

SITE INSPECTION REPORT FOR PER- AND POLYFLUOROALKYL SUBSTANCES AT FORMER FORT CHAFFEE, ARKANSAS

Prepared for:



ODCS, G-9, ISE BRAC

**Final
January 2024**

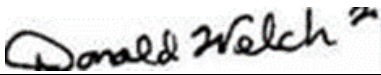
**SITE INSPECTION REPORT FOR PER- AND
POLYFLUOROALKYL SUBSTANCES AT
FORMER FORT CHAFFEE, ARKANSAS**

Final

Prepared for:
**ODCS, G-9, ISE BRAC
600 Army Pentagon
Washington, DC 20310**


Kaleb Brumbaugh
AAR – Project Manager

Prepared by:
**ARS Aleut Remediation
663 Emory Valley Rd
Oak Ridge, TN 37830**

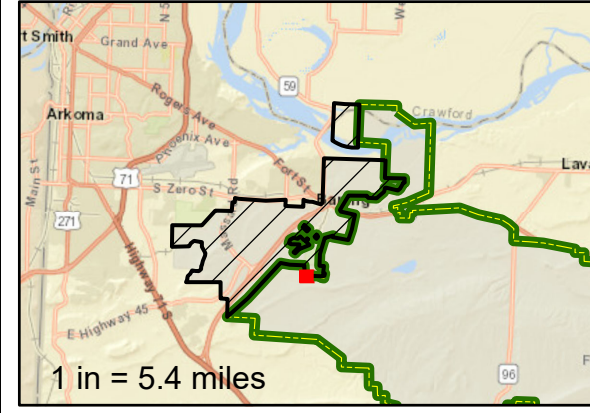
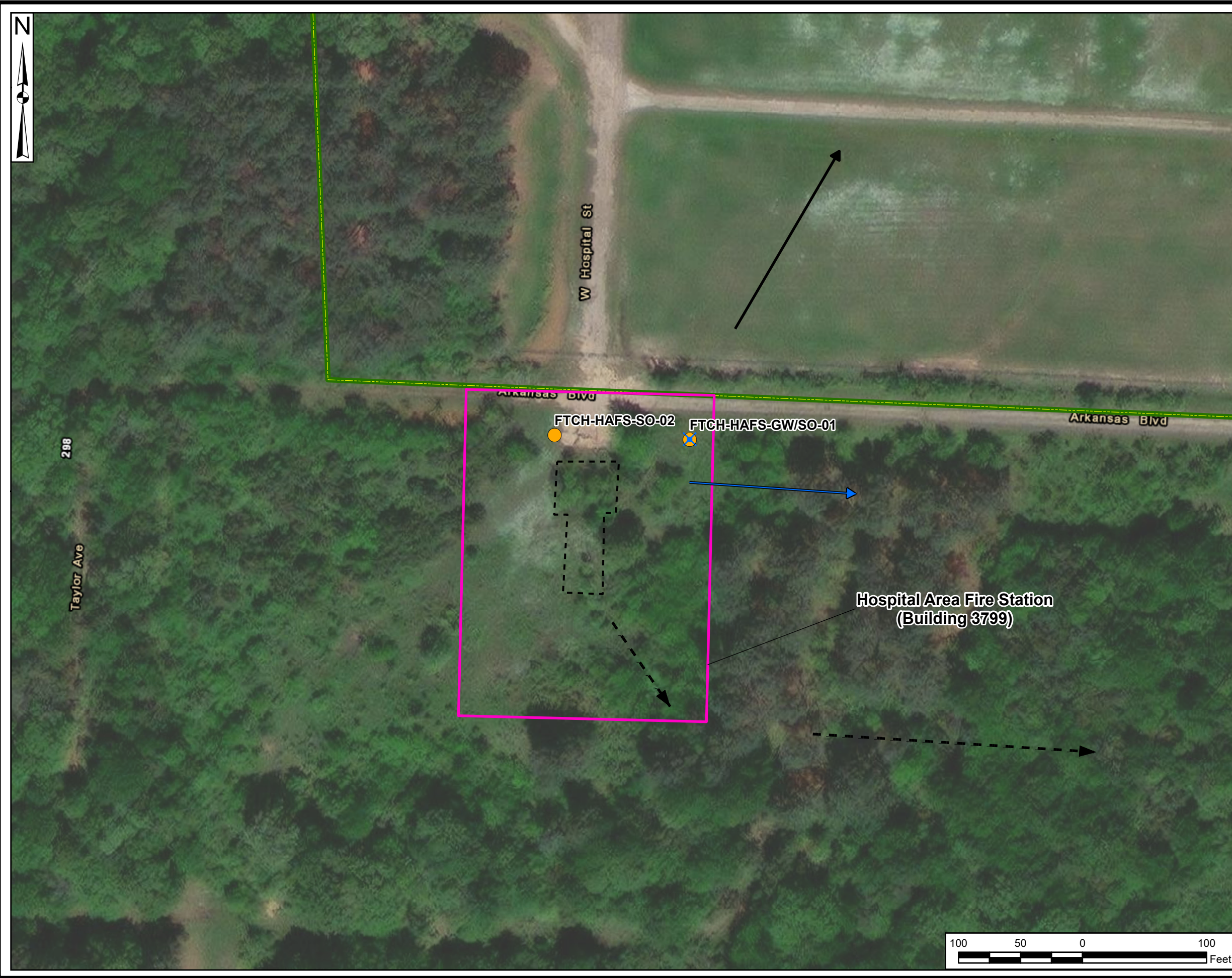

Don Welch
AAR – Corporate Quality Manager


Blake Smotherman
AAR – Deputy Director – Environmental Services Group

**Contract Number W912BV20D0037
Delivery Order Number
W912BV21F0060**

January 2024

FIGURES



- Legend**
- Fort Chaffee Joint Maneuver Training Center - Transferred to the Arkansas Army National Guard (ARARNG)
 - BRAC Surplus Property
 - AOPI
 - Stream (Intermittent)
 - Former Building Footprint
 - Groundwater / Surface Soil (DPT)
 - Surface Soil (Hand Auger)
 - Surface Water Flow Direction
 - Groundwater Flow Direction (Regional)
 - Assumed Groundwater Flow Direction (Local)

Abbreviations:
 AOPI = area of potential interest
 Bldg = building
 BRAC = Base Realignment and Closure
 DPT = direct-push technology

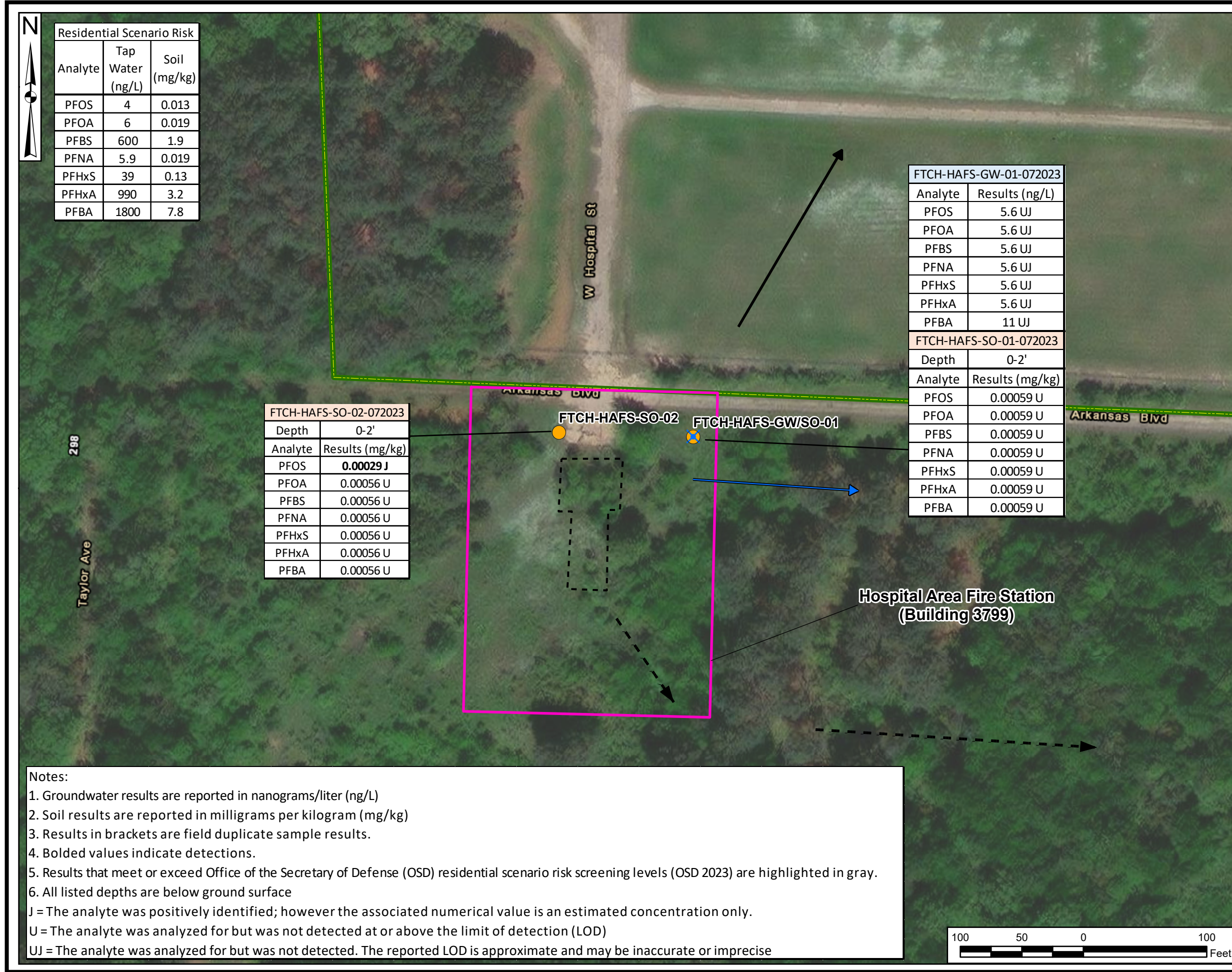
Data Sources:
 USGS, NHD Data, 2022
 ESRI ArcGIS Online, Aerial Imagery

Coordinate System:
 WGS 1984, UTM Zone 15 North

**Site Inspections (SI)
 of Per- and Polyfluoroalkyl
 Substances
 (PFAS)**
 Location: Fort Chaffee, Arkansas

**Figure 6-20: Hospital Area
 Fire Station (Building 3799)
 Sample Locations**

Drawn By: K RESTER PM: M. FLETCHER



Residential Scenario Risk		
Analyte	Tap Water (ng/L)	Soil (mg/kg)
PFOS	4	0.013
PFOA	6	0.019
PFBS	600	1.9
PFNA	5.9	0.019
PFHxS	39	0.13
PFHxA	990	3.2
PFBA	1800	7.8

FTCH-HAFS-SO-02-072023	
Depth	0-2'
Analyte	Results (mg/kg)
PFOS	0.00029 J
PFOA	0.00056 U
PFBS	0.00056 U
PFNA	0.00056 U
PFHxS	0.00056 U
PFHxA	0.00056 U
PFBA	0.00056 U

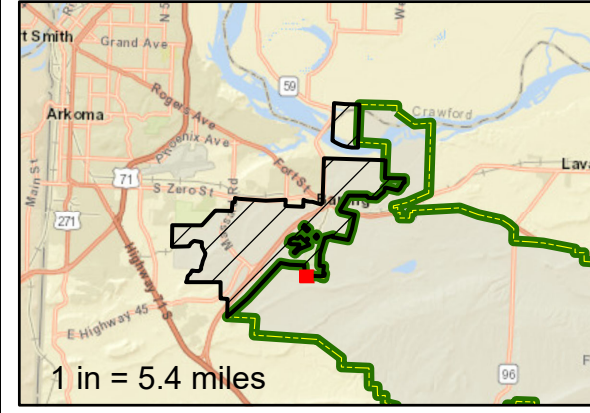
FTCH-HAFS-GW-01-072023	
Analyte	Results (ng/L)
PFOS	5.6 UJ
PFOA	5.6 UJ
PFBS	5.6 UJ
PFNA	5.6 UJ
PFHxS	5.6 UJ
PFHxA	5.6 UJ
PFBA	11 UJ

FTCH-HAFS-SO-01-072023	
Depth	0-2'
Analyte	Results (mg/kg)
PFOS	0.00059 U
PFOA	0.00059 U
PFBS	0.00059 U
PFNA	0.00059 U
PFHxS	0.00059 U
PFHxA	0.00059 U
PFBA	0.00059 U

Notes:

1. Groundwater results are reported in nanograms/liter (ng/L)
2. Soil results are reported in milligrams per kilogram (mg/kg)
3. Results in brackets are field duplicate sample results.
4. Bolded values indicate detections.
5. Results that meet or exceed Office of the Secretary of Defense (OSD) residential scenario risk screening levels (OSD 2023) are highlighted in gray.
6. All listed depths are below ground surface

J = The analyte was positively identified; however the associated numerical value is an estimated concentration only.
 U = The analyte was analyzed for but was not detected at or above the limit of detection (LOD)
 UJ = The analyte was analyzed for but was not detected. The reported LOD is approximate and may be inaccurate or imprecise



Legend

- Fort Chaffee Joint Maneuver Training Center - Transferred to the Arkansas Army National Guard (ARARNG)
- BRAC Surplus Property
- AOPI
- Stream (Intermittent)
- Former Building Footprint
- Groundwater / Surface Soil (DPT)
- Surface Soil (Hand Auger)
- Surface Water Flow Direction
- Groundwater Flow Direction (Regional)
- Assumed Groundwater Flow Direction (Local)

Abbreviations:
 AOPI = area of potential interest
 Bldg = building
 BRAC = Base Realignment and Closure
 DPT = direct-push technology
 PFBS = perfluorobutanesulfonic acid
 PFHxS = perfluorohexane sulfonate
 PFNA = perfluorononanoic acid
 PFOA = perfluorooctanoic acid
 PFOS = perfluorooctane sulfonate

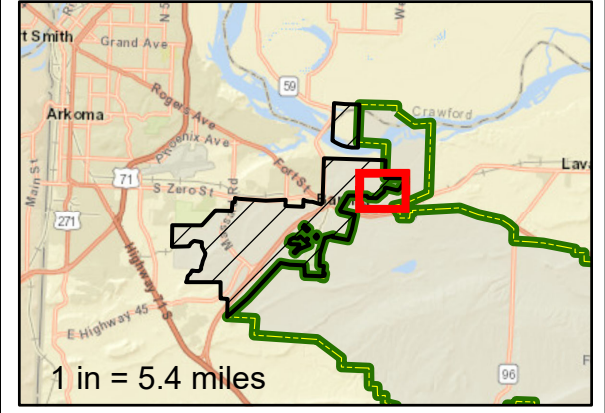
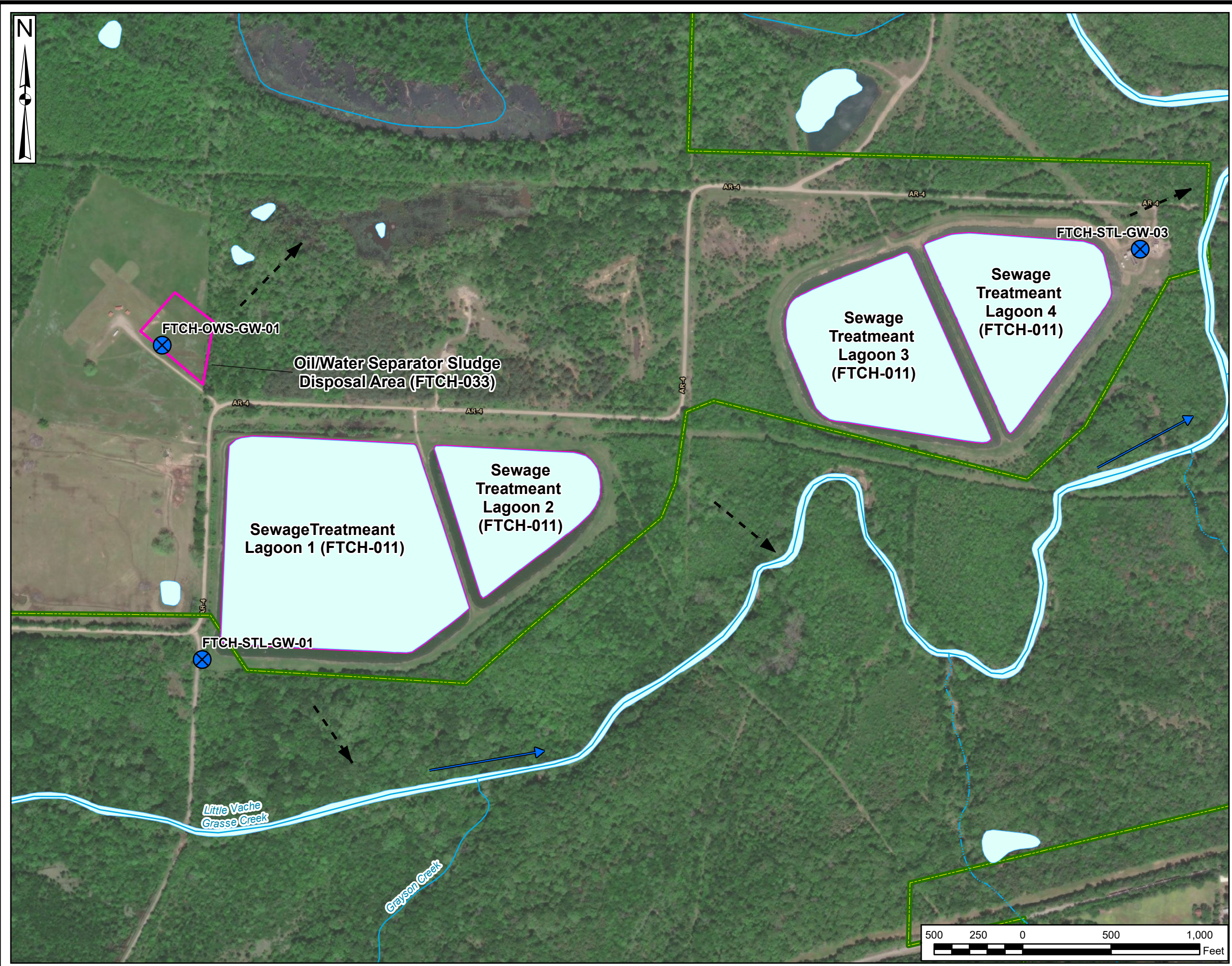
Data Sources:
 USGS, NHD Data, 2022
 ESRI ArcGIS Online, Aerial Imagery

Coordinate System:
 WGS 1984, UTM Zone 15 North

**Site Inspections (SI)
 of Per- and Polyfluoroalkyl
 Substances
 (PFAS)**
 Location: Fort Chaffee, Arkansas

**Figure 6-21: Hospital Area
 Fire Station (Building 3799)
 Sample Locations**

Drawn By: K RESTER PM: M. FLETCHER



Legend

- Fort Chaffee Joint Maneuver Training Center - Transferred to the Arkansas Army National Guard (ARARNG)
- BRAC Surplus Property
- AOPI
- River/Stream (Perennial)
- Stream (Intermittent)
- Water Body
- Groundwater (DPT)
- Surface Water Flow Direction
- Assumed Groundwater Flow Direction (Local)

Abbreviations:
 AOPI = area of potential interest
 Bldg = building
 BRAC = Base Realignment and Closure
 DPT = direct-push technology

Data Sources:
 USGS, NHD Data, 2022
 ESRI ArcGIS Online, Aerial Imagery

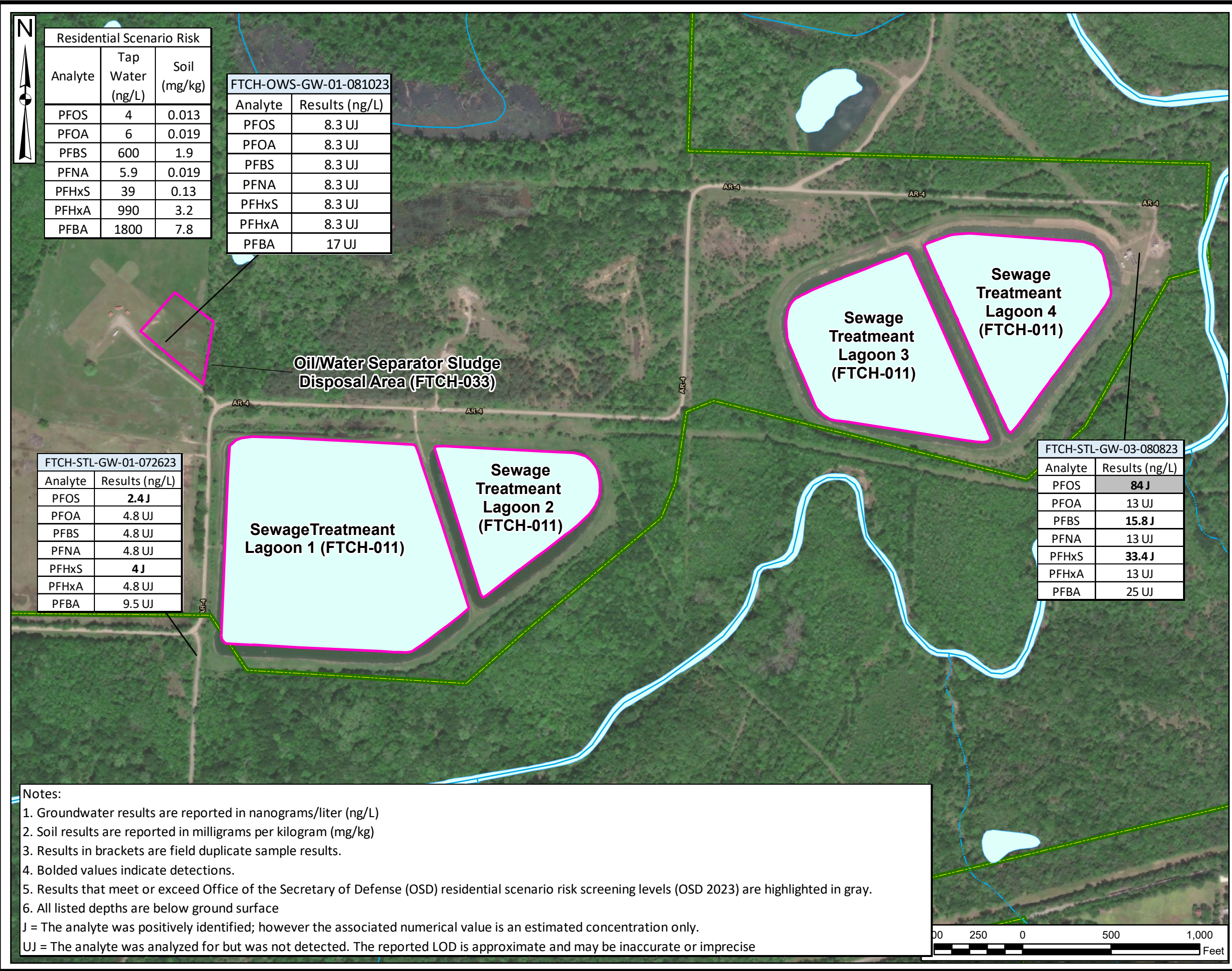
Coordinate System:
 WGS 1984, UTM Zone 15 North

**Site Inspections (SI)
 of Per- and Polyfluoroalkyl
 Substances
 (PFAS)**

Location: Fort Chaffee, Arkansas

Figure 6-23: Sewage Treatment Lagoons (FT CH-011) and Oil/Water Separator Disposal Area (FTCH-033) Sample Locations

Drawn By: K RESTER	PM: M. FLETCHER
-----------------------	--------------------



Residential Scenario Risk		
Analyte	Tap Water (ng/L)	Soil (mg/kg)
PFOS	4	0.013
PFOA	6	0.019
PFBS	600	1.9
PFNA	5.9	0.019
PFHxS	39	0.13
PFHxA	990	3.2
PFBA	1800	7.8

FTCH-OWS-GW-01-081023	
Analyte	Results (ng/L)
PFOS	8.3 UJ
PFOA	8.3 UJ
PFBS	8.3 UJ
PFNA	8.3 UJ
PFHxS	8.3 UJ
PFHxA	8.3 UJ
PFBA	17 UJ

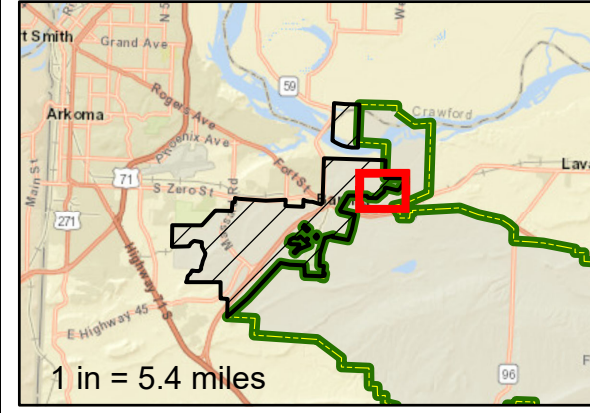
FTCH-STL-GW-01-072623	
Analyte	Results (ng/L)
PFOS	2.4 J
PFOA	4.8 UJ
PFBS	4.8 UJ
PFNA	4.8 UJ
PFHxS	4 J
PFHxA	4.8 UJ
PFBA	9.5 UJ

FTCH-STL-GW-03-080823	
Analyte	Results (ng/L)
PFOS	84 J
PFOA	13 UJ
PFBS	15.8 J
PFNA	13 UJ
PFHxS	33.4 J
PFHxA	13 UJ
PFBA	25 UJ

Notes:

1. Groundwater results are reported in nanograms/liter (ng/L)
2. Soil results are reported in milligrams per kilogram (mg/kg)
3. Results in brackets are field duplicate sample results.
4. Bolded values indicate detections.
5. Results that meet or exceed Office of the Secretary of Defense (OSD) residential scenario risk screening levels (OSD 2023) are highlighted in gray.
6. All listed depths are below ground surface

J = The analyte was positively identified; however the associated numerical value is an estimated concentration only.
 UJ = The analyte was analyzed for but was not detected. The reported LOD is approximate and may be inaccurate or imprecise



- Legend**
- Fort Chaffee Joint Maneuver Training Center - Transferred to the Arkansas Army National Guard (ARARNG)
 - BRAC Surplus Property
 - AOPI
 - ~~~~~ River/Stream (Perennial)
 - - - - - Stream (Intermittent)
 - Water Body
 - ⊗ Groundwater (DPT)
 - Surface Water Flow Direction
 - - - - - Assumed Groundwater Flow Direction (Local)

Abbreviations:
 AOPI = area of potential interest
 Bldg = building
 BRAC = Base Realignment and Closure
 DPT = direct-push technology
 PFBS = perfluorobutanesulfonic acid
 PFHxS = perfluorohexane sulfonate
 PFNA = perfluorononanoic acid
 PFOA = perfluorooctanoic acid
 PFOS = perfluorooctane sulfonate

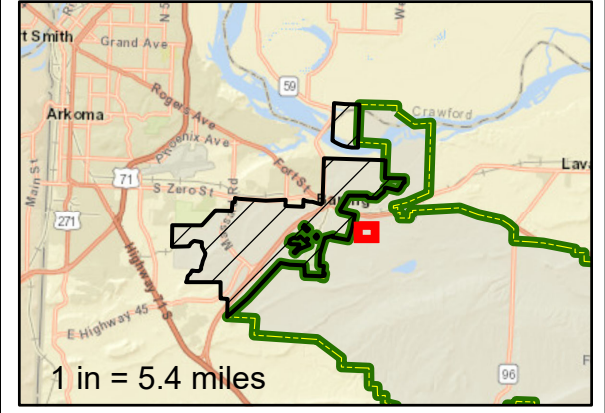
Data Sources:
 USGS, NHD Data, 2022
 ESRI ArcGIS Online, Aerial Imagery

Coordinate System:
 WGS 1984, UTM Zone 15 North

**Site Inspections (SI)
of Per- and Polyfluoroalkyl
Substances
(PFAS)**
 Location: Fort Chaffee, Arkansas

Figure 6-24: Sewage Treatment Lagoons (FT CH-011) and Oil/Water Separator Disposal Area (FTCH-033) Sample Results

Drawn By: K RESTER PM: M. FLETCHER



- Legend**
- Fort Chaffee Joint Maneuver Training Center - Transferred to the Arkansas Army National Guard (ARARNG)
 - BRAC Surplus Property
 - AOPi
 - River/Stream (Perennial)
 - Stream (Intermittent)
 - Groundwater (DPT)
 - Surface Soil (Hand Auger)
 - Surface Water Flow Direction
 - Groundwater Flow Direction (Regional)
 - Assumed Groundwater Flow Direction (Local)

Abbreviations:
 AOPi = area of potential interest
 Bldg = building
 BRAC = Base Realignment and Closure
 DPT = direct-push technology

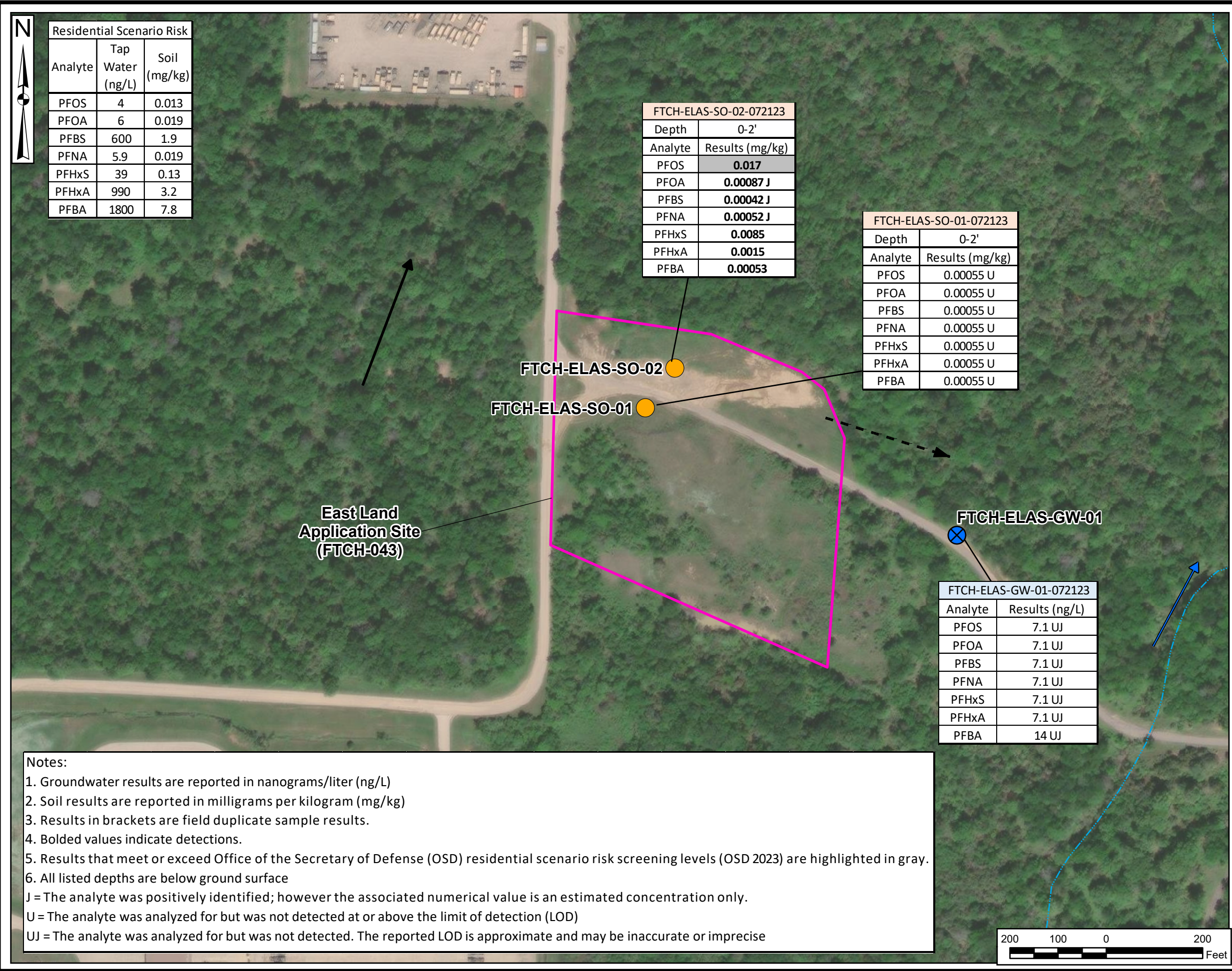
Data Sources:
 USGS, NHD Data, 2022
 ESRI ArcGIS Online, Aerial Imagery

Coordinate System:
 WGS 1984, UTM Zone 15 North

**Site Inspections (SI)
 of Per- and Polyfluoroalkyl
 Substances
 (PFAS)**
 Location: Fort Chaffee, Arkansas

**Figure 6-27: East Land
 Application Site (FTCH-043)
 Sample Locations**

Drawn By: K RESTER PM: M. FLETCHER



Residential Scenario Risk		
Analyte	Tap Water (ng/L)	Soil (mg/kg)
PFOS	4	0.013
PFOA	6	0.019
PFBS	600	1.9
PFNA	5.9	0.019
PFHxS	39	0.13
PFHxA	990	3.2
PFBA	1800	7.8

FTCH-ELAS-SO-02-072123	
Depth	0-2'
Analyte	Results (mg/kg)
PFOS	0.017
PFOA	0.00087 J
PFBS	0.00042 J
PFNA	0.00052 J
PFHxS	0.0085
PFHxA	0.0015
PFBA	0.00053

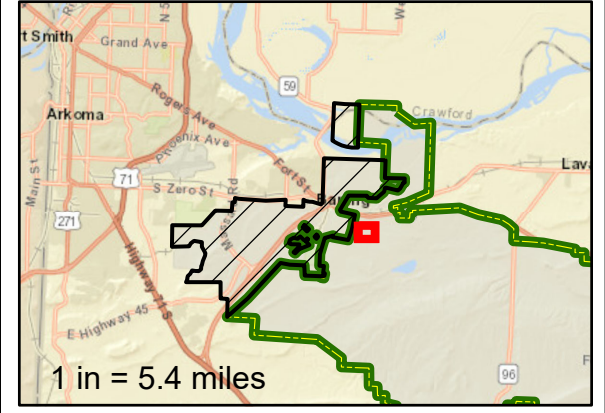
FTCH-ELAS-SO-01-072123	
Depth	0-2'
Analyte	Results (mg/kg)
PFOS	0.00055 U
PFOA	0.00055 U
PFBS	0.00055 U
PFNA	0.00055 U
PFHxS	0.00055 U
PFHxA	0.00055 U
PFBA	0.00055 U

FTCH-ELAS-GW-01-072123	
Analyte	Results (ng/L)
PFOS	7.1 UJ
PFOA	7.1 UJ
PFBS	7.1 UJ
PFNA	7.1 UJ
PFHxS	7.1 UJ
PFHxA	7.1 UJ
PFBA	14 UJ

Notes:

1. Groundwater results are reported in nanograms/liter (ng/L)
2. Soil results are reported in milligrams per kilogram (mg/kg)
3. Results in brackets are field duplicate sample results.
4. Bolded values indicate detections.
5. Results that meet or exceed Office of the Secretary of Defense (OSD) residential scenario risk screening levels (OSD 2023) are highlighted in gray.
6. All listed depths are below ground surface

J = The analyte was positively identified; however the associated numerical value is an estimated concentration only.
 U = The analyte was analyzed for but was not detected at or above the limit of detection (LOD)
 UJ = The analyte was analyzed for but was not detected. The reported LOD is approximate and may be inaccurate or imprecise



Legend

- Fort Chaffee Joint Maneuver Training Center - Transferred to the Arkansas Army National Guard (ARARNG)
- BRAC Surplus Property
- AOPI
- River/Stream (Perennial)
- Stream (Intermittent)
- Groundwater (DPT)
- Surface Soil (Hand Auger)
- Surface Water Flow Direction
- Groundwater Flow Direction (Regional)
- Assumed Groundwater Flow Direction (Local)

Abbreviations:
 AOPI = area of potential interest
 Bldg = building
 BRAC = Base Realignment and Closure
 DPT = direct-push technology
 PFBS = perfluorobutanesulfonic acid
 PFHxS = perfluorohexane sulfonate
 PFNA = perfluorononanoic acid
 PFOA = perfluorooctanoic acid
 PFOS = perfluorooctane sulfonate

Data Sources:
 USGS, NHD Data, 2022
 ESRI ArcGIS Online, Aerial Imagery

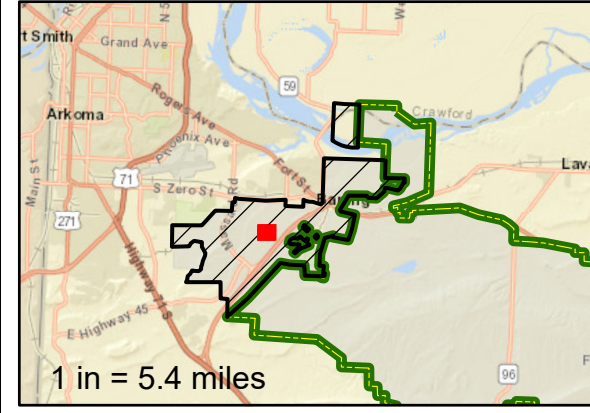
Coordinate System:
 WGS 1984, UTM Zone 15 North

**Site Inspections (SI)
of Per- and Polyfluoroalkyl
Substances
(PFAS)**

Location: Fort Chaffee, Arkansas

**Figure 6-28: East Land
Application Site (FTCH-043)
Sample Results**

Drawn By: K RESTER PM: M. FLETCHER



Legend

- Fort Chaffee Joint Maneuver Training Center - Transferred to the Arkansas Army National Guard (ARARNG)
- BRAC Surplus Property
- AOPI
- Stream (Intermittent)
- Groundwater (DPT)
- Surface Water Flow Direction
- Groundwater Flow Direction (Regional)
- Assumed Groundwater Flow Direction (Local)

Abbreviations:
 AOPI = area of potential interest
 Bldg = building
 BRAC = Base Realignment and Closure
 DPT = direct-push technology

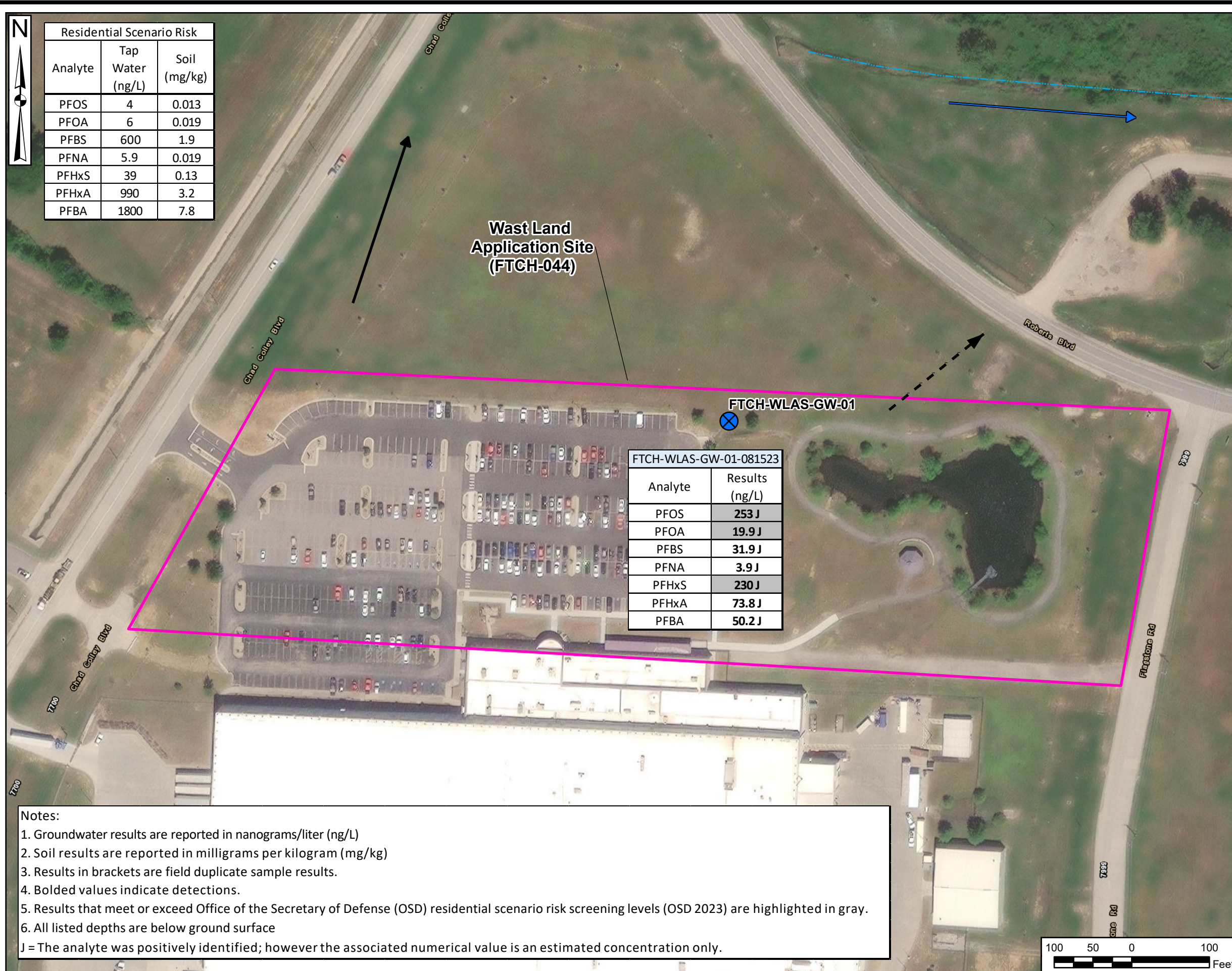
Data Sources:
 USGS, NHD Data, 2022
 ESRI ArcGIS Online, Aerial Imagery

Coordinate System:
 WGS 1984, UTM Zone 15 North

**Site Inspections (SI)
 of Per- and Polyfluoroalkyl
 Substances
 (PFAS)**
 Location: Fort Chaffee, Arkansas

**Figure 6-30: West Land
 Application Site (FTCH-044)
 Sample Location**

Drawn By: K RESTER	PM: M. FLETCHER
-----------------------	--------------------

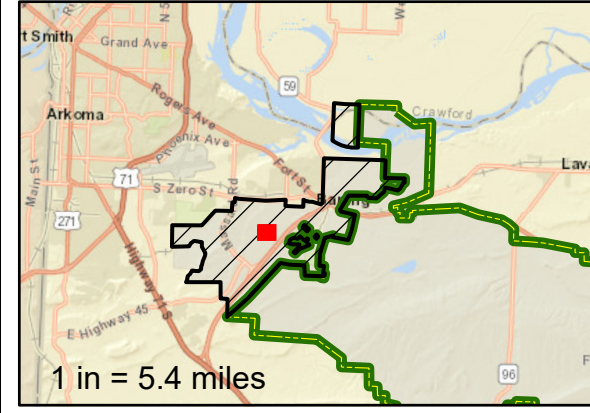


Residential Scenario Risk		
Analyte	Tap Water (ng/L)	Soil (mg/kg)
PFOS	4	0.013
PFOA	6	0.019
PFBS	600	1.9
PFNA	5.9	0.019
PFHxS	39	0.13
PFHxA	990	3.2
PFBA	1800	7.8

West Land Application Site (FTCH-044)

FTCH-WLAS-GW-01-081523	
Analyte	Results (ng/L)
PFOS	253 J
PFOA	19.9 J
PFBS	31.9 J
PFNA	3.9 J
PFHxS	230 J
PFHxA	73.8 J
PFBA	50.2 J

- Notes:
1. Groundwater results are reported in nanograms/liter (ng/L)
 2. Soil results are reported in milligrams per kilogram (mg/kg)
 3. Results in brackets are field duplicate sample results.
 4. Bolded values indicate detections.
 5. Results that meet or exceed Office of the Secretary of Defense (OSD) residential scenario risk screening levels (OSD 2023) are highlighted in gray.
 6. All listed depths are below ground surface
- J = The analyte was positively identified; however the associated numerical value is an estimated concentration only.



- Legend**
- Fort Chaffee Joint Maneuver Training Center - Transferred to the Arkansas Army National Guard (ARARNG)
 - BRAC Surplus Property
 - AOPI
 - Stream (Intermittent)
 - Groundwater (DPT)
 - Surface Water Flow Direction
 - Groundwater Flow Direction (Regional)
 - Assumed Groundwater Flow Direction (Local)

Abbreviations:
 AOPI = area of potential interest
 Bldg = building
 BRAC = Base Realignment and Closure
 DPT = direct-push technology
 PFBS = perfluorobutanesulfonic acid
 PFHxS = perfluorohexane sulfonate
 PFNA = perfluorononanoic acid
 PFOA = perfluorooctanoic acid
 PFOS = perfluorooctane sulfonate

Data Sources:
 USGS, NHD Data, 2022
 ESRI ArcGIS Online, Aerial Imagery

Coordinate System:
 WGS 1984, UTM Zone 15 North

Site Inspections (SI)
 of Per- and Polyfluoroalkyl
 Substances
 (PFAS)

Location: Fort Chaffee, Arkansas

Figure 6-31: West Land Application Site (FTCH-044) Sample Results

Drawn By: K RESTER PM: M. FLETCHER