and boring sample depths are provided in **Table 5-1**. Certain boring locations were adjusted within a 50-feet offset for reasons including drill rig access and utility avoidance.

Three discrete soil samples were planned to be collected for chemical analysis from each soil boring: one sample at the surface (0 to 2 feet bgs) and two subsurface soil samples. One subsurface soil sample was collected approximately 1 foot above the groundwater table, and one subsurface sample was collected at the mid-point between the surface and the groundwater table (not to exceed 15 feet bgs). However, the UFP-QAPP Addendum (EA/Wood, 2021a) specified only two samples be collected if refusal was encountered at 6 feet bgs or shallower. Three soil samples were collected from each boring with the following exceptions:

- AOI02-03: Only surface soil was collected due to refusal at 2 feet bgs.
- ASSF-01-SB: Only two soil samples were collected (0–2 feet bgs, 2–4 ft bgs) due to encountering the uppermost water bearing zone at 3.4 feet bgs.

During drilling the top of the uppermost saturated zone was encountered at depths ranging from 3.4 to 28 feet bgs during drilling. Following installation of temporary monitoring wells, the static groundwater depths ranged from 2.19 to 26.70 feet bgs (one temporary monitoring well was dry after installation). Total boring completion depths, to accommodate temporary well installation, ranged from 8.5 to 32 feet bgs. A separate boring (AOI02-03) was terminated at 2 feet bgs,

above the uppermost saturated zone, due to drilling refusal encountered from a large subsurface obstruction.

The soil cores were continuously logged for lithological descriptions by a field geologist using the Unified Soil Classification System. A photoionization detector was used to screen the breathing zone during boring activities as a part of personal safety requirements. Observations and measurements were recorded on sampling forms (**Appendix B2**) and in a non-treated field logbook. Depth interval, recovery thickness, photoionization detector concentrations, moisture, relative density, Munsell color, and Unified Soil Classification System texture were recorded. The boring logs are provided in **Appendix F**.

Soil encountered during SI activities included silts, sands, clays, and mixtures of such. Bedrock was not encountered during the investigation. These observations are consistent with the understood depositional environment of the region.

Each sample was collected into a laboratory-supplied PFAS-free high-density polyethylene (HDPE) bottle and labeled using a PFAS-free marker or pen. Samples were packaged on ice and transported via FedEx under standard chain-of-custody procedures to the laboratory and analyzed for PFAS (LC/MS/MS compliant with QSM Version 5.3 Table B-15), total organic carbon (TOC) (USEPA Method 9060A), pH (USEPA Method 9045D), and grain size (ASTM Method D-422) in accordance with the UFP-QAPP Addendum (EA/Wood, 2021a).

Field duplicate samples were collected at a rate of 10% and analyzed for the same parameters as the accompanying samples. Matrix spikes/matrix spike duplicates were collected at a rate of 5% and analyzed for the same parameters as the accompanying samples. In instances when non-dedicated sampling equipment was used, such as a hand auger for the shallow soil samples, one EB was collected per day and analyzed for the same parameters as the soil samples. A temperature blank was placed in each cooler for use in confirming that samples were preserved at or below 6 degrees Celsius (°C) during shipment.

DPT borings were converted to temporary wells, which were subsequently abandoned after sampling and surveying in accordance with the UFP-QAPP Addendum (EA/Wood, 2021a). After removal of the casings, boreholes were abandoned using bentonite chips. Borings were installed in grass areas to avoid disturbing concrete or asphalt surfaces.

5.3 TEMPORARY WELL INSTALLATION AND GROUNDWATER GRAB SAMPLING

Temporary wells were installed using a Geoprobe® 7822DT dual-tube sampling system. Once the borehole was advanced to the desired depth, a temporary well was constructed of a 4-foot, 5-foot, or 10-foot section of 1-inch Schedule 40 polyvinyl chloride (PVC) screen with sufficient casing to reach the ground surface. New PVC pipe and screen were used at each location to avoid cross contamination between locations. The screen intervals for the temporary wells are provided in **Table 5-2**.

Groundwater samples were collected using either a peristaltic pump with PFAS-free HDPE tubing or a PFAS-free bailer, after a period of time following well installation to allow

groundwater to infiltrate and recharge the temporary well intervals. The temporary wells were purged at a rate determined in the field to reduce turbidity and draw down prior to sampling. Water quality parameters (e.g., temperature, specific conductance, pH, dissolved oxygen, and oxidation-reduction potential) were measured using a water quality meter and recorded on the field sampling form (**Appendix B2**) before each grab sample was collected in a separate container. Additionally, a subsample of each groundwater sample was collected in a separate container, and a shaker test was completed to identify if there was any foaming. No foaming was noted in any of the groundwater samples.

Each sample was collected in laboratory-supplied PFAS-free HDPE bottles and labeled using a PFAS-free marker or pen. Samples were packaged on ice and transported via Federal Express under standard chain-of-custody procedures to the laboratory and analyzed for PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15 (DoD 2020) in accordance with the UFP-QAPP Addendum (EA/Wood, 2021a).

Field duplicate samples were collected at a rate of 10% and analyzed for the same parameters as the accompanying samples. Matrix spikes/matrix spike duplicates were collected at a rate of 5% and analyzed for the same parameters as the accompanying samples. Six field blank samples were collected in accordance with the UFP-QAPP Addendum (EA/Wood, 2021a) and Supplemental UFP-QAPP Addendum (EA/Wood, 2022). In instances when non-dedicated sampling equipment was used, such as a peristaltic pump, one equipment black per day was collected and analyzed for the same parameters as the groundwater samples. A temperature blank was placed in each cooler for use in confirming that samples were preserved at or below 6°C during shipment.

Following well surveying (described below in **Section 5.5**), temporary wells were abandoned in accordance with the UFP-QAPP Addendum (EA/Wood, 2021a) by removing the PVC and backfilling the hole with bentonite chips.

5.4 SYNOPTIC WATER LEVEL MEASUREMENTS

Synoptic groundwater gauging events were performed on 11 August 2021 during the initial SI field event and on 22 April 2022 during the supplemental SI field event. Groundwater elevation measurements were collected from the temporary monitoring wells installed during each field event. Water level measurements were taken from the survey mark on the northern side of the well casing. Groundwater elevation data are provided in **Table 5-3**. The data from the initial SI sampling event indicated overall shallow groundwater flow to the southeast, while the data from the supplemental SI sampling event indicated overall groundwater flow to the northeast. Groundwater flow contour maps are provided as **Figure 2-4** and **Figure 2-5**.

5.5 SURVEYING

The northern side of each new temporary well casing was surveyed using RTK Global Positioning System network with solutions provided by the Louisiana State University Center for Geomatics Real Time Network. Positions were collected in the applicable Universal Transverse Mercator zone projection with World Geodetic System 1984 datum (horizontal) and North

American Vertical Datum 1988 (vertical). Surveying data were collected on 12 August 2021 and 21 April 2022 and are provided in **Appendix B3**.

5.6 INVESTIGATION-DERIVED WASTE

As of the date of this report, the disposal of PFAS investigation-derived waste (IDW) is not regulated federally. IDW generated during the SI is considered non-hazardous waste and was managed in accordance with the UFP-QAPP Addendum (EA/Wood, 2021a).

Soil IDW (i.e., soil cuttings) generated during the SI activities were placed in 5-gallon buckets, labeled, and placed inside the Hammond AASF #1 hazmat shed at the Facility. The soil IDW was not sampled and assumes the characteristics of the associated soil samples collected from that source location.

Liquid IDW (i.e., purge water, development water, and decontamination fluids) generated during the SI activities were placed separately in 5-gallon buckets, labeled, and placed inside the Hammond AASF #1 hazmat shed at the Facility. The liquid IDW was not sampled and assumes the characteristics of the associated soil or groundwater samples collected from that source location.

Solid and liquid IDW will be transferred to DOT-approved 55-gallon steel drums prior to disposal. The solid and liquid IDW will be disposed of via a Resource Conservation and Recovery Act Subtitle C landfill. The IDW disposal is being managed by EA as a separate task under the same contract. Specifics on the disposal of solid and liquid IDW will be addressed in an IDW Disposal Memorandum.

Other solids such as spent personal protective equipment, plastic sheeting, tubing, rope, unused monitoring well construction materials, and other environmental media generated during the field activities were disposed of off-site as municipal waste.

5.7 LABORATORY ANALYTICAL METHODS

Samples were analyzed by LC/MS/MS, compliant with QSM Version 5.3 Table B-15, at Eurofins in Lancaster, Pennsylvania, a DoD Environmental Laboratory Accreditation Program and National Environmental Laboratory Accreditation Program-certified laboratory.

Soil samples were also analyzed for TOC using USEPA Method 9060A, pH by USEPA Method 9045D, and grain size using ASTM Method D-422.

5.8 DEVIATIONS FROM THE SI UFP-QAPP ADDENDUM AND SUPPLEMENTAL UFP-QAPP ADDENDUM

Deviations from the UFP-QAPP Addendum (EA/Wood, 2021a) and Supplemental UFP-QAPP Addendum (EA/Wood, 2022) occurred based on conditions encountered during field activities. These deviations were discussed between EA Engineering, Science, and Technology, Inc., PBC, WSP, the ARNG, and/or USACE, as applicable, and are noted below:

- Boring location AOI02-03 encountered refusal approximately 2 feet bgs, both in the original drilling location and in numerous off-set locations. A subsequent review of historical aerial images revealed that a large structure was previously located in this area, and therefore the refusal encountered was likely the remaining concrete slab. The former structure was large enough that to offset beyond the footprint of the slab would require drilling in an area that would not capture potential PFAS releases near the intended location and would be beyond the 100-foot radius around the original location that was cleared for utilities. Because of the encountered refusal only one soil sample was collected at this location.

- At location AOI01-02, apparent groundwater was observed during drilling and a temporary monitoring well was subsequently installed; however, the well remained dry for the duration of the SI field efforts. Therefore, a groundwater sample was not collected from this location.

- Soil samples were to be placed into one 4-ounce glass container (% moisture analysis) and two 4.5-ounce plastic containers (one for a PFAS field screen, and one for PFAS analysis). Four of the 18 soil samples inadvertently were placed into glass containers only. The glass container lids contained a Teflon liner, a potential PFAS source for cross-contamination, and certain PFAS compounds have the capacity to sorb, at varying degrees, to glass surfaces. Following several discussions with the laboratory, ARNG and USACE, the collective decision was to proceed with the analysis. EA/WSP issued a Non-Conformance Report (**Appendix B4**) to the USACE on 25 August 2021. The analytical results from the SI revealed that all soil PFAS analytical results, including those analyzed from plastic and glass containers, were either not detected or were detected at very low concentrations. Therefore, the non-conformance did not have an obvious impact on the soil sample results.

- Three surface soil samples were collected at intervals from 0 to 4 feet bgs rather than 0 to 2 feet bgs for which the residential scenario is applied. Because these samples were collected as surface soil samples and the bulk of the sample likely was obtained between 0 and 2 feet bgs, the results from these samples were compared to the residential scenario for direct ingestion of contaminated soil.

- One temporary monitoring well screen installed was a 4-foot section due to shallow groundwater encountered, while certain other monitoring well screens installed were 10-foot sections due to perceived low-yielding groundwater formations encountered.

Table 5-1. Site Inspection Samples by Medium
Hammond AASF #1, Louisiana
Site Inspection Report

Sample Identification	Sample Collection Date	Sample Depth (feet bgs)	PFAS[1]	TOC[2]	pH[3]	Grain Size[4]	Comments
Soil Samples							
AOI01-01-SB-(0-4)	10 August 2021	0-4	X	X	X	X	
AOI01-01-SB-(4-5)	10 August 2021	4-5	X				
AOI01-01-SB-(8-9)	10 August 2021	8-9	X				
AOI01-02-SB-(0-4)	10 August 2021	0-4	X				
AOI01-02-SB-(7-8)	10 August 2021	7-8	X				
AOI01-02-SB-(16-17)	10 August 2021	16-17	X				
AOI02-03-SB-(0-1)	10 August 2021	0-1	X				
AOI02-04-SB-(0-2)	09 August 2021	0-2	X	X	X	X	
AOI02-04-SB-(5-6)	10 August 2021	5-6	X				
AOI02-04-SB-(11-12)	10 August 2021	11-12	X				
AOI02-05-SB-(0-2)	10 August 2021	0-2	X				
AOI02-05-SB-(10-12)	10 August 2021	10-12	X				
AOI02-05-SB-(18-20)	10 August 2021	18-20	X				MS/MSD
AOI02-06-SB-(0-4)	11 August 2021	0-4	X				
AOI02-06-SB-(10-12)	11 August 2021	10-12	X				
AOI02-06-SB-(20-22)	11 August 2021	20-22	X				
ASSF-01-SB-(0-2)	09 August 2021	0-2	X				
AASF-01-SB-(2-4)	09 August 2021	2-4	X				
DUP01-SB	10 August 2021	11-12	X				AOI02-04-SB-(11-12)
DUP02-SB	10 August 2021	7-8	X				AOI01-02-SB-(7-8)
FD	11 August 2021	0-4		X	X		AOI02-06-SB-(0-4)
AOI01-07-SB-0-2	19 April 2022	0-2	X				MS/MSD
AOI01-07-SB-13-15	19 April 2022	13-15	X				
AOI01-07-SB-26-27	19 April 2022	26-27	X				
AOI01-08-SB-0-2	20 April 2022	0-2	X				
AOI01-08-SB-11-12	20 April 2022	11-12	X				
AOI01-08-SB-22-23	20 April 2022	22-23	X				
AOI02-09-SB-0-2	19 April 2022	0-2	X				
AOI02-09-SB-8-10	19 April 2022	8-10	X				
AOI02-09-SB-20-21	19 April 2022	20-21	X				
AOI02-10-SB-0-2	21 April 2022	0-2	X				

Sample Identification	Sample Collection Date	Sample Depth (feet bgs)	PFAS[1]	TOC[2]	pH[3]	Grain Size[4]	Comments
Soil Samples (continued)							
AOI02-10-SB-4-5	20 April 2022	4-5	X				
AOI02-10-SB-7-8	20 April 2022	7-8	X				
FD-01-041922	19 April 2022	0-2	X				AOI02-09-SB-0-2
FD-03-042122	21 April 2022	0-2	X				AOI02-10-SB-0-2
Groundwater Samples							
AOI01-01-GW	13 August 2021		X				
AOI02-04-GW	12 August 2021		X				
AOI02-05-GW	13 August 2021		X				MS/MSD
AOI02-06-GW	12 August 2021		X				
AASF-01-GW	12 August 2021		X				
DUP01-GW	13 August 2021		X				AOI02-05-GW
AOI01-07-GW	20 April 2022		X				MS/MSD
AOI01-08-GW	22 April 2022		X				
AOI02-09-GW	20 April 2022		X				
AOI02-10-GW	21 April 2022		X				
AASF-02-GW	26 April 2022		X				
FD-02-042022	20 April 2022		X				AOI01-GW-07
Blank Samples							
HAASF-EB-01	09 August 2021		X				
HAASF-EB-02	10 August 2021		X				
HAASF-EB-03	11 August 2021		X				
HAASF-EB-04	12 August 2021		X				
HAASF-EB-05	13 August 2021		X				
HAASF-FB-01	12 August 2021		X				
HAASF-FB-02	13 August 2021		X				
HAASF-EB-01	20 April 2022		X				
HAASF2-EB-03	21 April 2022		X				
HAASF2-EB-04	21 April 2022		X				
HAASF2-EB-05	22 April 2022		X				
HAASF02-EB-06	26 April 2022		X				
HAASF2-FB-02	22 April 2022		X				
HAASF2-FB-03	22 April 2022		X				

Sample Identification	Sample Collection Date	Sample Depth (feet bgs)	PFAS[1]	TOC[2]	pH[3]	Grain Size[4]	Comments
Blank Samples (continued)							
HAASF2-FB-04	22 April 2022		X				
HAASF2-FB-05	26 April 2022		X				

Notes:
1. PFAS were analyzed by LC/MS/MS compliant with QSM 5.3 Table B-15.
2. TOC was analyzed using USEPA Method 9060A.
3. pH was analyzed using USEPA Method 9045D.
4. Grain size was analyzed using ASTM International Method D422

Abbreviations:
AASF = Army Aviation Support Facility
AOI = Area of Interest
bgs = below ground surface
DUP = duplicate
EB = equipment blank
FB = field blank
FD = field duplicate
GW = groundwater
HAASF = Hammond Army Aviation Support Facility
MS/MSD = matrix spike/ matrix spike duplicate
PFAS = per- and polyfluoroalkyl substances
SB = soil boring
TOC = total organic carbon
USEPA = United States Environmental Protection Agency

Table 5-2. Soil Boring Depths and Temporary Well Screen Intervals
Hammond AASF #1, Louisiana
Site Inspection Report

Area of Interest	Boring Location	Soil Boring Depth (feet bgs)	Temporary Well Screen Interval (feet bgs)
1	AOI01-01	16	6-16
	AOI01-02	20	10–20
	AOI01-07	32	26–31
	AOI01-08	28	22–27
2	AOI02-03	2	NA
	AOI02-04	12	2–12
	AOI02-05	20	10–20
	AOI02-06	22	12–22
	AOI02-09	28	20–25
	AOI02-10	12	7–12
Boundary	AASF-01	8.5	0–4
	AASF-02	32	27–32

Abbreviations:
bgs = below ground surface
NA = not applicable (well not installed)

Table 5-3. Groundwater Elevation
Hammond AASF #1, Louisiana
Site Inspection Report

Date	Monitoring Well ID	Top of Casing Elevation (feet NAVD88)	Depth to Water (feet btoc)	Depth to Water (feet bgs)	Groundwater Elevation (feet NAVD 88)
August 2021	AOI01-01	40.79	8.5	8.11	32.29
	AOI01-02	42.08	DRY	DRY	DRY
	AOI02-04	40.21	2.5	2.19	37.71
	AOI02-05	40.61	3.5	3.09	37.11
	AOI02-06	40.81	6.2	5.69	34.61
	AASF-01	41.48	3.1	2.42	38.38
April 2022	AOI01-07	46.21	10.91	10.90	35.30
	AOI01-08	43.33	8.98	6.15	35.35
	AOI02-09	39.61	5.68	5.67	33.93
	AOI02-10	42.11	5.35	3.04	36.76
	AASF-02	43.98	29.18	26.70	14.8

Abbreviations:
bgs = below ground surface
btoc = below top of casing
NAVD88 = North American Vertical Datum 1988

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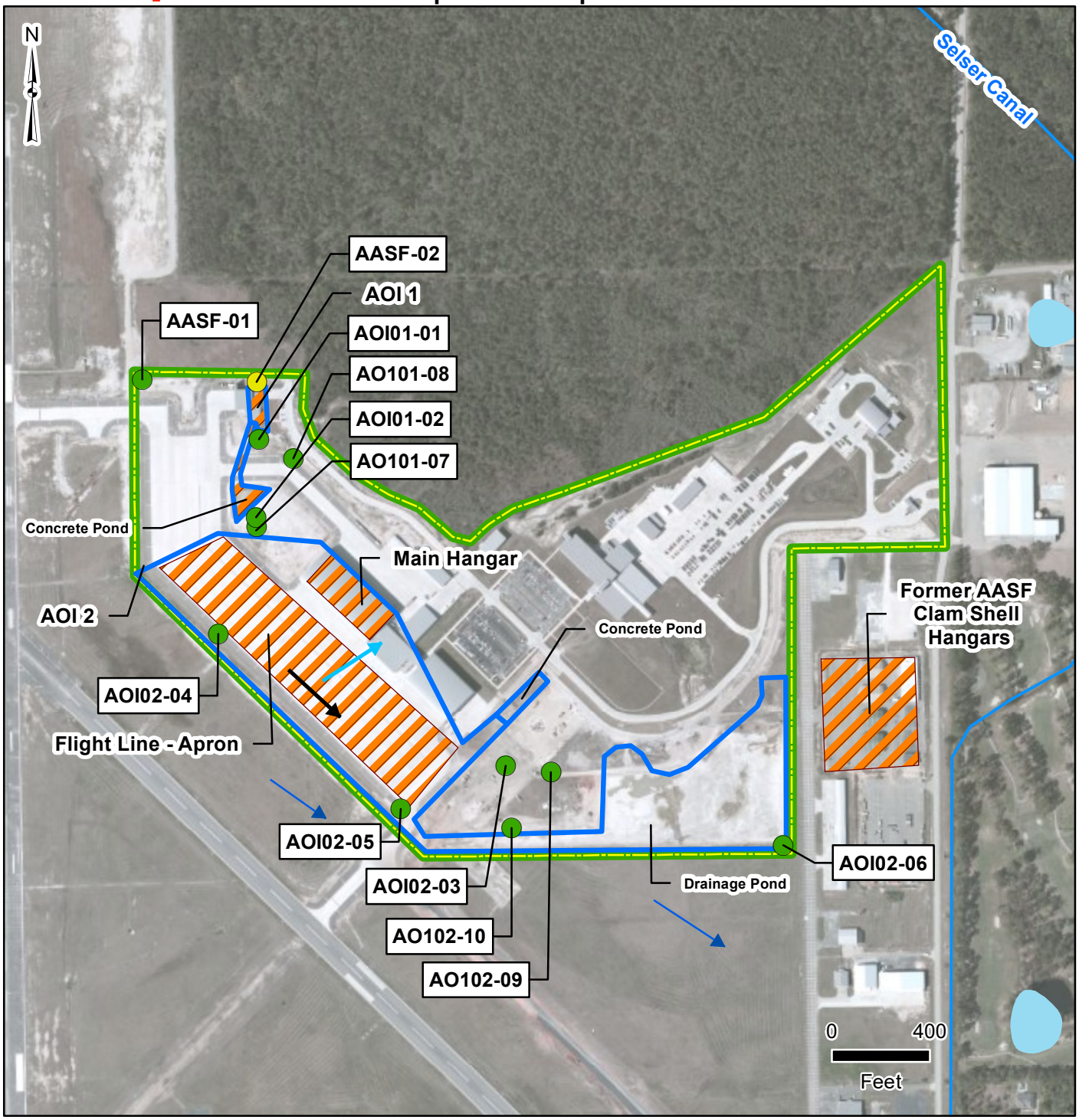
Figure 5-1
Site Inspection Sample Locations



Facility Data
- Area of Interest (AOI)
- Facility Boundary
- Potential PFAS Release Site

Sample Location
- Soil Boring and Temporary Well Location
- Temporary Monitoring Well

Hydrology/Hydrogeology
- Inferred Shallow Groundwater Flow Direction (based on April 2022 Site Inspection Event)
- Inferred Shallow Groundwater Flow Direction (based on August 2021 Site Inspection Event)
- Surface Water Flow Direction
- River/Stream
- Water Body

Data Sources:
ESRI 2020
AECOM 2020

Date:.....November 2022
Prepared By:.....WSP
Prepared For:.....USACE

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6. SITE INSPECTION RESULTS

This section presents the analytical results of the SI. The SLs used in this evaluation are presented in **Section 6.1**. A discussion of the results for each AOI is provided in **Sections 6.3 and 6.4**. **Table 6-2** through **Table 6-5** present results in soil or groundwater for the relevant compounds. Tables that contain all results are provided in **Appendix G**, and the laboratory reports are provided in **Appendix E**.

6.1 SCREENING LEVELS

The DoD has adopted a policy to retain facilities in the CERCLA process based on risk-based SLs for soil and groundwater, as described in the OSD memorandum (Assistant Secretary of Defense, 2022). The ARNG program under which this SI was performed follows this DoD policy. Should the maximum site concentration for sampled media exceed the SLs established in the OSD memorandum, the AOI will proceed to the next phase under CERCLA. The SLs established in the OSD memorandum apply to the five compounds presented on **Table 6-1**.

Table 6-1. Screening Levels for Soil and Groundwater

Analyte[2]	Residential Soil (0–2 feet bgs) (µg/kg)[1]	Industrial/Commercial Composite Worker Soil (2–15 feet bgs) (µg/kg)[1]	Tap Water (Groundwater) (ng/L)[1]
PFOA	19	250	6
PFOS	13	160	4
PFBS	1,900	25,000	601
PFHxS	130	1,600	39
PFNA	19	250	6

Notes:
1. Assistant Secretary of Defense, July 2022. Risk Based Screening Levels in Groundwater and Soil using United States Environmental Protection Agency's (USEPA's) Regional Screening Level Calculator. Hazard Quotient (HQ) = 0.1. May 2022.
2. Screening values for HFPO-DA were established after site inspection planning and execution and thus HFPO-DA is not included as an analyte. Future CERCLA phases will include HFPO-DA if warranted.

Abbreviations:
mg/kg = microgram(s) per kilogram
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
HFPO-DA hexafluoropropylene oxide dimer acid
ng/L = nanogram(s) per liter
PFBS = perfluorobutanesulfonic acid
PFHxS = perfluorohexanesulfonic acid
PFNA = perfluorononanoic acid
PFOA = perfluorooctanoic acid
PFOS = perfluorooctanesulfonic acid

The data in the subsequent sections are compared against the SLs presented in **Table 6-1**. The SLs for groundwater are based on direct ingestion. The SLs for soil are based on incidental ingestion and are applied to the depth intervals reasonably anticipated to be encountered by the receptors identified at the Facility: the residential scenario is applied to surface soil results (0 to 2 feet bgs) and the industrial/commercial worker scenario is applied to shallow subsurface soil

results (2 to 15 feet bgs). The SLs are not applied to deep subsurface soil results (>15 feet bgs) because 15 feet is the anticipated limit of construction activities.

6.2 SOIL PHYSICOCHEMICAL ANALYSES

To provide basic soil parameter information, soil samples were analyzed for TOC, pH, and grain size, which are important for evaluating transport through the soil medium. **Appendix G** contains the results of the TOC, pH, and grain size sampling. TOC in the samples collected at AOI 1 and AOI 2 were 7,800 and 520 milligrams per kilogram, respectively. The grain size results correlate with the silts, sands, and clays observed during drilling activities. Soil pH in the samples collected at AOI 1 and AOI 2 were 6.2 and 5.4 Standard Units.

The data collected in this investigation will be used in subsequent investigations, where appropriate, to assess fate and transport. According to the Interstate Technology Regulatory Council, important PFAS partitioning mechanisms include hydrophobic and lipophobic effects, electrostatic interactions, and interfacial behaviors. At relevant environmental pH values, certain PFAS are present as organic anions, and are therefore relatively mobile in groundwater (Xiao et al. 2015) but tend to associate with the organic carbon fraction that may be present in soil or sediment (Higgins and Luthy, 2006; Guelfo and Higgins, 2013). When sufficient organic carbon is present, organic carbon normalized distribution coefficients (K_{oc} values) can help in evaluating transport potential, although other geochemical factors (for example, pH and presence of polyvalent cations) may also affect PFAS sorption to solid phases (ITRC 2018).

6.3 AOI 1

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 1, which includes the C12 Hangar and downstream concrete-lined pond. The soil and groundwater results are summarized in **Table 6-2** through **Table 6-5**. Soil and groundwater results are presented on **Figures 6-1** through **Figure 6-7**.

6.3.1 AOI 1 Soil Analytical Results

Soil samples were collected from five boring locations associated with AOI 1 during the SI. **Figure 6-1** through **Figure 6-5** present the ranges of detections in soil. **Tables 6-2** through **Table 6-4** summarize the soil results.

Surface soil (0 to 2 feet bgs) was sampled from boring locations AOI01-01 (just south of the C12 Hangar), AOI01-02, AOI01-07 (southeast of the C12 Hangar), AOI01-08 (just south of the concrete pond that receives drainage from the C12 Hangar area), and ASSF-01 (presumed upgradient location to assess potential soil impacts from the 2015 aircraft crash site). Soil was also sampled from shallow subsurface soil (2 to 15 feet bgs) from boring locations AOI01-01, AOI01-02, AOI01-07, AOI01-08, and AASF-01, and deep subsurface soil intervals (16 to 27 feet bgs) from boring locations AOI01-02, AOI01-07, and AOI01-08. PFOA was detected in surface soil in one of five locations (AOI01-01) at a concentration (0.28 J micrograms per kilogram [µg/kg]) below its SL. PFOS, PFBS, PFHxS, and PFNA were not detected in the surface soil samples.

PFOA, PFOS, PFBS, PFHxS, and PFNA were not detected in the shallow or deep subsurface soil samples.

6.3.2 AOI 1 Groundwater Analytical Results

Groundwater samples were collected from five temporary wells associated with AOI 1 during the SI. **Figure 6-6** and **Figure 6-7** present the ranges of detections in groundwater. **Table 6-5** summarizes the groundwater results.

Groundwater was sampled from temporary monitoring well locations AOI01-01 (just south of the C12 Hangar), AOI01-07 and AOI01-08 (just south of the concrete pond that receives drainage from the C12 Hangar area), and AASF-01 and AASF-02 (presumed upgradient locations to assess potential impacts to groundwater from the 2015 aircraft crash site). PFOA was detected in AOI01-01 and AASF-01 at concentrations of 31 nanograms per liter (ng/L) and 17 ng/L, respectively, exceeding its SL. PFOS was detected in AASF-01 (2.1 J ng/L) and AASF-02 (0.85 ng/L) below the SL, while PFNA was detected in AASF-01 at a concentration (3.6 ng/L) below the SL. PFBS and PFHxS were not detected in the groundwater samples.

6.3.3 Conclusions

Based on the results of the SI, PFOA was detected in soil at AOI01-01 at a concentration below its SL and in groundwater at AOI01-01 and AASF-01 at concentrations above its SL. Based on the exceedance of the SLs in groundwater, further evaluation at AOI 1 is warranted.

6.4 AOI 2

This section presents the analytical results for soil and groundwater in comparison to SLs for AOI 2, which includes the Main Hangar, the associated Flight Line-Apron, a downstream concrete-lined pond, and a retention basin. The soil and groundwater results are summarized in **Table 6-2** through **Table 6-5**. Soil and groundwater results are presented on **Figure 6-1** through **Figure 6-7**.

6.4.1 AOI 2 Soil Analytical Results

Soil samples were collected from four boring locations associated with AOI 2 during the SI. **Figure 6-1** through **Figure 6-5** present the ranges of detections in soil. **Tables 6-2** through **Table 6-4** summarize the soil results.

Surface soil (0 to 2 feet bgs) was sampled from boring locations AOI02-03 (southeast of the main hangar and flight line-apron), AOI02-04 (southwest of the flight line-apron), AOI02-05 (southwest of the flight line-apron), AOI0-06 (near the southeast facility boundary), AOI02-09 (southeast of the main hangar and flight line-apron), and AOI02-10 (southeast of the main hangar and flight line-apron). Soil was also sampled from shallow subsurface soil (5 to 12 feet bgs) and deep subsurface soil intervals (7 to 21 feet bgs) from boring locations AOI02-04, AOI02-05, AOI0-06, AOI02-09, and AOI02-10.

PFOA, PFOS, PFBS, PFHxS, and PFNA were not detected in any of the soil samples.

6.4.2 AOI 2 Groundwater Analytical Results

Groundwater samples were collected from five temporary wells associated with AOI 2 during the SI. **Figures 6-6** and **Figure 6-7** present the ranges of detections in groundwater. **Table 6-5** summarizes the groundwater results.

Groundwater was sampled from temporary monitoring well locations AOI02-04 (southwest of the flight line-apron), AOI02-05 (southwest of the flight line-apron), AOI0-06 (near the southeast facility boundary), AOI02-09 (southeast of the main hangar and flight line-apron), and AOI02-10 (southeast of the main hangar and flight line-apron). PFOA, PFOS, PFBS, and PFHxS were detected at concentrations below their respective SLs. PFNA was not detected in the groundwater samples. PFOA was detected in one of the five wells sampled (AOI02-05) at a concentration of 1.1 J ng/L; PFOS was detected in one of the five wells (AOI02-05) at a concentration of 0.94 J ng/L [1.4 J ng/L in the duplicate sample]; PFBS was detected in two of the five wells sampled (AOI02-05 and AOI02-10) at concentrations ranging from 0.48 J ng/L to 2.6 J ng/L; and PFHxS was detected in one of the five wells sampled (AOI02-05) at a concentration of 0.81 J ng/L [0.79 J ng/L in the duplicate sample].

6.4.3 Conclusions

Based on the results of the SI, PFOA, PFOS, PFBS, PFHxS, and PFNA were not detected in soil. PFOA, PFOS, PFBS, and PFHxS were detected in groundwater at concentrations below their respective SLs. Based on the lack of exceedances of the SLs in soil and groundwater, further evaluation at AOI 2 is not warranted.

Table 6-2
PFOA, PFOS, PFBS, PFNA, and PFHxS Results in Surface Soil
Site Inspection Report
Hammond AASF #1, Louisiana

	Area of Interest	AOI01										AOI02											
	Location ID	AOI01-01		AOI01-02		AOI01-07		AOI01-08		AASF-01		AOI02-03		AOI02-04		AOI02-05		AOI02-06		AOI02-09		AOI02-10	
	Sample Name	AOI01-01-SB-(0-4)		AOI01-02-SB-(0-4)		AOI01-07-SB-02		AOI01-08-SB-0-2		AASF-01-SB-(0-2)		AOI02-03-SB-(0-1)		AOI02-04-SB-(0-2)		AOI02-05-SB-(0-2)		AOI02-06-SB-(0-4)		AOI02-09-SB-0-2		AOI02-10-SB-0-2	
	Parent Sample ID																						
	Depth	0-4 ft*		0-4 ft*		0-2 ft		0-2 ft		0-2 ft		0-1 ft		0-2 ft		0-2 ft		0-4 ft*		0-2 ft		0-2 ft	
	Sample Date	8/11/2021		8/10/2021		4/19/2022		4/20/2022		8/9/2021		8/13/2021		8/9/2021		8/10/2021		8/11/2021		4/19/2022		4/21/2022	
Analyte	**OSD Screening Level[1,2]**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Soil, PFAS[3] (µg/kg)																							
PFBS	1900	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
PFOA	19	0.28	J	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
PFNA	19	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
PFHxS	130	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	
PFOS	13	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	

Gray Fill — Detected concentration exceeded OSD Screening Level

References

1. Assistant Secretary of Defense. July 2022. *Risk Based Screening Levels in Groundwater and Soil using United States Environmental Protection Agency's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1* . May 2022.

2. The Screening Levels for soil are based on a residential scenario for direct ingestion of contaminated soil.

3. PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15

* Surface soil sample interval extended beyond 2 ft bgs

Interpreted Qualifiers

J = Estimated concentration

Chemical Abbreviations

PFBS	Perfluorobutanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PFNA	Perfluorononanoic acid
PFOS	Perfluorooctanesulfonic acid
PFOA	Perfluorooctanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
ft	Feet
LOD	Limit of Detection
ND	analyte not detected above the LOD (LOD values are presented in Appendix G)
OSD	Office of the Secretary of Defense
PFAS	per- and polyfluoralkyl substances
QSM	Quality Systems Manual
Qual	interpreted qualifier
µg/kg	micrograms/kilogram

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Table 6-3
PFOA, PFOS, PFBS, PFNA, and PFHxS Detections in Shallow Subsurface Soil
Site Inspection Report
Hammond AASF #1, Louisiana

Area of Interest		AOI01													
Location ID		AOI01-01		AOI01-01		AOI01-02		AOI01-02		AOI01-07		AOI01-08		AASF-01	
Sample Name		AOI01-01-SB-(4-5)		AOI01-01-SB-(8-9)		AOI01-02-SB-(7-8)		DUP02-SB		AOI01-07-SB-13-15		AOI01-08-SB-11-12		AASF-01-SB-(2-4)	
Parent Sample ID								AOI01-02-SB-(7-8)							
Depth		4-5 ft		8-9 ft		7-8 ft		7-8 ft		13-15 ft		11-12 ft		2-4 ft	
Sample Date		8/10/2021		8/10/2021		8/10/2021		8/10/2021		4/19/2022		4/20/2022		8/9/2021	
Analyte	**OSD Screening Level[1, 2]**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Soil, PFAS[3] (µg/kg)															
PFBS	25000	ND		ND		ND		ND		ND		ND		ND	
PFOA	250	ND		ND		ND		ND		ND		ND		ND	
PFNA	250	ND		ND		ND		ND		ND		ND		ND	
PFHxS	1600	ND		ND		ND		ND		ND		ND		ND	
PFOS	1600	ND		ND		ND		ND		ND		ND		ND	

Gray Fill — Detected concentration exceeded OSD Screening Level

References

1. Assistant Secretary of Defense. July 2022. *Risk Based Screening Levels in Groundwater and Soil using United States Environmental Protection Agency's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1* . May 2022.

2. The SL for soil is based on incidental ingestion of soil industrial/commercial worker >2 ft.

3. PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15

Interpreted Qualifiers

J = Estimated concentration

Chemical Abbreviations

PFBS	Perfluorobutanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PFNA	Perfluorononanoic acid
PFOS	Perfluorooctanesulfonic acid
PFOA	Perfluorooctanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
ft	Feet
LOD	Limit of Detection
ND	analyte not detected above the LOD (LOD values are presented in Appendix G)
OSD	Office of the Secretary of Defense
PFAS	per- and polyfluoralkyl substances
QSM	Quality Systems Manual
Qual	interpreted qualifier
µg/kg	micrograms/kilogram

Table 6-3
PFOA, PFOS, PFBS, PFNA, and PFHxS Detections in Shallow Subsurface Soil
Site Inspection Report
Hammond AASF #1, Louisiana

	Area of Interest	AOI02															
	Location ID	AOI02-04		AOI02-04		AOI02-04		AOI02-05		AOI02-06		AOI02-09		AOI02-10		AOI02-10	
	Sample Name	AOI02-04-SB-(5-6)		AOI02-04-SB-(11-12)		DUP01-SB		AOI02-05-SB-(10-12)		AOI02-06-SB-(10-12)		AOI02-09-SB-8-10		AOI02-10-SB-4-5		AOI02-10-SB-7-8	
	Parent Sample ID					AOI02-04-SB-(11-12)											
	Depth	5-6 ft		11-12 ft		11-12 ft		10-12 ft		10-12 ft		8-10 ft		4-5 ft		7-8 ft	
	Sample Date	8/10/2021		8/10/2021		8/10/2021		8/10/2021		8/11/2021		4/19/2022		4/20/2022		4/20/2022	
Analyte	**OSD Screening Level[1, 2]**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Soil, PFAS[3] (µg/kg)																	
PFBS	25000	ND		ND		ND		ND		ND		ND		ND		ND	
PFOA	250	ND		ND		ND		ND		ND		ND		ND		ND	
PFNA	250	ND		ND		ND		ND		ND		ND		ND		ND	
PFHxS	1600	ND		ND		ND		ND		ND		ND		ND		ND	
PFOS	1600	ND		ND		ND		ND		ND		ND		ND		ND	

Gray Fill — Detected concentration exceeded OSD Screening Level

References

1. Assistant Secretary of Defense. July 2022. *Risk Based Screening Levels in Groundwater and Soil using United States Environmental Protection Agency's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1* . May 2022.

2. The SL for soil is based on incidental ingestion of soil industrial/commercial worker >2 ft.

3. PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15

Interpreted Qualifiers

J = Estimated concentration

Chemical Abbreviations

PFBS	Perfluorobutanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PFNA	Perfluorononanoic acid
PFOS	Perfluorooctanesulfonic acid
PFOA	Perfluorooctanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
ft	Feet
LOD	Limit of Detection
ND	analyte not detected above the LOD (LOD values are presented in Appendix G)
OSD	Office of the Secretary of Defense
PFAS	per- and polyfluoralkyl substances
QSM	Quality Systems Manual
Qual	interpreted qualifier
µg/kg	micrograms/kilogram

Table 6-4
PFOA, PFOS, PFBS, PFNA, and PFHxS Detections in Deep Subsurface Soil
Site Inspection Report
Hammond AASF #1, Louisiana

Area of Interest		AOI 1						AOI 2					
Location ID		AOI01-02		AOI01-07		AOI01-08		AOI02-05		AOI02-06		AOI02-09	
Sample Name		AOI01-02-SB-(16-17)		AOI01-07-SB-26-27		AOI01-08-SB-22-23		AOI02-05-SB-(18-20)		AOI02-05-SB-(20-22)		AOI02-09-SB-20-21	
Parent Sample ID													
Depth		16-17 ft		26-27 ft		22-23 ft		18-20 ft		20-22 ft		20-21 ft	
Sample Date		8/10/2021		4/19/2022		4/20/2022		8/10/2021		8/11/2021		4/19/2022	
Analyte	**OSD Screening Level[1]**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Soil, PFAS[2] (µg/kg)													
PFBS	--	ND		ND		ND		ND		ND		ND	
PFOA	--	ND		ND		ND		ND		ND		ND	
PFNA	--	ND		ND		ND		ND		ND		ND	
PFHxS	--	ND		ND		ND		ND		ND		ND	
PFOS	--	ND		ND		ND		ND		ND		ND	

References

1. The industrial/commercial worker screening levels are valid between 2-15 ft, no comparison is made beyond 15 ft.

2. PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15

Chemical Abbreviations

PFBS	Perfluorobutanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PFNA	Perfluorononanoic acid
PFOS	Perfluorooctanesulfonic acid
PFOA	Perfluorooctanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
ft	Feet
LOD	Limit of Detection
ND	analyte not detected above the LOD (LOD values are presented in Appendix G)
OSD	Office of the Secretary of Defense
PFAS	per- and polyfluoralkyl substances
QSM	Quality Systems Manual
Qual	interpreted qualifier
µg/kg	micrograms/kilogram

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Table 6-5
PFAS Detections in Groundwater
Site Inspection Report
Hammond AASF #1, Louisiana

Area of Interest		AOI 1										AOI 2											
Location ID		AOI01-01		AOI01-07		AOI01-08		AASF-01		AASF-02		AOI02-04		AOI02-05		AOI02-05		AOI02-06		AOI02-09		AOI02-10	
Sample Name		AOI01-01-GW		AOI01-07-GW		AOI01-08-GW		AASF-01-GW		AASF-02-GW		AOI02-04-GW		AOI02-05-GW		DUP01-GW		AOI02-06-GW		AOI02-09-GW		AOI02-10-GW	
Parent Sample ID																AOI02-05-GW							
Sample Date		8/13/2021		4/20/2022		4/20/2022		8/12/2021		4/26/2022		8/12/2021		8/13/2021		8/13/2021		8/12/2021		4/20/2022		4/21/2022	
Analyte	**OSD Screening Level[1]**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Groundwater, PFAS[2] (ng/L)																							
PFOA	6	31		ND		ND		17		ND		ND		1.1	J	1.1	J	ND		ND		ND	
PFNA	6	ND		ND		ND		3.6		ND		ND		ND		ND		ND		ND		ND	
PFBS	601	ND		ND		ND		ND		ND		ND		0.48	J	ND		ND		ND		2.6	J
PFHxS	39	ND		ND		ND		ND		ND		ND		0.81	J	0.79	J	ND		ND		ND	
PFOS	4	ND		ND		ND		2.1	J	0.85	J	ND		0.94	J	1.4	J	ND		ND		ND	

Notes
Grey Fill — Detected concentration exceeded OSD Screening Levels

References
1. Assistant Secretary of Defense. July 2022. *Risk Based Screening Levels in Groundwater and Soil using United States Environmental Protection Agency's Regional Screening Level Calculator. Hazard Quotient (HQ)=0.1* . May 2022.
2. PFAS by LC/MS/MS compliant with QSM Version 5.3 Table B-15

Interpreted Qualifiers
J = Estimated concentration

Chemical Abbreviations

PFBS	Perfluorobutanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PFNA	Perfluorononanoic acid
PFOS	Perfluorooctanesulfonic acid
PFOA	Perfluorooctanoic acid

Acronyms and Abbreviations

AASF	Army Aviation Support Facility
AOI	Area of Interest
DL	Detection limit
HQ	Hazard Quotient
ID	identification
LCMSMS	liquid chromotagraphy with tandem mass spectometry
LOD	limit of detection
ND	analyte not detected above the LOD (LOD values are presented in Appendix G)
OSD	Office of the Secretary of Defense
PFAS	per- and polyfluoralkyl substances
QSM	Quality Systems Manual
Qual	interpreted qualifier
USEPA	United States Environmental Agency
ng/l	nanograms/liter

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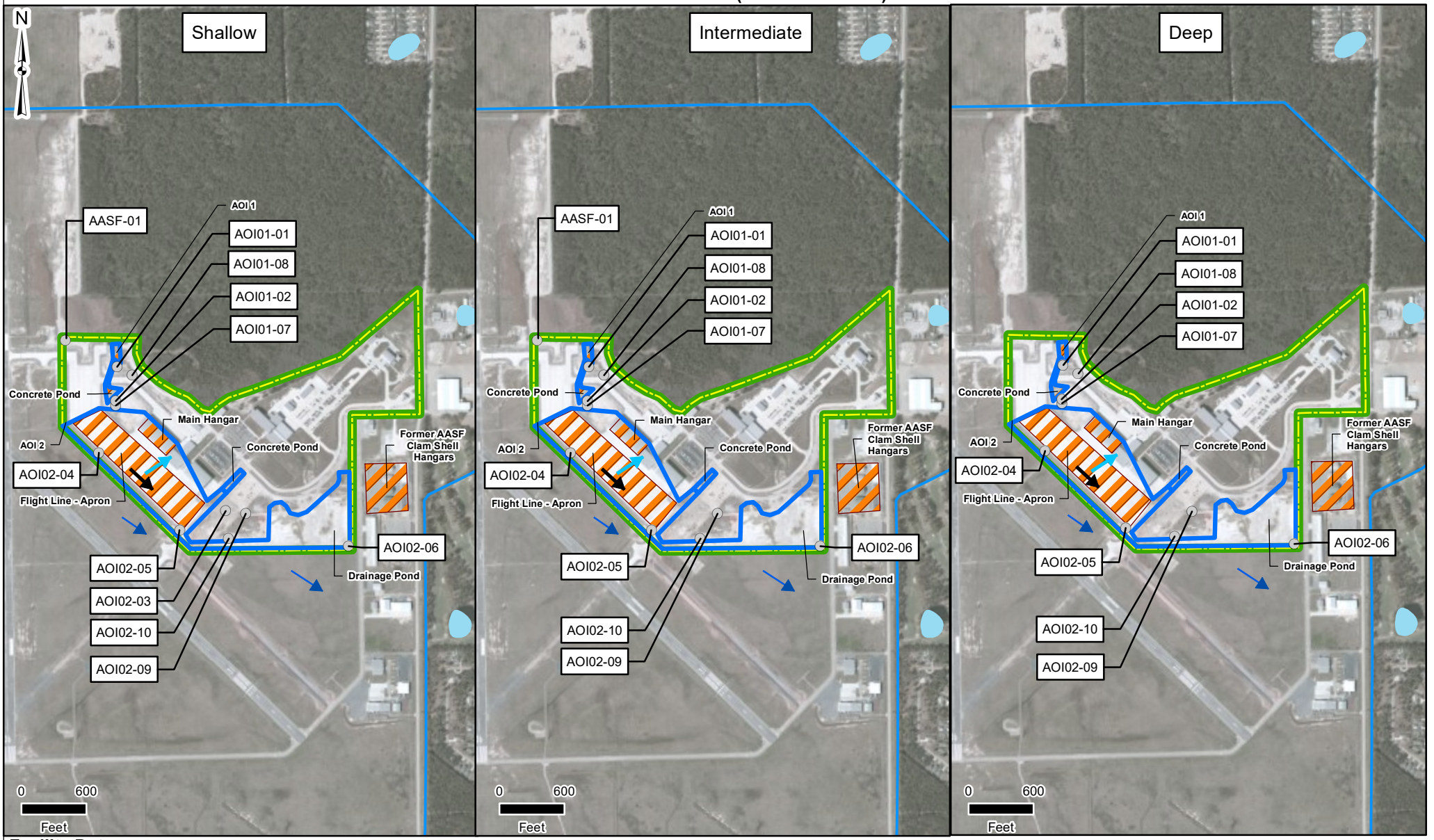
Figure 6-1
PFOS Detections in Soil (AOI 1 and AOI 2)



Facility Data
- Area of Interest (AOI)
- Facility Boundary
- Potential PFAS Release Site

Hydrology/Hydrogeology
- Inferred Shallow Groundwater Flow Direction (based on April 2022 Site Inspection Event)
- Inferred Shallow Groundwater Flow Direction (based on August 2021 Site Inspection Event)
- Inferred Shallow Groundwater Flow Direction (based on Preliminary Assessment)
- Surface Water Flow Direction
- River/Stream
- Water Body

Data Sources:
ESRI 2020
AECOM 2020

Date:.....November 2022
Prepared By:.....WSP
Prepared For:.....USACE

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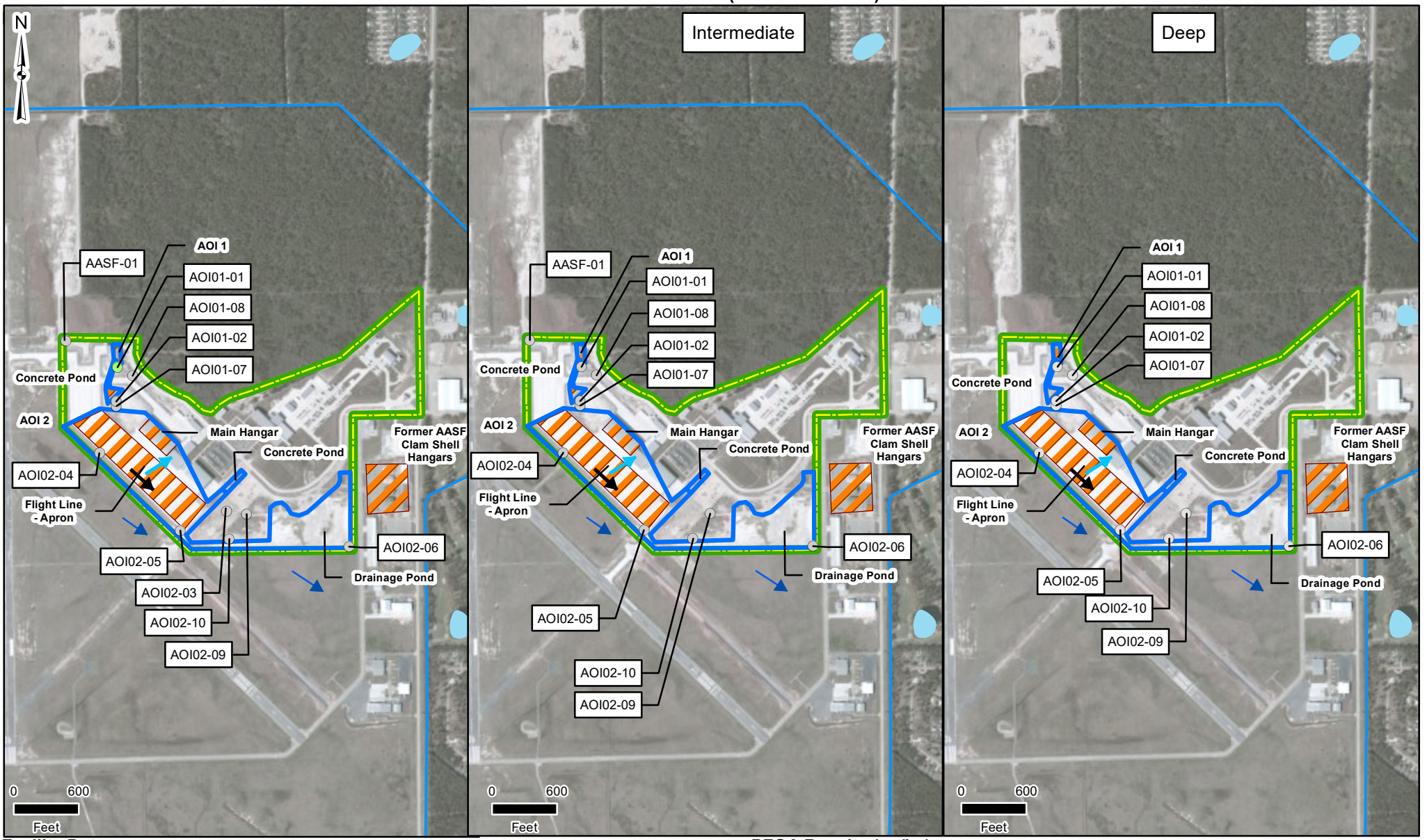
Army National Guard Site Inspections
Site Inspection Report
Army Aviation Support Facility #1
Hammond, Louisiana

Figure 6-2
PFOA Detections in Soil (AOI 1 and AOI 2)



Facility Data
- Area of Interest (AOI)
- Facility Boundary
- Potential PFAS Release Site

Hydrology/Hydrogeology
- Inferred Shallow Groundwater Flow Direction (based on April 2022 Site Inspection Event)
- Inferred Shallow Groundwater Flow Direction (based on August 2021 Site Inspection Event)
- Surface Water Flow Direction
- River/Stream
- Water Body

PFOA Results (µg/kg)
- ND (Non-Detect)
- >ND - 19
- >19 - 250
- >250 - 2,500
- >2,500

NOTES:
PFOA = perfluorooctanoic acid
ND = Non-Detect
(µ g/Kg) = Microgram(s) per Kilogram
Exceedances of the OSD SL are depicted with a yellow halo.

Data Sources:
ESRI 2020
AECOM 2020

Date:.....November 2022
Prepared By:.....WSP
Prepared For:.....USACE

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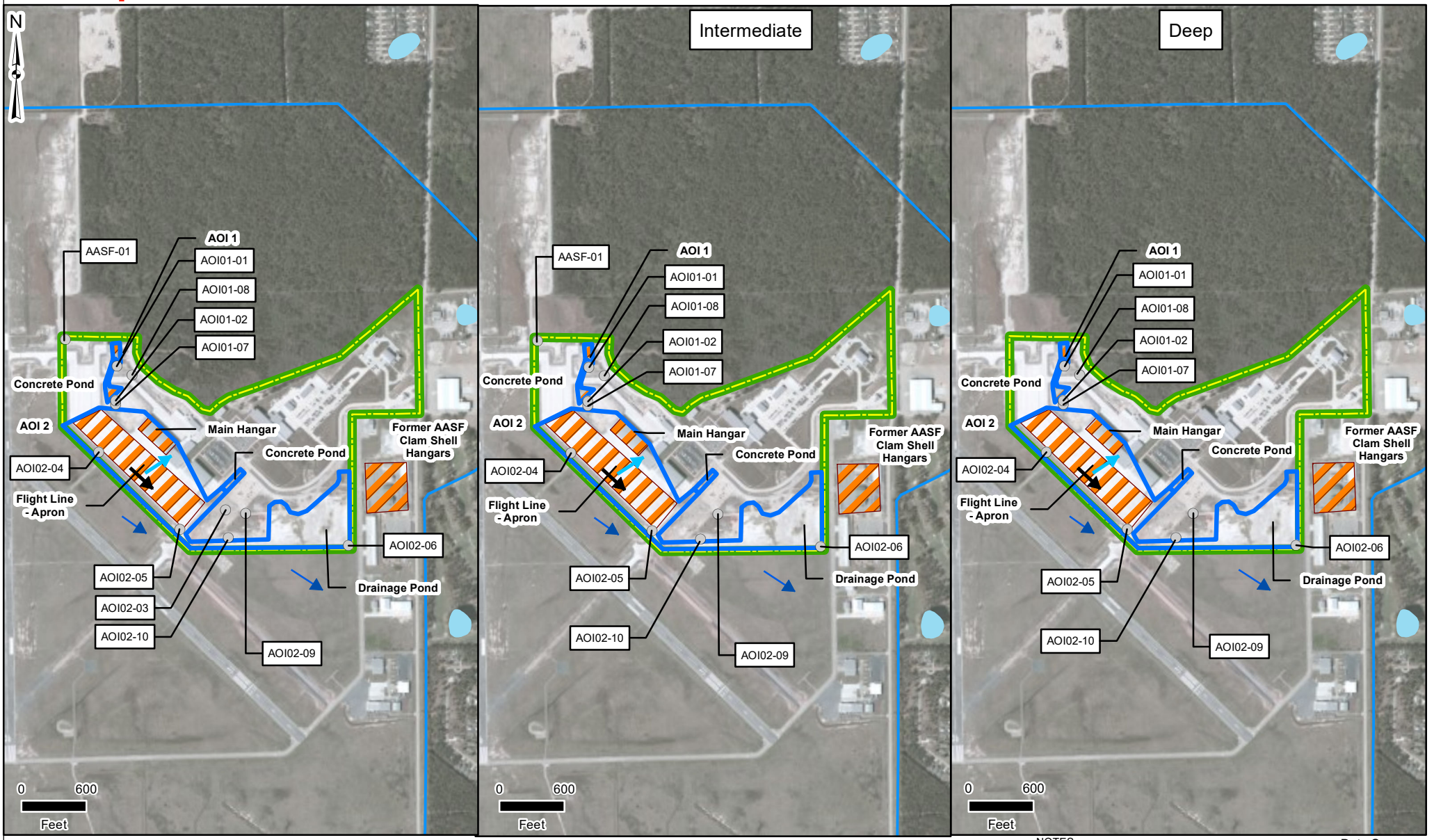
Army National Guard Site Inspections
Site Inspection Report
Army Aviation Support Facility #1
Hammond, Louisiana

Figure 6-3
PFBS Detections in Soil (AOI 1 and AOI 2)



Facility Data
- Area of Interest (AOI)
- Facility Boundary
- Potential PFAS Release Site

Hydrology/Hydrogeology
- Inferred Shallow Groundwater Flow Direction (based on April 2022 Site Inspection Event)
- Inferred Shallow Groundwater Flow Direction (based on August 2021 Site Inspection Event)
- Surface Water Flow Direction
- River/Stream
- Water Body

PFBS Results (µg/kg)
- ND (Non-Detect)
- >ND - 10
- >10 - 1,900
- >1,900 - 25,000
- >25,000

NOTES:
PFBS = perfluorobutanesulfonic acid
ND = Non-Detect
(µg/Kg) = Microgram(s) per Kilogram
Exceedances of the OSD SL are depicted with a yellow halo.

Data Sources:
ESRI 2020
AECOM 2020

Date:.....October 2022
Prepared By:.....WSP
Prepared For:.....USACE

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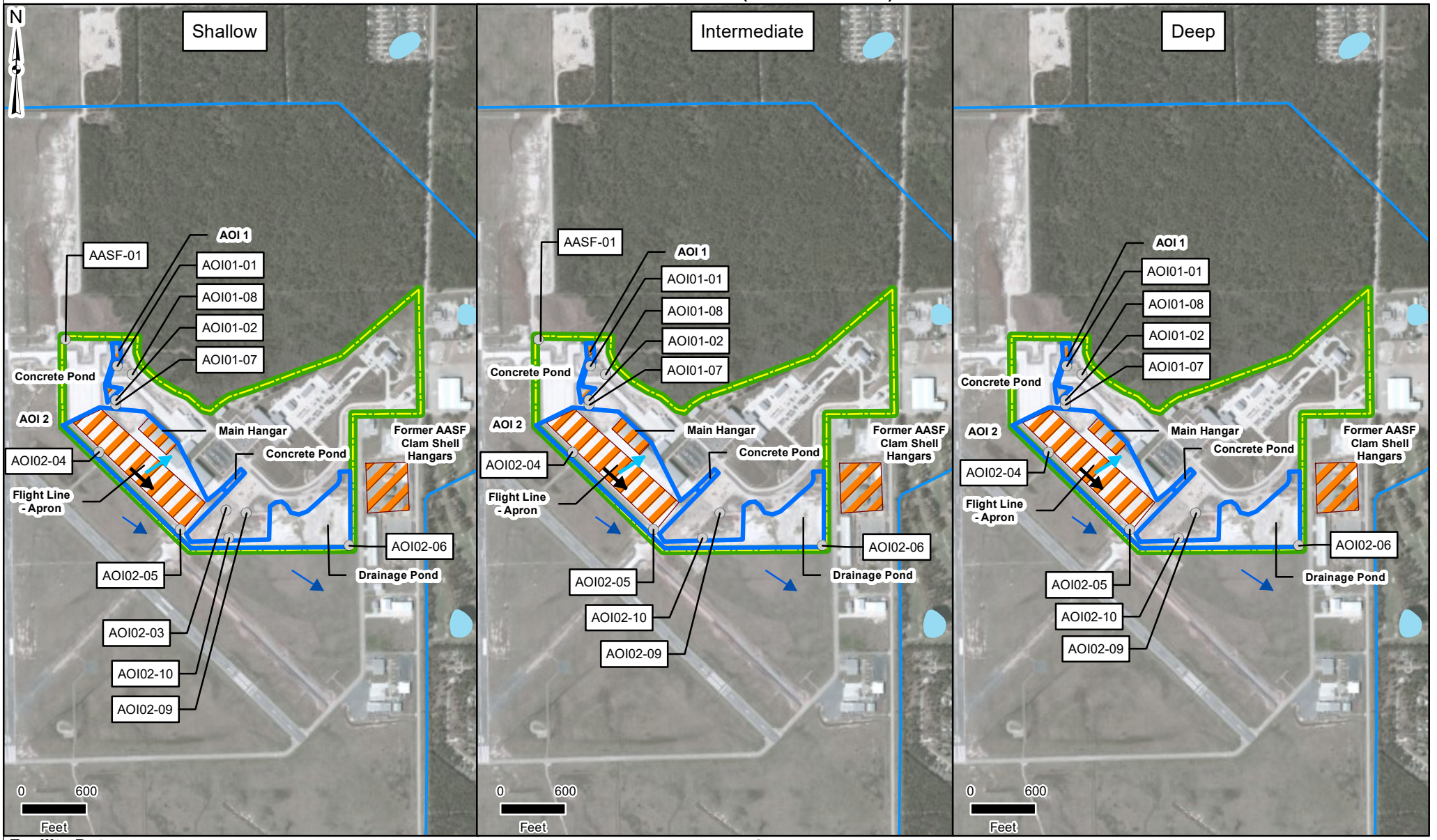
Army National Guard Site Inspections
Site Inspection Report
Army Aviation Support Facility #1
Hammond, Louisiana

Figure 6-4
PFHxS Detections in Soil (AOI 1 and AOI 2)



Facility Data
- Area of Interest (AOI)
- Facility Boundary
- Potential PFAS Release Site

Hydrology/Hydrogeology
- Inferred Shallow Groundwater Flow Direction (based on April 2022 Site Inspection Event)
- Inferred Shallow Groundwater Flow Direction (based on August 2021 Site Inspection Event)
- Surface Water Flow Direction
- River/Stream
- Water Body

PFHxS Results (µg/kg)
- ND (Non-Detect)
- >ND - 13
- >13 -130
- >130 - 1,600
- >1,600

NOTES:
PFHxS = perfluorohexanesulfonic acid
ND = Non-Detect
(µg /Kg) = Microgram(s) per Kilogram
Exceedances of the OSD SL are depicted with a yellow halo.

Data Sources:
ESRI 2020
AECOM 2020

Date:.....November 2022
Prepared By:.....WSP
Prepared For:.....USACE

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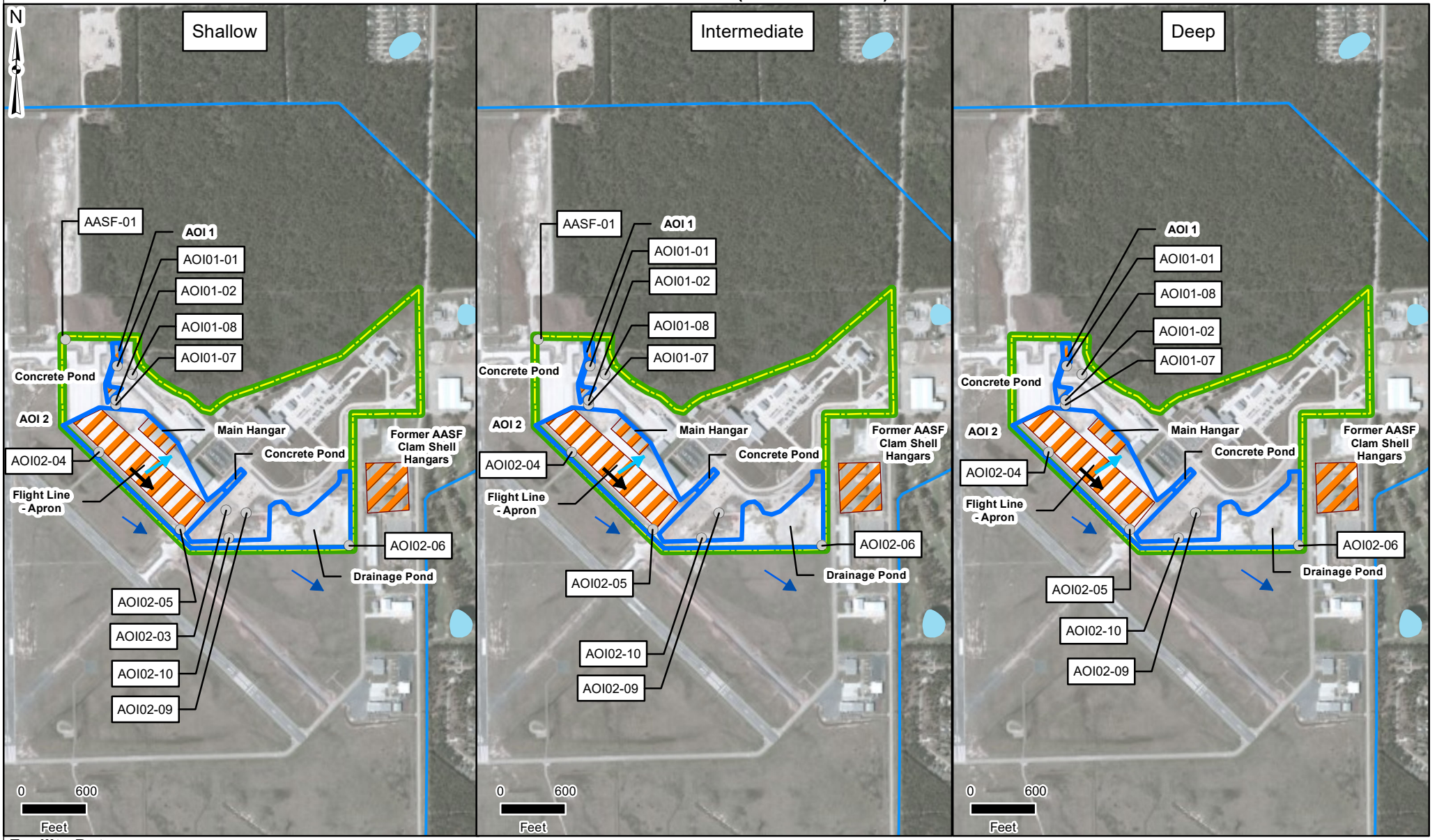
Army National Guard Site Inspections
Site Inspection Report
Army Aviation Support Facility #1
Hammond, Louisiana

Figure 6-5
PFNA Detections in Soil (AOI 1 and AOI 2)



Facility Data
- Area of Interest (AOI)
- Facility Boundary
- Potential PFAS Release Site

Hydrology/Hydrogeology
- Inferred Shallow Groundwater Flow Direction (based on April 2022 Site Inspection Event)
- Inferred Shallow Groundwater Flow Direction (based on August 2021 Site Inspection Event)
- Surface Water Flow Direction
- River/Stream
- Water Body

PFNA Results (µg/kg)
- ND (Non-Detect)
- >ND - 19
- >19 - 250
- >250 - 2,500
- >2,500

NOTES:
PFNA = perfluorononanoic acid
ND = Non-Detect
(µg/Kg) = Microgram(s) per Kilogram
Exceedances of the OSD SL are depicted with a yellow halo.

Data Sources:
ESRI 2020
AECOM 2020

Date:.....November 2022
Prepared By:.....WSP
Prepared For:.....USACE

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Army National Guard Site Inspections
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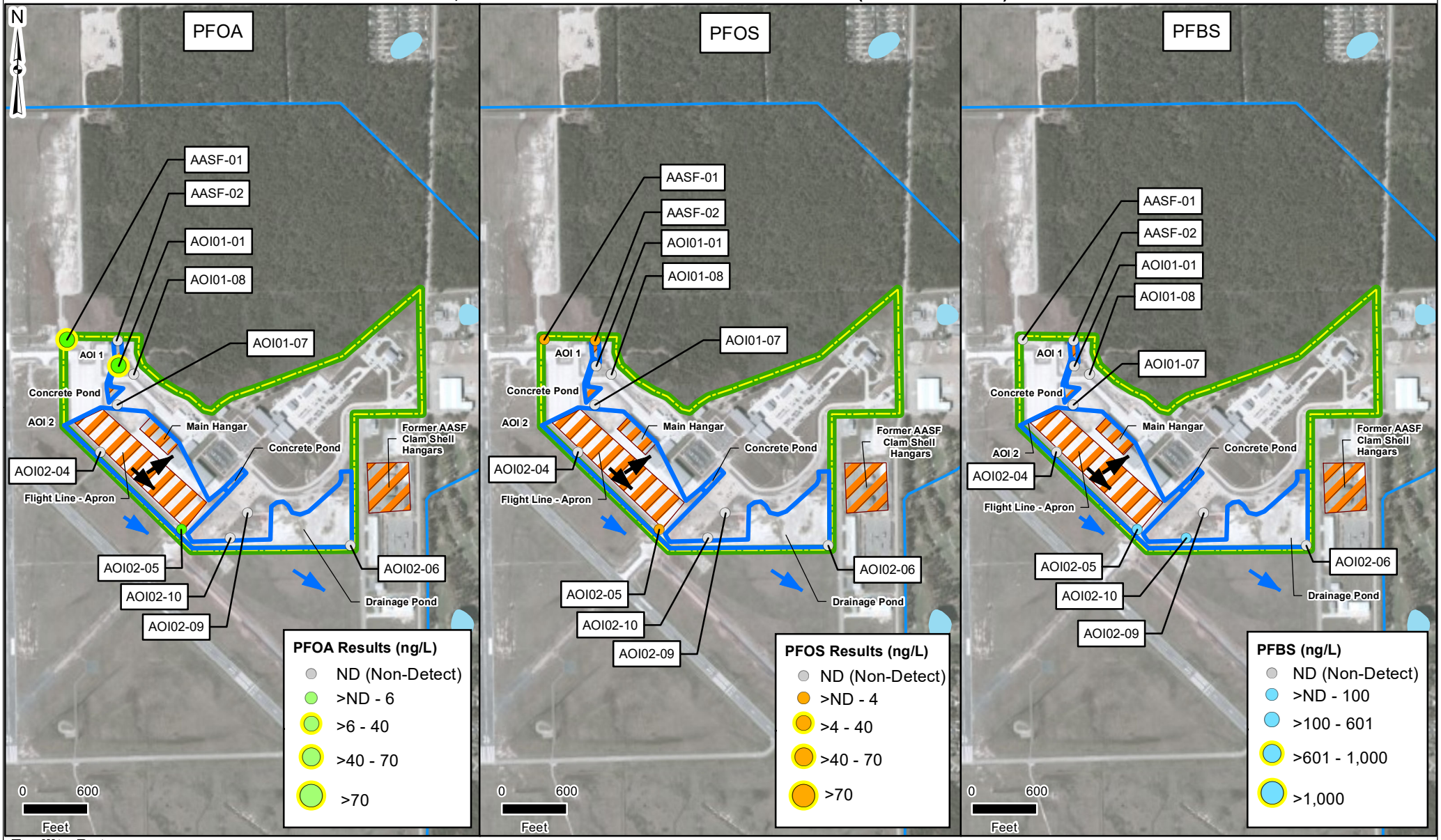
Army Aviation Support Facility #1
Hammond, Louisiana

Figure 6-6
PFOA, PFOS and PFBS Detections in Groundwater (AOI 1 and AOI 2)



Facility Data
- Area of Interest (AOI)
- Facility Boundary
- Potential PFAS Release Site

Hydrology/Hydrogeology
- Inferred Shallow Groundwater Flow Direction (based on April 2022 Site Inspection Event)
- Inferred Shallow Groundwater Flow Direction (based on August 2021 Site Inspection Event)
- Surface Water Flow Direction
- River/Stream
- Water Body

NOTES:
PFOS = perfluorooctanesulfonic acid
PFOA = perfluorooctanoic acid
PFBS = perfluorobutanesulfonic acid
ND = Non-Detect
ng/L = nanogram(s) per liter
Exceedances of the OSD SL are depicted with a yellow halo.

Data Sources:
ESRI 2020
AECOM 2020

Date:.....November 2022
Prepared By:.....WSP
Prepared For:.....USACE

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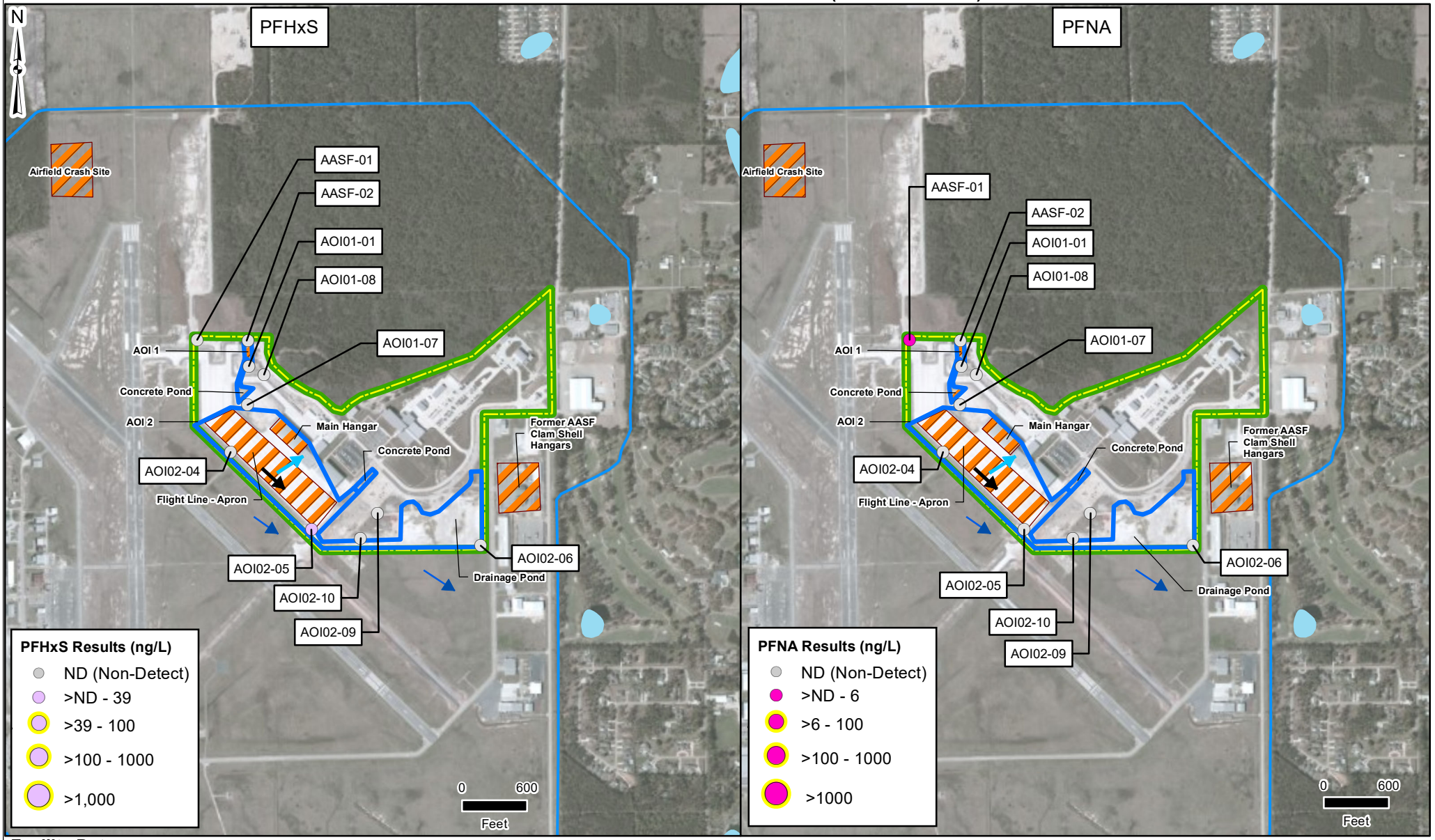
Army National Guard Site Inspections
Site Inspection Report
Army Aviation Support Facility #1
Hammond, Louisiana

Figure 6-7
PFHxS and PFNA Detections in Groundwater (AOI 1 and AOI 2)



Facility Data
- Area of Interest (AOI)
- Facility Boundary
- Potential PFAS Release Site

Hydrology/Hydrogeology
- Inferred Shallow Groundwater Flow Direction (based on April 2022 Site Inspection Event)
- Inferred Shallow Groundwater Flow Direction (based on August 2021 Site Inspection Event)
- Surface Water Flow Direction
- River/Stream
- Water Body

NOTES:
PFHxS = Perfluorohexanesulfonic acid
PFNA = Perfluorononanoic acid
ND = Non-Detect
ng/L = nanogram(s) per liter
Exceedances of the OSD SL are depicted with a yellow halo

Data Sources:
ESRI 2020
AECOM 2020

Date:.....November 2022
Prepared By:.....WSP
Prepared For:.....USACE

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7. EXPOSURE PATHWAYS

The conceptual site model (CSM) for each AOI, revised based on the SI findings, is presented on **Figure 7-1** and **Figure 7-2**. Please note that while the CSM discussion assists in determining if a receptor may be impacted, the decision to move from SI to RI or interim action is determined based upon exceedances of the SLs for the relevant compounds and whether the release is more than likely attributable to the DoD. A CSM presents the current understanding of the site conditions with respect to known and suspected sources, potential transport mechanisms and migration pathways, and potentially exposed human receptors. A human exposure pathway is considered potentially complete when the following conditions are present:

1. Contaminant source;
2. Environmental fate and transport;
3. Exposure point;
4. Exposure route; and
5. Potentially exposed populations.

If any of these elements are missing, the pathway is incomplete. The CSM figures use an empty circle symbol to represent an incomplete exposure pathway. Areas with no identified complete pathway generally warrant no further action. However, the pathway is considered potentially complete if the relevant compounds are detected, in which case the CSM figure uses a half-filled circle symbol to represent a potentially complete exposure pathway. Additionally, a completely filled circle symbol is used to indicate when a potentially complete exposure pathway has detections of the relevant compounds above the SLs. Areas with an identified potentially complete pathway and a complete pathway may warrant further investigation. Although the CSMs indicate whether potentially complete exposure pathways may exist, the recommendation for future study in a RI or no action at this time is based on the comparison of the SI analytical results for the relevant compounds to the SLs.

In general, the potential routes of exposure to the relevant compounds are ingestion and inhalation. Human exposure via the dermal contact pathway may occur, and current risk practice suggests it is an insignificant pathway compared to ingestion; however, exposure data for dermal pathways are sparse and continue to be the subject of toxicological study. The receptors evaluated are consistent with those listed in USEPA guidance for risk screening (USEPA, 2001). Receptors at the Facility include site workers (e.g., staff and visiting soldiers), construction workers, visitors/trespassers, and off-facility residents.

7.1 SOIL EXPOSURE PATHWAY

The SI results in soil were used to determine whether a potentially complete pathway exists between the source and potential receptors at each AOI based on the aforementioned criteria.

7.1.1 AOI 1 – C12 Hangar

AOI 1 houses C12 aircraft maintenance operations. According to the PA report, the C12 Hangar was constructed between 2007 and 2009 and is charged with a Chemguard AFFF suppression deluge system with a 441-gallon-capacity tank. The system is manually operated by a hose inside the hangar, and according to the ARNG the AFFF storage tank is located in an adjacent room (#15) within the C12 Hangar (AECOM, 2020). The ARNG also indicated a 36-gallon fire suppression tank is located against a wall within the hangar.

PFOA was detected in surface soil at AOI 1 at a concentration below the SL. Site workers, construction workers, and trespassers/visitors could contact constituents in soil via incidental ingestion and inhalation of dust. Therefore, the surface soil exposure pathway for site workers, construction workers, and trespassers/recreational users are potentially complete. PFOS, PFOA, PFBS, PFHxS, and PFNA were not detected in subsurface soil at AOI 1; therefore, exposure pathways pertaining to subsurface soil are incomplete. The CSM for AOI 1 is presented on **Figure 7-1**.

7.1.2 AOI 2 – Main Hangar and Flight Line-Apron

AOI 2 houses helicopter maintenance operations. According to the PA report, the Main Hangar was constructed between 2007 and 2009 and is charged with a Buckeye 3% AFFF concentrate suppression deluge system fed by a 999-gallon tank (AECOM, 2020).

PFOS, PFOA, PFBS, PFHxS, and PFNA were not detected in soil at AOI 2. Therefore, the soil exposure pathways for incidental ingestion and inhalation of dust by site workers, construction workers, and trespasser/recreational users pertaining to AOI 2 soil are incomplete. The CSM for AOI 2 is presented in **Figure 7-2**.

7.2 GROUNDWATER EXPOSURE PATHWAY

The SI results in groundwater were used to determine whether a potentially complete pathway exists between the source and potential receptors at each AOI based on the aforementioned criteria.

7.2.1 AOI 1 – C2 Hangar

Samples of groundwater were collected from temporary monitoring wells in AOI 1. PFOA was detected above its SL in two groundwater samples collected at AOI 1, while PFOS and PFNA were detected below their respective SLs. PFBS and PFHxS were not detected in the groundwater samples. Depths to water measured at AOI 1 during the SI ranged from approximately 2 to 29 feet bgs; therefore, the exposure pathway for ingestion of groundwater is potentially complete for construction workers involved in ground disturbing activities that extend to the water table. No potable wells are located within the Facility boundary. The Facility receives potable water from a municipal source. Three industrial use wells are located within the Facility. Therefore, potential exposure to site workers to constituents in groundwater is limited to incidental ingestions through non-potable (industrial) use on the Facility. It is unlikely trespassers/recreational users would ingest the non-potable (industrial) water, and therefore the

exposure pathway for these receptors is incomplete. Due to the presence of public water system wells and domestic supply wells within a 4-mile radius of the Facility, the exposure pathway for groundwater to off-facility residents via ingestion of groundwater is considered potentially complete. The CSM for AOI 1 is presented on **Figure 7-1**.

7.2.2 AOI 2 – Main Hangar and Flight Line-Apron

Samples of groundwater were collected from temporary monitoring wells in AOI 2. PFOA, PFOS, PFBS, and PFHxS were detected at concentrations below their respective SLs in groundwater at AOI 2, while PFNA was not detected. Depths to water measured at AOI 2 during the SI ranged from approximately 2 to 8 feet bgs; therefore, the exposure pathway for ingestion of groundwater is potentially complete for construction workers involved in ground disturbing activities that extend to the water table. No potable wells are located within the Facility boundary. The Facility receives potable water from a municipal source. Three industrial use wells are located within the Facility. Therefore, potential exposure to site workers to constituents in groundwater is limited to incidental ingestions through non-potable (industrial) use on the Facility. It is unlikely trespassers/recreational users would ingest the non-potable (industrial) water, and therefore the exposure pathway for these receptors is incomplete. Due to the presence of public water system wells and domestic supply wells within a 4-mile radius of the Facility, the exposure pathway for groundwater to off-facility residents via ingestion of groundwater is considered potentially complete. The CSM for AOI 2 is presented in **Figure 7-2**.

7.3 SURFACE WATER AND SEDIMENT EXPOSURE PATHWAY

A retention basin that is located near the southeast corner of the Facility receives stormwater flow from the areas of AOI 1 and AOI 2. The basin has no outlet and is not known to overflow. SI results in soil and groundwater from AOI 1 and AOI 2, in combination with knowledge of the fate and transport properties of PFAS, were used to determine whether a potentially complete pathway exists between the source and potential receptors.

PFAS are water soluble and can migrate readily from soil to surface water via leaching and run-off. Because PFOA was detected in soil and groundwater at AOI 1 and PFOA, PFOS, PFHxS, PFNA, and PFBS were detected in groundwater at AOI 2, it is possible that those compounds may have migrated from soil and/or groundwater to the retention basin in the southeast corner of the Facility via groundwater discharge or overland flow. Therefore, the surface water and sediment ingestion exposure pathway for site workers, construction workers, or trespassers is considered potentially complete.

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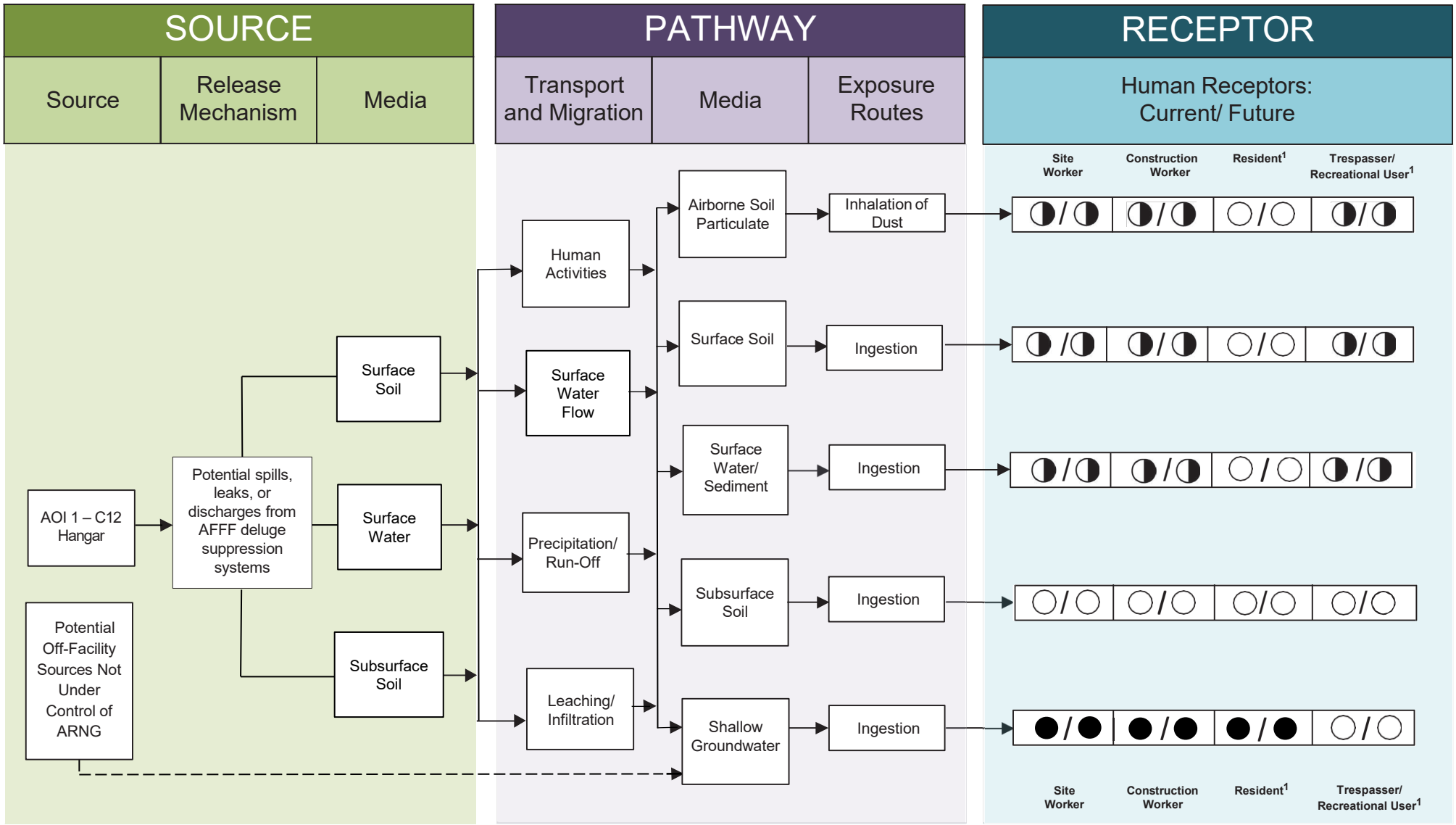

NOTES

1. The resident and recreational users refer to off-site receptors.

LEGEND

- Flow-Chart Continues
- Partial / Possible Flow
- Incomplete Pathway
- Potentially Complete Pathway with no Exceedances of Screening Levels
- Potentially Complete Pathway with Exceedance of Screening Levels

Figure 7-1
Conceptual Site Model, AOI 1
Hammond AASF #1

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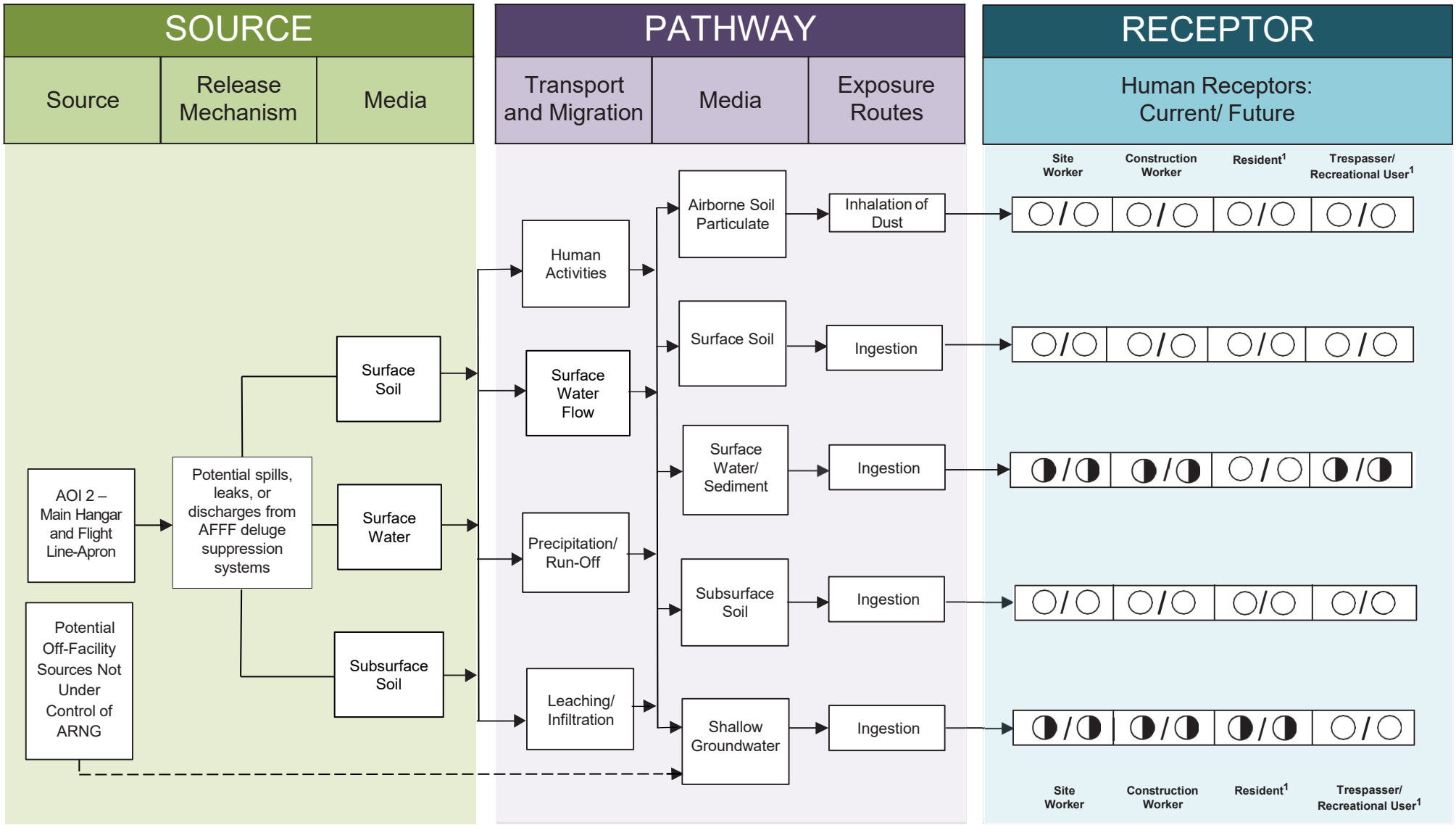

NOTES

1. The resident and recreational users refer to off-site receptors.

LEGEND

- Flow-Chart Continues
- Partial / Possible Flow
- Incomplete Pathway
- Potentially Complete Pathway with no Exceedances of Screening Levels
- Potentially Complete Pathway with Exceedance of Screening Levels

Figure 7-2
Conceptual Site Model, AOI 2
Hammond AASF #1

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8. SUMMARY AND OUTCOME

This section summarizes the SI activities and findings. The most significant findings are summarized in this section and are reproduced directly or abstracted from information contained in this report. The outcome provides general and comparative interpretations of the findings relative to the SLs.

8.1 SI ACTIVITIES

The SI field activities at the Facility were conducted from 9 through 13 August 2021, and from 19 through 22 and on 26 April 2022. The SI field activities included soil and groundwater sampling. Field activities were conducted in accordance with the UFP-QAPP Addendum (EA/Wood, 2021) and Supplemental UFP-QAPP Addendum (EA/Wood, 2022), except as previously noted in **Section 5.8**.

To fulfill the project DQOs set forth in the approved UFP-QAPP Addendum (EA/Wood, 2021), samples were collected and analyzed for a subset of 18 compounds by LC/MS/MS compliant with QSM 5.3 Table B-15 (DoD, 2020) as follows.

- Thirty (30) soil samples from eleven (11) locations (soil borings);
- Ten (10) grab groundwater samples from temporary well locations; and
- Twenty-three (23) QA/QC samples.

An SI is conducted when the PA determines an AOI exists based on probable use, storage, and/or disposal of PFAS-containing materials. The SI includes multi-media sampling at AOIs to determine whether or not a release has occurred. The SI may conclude further investigation is warranted, a removal action is required to address immediate threats, or no further action is required. Additionally, the CSMs were refined to assess whether a potentially complete pathway exists between the source and potential receptors at the AOIs, as described in **Section 7**.

8.2 OUTCOME

Based on the results of this SI, further evaluation in the form of an RI is warranted for AOI 1. Further evaluation is not warranted at AOI 2 (see **Table 8-1**). Based on the CSMs developed and revised based on the SI findings, there is potential for exposure to receptors from AOI 1 and AOI 2 from Facility sources resulting from historical DoD activities. There is potential that an off-site upgradient source has impacted groundwater migrating onto the Facility; although the synoptic groundwater elevations indicate variable flow direction between sampling events.

Sample analytical concentrations collected during the SI were compared against the project SLs in soil and groundwater, as described in **Table 6-1**. The SI results relative to the SLs are summarized below for each AOI.

At AOI 1:

- PFOA was detected in surface soil at a concentration below the SL. PFOS, PFBS, PFHxS, and PFNA were not detected in soil at AOI 1.

PFOA was detected above its SL in two groundwater samples collected at AOI 1; PFOS and PFNA were detected in one groundwater sample at concentrations below their respective SLs; and PFBS and PFHxS were not detected.
At AOI 2:

- PFOS, PFOA, PFBS, PFHxS, and PFNA were not detected in soil at AOI 2.

PFOS, PFOA, PFBS, and PFHxS were detected at concentrations below their respective SLs in groundwater at AOI 2, while PFNA was not detected.

Of the six PFAS compounds presented in the 6 July 2022 OSD memorandum, HFPO-DA (commonly referred to as GenX) was not included as an analyte at the time of this SI, as screening values were established after SI planning and execution. However, ARNG will add HFPO-DA to the list of constituents sampled during the next phase of CERCLA if warranted.

Table 8.1 summarizes the SI results for soil and groundwater used to determine if an AOI should be considered for further investigation under CERCLA and undergo an RI.

Table 8-1. Summary of Site Inspection Findings and Recommendations
Hammond AASF #1, Louisiana
Site Inspection Report

AOI	Potential Release Area	Soil – Source Area	Groundwater – Source Area	Groundwater – Facility Boundary	Future Action
1	C12 Hangar	◐	●	●	Proceed to RI
2	Main Hangar and Flight Line-Apron	○	◐	◐	NFA

Legend:
● = detected; exceedance of screening levels.
◐ = detected; no exceedance of screening levels.
○ = not detected.

Abbreviations:
AOI = area of interest
NFA = no further action
RI = remedial investigation

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9. REFERENCES

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