Proposed Plan Amendment

OW004, DP001, and DP002 – Camp Blanding Military Reservation
Florida Air National Guard
Starke, Florida
March 2025

1. Introduction

This **Proposed Plan** (PP) Amendment identifies **preferred alternatives** for addressing contaminated **soil** and **groundwater** at three sites at the Camp Blanding Military Reservation (Camp Blanding) **Air National Guard** (ANG) Base in Starke, Florida. The sites addressed in this PP Amendment include Oil/Water Separator (OWS)/Sediment Trap Site (OW004), Former Vehicle Maintenance Pit A Site (DP001), and Former Vehicle Maintenance Pit D Site (DP002). All three sites are located centrally within the installation boundary (Figure 1). Previous studies identified **polycyclic aromatic hydrocarbon** (PAH) concentrations exceeding **Florida Department of Environmental Protection** (FDEP) **soil cleanup target levels** (SCTLs) in soil at all three sites. Additionally, PAH concentrations in groundwater at all three sites exceed FDEP **groundwater cleanup target levels** (GCTLs). Groundwater at these sites presently is not used for potable purposes. A PP was issued in April 2022 that identified preferred soil and groundwater alternatives to address concentrations above residential cleanup levels. Given the current and anticipated future use, this PP Amendment presents the preferred alternatives to address concentrations above industrial cleanup levels and prevent residential land use until soil concentrations are below residential direct exposure SCTLs.

The 73,000-acre Camp Blanding Joint Training Center provides training for ANG and local, state, and federal agencies. Sites OW004, DP001, and DP002 are being addressed as part of the **Environmental Restoration Program** (ERP). Through the ERP, environmental impacts resulting from mission-related past practices or releases at **Department of Defense** installations and formerly owned or used properties are identified and remediated, as appropriate. The ERP is carried out in compliance with the **Comprehensive Environmental Response, Compensation, and Liability Act** (CERCLA), as amended in 1986 by the Superfund Amendments and Reauthorization Act, and the **National Oil and Hazardous Substances Pollution Contingency Plan** (National Contingency Plan; NCP). ANG is the lead agency for the ERP and works closely with FDEP to investigate, clean up, and ultimately close ERP sites.

This PP Amendment is provided to solicit public participation in the preferred alternative selection process and other alternatives for soil and groundwater contamination at sites OW004, DP001, and DP002. The intent is to give the public an opportunity to submit written comments and participate in a public meeting during the comment period. This PP Amendment fulfills the public participation responsibilities required under Section 117(a) of CERCLA and Section 300.430(f)(2) of the NCP. ANG may modify the preferred alternative or select another alternative if public comments or additional data indicate a more appropriate remedy or closure pathway.

Detailed information for sites OW004, DP001, and DP002 is included in the **Administrative Record**, available online at https://ar.cce.af.mil/. To access reports on this website, select "Air National Guard," choose "Camp Blanding Military Res, FL" from the Installation List, and click on the "Search" button; this action pulls up a list of records. Internet access is available at the Bradford County Public Library. The public is encouraged to review this information, which is summarized in this PP Amendment.

2. Site Background

Camp Blanding occupies 73,000 acres in the western side of Clay County, Florida, and is approximately 9 miles east of the city of Starke. It serves as a Continuity of Government site for the Executive Branch of Florida government, and a logistical support base and reception, staging, and onward integration site during emergency operations.

Camp Blanding was originally established in 1939 as a state-owned training reservation. At the onset of World War II, it was converted to a federal reservation to support the rapid expansion of the U.S. Army and was a major U.S. Army training facility during World War II. The Camp also was the site of a 2,800-bed hospital, a German Prisoner of War Compound, and at the end of World War II, a Separation Center. Following the war, Camp Blanding reverted to state control, and currently is a Joint Training site for the National Guard and other Reserve components. The lease for Camp Blanding is between the Armory Board, State of Florida, and the United States of America. The license is between the Secretary of the Air Force to the State of Florida.

Environmental investigations have been ongoing at Camp Blanding since 2008. Table 1 presents a chronological summary of the investigations. A site visit and records review were conducted in 2008 by BB&E Consulting Engineers and Professionals (BB&E) (BB&E 2008) as a part of a **preliminary assessment** (PA). During the PA, six potential sites were identified that warranted further investigation based on their past use and history. A **site inspection** was completed in 2009 that included soil and groundwater sample collection and analysis (CH2M 2009a), and in 2012, a site investigation was conducted at the six sites that included additional soil and groundwater sample collection and analysis. The *Site Investigation Report* recommended additional investigation and characterization at three sites (CH2M 2013):

- OWS/Sediment Trap Site (OW004)
- Former Vehicle Maintenance Pit A Site (DP001)
- Former Vehicle Maintenance Pit D Site (DP002)

In 2018, a **remedial investigation** was completed at the three sites. The sites were further investigated, with results reported in a Site Assessment Report (TEC-Weston JV 2018). The investigation results showed the three sites had soil and groundwater concentrations that exceeded the FDEP SCTLs and GCTLs for PAHs.

A PP was issued in April 2022 that identified the preferred soil and groundwater alternatives based on information presented in the Site Assessment Report (TEC-Weston JV 2018). A pre-design investigation (PDI) was performed in 2023 and 2024 to better define the soil exceeding the SCTLs that would require excavation as a part of site cleanup activities. The PDI identified PAH concentrations above residential direct exposure SCTLs across the OW004, DP001, and DP002 sites that were not clearly related to site releases and more likely related to the asphalt at the facility, because PAHs are widespread in urban environments. During the PDI, PAH concentrations were also delineated to industrial direct exposure SCTLs.

A summary of the investigations and impacts at the three sites are listed in Table 1 and described below.

Table 1. Chronology of Investigations at the OW004, DP001, and DP002 Sites

***2008 Preliminary Assessment* (BB&E 2008)**
The preliminary assessment conducted at Camp Blanding identified six sites for further investigation, including the Amphitheater Fill Area, Washrack Oil/Water Separator/Sediment Trap Area (OW004), Former Vehicle Maintenance Pit A (DP001), Former Vehicle Maintenance Pit B, Former Vehicle Maintenance Pit C, and Former Vehicle Maintenance Pit D (DP002).
***2009 Site Inspections* (CH2M 2009a, 2009b, 2009c, 2009d, 2009e, 2009f)**
Soil and groundwater sampling were conducted at the six sites identified in the preliminary assessment and reported in site inspection reports. PAHs were detected in soil samples at concentrations above SCTLs at the Amphitheater Fill Area. Groundwater samples from the Former Vehicle Maintenance Pit A, Former Vehicle Maintenance Pit C, Former Vehicle Maintenance Pit D, and Washrack Oil/Water Separator/Sediment Trap areas had concentrations of at least one PAH exceeding GCTLs. At Former Vehicle Maintenance Pit B, PAHs were detected in soil and groundwater, but at concentrations below SCTLs and GCTLs. Additional characterization including soil and groundwater sampling was recommended for all six sites.
***2012–2013 Site Investigation* (CH2M 2013)**
The site investigation was performed to determine the presence or absence of contamination in soil and groundwater at the six sites. Several PAHs were detected in soil and groundwater above the respective target cleanup levels at sites OW004, DP001, and DP002. Based on these findings, additional investigation and soil and groundwater characterization was recommended for these sites. No further action was recommended for the other three sites investigated (Amphitheater Fill Area, Former Vehicle Maintenance Pit B, and Former Vehicle Maintenance Pit C).

Table 1. Chronology of Investigations at the OW004, DP001, and DP002 Sites

2015–2017 Site Assessment **(TEC-Weston JV 2018)**
A remedial investigation (site assessment) was conducted to further define the nature and extent of soil and groundwater at sites OW004, DP001, and DP002. The investigation defined the vertical and horizontal extents of soil and groundwater contamination at each site as follows: **OW004 –** Four constituents of concern (COCs) were identified in soil to a depth of 1.5 feet below ground surface (bgs) throughout most of the site, and to a depth of 3.5 feet bgs in a small portion of the site. Two COCs were identified in groundwater. **DP001 –** Six COCs were identified in soil to a depth of 1.5 feet bgs. Two COCs were identified in groundwater. **DP002 –** Three COCs were identified in soil to a depth of 1.5 feet bgs. Three COCs were identified in groundwater.
2019 Feasibility Study **(TEC-Weston JV 2019)**
As part of the **feasibility study** (FS), **applicable or relevant and appropriate requirements** (ARARs) were identified, and **remedial action objectives** were developed. Potential remediation technologies for treating COCs in soil and groundwater at sites OW004, DP001, and DP002 were assessed. Remedial technologies were screened, and the retained technologies were used to develop remedial alternatives evaluated in detail with respect to nine evaluation criteria to address the statutory requirements and preferences of CERCLA.
2023 and 2024 Pre-Design Investigation **(Jacobs 2024)**
A PDI was completed at the OW004, DP001, and DP002 sites in January and July 2023 to define the excavation limits to remove soil above residential direct exposure SCTLs. Additional soil sampling was required in March, April, and August 2024 to further define PAH soil concentrations above residential direct exposure SCTLs as well as industrial direct exposure SCTLs (alternative industrial direct exposure SCTL for benzo(a)pyrene and equivalents), and groundwater leachability SCTLs. Surface soil samples were collected from approximately 0.5 to 1.5 feet bgs. Subsurface soil samples were collected from approximately 1.5 to 3.5 feet bgs, targeting soil just above the seasonal high groundwater table. OW004 has exceedances of residential direct exposure SCTLs but not industrial direct exposure SCTLs or groundwater leachability SCTLs. The DPO01 and DP002 sites have exceedances of all three SCTLs, though the extents of residential direct exposure SCTLs are the greatest. The results of the PDI were used to prepare a **FS** amendment which presented a revised soil remedial alternative for industrial criteria.

OW004 is an active washrack discharge system area. It was believed that the washrack was connected to an OWS at the eastern end of the washrack; however, during BB&E's site inspection in 2008, it was noted that the OWS is actually a small sediment trap, which is not designed to effectively remove petroleum-based compounds from wash water. The sediment trap drains to an open field/retention area. Site OW004 is approximately 25 feet long and 15 feet wide. This site area includes the sediment trap.

DP001 includes several former vehicle maintenance pits that were used to access the undersides of vehicles for maintenance activities. The area has since been backfilled with gravel and paved over with concrete; however, no soil removal was conducted before backfilling. Site DP001 is approximately 245 feet long and 200 feet wide. This area includes the former vehicle maintenance pit and parts of a large grassy area surrounding the former maintenance pit.

DP002 contains several former vehicle maintenance pits that were used to access the undersides of vehicles for maintenance activities. The area has since been backfilled with gravel and paved over with concrete; however, no soil removal was conducted before backfilling. Site DP002 is approximately 110 feet long and 100 feet wide. This area includes the former vehicle maintenance pit and parts of the paved and grassy areas surrounding the former maintenance pit.

PAH contamination in soil and groundwater is present at OW004, DP001, and DP002; however, the COCs and depth of contamination vary by site. The 2019 FS (TEC-Weston JV 2019) presents different cleanup options (known as remedial alternatives) to address soil and groundwater contamination at sites OW004, DP001, and DP002.

During the PDI, the extents of the PAH concentrations above residential direct exposure SCTLs were found to be more widespread than were presented in the FS. As a result, a soil alternative was revised considering industrial direct exposure SCTLs based on the current and anticipated future land use as shown in the FS Amendment (Jacobs 2024).

3. Site Characteristics

A brief description of the site characteristics is provided below. A more detailed summary is presented in the 2018 *Site Assessment Report* (TEC-Weston JV 2018).

Geology

Geologic formations at Camp Blanding include the Trail Ridge sands and underlying Cypresshead Formation. The Trail Ridge sands consist primarily of quartz sands, with organic matter also commonly found. The

Cypresshead Formation consists of fine to very coarse quartz sands, with gravel, clay, and micas present at lesser percentages. Most of the soil within the site boundaries is composed of Allaton fine sand, which was deposited as a floodplain on marine terraces or sandy marine deposits. Near-surface soil and subsurface soil observed at the sites consisted of a relatively uniform sand layer to 13 feet bgs. Observed organic matter increased with depth, and dense hardpan soils were observed intermixed with sand from 8 to 13 feet bgs (TEC-Weston JV 2018).

Hydrogeology

Three freshwater **aquifer** systems are in Clay County: Surficial, Intermediate, and Floridan aquifer systems.

- Surficial aquifer system**:** An unconfined water table aquifer, roughly 30 feet thick, composed of sand, shell, and clay.
- Intermediate aquifer system**:** Mainly composed of clays as well as thin, water-bearing zones of sand, shell, and limestone, including the Hawthorn aquifer.
- Floridan aquifer system**:** Underlying all of Florida as well as portions of Alabama, Georgia, and South Carolina, the Floridan aquifer system is composed primarily of limestone and dolomite. The Ocala Limestone Formation defines the upper portion of the Floridan aquifer system and ranges from roughly 250 to 600 feet below sea level. The Lower Floridan aquifer includes two zones: the upper zone of the Lower Floridan and the Fernandina permeable zone. The two zones are separated by a less permeable unit that restricts the vertical movement of water.

The depth to water in the Surficial aquifer system at the sites ranges from 3 to 6 feet bgs. Groundwater flow is to the west/northwest. Shallow groundwater was observed to fluctuate seasonally. No groundwater supply wells are within the site boundaries. One public water system well is near the installation boundary and is installed to a depth of 713 feet bgs (TEC-Weston JV 2018). The location of the public water supply well is shown on Figure 1.

Surface Water Drainage

Camp Blanding is an industrial and urban environment with surface cover consisting of a mixture of concrete and soil. Surface water is managed by a series of drainage swales, ditches, storm sewers, and stormwater collection ponds throughout the installation. One stormwater collection pond is located between DP002 and OW004.

The onsite ditches drain to the North Fork of Black Creek. The Black Creek River and lake system is part of the Lower St. Johns River Basin watershed, which flows northeast and eventually discharges to the Atlantic Ocean (TEC-Weston JV 2018). Kingsley Lake, located approximately 1 mile west of Camp Blanding, is along the western boundary of the Black Creek River and lake system.

Nature and Extent of Contamination

Sites OW004, DP001, and DP002 have been identified as potential contamination source areas with PAH concentrations in soil and groundwater above the respective FDEP SCTLs and GCTLs. No other sites identified during the PA in 2008 were identified as areas of concern. The specific COCs vary by site as follows:

- OW004 – Benzo(a)pyrene and total benzo(a)-pyrene equivalent concentrations in soil exceeded SCTLs. The total benzo(a)pyrene equivalent is a calculated value used to evaluate the combined risk from a mixture of carcinogenic PAHs in soil (benzo(a)pyrene, benzo(a)anthracene, benzo(b)-fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)-pyrene). Benzo(b)fluoranthene and indeno(1,2,3-cd)pyrene concentrations in groundwater exceeded GCTLs. Depth to groundwater at this site varies seasonally from 3 to 6 feet bgs. Figures 2 and 3 depict soil and groundwater contamination at OW004.
- DP001 – Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and total benzo(a)pyrene equivalents and methylene chloride concentrations in soil exceeded SCTLs. Methylene chloride was eliminated as a COC because it is a common laboratory contaminant that was detected in the equipment blank during the site assessment, and there was poor correlation with quality control samples. Benzo(b)fluoranthene and indeno(1,2,3-cd)pyrene concentrations in groundwater exceeded GCTLs. Depth to groundwater at this site varies seasonally from 3 to 7 feet bgs. Figures 4 and 5 illustrate soil and groundwater exceedances of SCTL and GCTL criteria, respectively.
- DP002 – Benzo(a)pyrene and total benzo(a)pyrene equivalent concentrations in soil exceeded SCTLs. Benzo(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene groundwater concentrations

exceeded GCTLs. Depth to groundwater at this site varies seasonally from 2.5 to 5 feet bgs. Figures 6 and 7 show the extent of soil and groundwater exceedances of SCTL and GCTL criteria, respectively.

PAHs are found everywhere in the urban environment due to human activities, and low levels may exist in the environment due to dispersion of these chemicals unrelated to releases at the sites (FDEP 2019). PAHs are often found close to asphalt surfaces and parking areas. Florida Administrative Code (F.A.C.) Chapter 62-780.200(3) defines background concentrations as "concentrations of contaminants that are naturally occurring or resulting from anthropogenic (man-made) impacts unrelated to the discharge of pollutants or hazardous substances at a contaminated site." Detections of PAHs under or near parking areas or other anthropogenic site features are considered to not be attributable to site releases from vehicle maintenance activities and thus do not require cleanup.

The extents of contamination shown on Figures 2 through 7 are based on investigation data collected between 2012 and 2024.

Fate and Transport of Contamination

Historical operations at OW004, DP001, and DP002 consisted of vehicle maintenance activities. PAHs are common in petroleum products, and all three sites have PAH impacts in soil and groundwater. Historical site operations resulted in releases to surface soil and infiltration through shallow soil to groundwater.

PAHs generally do not dissolve easily in water; therefore, these compounds are likely to remain in soil adjacent to the release area. A smear zone, defined as contamination located near and just above the water table, may exist and serve as a continuing source of contamination to groundwater.

Conceptual site models for OW004, DP001, and DP002 provide graphical representations of subsurface geology, current and potential receptors, locations of contaminants, and exposure pathways for each site. The conceptual site models are depicted graphically on Figures 8, 9, and 10 for OW004, DP001 and DP002, respectively (TEC-Weston JV 2018).

Figure 1. Installation Layout Map

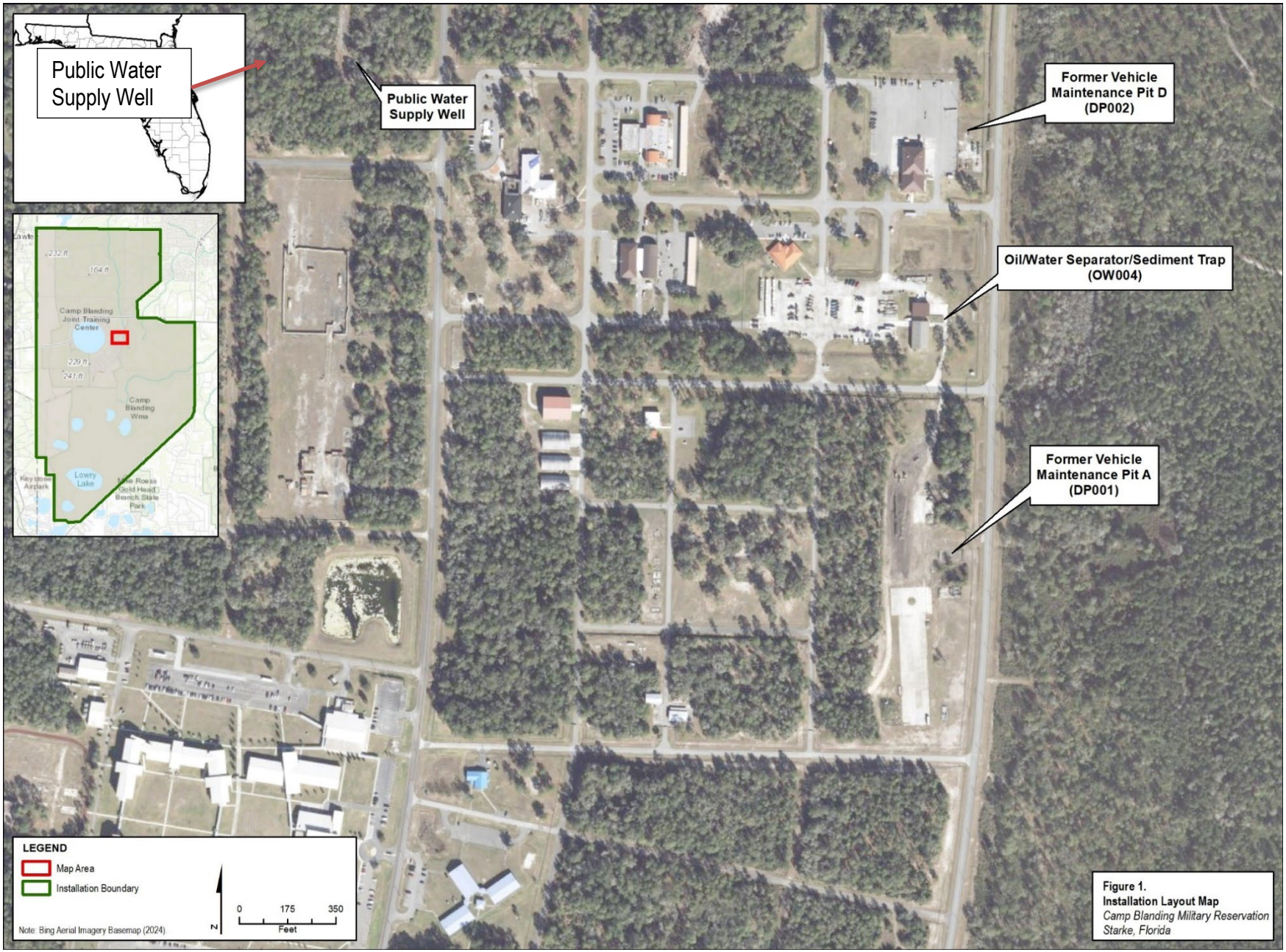
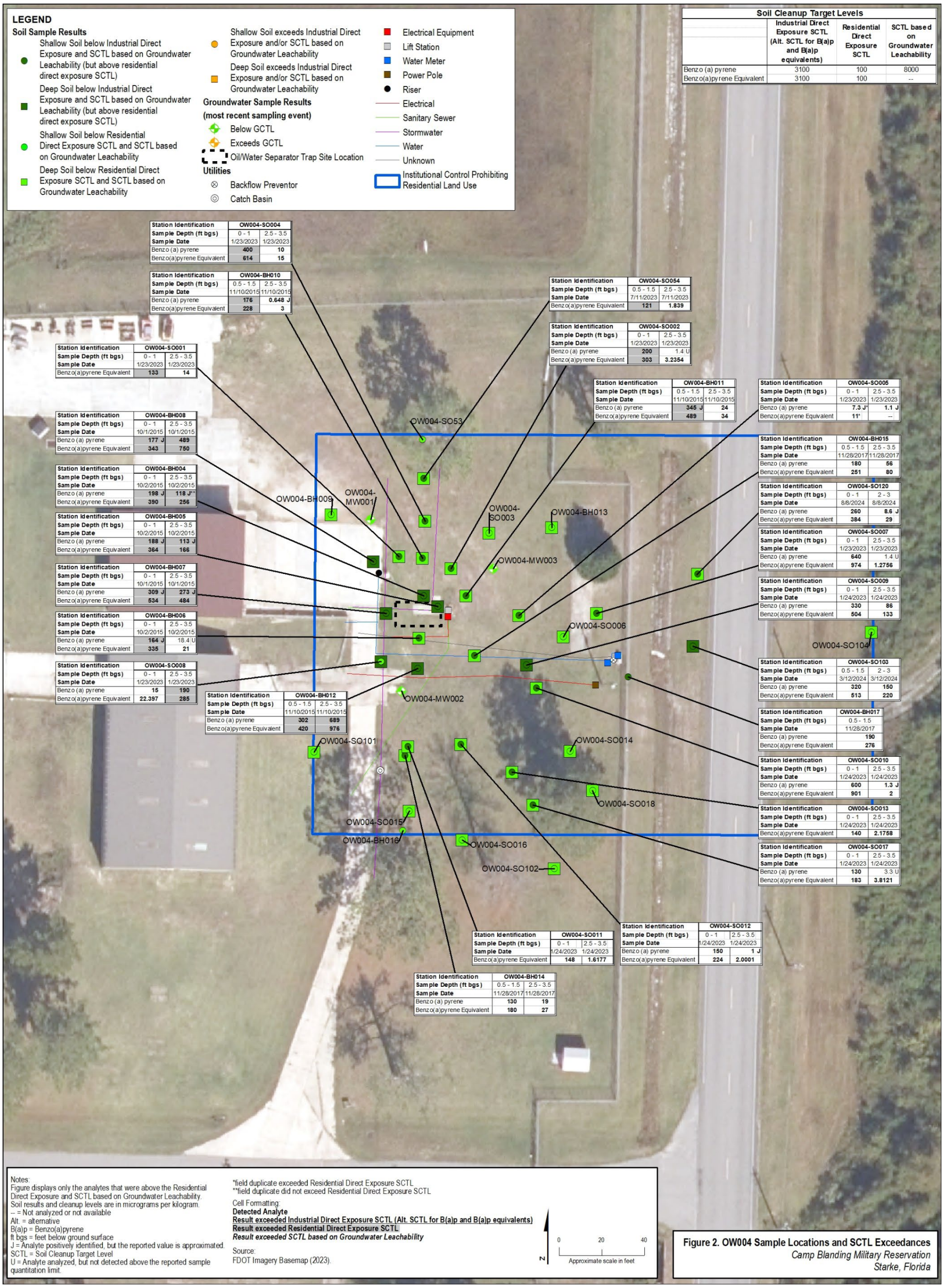


Figure 2. OW004 Sample Locations and SCTL Exceedances



Soil Cleanup Target Levels

	Industrial Direct Exposure SCTL (Alt. SCTL for B(a)p and B(a)p equivalents)	Residential Direct Exposure SCTL	SCTL based on Groundwater Leachability
Benzo (a) pyrene	3100	100	8000
Benzo(a)pyrene Equivalent	3100	100	--

Station Identification	OW004-SO004	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/23/2023	1/23/2023
Benzo (a) pyrene	400	10
Benzo(a)pyrene Equivalent	614	15

Station Identification	OW004-BH010	
Sample Depth (ft bgs)	0.5 - 1.5	2.5 - 3.5
Sample Date	11/10/2015	11/10/2015
Benzo (a) pyrene	176	0.648 J
Benzo(a)pyrene Equivalent	228	3

Station Identification	OW004-SO001	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/23/2023	1/23/2023
Benzo(a)pyrene Equivalent	133	14

Station Identification	OW004-BH008	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	10/1/2015	10/1/2015
Benzo (a) pyrene	177 J	489
Benzo(a)pyrene Equivalent	343	750

Station Identification	OW004-BH004	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	10/2/2015	10/2/2015
Benzo (a) pyrene	198 J	118 J**
Benzo(a)pyrene Equivalent	390	256

Station Identification	OW004-BH005	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	10/2/2015	10/2/2015
Benzo (a) pyrene	188 J	113 J
Benzo(a)pyrene Equivalent	364	166

Station Identification	OW004-BH007	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	10/1/2015	10/1/2015
Benzo (a) pyrene	309 J	273 J
Benzo(a)pyrene Equivalent	534	484

Station Identification	OW004-BH006	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	10/2/2015	10/2/2015
Benzo (a) pyrene	164 J	18.4 U
Benzo(a)pyrene Equivalent	335	21

Station Identification	OW004-SO008	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/23/2023	1/23/2023
Benzo (a) pyrene	15	190
Benzo(a)pyrene Equivalent	22.397	285

Station Identification	OW004-BH012	
Sample Depth (ft bgs)	0.5 - 1.5	2.5 - 3.5
Sample Date	11/10/2015	11/10/2015
Benzo (a) pyrene	302	689
Benzo(a)pyrene Equivalent	420	976

Station Identification	OW004-SO054	
Sample Depth (ft bgs)	0.5 - 1.5	2.5 - 3.5
Sample Date	7/11/2023	7/11/2023
Benzo(a)pyrene Equivalent	121	1.839

Station Identification	OW004-SO002	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/23/2023	1/23/2023
Benzo (a) pyrene	200	1.4 U
Benzo(a)pyrene Equivalent	303	3.2354

Station Identification	OW004-BH011	
Sample Depth (ft bgs)	0.5 - 1.5	2.5 - 3.5
Sample Date	11/10/2015	11/10/2015
Benzo (a) pyrene	345 J	24
Benzo(a)pyrene Equivalent	489	34

Station Identification	OW004-SO005	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/23/2023	1/23/2023
Benzo (a) pyrene	7.3 J*	1.1 J
Benzo(a)pyrene Equivalent	11*	--

Station Identification	OW004-BH015	
Sample Depth (ft bgs)	0.5 - 1.5	2.5 - 3.5
Sample Date	11/28/2017	11/28/2017
Benzo (a) pyrene	180	56
Benzo(a)pyrene Equivalent	251	80

Station Identification	OW004-SO120	
Sample Depth (ft bgs)	0 - 1	2 - 3
Sample Date	8/8/2024	8/8/2024
Benzo (a) pyrene	260	8.6 J
Benzo(a)pyrene Equivalent	384	29

Station Identification	OW004-SO007	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/23/2023	1/23/2023
Benzo (a) pyrene	640	1.4 U
Benzo(a)pyrene Equivalent	974	1.2756

Station Identification	OW004-SO009	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/24/2023	1/24/2023
Benzo (a) pyrene	330	86
Benzo(a)pyrene Equivalent	504	133

Station Identification	OW004-SO103	
Sample Depth (ft bgs)	0.5 - 1.5	2 - 3
Sample Date	3/12/2024	3/12/2024
Benzo (a) pyrene	320	150
Benzo(a)pyrene Equivalent	513	220

Station Identification	OW004-BH017
Sample Depth (ft bgs)	0.5 - 1.5
Sample Date	11/28/2017
Benzo (a) pyrene	190
Benzo(a)pyrene Equivalent	276

Station Identification	OW004-SO010	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/24/2023	1/24/2023
Benzo (a) pyrene	600	1.3 J
Benzo(a)pyrene Equivalent	901	2

Station Identification	OW004-SO013	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/24/2023	1/24/2023
Benzo(a)pyrene Equivalent	140	2.1758

Station Identification	OW004-SO017	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/24/2023	1/24/2023
Benzo (a) pyrene	130	3.3 U
Benzo(a)pyrene Equivalent	183	3.8121

Station Identification	OW004-SO011	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/24/2023	1/24/2023
Benzo(a)pyrene Equivalent	148	1.6177

Station Identification	OW004-SO012	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/24/2023	1/24/2023
Benzo (a) pyrene	150	1 J
Benzo(a)pyrene Equivalent	224	2.0001

Station Identification	OW004-BH014	
Sample Depth (ft bgs)	0.5 - 1.5	2.5 - 3.5
Sample Date	11/28/2017	11/28/2017
Benzo (a) pyrene	130	19
Benzo(a)pyrene Equivalent	180	27

Notes:
Figure displays only the analytes that were above the Residential Direct Exposure and SCTL based on Groundwater Leachability.
Soil results and cleanup levels are in micrograms per kilogram.
-- = Not analyzed or not available
Alt. = alternative
B(a)p = Benzo(a)pyrene
ft bgs = feet below ground surface
J = Analyte positively identified, but the reported value is approximated.
SCTL = Soil Cleanup Target Level
U = Analyte analyzed, but not detected above the reported sample quantitation limit.

*field duplicate exceeded Residential Direct Exposure SCTL
**field duplicate did not exceed Residential Direct Exposure SCTL

Cell Formatting:
Detected Analyte
Result exceeded Industrial Direct Exposure SCTL (Alt. SCTL for B(a)p and B(a)p equivalents)
Result exceeded Residential Direct Exposure SCTL
Result exceeded SCTL based on Groundwater Leachability

Source:
FDOT Imagery Basemap (2023).

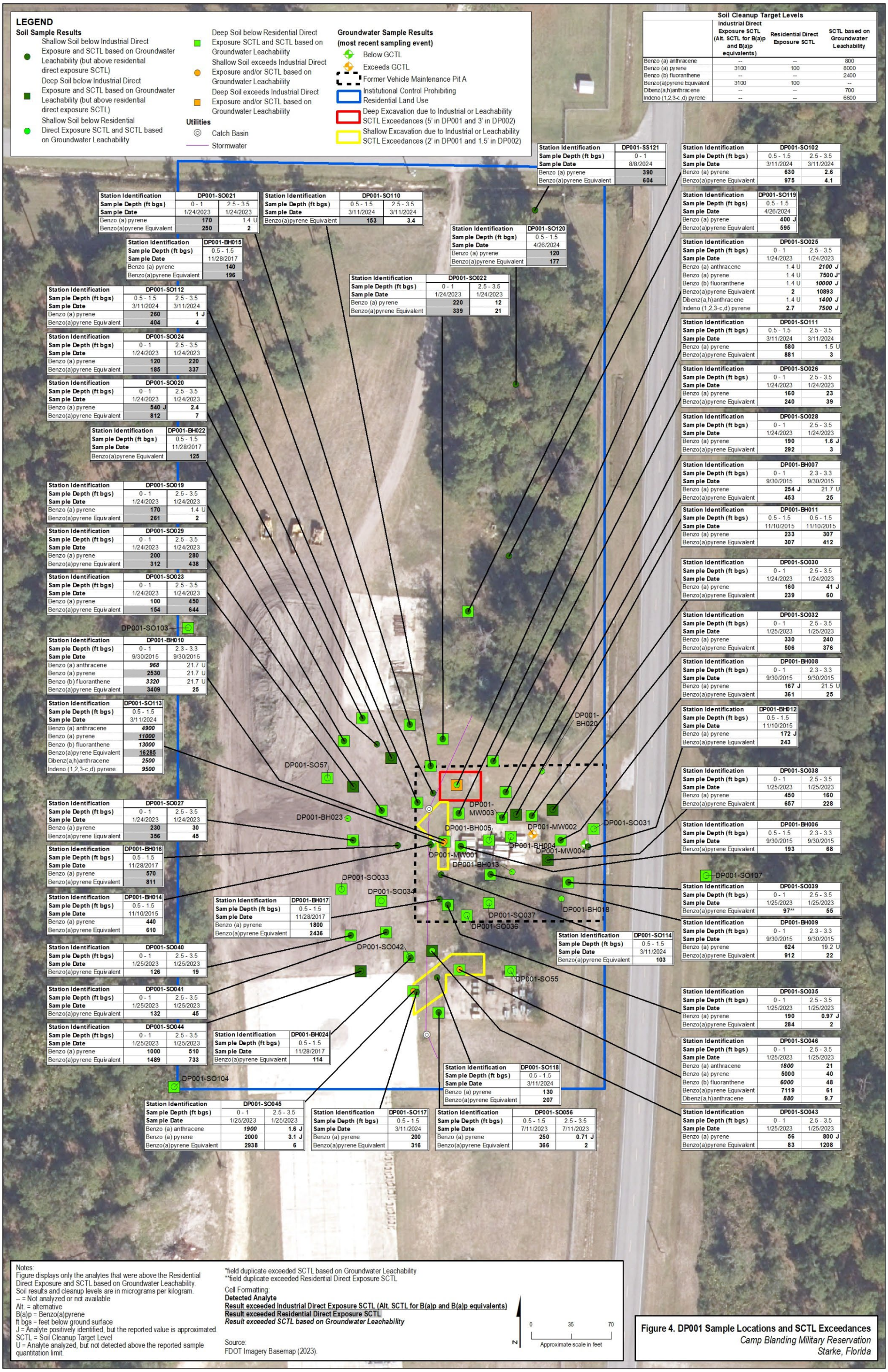
N
0 20 40
Approximate scale in feet

Figure 2. OW004 Sample Locations and SCTL Exceedances
Camp Blanding Military Reservation
Starke, Florida

Figure 3. OW004 Potentiometric Surface Map and GCTL Exceedances

Figure 3. OW004 Potentiometric Surface Map and GCTL Exceedances
Camp Blanding Military Reservation
Starke, Florida

Figure 4. DP001 Sample Locations and SCTL Exceedances



Soil Cleanup Target Levels	Industrial Direct Exposure SCTL (Alt. SCTL for B(a)p and B(a)p equivalents)	Residential Direct Exposure SCTL	SCTL based on Groundwater Leachability
Benzo (a) anthracene	--	--	800
Benzo (a) pyrene	3100	100	8000
Benzo (b) fluoranthene	--	--	2400
Benzo(a)pyrene Equivalent	3100	100	--
Dibenz(a,h)anthracene	--	--	700
Indeno (1,2,3-c,d) pyrene	--	--	6600

Station Identification	DP001-SS121
Sample Depth (ft bgs)	0 - 1
Sample Date	8/8/2024
Benzo (a) pyrene	390
Benzo(a)pyrene Equivalent	604

Station Identification	DP001-SO102	
Sample Depth (ft bgs)	0.5 - 1.5	2.5 - 3.5
Sample Date	3/11/2024	3/11/2024
Benzo (a) pyrene	630	2.6
Benzo(a)pyrene Equivalent	975	4.1

Station Identification	DP001-SO021	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/24/2023	1/24/2023
Benzo (a) pyrene	170	1.4 U
Benzo(a)pyrene Equivalent	250	2

Station Identification	DP001-SO110	
Sample Depth (ft bgs)	0.5 - 1.5	2.5 - 3.5
Sample Date	3/11/2024	3/11/2024
Benzo(a)pyrene Equivalent	153	3.4

Station Identification	DP001-SO119
Sample Depth (ft bgs)	0.5 - 1.5
Sample Date	4/26/2024
Benzo (a) pyrene	400 J
Benzo(a)pyrene Equivalent	595

Station Identification	DP001-BH015
Sample Depth (ft bgs)	0.5 - 1.5
Sample Date	11/28/2017
Benzo (a) pyrene	140
Benzo(a)pyrene Equivalent	196

Station Identification	DP001-SO120
Sample Depth (ft bgs)	0.5 - 1.5
Sample Date	4/26/2024
Benzo (a) pyrene	120
Benzo(a)pyrene Equivalent	177

Station Identification	DP001-SO025	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/24/2023	1/24/2023
Benzo (a) anthracene	1.4 U	2100 J
Benzo (a) pyrene	1.4 U	7500 J*
Benzo (b) fluoranthene	1.4 U	10000 J
Benzo(a)pyrene Equivalent	2	10893
Dibenz(a,h)anthracene	1.4 U	1400 J
Indeno (1,2,3-c,d) pyrene	2.7	7500 J

Station Identification	DP001-SO022	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/24/2023	1/24/2023
Benzo (a) pyrene	220	12
Benzo(a)pyrene Equivalent	339	21

Station Identification	DP001-SO112	
Sample Depth (ft bgs)	0.5 - 1.5	2.5 - 3.5
Sample Date	3/11/2024	3/11/2024
Benzo (a) pyrene	260	1 J
Benzo(a)pyrene Equivalent	404	4

Station Identification	DP001-SO111	
Sample Depth (ft bgs)	0.5 - 1.5	2.5 - 3.5
Sample Date	3/11/2024	3/11/2024
Benzo (a) pyrene	580	1.5 U
Benzo(a)pyrene Equivalent	881	3

Station Identification	DP001-SO024	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/24/2023	1/24/2023
Benzo (a) pyrene	120	220
Benzo(a)pyrene Equivalent	185	337

Station Identification	DP001-SO026	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/24/2023	1/24/2023
Benzo (a) pyrene	160	23
Benzo(a)pyrene Equivalent	240	39

Station Identification	DP001-SO020	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/24/2023	1/24/2023
Benzo (a) pyrene	540 J	2.4
Benzo(a)pyrene Equivalent	812	7

Station Identification	DP001-SO028	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/24/2023	1/24/2023
Benzo (a) pyrene	190	1.6 J
Benzo(a)pyrene Equivalent	292	3

Station Identification	DP001-BH022
Sample Depth (ft bgs)	0.5 - 1.5
Sample Date	11/28/2017
Benzo(a)pyrene Equivalent	125

Station Identification	DP001-BH007	
Sample Depth (ft bgs)	0 - 1	2.3 - 3.3
Sample Date	9/30/2015	9/30/2015
Benzo (a) pyrene	254 J	21.7 U
Benzo(a)pyrene Equivalent	453	25

Station Identification	DP001-SO019	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/24/2023	1/24/2023
Benzo (a) pyrene	170	1.4 U
Benzo(a)pyrene Equivalent	261	2

Station Identification	DP001-BH011	
Sample Depth (ft bgs)	0.5 - 1.5	0.5 - 1.5
Sample Date	11/10/2015	11/10/2015
Benzo (a) pyrene	233	307
Benzo(a)pyrene Equivalent	307	412

Station Identification	DP001-SO029	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/24/2023	1/24/2023
Benzo (a) pyrene	200	280
Benzo(a)pyrene Equivalent	312	438

Station Identification	DP001-SO030	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/24/2023	1/24/2023
Benzo (a) pyrene	160	41 J
Benzo(a)pyrene Equivalent	239	60

Station Identification	DP001-SO023	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/24/2023	1/24/2023
Benzo (a) pyrene	100	450
Benzo(a)pyrene Equivalent	154	644

Station Identification	DP001-SO032	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/25/2023	1/25/2023
Benzo (a) pyrene	330	240
Benzo(a)pyrene Equivalent	506	376

Station Identification	DP001-BH010	
Sample Depth (ft bgs)	0 - 1	2.3 - 3.3
Sample Date	9/30/2015	9/30/2015
Benzo (a) anthracene	968	21.7 U
Benzo (a) pyrene	2530	21.7 U
Benzo (b) fluoranthene	3320	21.7 U
Benzo(a)pyrene Equivalent	3409	25

Station Identification	DP001-BH008	
Sample Depth (ft bgs)	0 - 1	2.3 - 3.3
Sample Date	9/30/2015	9/30/2015
Benzo (a) pyrene	167 J	21.5 U
Benzo(a)pyrene Equivalent	361	25

Station Identification	DP001-SO113
Sample Depth (ft bgs)	0.5 - 1.5
Sample Date	3/11/2024
Benzo (a) anthracene	4900
Benzo (a) pyrene	11000
Benzo (b) fluoranthene	13000
Benzo(a)pyrene Equivalent	16285
Dibenz(a,h)anthracene	2500
Indeno (1,2,3-c,d) pyrene	9500

Station Identification	DP001-BH012
Sample Depth (ft bgs)	0.5 - 1.5
Sample Date	11/10/2015
Benzo (a) pyrene	172 J
Benzo(a)pyrene Equivalent	243

Station Identification	DP001-SO038	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/25/2023	1/25/2023
Benzo (a) pyrene	450	160
Benzo(a)pyrene Equivalent	657	228

Station Identification	DP001-SO027	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/24/2023	1/24/2023
Benzo (a) pyrene	230	30
Benzo(a)pyrene Equivalent	356	45

Station Identification	DP001-BH006	
Sample Depth (ft bgs)	0.5 - 1.5	2.3 - 3.3
Sample Date	9/30/2015	9/30/2015
Benzo(a)pyrene Equivalent	193	68

Station Identification	DP001-BH016
Sample Depth (ft bgs)	0.5 - 1.5
Sample Date	11/28/2017
Benzo (a) pyrene	570
Benzo(a)pyrene Equivalent	811

Station Identification	DP001-BH014
Sample Depth (ft bgs)	0.5 - 1.5
Sample Date	11/10/2015
Benzo (a) pyrene	440
Benzo(a)pyrene Equivalent	610

Station Identification	DP001-BH017
Sample Depth (ft bgs)	0.5 - 1.5
Sample Date	11/28/2017
Benzo (a) pyrene	1800
Benzo(a)pyrene Equivalent	2436

Station Identification	DP001-SO039	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/25/2023	1/25/2023
Benzo(a)pyrene Equivalent	97**	55

Station Identification	DP001-BH009	
Sample Depth (ft bgs)	0 - 1	2.3 - 3.3
Sample Date	9/30/2015	9/30/2015
Benzo (a) pyrene	624	19.2 U
Benzo(a)pyrene Equivalent	912	22

Station Identification	DP001-SO040	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/25/2023	1/25/2023
Benzo(a)pyrene Equivalent	126	19

Station Identification	DP001-SO114
Sample Depth (ft bgs)	0.5 - 1.5
Sample Date	3/11/2024
Benzo(a)pyrene Equivalent	103

Station Identification	DP001-SO041	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/25/2023	1/25/2023
Benzo(a)pyrene Equivalent	132	45

Station Identification	DP001-SO035	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/25/2023	1/25/2023
Benzo (a) pyrene	190	0.97 J
Benzo(a)pyrene Equivalent	284	2

Station Identification	DP001-SO044	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/25/2023	1/25/2023
Benzo (a) pyrene	1000	510
Benzo(a)pyrene Equivalent	1489	733

Station Identification	DP001-BH024
Sample Depth (ft bgs)	0.5 - 1.5
Sample Date	11/28/2017
Benzo(a)pyrene Equivalent	114

Station Identification	DP001-SO118
Sample Depth (ft bgs)	0.5 - 1.5
Sample Date	3/11/2024
Benzo (a) pyrene	130
Benzo(a)pyrene Equivalent	207

Station Identification	DP001-SO046	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/25/2023	1/25/2023
Benzo (a) anthracene	1800	21
Benzo (a) pyrene	5000	40
Benzo (b) fluoranthene	6000	48
Benzo(a)pyrene Equivalent	7119	61
Dibenz(a,h)anthracene	880	9.7

Station Identification	DP001-SO045	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/25/2023	1/25/2023
Benzo (a) anthracene	1900	1.6 J
Benzo (a) pyrene	2000	3.1 J
Benzo(a)pyrene Equivalent	2938	6

Station Identification	DP001-SO117
Sample Depth (ft bgs)	0.5 - 1.5
Sample Date	3/11/2024
Benzo (a) pyrene	200
Benzo(a)pyrene Equivalent	316

Station Identification	DP001-SO056	
Sample Depth (ft bgs)	0.5 - 1.5	2.5 - 3.5
Sample Date	7/11/2023	7/11/2023
Benzo (a) pyrene	250	0.71 J
Benzo(a)pyrene Equivalent	366	2

Station Identification	DP001-SO043	
Sample Depth (ft bgs)	0 - 1	2.5 - 3.5
Sample Date	1/25/2023	1/25/2023
Benzo (a) pyrene	56	800 J
Benzo(a)pyrene Equivalent	83	1208

Notes:
Figure displays only the analytes that were above the Residential Direct Exposure and SCTL based on Groundwater Leachability.
Soil results and cleanup levels are in micrograms per kilogram.
-- = Not analyzed or not available
Alt. = alternative
B(a)p = Benzo(a)pyrene
ft bgs = feet below ground surface
J = Analyte positively identified, but the reported value is approximated.
SCTL = Soil Cleanup Target Level
U = Analyte analyzed, but not detected above the reported sample quantitation limit.

*field duplicate exceeded SCTL based on Groundwater Leachability
**field duplicate exceeded Residential Direct Exposure SCTL

Cell Formatting:
Detected Analyte
Result exceeded Industrial Direct Exposure SCTL (Alt. SCTL for B(a)p and B(a)p equivalents)
Result exceeded Residential Direct Exposure SCTL
Result exceeded SCTL based on Groundwater Leachability

Source:
FDOT Imagery Basemap (2023).

N
0 35 70
Approximate scale in feet

Figure 4. DP001 Sample Locations and SCTL Exceedances
Camp Blanding Military Reservation
Starke, Florida

Figure 5. DP001 Potentiometric Surface Map and GCTL Exceedances

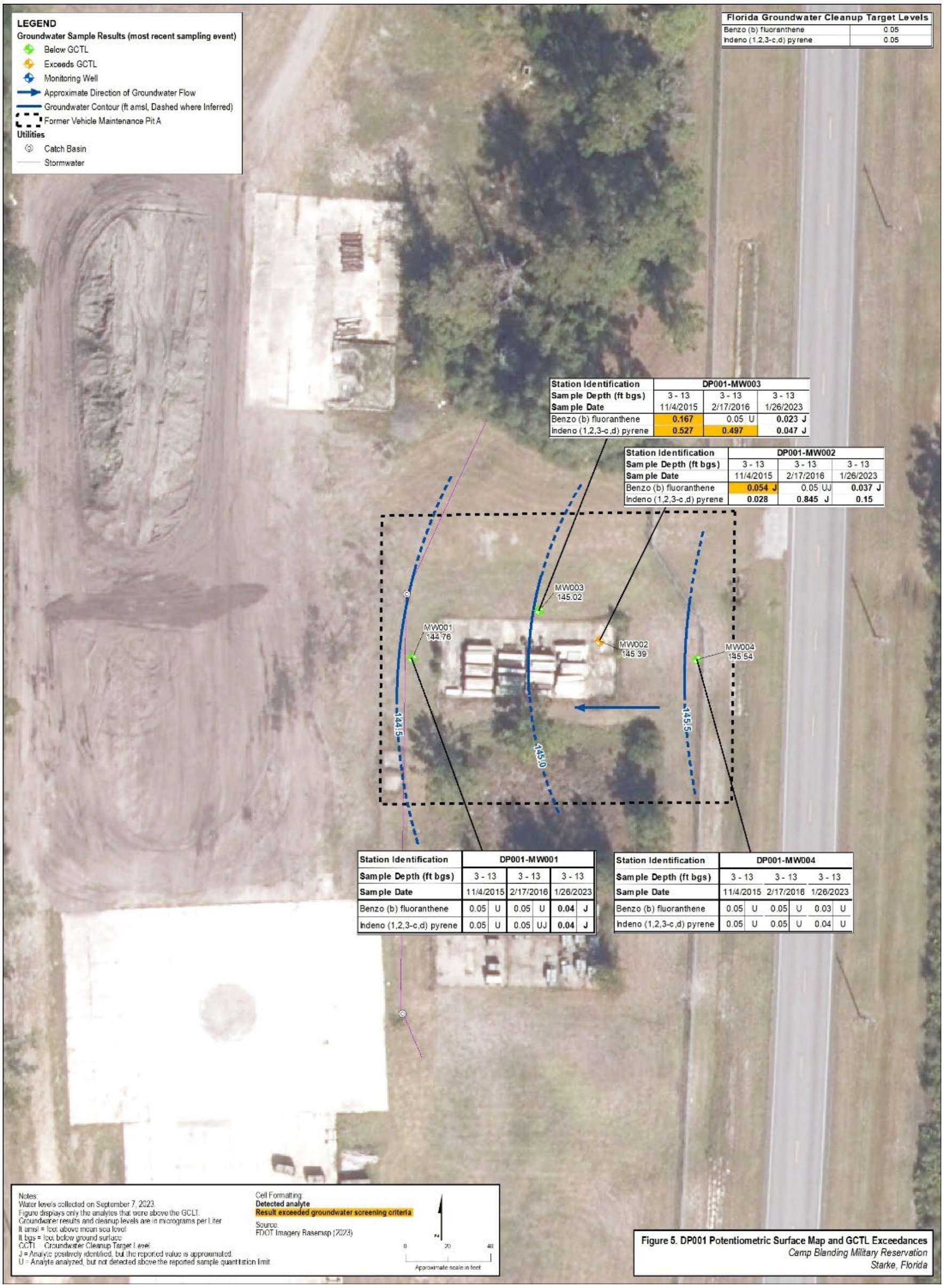


Figure 5. DP001 Potentiometric Surface Map and GCTL Exceedances
Camp Blanding Military Reservation
Starke, Florida

Figure 6. DP002 Sample Locations and SCTL Exceedances

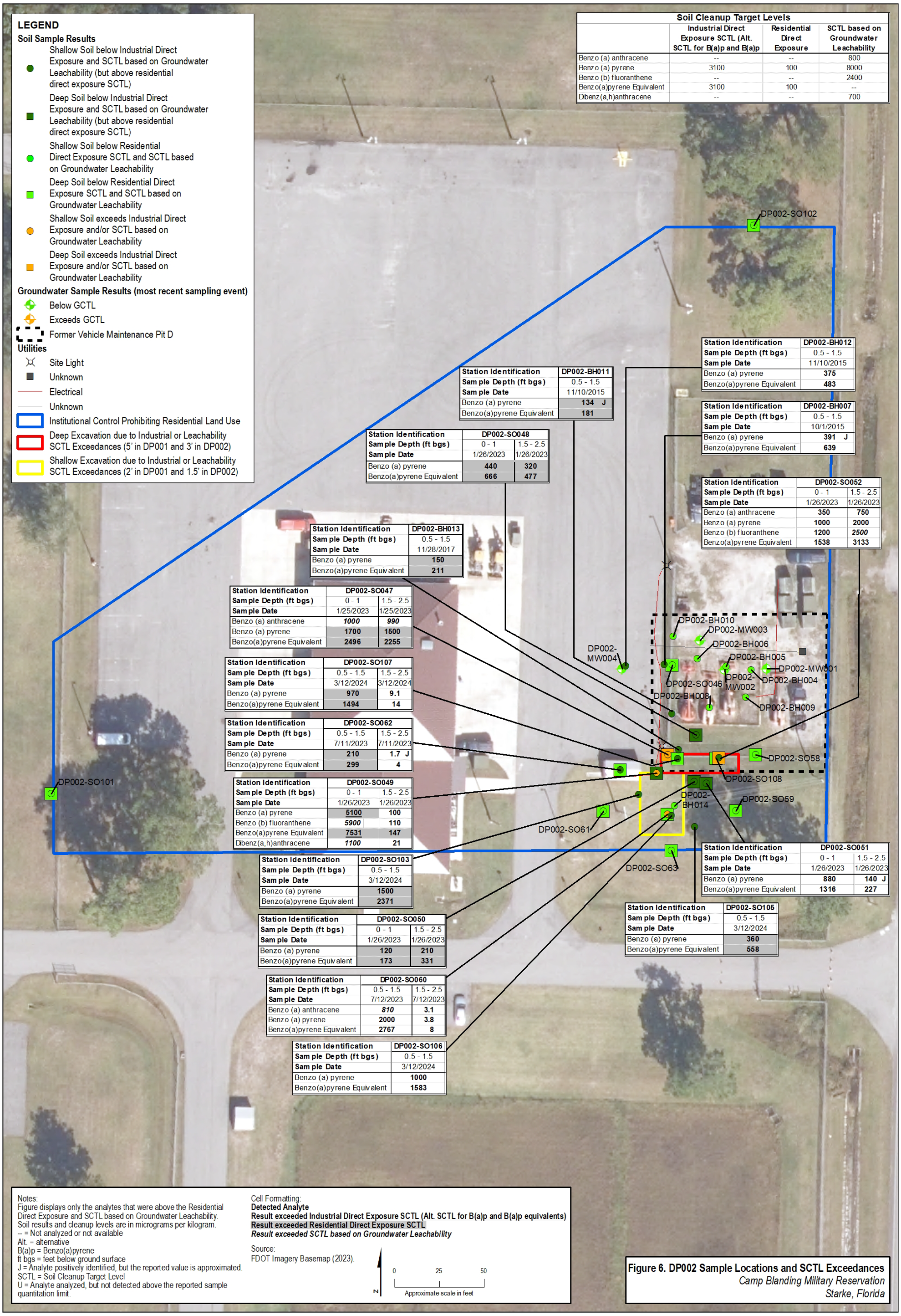


Figure 7. DP002 Potentiometric Surface Map and GCTL Exceedances

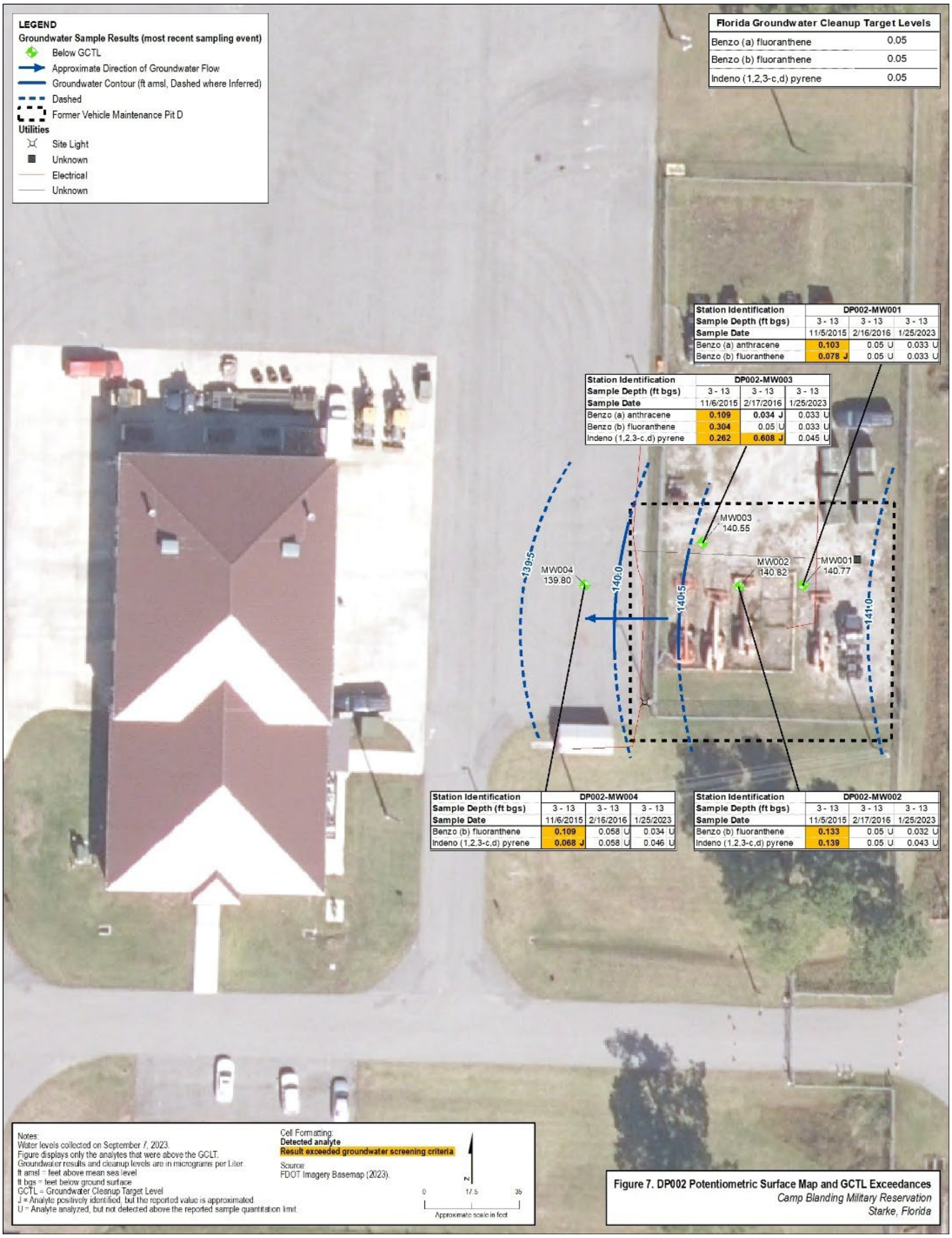


Figure 7. DP002 Potentiometric Surface Map and GCTL Exceedances
Camp Blanding Military Reservation
Starke, Florida

Figure 8. Conceptual Site Model for OW004

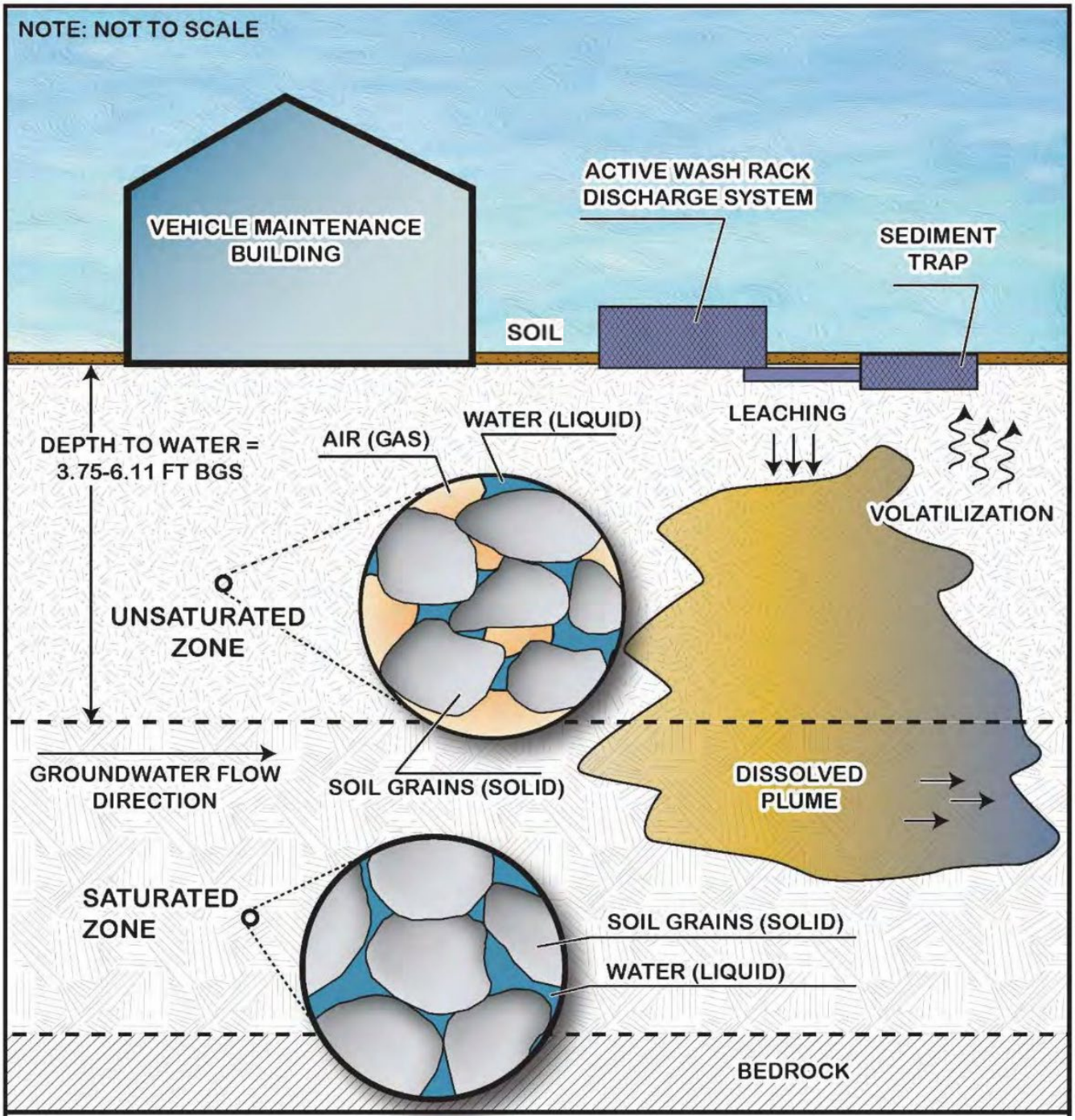


Figure 9. Conceptual Site Model for DP001

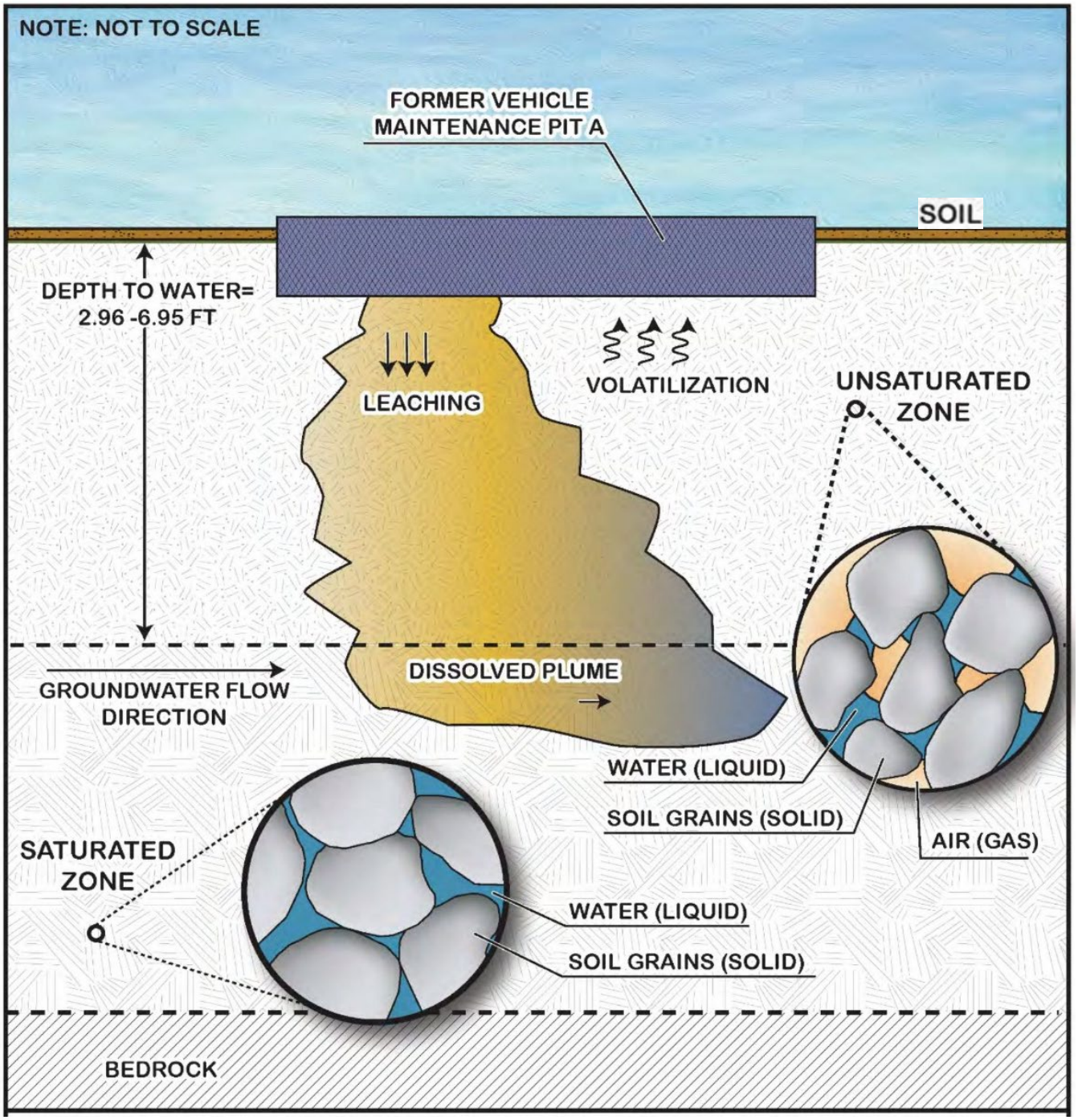
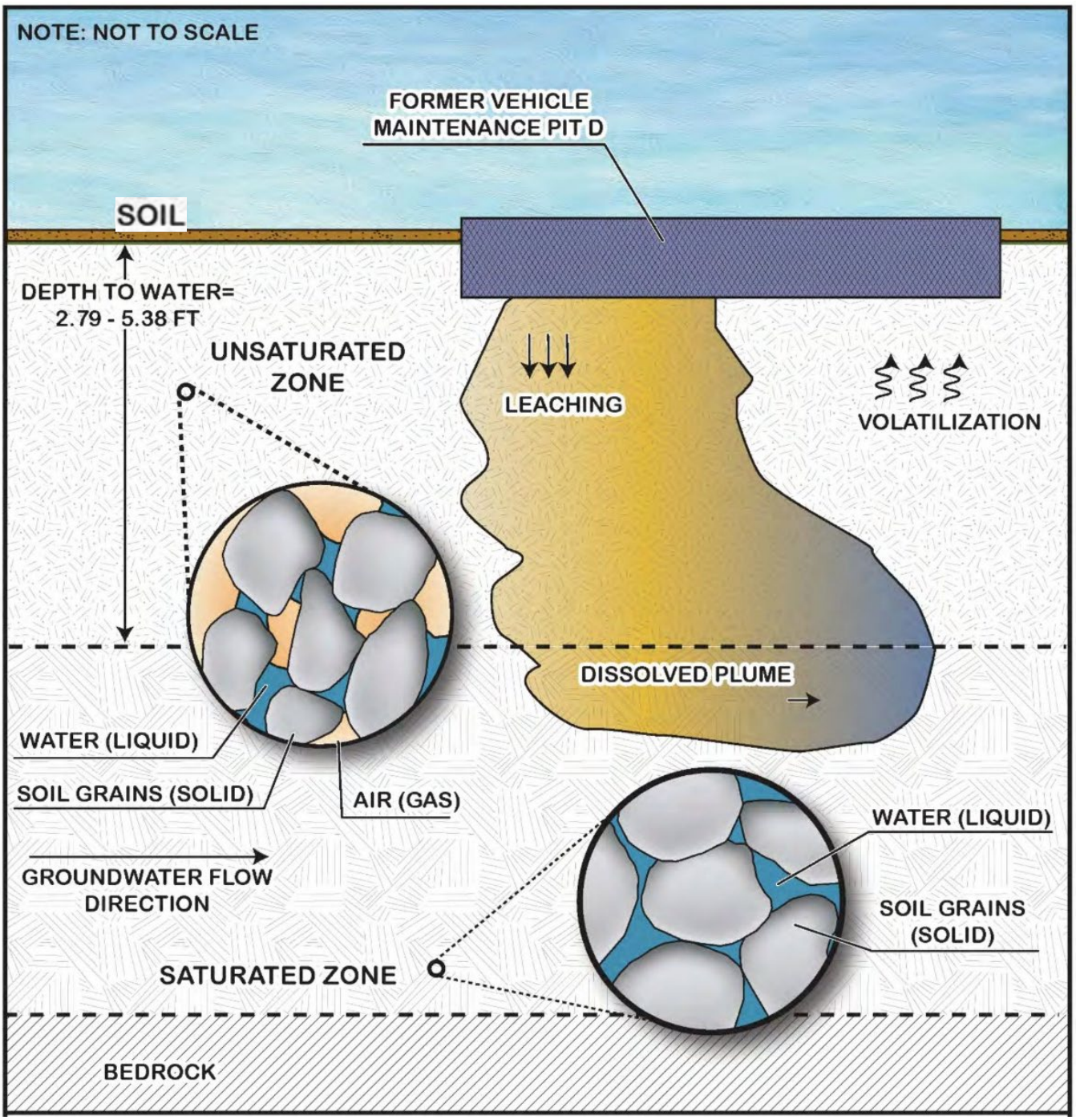


Figure 10. Conceptual Site Model for DP002



Principal Threat Wastes

"Principal threat wastes" are source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should they be exposed.

Source material is not known to be present at OW004, DP001, or DP002. No high concentrations of COCs were in subsurface soil, and there were limited extents of groundwater impacts above GCTLs. Concentrations were within one order magnitude of the SCTLs and GCTLs; therefore, it is reasonable to conclude that principal threat wastes are not present.

4. Scope and Role of the Action

The **response action** for sites OW004, DP001, and DP002 presented in this PP Amendment is intended to address an unacceptable risk to human health from soil and groundwater exceedances of FDEP cleanup target levels (CTLs). This response action is intended to be a final action for soil. The groundwater remedy will require long-term monitoring (LTM) to determine the effectiveness and time required to reach cleanup goals or if additional groundwater remedies are required.

The NCP, under Title 40 *Code of Federal Regulations* (CFR) Section 300.430(f)(4)(ii), requires that periodic reviews be conducted if a remedial action is selected that results in contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure. These reviews are conducted no less often than every 5 years after the selected remedial action is initiated. The 5-year review will evaluate groundwater quality improvement and the ability of the remedy to meet the respective CTLs and comply with the corresponding chemical-specific ARARs within a reasonable period of time.

The action recommended in this PP Amendment will neither be inconsistent with, nor preclude, implementation of a final groundwater remedy, if required, as determined by LTM.

5. Summary of Site Risks

To evaluate human health risk, analytical data were screened against the FDEP CTLs (FDEP, 2005). CTLs are default cleanup criteria that may be used in lieu of risk assessments and calculation of site-specific CTLs. CTLs are specific to human health and are not intended to be protective of other species or the ecosystem.

Although Camp Blanding currently is not used for residential purposes and groundwater is not used as a potable drinking water source and has little or no potential for being used as such, the soil concentrations at OW004, DP001, and DP002 were evaluated against residential, industrial, and groundwater leachability SCTLs as outlined in F.A.C. Chapter 62-780.680.

Human Health Risks

Soil samples collected from 0 to 2 feet bgs were compared to residential and industrial direct exposure SCTLs (FDEP 2005). Soil samples collected at depths greater than 2 feet bgs were compared to groundwater **leachability** SCTLs. Groundwater samples were compared to GCTLs.

In addition to evaluating individual concentrations of PAHs, the total benzo(a)pyrene equivalent was calculated to evaluate the combined risk from a mixture of carcinogenic PAHs in soil. The FDEP maintains toxicity equivalent factors (TEF) values for the following PAHs:

- Benzo(a)anthracene: 0.10
- Benzo(a)pyrene: 1.0
- Benzo(b)fluoranthene: 0.10
- Benzo(k)fluoranthene: 0.01
- Chrysene: 0.001
- Dibenzo(a,h)anthracene: 1.0
- Indeno(1,2,3-cd)pyrene: 0.10

The observed concentration of each of these PAHs was multiplied by the TEF and summed to calculate the total benzo(a)pyrene equivalent for each soil sample. The resulting benzo(a)pyrene equivalent was compared to the SCTL for benzo(a)pyrene (refer to Section 6).

Concentrations greater than the respective SCTLs or GCTLs represent chemicals which pose an unacceptable human health risk. Except for methylene chloride, these constituents are identified as COCs.

Based on the results of the previous studies, unacceptable risks remain at Camp Blanding as summarized in Table 2.

Table 2. Constituents of Concern

Site	Media	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Total benzo(a)pyrene equivalents[a]
OW004	SOIL		●	●	●		●
	GW			●		●	
DP001	SOIL	●	●	●	●	●	●
	GW			●		●	
DP002	SOIL		●		●		●
	GW	●		●		●	

● – Constituent of concern for the site

[a] Benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene concentrations are required to calculate total benzo(a)pyrene equivalents

Ecological Risk

Camp Blanding is an industrial and urban environment setting, and OW004, DP001, and DP002 are within installation boundaries. The surface cover at OW004, DP001, and DP002 is a mixture of concrete and soil. Ecological diversity in this type of habitat is low. The lack of trees, particularly pines, and low diversity in groundcover makes this site unsuitable habitat for federally listed threatened or endangered species present in Clay County. The risk to ecological populations at each site is de minimis.

Conclusion

It is the ANG's judgment that the preferred alternative identified in this PP Amendment, or one of the other active measures considered in this PP Amendment, is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment

6. Remedial Action Objectives

To be protective of human health and the environment, the **remedial action objectives** (RAOs) for soil and groundwater at OW004, DP001, and DP002 are as follows:

- Reduce COC concentrations in soil caused by site releases to less than the direct exposure industrial SCTLs and leaching to GCTLs specified in F.A.C. 62-777 Table II SCTLs, alternative SCTLs calculated in accordance with equations in F.A.C. 62-780.650, or background levels, whichever is higher.
- Reduce COC concentrations caused by site releases to groundwater to less than F.A.C. 62-777 Table I Groundwater Criteria GCTLs, background concentrations (if calculated in the future), or best achievable detection limits, whichever is higher, as long as groundwater contaminant concentrations do not exceed Freshwater Cleanup Target Levels in groundwater sampled from monitoring wells collected near respective freshwater surface water bodies (the sites being remediated are not near saltwater bodies).
- Prevent exposure to contaminated soil and groundwater that could be damaging to human health.
- Comply with all **National Guard Bureau** policies to perform response actions in accordance with CERCLA.

The RAOs were developed to minimize the potential for exposure to contaminants at concentrations that could pose unacceptable risk. The concentration of COCs considered acceptable to leave in place is called the **preliminary remediation goal** (PRG). Based on an evaluation of ARARs, the PRGs are equivalent to the F.A.C.'s SCTLs and GCTLs and alternative industrial direct exposure SCTL as documented in the FS Amendment (Jacobs 2024). The PRGs for the COCs in soil are:

- Benzo(a)pyrene:
  - 100 micrograms per kilogram (µg/kg) for residential direct exposure
  - 3,100 µg/kg for industrial direct exposure (alternative criteria)
  - 8,000 µg/kg for groundwater leachability
- Total benzo(a)pyrene equivalents:
  - 100 µg/kg for residential direct exposure
  - 3,100 µg/kg for industrial direct exposure (alternative criteria)

Total benzo(a)pyrene equivalents are calculated by multiplying the concentration of each of the seven carcinogenic PAH compounds listed below by its corresponding TEF value and then summing the results. The TEFs are:

  - Benzo(a)anthracene: 0.10
  - Benzo(a)pyrene: 1.0
  - Benzo(b)fluoranthene: 0.10
  - Benzo(k)fluoranthene: 0.01
  - Chrysene: 0.001
  - Dibenzo(a,h)anthracene: 1.0
  - Indeno(1,2,3-cd)pyrene: 0.10

- Benzo(a)anthracene: 800 µg/kg for groundwater leachability
- Benzo(b)fluoranthene: 2,400 µg/kg for groundwater leachability
- Dibenz(a,h)anthracene: 700 µg/kg for groundwater leachability
- Indeno(1,2,3-c,d)pyrene: 6,600 µg/kg for groundwater leachability

The PRGs for the COCs in groundwater are:

- Benzo(a)anthracene: 0.05 **microgram per liter** (µg/L)
- Benzo(b)fluoranthene: 0.05 µg/L
- Indeno(1,2,3-cd)pyrene: 0.05 µg/L

7. Summary of ARARs

ARARs are divided into three categories as follows:

- Chemical-specific ARARs include laws and requirements that provide allowable concentrations of specific chemicals in soil, groundwater, or other environmental media.
- Action-specific ARARs are based on activities that will be conducted as a part of the remedial action.
- Location-specific ARARs are requirements based on the geographic location of the site.

Other advisories, criteria, or guidance may be identified as "**to be considered**" (TBC) for a particular release.

TBC advisories, criteria, or guidance are not potential ARARs because they are not promulgated or enforceable; however, they must be attained to the same extent as ARARs if they are included in a decision document.

The following federal and state chemical-specific ARARs have been identified for the site. No action-specific or location-specific ARARs have been identified.

Chemical-Specific ARARs

Chapter 62-777, F.A.C.: Provides cleanup levels (GCTLs and SCTLs) in F.A.C. 62-777.170 Table I, Groundwater and Surface Water Cleanup Target Levels and Table II, Soil Cleanup Target Levels. The PRGs in Section 6 are based on residential or industrial land use and include SCTLs and GCTLs for COCs in OW004, DP001, and DP002

40 CFR Part 141 Subpart G, National Primary Drinking Water Regulations: Establishes maximum contaminant levels (MCLs) for potable water supply.

To Be Considered

U.S. Environmental Protection Agency (EPA) Regional Screening Levels (RSLs): EPA RSLs are criteria based on human health risk, but do not address potential ecological risk. These are TBC in development of PRGs.

8. Summary of Remedial Alternatives

The remedial alternatives considered for soil and groundwater at OW004, DP001, and DP002 are presented below. The remedial alternatives were developed to address the risks and hazards for PAH concentrations in soil and groundwater that remain above the PRGs. Additional details are in the FS report (TEC-Weston JV 2019) and FS Amendment (Jacobs 2024), as part of the Administrative Record.

The ANG's preferred alternative for soil remediation is Revised Alternative 4, which includes excavation and offsite disposal of contaminated soil exceeding industrial direct exposure or groundwater leachability SCTLs. Soil exceeding residential direct exposure SCTLs would be managed with institutional controls (ICs). For groundwater, Alternative 4 is preferred, which includes enhanced **biodegradation** with periodic groundwater monitoring and institutional controls to prevent using groundwater for drinking water. The groundwater remedy would be implemented only if groundwater sampling indicated site closeout would not be achieved in a reasonable timeframe.

Cost estimates were developed for the remedial alternatives as part of the FS, which was prepared in 2019. The FS remedial alternatives and preliminary cost estimates for soil and groundwater were increased by 25 percent to account for inflation from

2019 to 2024. A cost estimate was prepared for Revised Soil Alternative 4 as a part of the FS Amendment. All cost estimates include a 20 percent contingency. Soil and groundwater alternatives are summarized below.

Soil Alternative 1: No Action

This alternative is required by the NCP as a baseline for comparison to the other remedial alternatives.

- Estimated capital cost: $0
- Estimated operation and maintenance (O&M): $0
- Estimated total cost: $0

The No Action alternative does not eliminate, reduce, or control threats to human health and the environment and therefore is not acceptable to FDEP.

Soil Alternative 2: Long-Term Monitoring with Institutional Controls

Soil Alternative 2 relies on **natural attenuation** to reduce the concentration and mass of the COCs. LTM would monitor the changes in COC concentrations over time. Though the COCs in soil would not be treated, the alternative would provide protection of human health and the environment through ICs to prevent disturbance of contaminated soil until the associated risk is at an acceptable level. Soil COCs would be monitored via groundwater contamination levels according to the **natural attenuation monitoring** (NAM) sampling schedule as required by F.A.C. 62-780.

The assumed duration of this alternative is 30 years of groundwater monitoring with ICs based on an estimate that natural attenuation processes would require up to 30 years to achieve cleanup levels (TEC-Weston JV 2019). Five-year reviews would be conducted as required by the NCP as long as COCs in groundwater remain above the PRGs and to determine when ICs can be removed.

- Estimated capital cost: $237,299
- Estimated subsequent years cost: $943,950
- Estimated total cost: $1,181,249

This alternative is acceptable to FDEP.

Soil Alternative 3: In Situ Soil Blending

Soil Alternative 3 involves treating soil contaminants in place with one application of appropriate additives. The soil would be mixed to ensure an even distribution of the additives. The additives would destroy the COCs by converting them to innocuous compounds. Soil sampling would be performed during treatment and post-treatment to verify the contaminant levels are below PRGs. Quantities and costs have not been recalculated based on the findings of the PDI but would increase as a result of the extents of residential direct exposure SCTL exceedances.

The assumed duration of this alternative is 3 years for treatment and monitoring activities. This assumes a 1-year treatment period and 2 years of post-treatment monitoring.

- Estimated capital cost: $423,563
- Estimated subsequent years cost: $321,195
- Estimated total cost: $733,758

This alternative is acceptable to FDEP.

Revised Soil Alternative 4: Excavation to Industrial Direct Exposure and Groundwater Leachability SCTLs with Offsite Disposal and Institutional Controls

Revised Soil Alternative 4 includes excavation and offsite disposal of contaminated soil exceeding industrial direct exposure and groundwater leachability SCTLs. All soils exceeding groundwater leachability SCTLs, which consider the leaching from soil-to-groundwater pathway, would be excavated to remove any potential for contaminants to leach from soil into groundwater after excavation activities are completed. Soil would be excavated in those areas with contaminated soil attributable to site releases (that is, not within 10 feet of parking areas or other potential anthropogenic sources of PAHs not related to site releases).

Excavation depths are determined based on sample intervals and water table depth. At DP001, soil would be excavated to 2 feet bgs or 5 feet bgs. At DP002, soil would be excavated to 1.5 feet bgs or 3 feet bgs. No excavation is required at OW004 based on industrial direct exposure and groundwater leachability SCTLs.

Waste characterization samples would be collected during excavation activities so that the excavated soil is properly disposed of. The excavated soil would be replaced with clean backfill. Confirmation sampling would be completed before backfilling to verify that the contaminated soil has been removed. Quarterly groundwater sampling would be performed for 1 year (estimated) after remedial activities are complete to

verify the effect of source removal on groundwater contamination.

The assumed duration of this alternative is 2 years for excavation and monitoring activities.

- Estimated capital cost: $485,000
- Estimated subsequent years cost: $175,400
- Estimated total cost: $625,400

Groundwater Alternative 1: No Action

This alternative is required by the NCP as a baseline for comparison to the other remedial alternatives. Contaminants would continue to naturally attenuate; however, there would not be a monitoring program to measure progress in achieving PRGs.

- Estimated capital cost: $0
- Estimated O&M: $0
- Estimated total cost: $0

The No Action alternative does not eliminate, reduce, or control threats to human health and the environment and therefore is not acceptable to FDEP.

Groundwater Alternative 2: Institutional Controls

Groundwater Alternative 2 does not implement remedial activities, but instead relies solely on ICs to abate human health and environmental risks. Local ordinances would prohibit the installation of new wells at Camp Blanding until groundwater is considered safe at OW004, DP001, and DP002 (F.A.C. 62-524.420(4)). Installation of groundwater wells within 1,000 feet of OW004, DP001, and DP002 also would be prohibited under F.A.C. 62-524.420(4).

COC concentrations would reduce over time by natural attenuation. The amount of time it would take for COC concentrations to comply with the PRGs is unknown but likely would be extensive. For cost estimating purposes, 30 years was assumed; however, we expect the cleanup period to be reduced because of remedial actions eliminating soil contamination at the sites. With IC implementation, monitoring is not required to evaluate attenuation rates; however, since COCs would remain onsite, a site review would be performed every 5 years and would consist of a site walk and brief memorandum to FDEP to document that ICs are being followed.

- Estimated capital cost: $32,403
- Estimated subsequent years cost: $37,881
- Estimated total cost: $70,284

Due to the uncertainty of the timeframe to meet PRGs and subsequently, the path toward unrestricted groundwater use, this alternative is not acceptable to FDEP.

Groundwater Alternative 3: Long-Term Monitoring with Institutional Controls

Like Groundwater Alternative 2, Groundwater Alternative 3 includes ICs to protect human health and the environment while COCs naturally attenuate. However, under Groundwater Alternative 3, groundwater COCs would be monitored at nine existing **monitoring wells** in accordance with the NAM sampling schedule, as required by F.A.C. 62-780 and described in the Petroleum Restoration Monitoring Guide (https://floridadep.gov/waste/petroleum-restoration/ontent/sop-site-manager-monitoring-guide) while natural attenuation occurs. Groundwater monitoring would continue until COC concentrations are below the PRGs.

The assumed duration of this alternative is 30 years; however, if groundwater sampling identifies significant reductions in contaminants, the duration could be shorter. Five-year reviews would be conducted as required by the NCP as long as COCs in groundwater remain above the PRGs and to determine when ICs can be removed.

Although chemical concentrations may persist for a long period, this alternative is still feasible since there is no continuous or residual COC source, PAHs are relatively immobile and not likely to migrate offsite, and, based on historical site investigations, the natural groundwater conditions at all three sites support LTM.

- Estimated capital cost: $237,353
- Estimated subsequent years cost: $1,007,082
- Estimated total cost: $1,244,435

This alternative is acceptable to FDEP.

Groundwater Alternative 4: Enhanced Biodegradation with Institutional Controls

Groundwater Alternative 4 includes groundwater treatment through enhanced biodegradation. An **amendment** that releases oxygen would be added to groundwater to promote biodegradation and transformation of the PAHs in groundwater into less toxic or harmless byproducts. ICs would be implemented to restrict access to groundwater post-

treatment until the amendment neutralizes. The amendment would be injected into groundwater, and monitoring wells would be sampled approximately 2 weeks after the injection event to evaluate the effectiveness of treatment. Active remediation monitoring (ARM) sampling would continue to be conducted quarterly, until the injected amendment is no longer present in groundwater (assumed to be 1 year for cost estimating purposes). Then, 1 year of quarterly post-active remediation monitoring (PARM) would be conducted and depending on the results of the post-remediation monitoring, the sites would either move toward closure or NAM groundwater sampling would continue until the sites are eligible for closure.

For cost estimating purposes, the assumed duration of this alternative is 5 years.

- Estimated capital cost: $213,096
- Estimated subsequent years cost: $519,666
- Estimated total cost: $732,762

This alternative is acceptable to FDEP.

Groundwater Alternative 5: Air Sparging

Groundwater Alternative 5 would treat COCs in groundwater via **air sparging,** which is a method to inject air into groundwater to enhance biodegradation of contaminants as well as promote **volatilization** of contaminants. This alternative would require installation of new air sparge wells and observation wells. A pilot study would be conducted to determine treatment effectiveness. If the pilot study indicates that air sparging is an effective treatment method, a full-scale system would be implemented.

During treatment, nine existing monitoring wells would be sampled quarterly. Treatment is anticipated to take 1 year; however, ARM would occur until volatilized contaminants are no longer present in soil or the extracted vapor. Once ARM is complete, 1 year of quarterly PARM would begin. Pending the results of the post-remediation monitoring, the sites would either move toward closure or NAM groundwater sampling until the sites are eligible for closure. For cost estimating purposes, the assumed duration of this alternative is 3 years.

- Estimated capital cost: $787,790
- Estimated subsequent years cost: $346,393
- Estimated total cost: $1,134,183

This alternative is acceptable to FDEP.

9. Evaluation of Alternatives

To evaluate the remedial alternatives and make an orderly progression toward selection of a preferred alternative, the NCP employs nine criteria in decision making (Table 3). These criteria provide grounds for comparing the relative performance of the alternatives and identifying the advantages and disadvantages of each. This approach is intended to provide sufficient information to adequately compare the alternatives and select the most appropriate alternative for implementation at the site as a remedial action.

Each alternative must first satisfy two **threshold criteria** to receive further consideration: overall protection of human health and the environment, and compliance with ARARs. Next, the alternatives are evaluated using five **balancing criteria:** long-term effectiveness and permanence; reduction of toxicity, mobility, and volume through treatment; short-term effectiveness and sustainability; implementability; and cost. Following the public comment period, the alternatives finally are evaluated using two **modifying criteria:** state acceptance and community acceptance.

This section profiles the performance of each alternative against the evaluation criteria, noting how it compares to the other cleanup options that pertain to the site. Tables 4 and 5 present a comparative analysis of the soil and groundwater alternatives, respectively, with the criteria.

Threshold Criteria

Overall Protection of Human Health and the Environment

The soil alternatives protect human health and the environment, except Soil Alternative 1 (No Action). The other alternatives will protect human health and the environment through treatment, removal, and/or ICs. During remedial actions for Soil Alternative 3 and Revised Soil Alternative 4, site worker protections and building restrictions will prevent exposure during remedial activities. Revised Soil Alternative 4 would also include ICs to prevent **residential-type land use** until residential direct exposure SCTLs are met, or until the ANG completes a site-specific risk assessment showing the intended use does not pose an unacceptable risk.

The groundwater alternatives, except Groundwater Alternative 1 (No Action), protect human health and the environment. Under Alternatives 2 and 3, ICs would provide protection by prohibiting groundwater

use but would not directly address reduction of groundwater contaminants. Alternatives 4 and 5 would reduce contaminants in groundwater through active remediation.

Compliance with ARARs

Section 121(d) of CERCLA, as amended, specifies in part that remedial actions for cleanup of hazardous substances must comply with requirements and standards under federal or more stringent state environmental laws and ARARs to the hazardous substances or particular circumstances at a site unless such ARAR(s) are waived under CERCLA Section 121(d)(4); refer also to 40 CFR Section 300.430(f)(1)(ii)(B).

The soil alternatives, except Soil Alternative 1 (No Action), are expected to comply with ARARs, as COCs would eventually be reduced below chemical-specific ARARs (Soil Alternatives 2 and 3) or COCs would be removed during excavation activities (Revised Soil Alternative 4). For Alternative 2, ICs would be in place until the RAOs are achieved, and monitoring would be conducted to document COC degradation. Under Soil Alternative 3 and Revised Soil Alternative 4, post-remediation soil sampling also would be conducted to verify COC removal from soil to the respective criteria. Revised Soil Alternative 4 would include ICs to prevent residential-type purposes until residential direct exposure SCTLs are met.

Table 3. Nine Evaluation Criteria for Remedial Alternatives under NCP

Threshold Criteria
1. Overall Protection of Human Health and the Environment—Determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through ICs, engineering controls, or treatment.
2. Compliance with ARARs—Evaluates whether the alternative meets federal and state environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified.
Balancing Criteria
3. Long-term Effectiveness and Performance—Considers the ability of an alternative to maintain protection of human health and the environment over time.
4. Reduction in Toxicity, Mobility, or Volume of Contaminants through Treatment—Evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.
5. Short-term Effectiveness—Considers the time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation.
6. Implementability—Considers the technical and administrative feasibility of implementing the alternative and the availability of services and materials required during its implementation.
7. Cost—Includes estimated capital and annual O&M costs, as well as present worth cost. Present worth is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50% to -30%.
Modifying Criteria
8. State/Support Agency Acceptance—Considers whether the state/support agency agrees with the lead agency's analyses and recommendations, as described in the focused feasibility study report and the PP.
9. Community Acceptance—Considers whether the community agrees with the lead agency's recommendations, as described in the PP and PP Amendment.

Table 4. Comparative Analysis of Soil Alternatives

Remedial Action Alternative	Overall Protection of Human Health and the Environment	Compliance with ARARs	Long-term Effectiveness	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-term Effectiveness	Implementability	Cost
1. No Action	○	○	○	○	○	●	$0
2. LTM with ICs	●	●	◒	○	●	●	$1,181,249
3. In Situ Soil Blending	●	●	◒	●	◒	◒	$733,758
4 – Excavation with Offsite Disposal and ICs	●	●	●	◒	◒	●	$625,400

● = Fully meets criterion
◒ = Partially meets criterion
○ = Does not meet criterion

Table 5. Comparative Analysis of Groundwater Alternatives

Remedial Action Alternative	Overall Protection of Human Health and the Environment	Compliance with ARARs	Long-term Effectiveness	Reduction in Toxicity, Mobility, or Volume through Treatment	Short-term Effectiveness	Implementability	Cost
1. No Action	○	○	○	○	○	●	$0
2. ICs	●	○	◒	○	●	●	$70,284
3. LTM with ICs	●	●	◒	○	●	●	$1,244,435
4. Enhanced Biodegradation with ICs	●	●	●	●	◒	◒	$732,762
5. Air Sparging	●	●	●	●	◒	◒	$1,134,183

● = Fully meets criterion
◒ = Partially meets criterion
○ = Does not meet criterion

Groundwater Alternatives 2, 3, 4, and 5 are expected to comply with ARARs, as COCs would eventually attenuate below chemical-specific ARARs. However, under Groundwater Alternative 2, it will be difficult to gauge how quickly the COCs are attenuating since this alternative does not include monitoring. ICs would be in place until the RAOs are achieved for Groundwater Alternatives 3 and 4, and for Groundwater Alternatives 3, 4, and 5 monitoring would be conducted to document COC degradation.

Primary Balancing Criteria

Short-term Effectiveness and Sustainability

Soil Alternative 1 would be ineffective in the short-term, as no action would be taken to remediate the contaminated soil. Soil Alternative 2 would effectively protect human health and the environment by implementing ICs. However, under Soil Alternative 2, COC concentrations in soil would not be reduced in the short-term because natural attenuation is a slow process. Soil Alternatives 3 and Revised Alternative 4 are likely to reduce COC concentrations in soil in the short-term via treatment (Alternative 3) or excavation (Alternative 4) but would require measures to protect workers during remediation activities. Because of the reduced quantities, Revised Soil Alternative 4 has a shorter construction duration and reduced exposure to workers than Soil Alternative 3.

Groundwater Alternative 1 would be ineffective in the short-term, as no action would be taken to remediate contaminated groundwater. Groundwater Alternatives 2 and 3 would use ICs to protect human health and the environment. Since there is no active construction, there are no short-term risks to workers, community, or environment. However, under Groundwater Alternatives 2 and 3, COC concentrations would not be reduced in the short-term because natural attenuation is a slow process.

Groundwater Alternatives 4 and 5 would reduce the risk in the short-term because both alternatives implement treatment processes to expedite the reduction of COC concentrations in groundwater. Groundwater Alternatives 4 and 5 would pose some risk to workers from injection of the amendment and installation of wells, but these risks can be effectively managed through planning and use of personal protective equipment.

Long-term Effectiveness

Except for Soil Alternative 1, the alternatives are expected to be effective in the long-term through ICs and either attenuation, treatment, or removal of COCs from soil. Soil Alternative 2 relies on natural attenuation to reduce COCs and would take more time to achieve the RAOs than either Soil Alternative 3 or 4.

Groundwater Alternatives 2, 3, 4, and 5 would likely be effective in the long-term using ICs and attenuation to reduce the concentration of COCs in groundwater. Groundwater Alternatives 4 and 5 also would be effective in the long-term by reducing groundwater concentrations through active treatment. Since no action would be taken under Alternative 1, it would not be effective in reducing groundwater COCs over the long-term.

Implementability

Soil Alternative 1 would be easiest to implement, as it involves no actions. Soil Alternative 2 would be easily implemented because no construction is associated with it, only maintenance of the monitoring wells and implementation of ICs. Soil Alternative 3 would require a field study before implementation, and Soil Alternatives 3 and 4 would require construction; therefore, these alternatives are not as easily implemented as Soil Alternatives 1 and 2. Soil mixing (Soil Alternative 3) can have challenges with heterogeneity in the subsurface. Excavation and offsite disposal (Revised Soil Alternative 4) is a proven technology that is readily implementable.

Similarly, Groundwater Alternative 1 is the easiest to implement since it requires no action. Groundwater Alternatives 2 and 3 are easily implemented since only monitoring well maintenance and monitoring and IC implementation would be required. Groundwater Alternative 4 would require injections to expedite reduction of COCs, making it more difficult to implement than Groundwater Alternatives 1, 2, and 3. Groundwater Alternative 5 would require a pilot study and construction of additional components for treatment, making it the most difficult groundwater alternative to implement.

Reduction of Toxicity, Mobility, or Volume through Treatment

For soil alternatives, only Soil Alternative 3 includes treatment and would expedite reduction of toxicity and volume. While it does not involve treatment, Revised Soil Alternative 4 would result in immediate reduction of toxicity, mobility, and volume through the removal of soil above industrial direct exposure or leachability PRGs. Alternatives 1 and 2 do not include treatment but may eventually reduce toxicity, mobility, and volume through natural attenuation.

Groundwater Alternatives 1, 2, and 3 do not include treatment. Natural attenuation may occur under these alternatives to reduce COC concentrations in groundwater, but only Groundwater Alternative 3 includes monitoring to evaluate the concentrations against PRGs. Groundwater Alternatives 4 and 5 include treatment and would expedite contaminant reduction by adding an oxidant into the subsurface (Alternative 4) or by volatilization (Alternative 5).

Cost

For soil, the cost for Soil Alternative 1 (No Action) is the lowest, followed by Soil Alternatives 4, 3, and 2, respectively. Groundwater Alternative 1 (No Action) is the lowest, followed by Groundwater Alternatives 2, 4, 5, and 3, respectively. The costs for each soil and groundwater alternative are presented in Section 7.

Modifying Criteria

State/Support Agency Acceptance

FDEP provided its opinion on the acceptability of each remedial alternative in the FS and indicated Soil Alternatives 2 and 3 are acceptable. Revised Soil Alternative 4 was developed in the FS Amendment and FDEP has indicated this alternative is acceptable. Similarly, FDEP indicated Groundwater Alternatives 3, 4 and 5 from the FS are acceptable. Although FDEP prefers Groundwater Alternative 5, funding limitations prevent ANG from implementing this alternative. Should the selected groundwater remedial actions not achieve remediation goals, other remedial alternatives will be considered. ANG has a long and cooperative relationship with FDEP, which has reviewed and concurred with documents prepared to date. Final concurrence from FDEP is contingent upon review of the PP Amendment and community acceptance.

Community Acceptance

Community acceptance of the preferred alternative will be evaluated after the public comment period ends on April 16, 2025. Community acceptance will be documented in the **Record of Decision** (ROD).

10. Summary of the Preferred Alternatives

Revised Soil Alternative 4 – Excavation to Industrial Direct Exposure and Groundwater Leachability SCTLs with Offsite Disposal and ICs is the preferred alternative for treatment of PAHs in soil at Camp Blanding sites OW004, DP001, and DP002. The preferred alternative consists of the following:

- Excavation of approximately 500 cubic yards of soil with PAH concentrations above industrial direct exposure and leachability PRGs in DP001 and DO002. PAH concentrations above residential direct exposure PRGs would have ICs preventing residential-type land use.
- Transportation and disposal of excavated soil at a pre-approved EPA CERCLA Off-Site Rule-approved (40 CFR Section 300.440) facility. Based on the detected contaminant concentrations, excavated soil is expected to be disposed of as nonhazardous waste.
- Monitoring wells affected by excavation activities will be abandoned in accordance with ANG and FDEP requirements, or sufficiently protected to allow hand digging around the well.
- The excavation sites will be restored to similar conditions as were present before.
- Monitoring wells will be re-installed by a Florida-licensed well driller, developed, and surveyed, as necessary to support future determinations on groundwater remediation.
- Monitoring wells will be sampled quarterly for 1 year of PARM groundwater sampling to support site closure.
- ICs preventing future residential-type uses will be implemented and managed through the ANG GeoBase and Installation Development Plan.

Five-year reviews would be conducted until soil concentrations meet residential direct exposure PRGs. The groundwater remedy would be implemented only if site closeout is determined to not be achievable for a site in a reasonable timeframe after post-excavation PARM groundwater sampling. If it is determined, based on post-soil excavation groundwater sampling, that groundwater cleanup goals will not be achieved at a site in a reasonable timeframe, Groundwater Alternative 4 would be implemented at that site.

Groundwater Alternative 4 – Enhanced Biodegradation with ICs is the ANG's preferred alternative for treatment of PAHs in groundwater at Camp Blanding. While this differs from the preferred remedy in the FS (Alternative 5), the ANG believes enhanced biodegradation is preferable to air sparging because of lower costs and easier implementability of enhanced biodegradation. The preferred remedy would include the following components:

- The groundwater remedy would be implemented following the soil remedy. An amendment that releases oxygen would be injected into groundwater in the surficial aquifer using either temporary or new injection points depending on post-soil excavation groundwater results. The locations and technique would be presented in a work plan prior to groundwater remedy implementation. ARM would be conducted to evaluate when the injected amendment is no longer present in groundwater (assumed to be 1 year). It is assumed that the existing monitoring wells at each site will be sampled as shown on Figures 11, 12, and 13 for OW004, DP001, and DP002, respectively. Figure 1 shows the location of the existing water supply well screened in the Lower Floridian aquifer relative to the sites.
- Following ARM monitoring, 1 year of quarterly PARM groundwater sampling to determine whether GCTLs have been met. If 1 year of PARM sampling does not demonstrate GCTLs have been met, NAM groundwater monitoring would continue until site GCTLs are met.
- ICs to restrict access to contaminated groundwater until RAOs are met. (ICs may take the form of restricting the use of groundwater for drinking or prohibiting installation of new wells in the area. It is anticipated that these ICs would be managed using ANG's Geobase tool.)
- Five-year reviews until groundwater concentrations meet criteria.

Based on available information, ANG believes the preferred alternatives meet the threshold criteria and provide the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. ANG expects the preferred alternative to satisfy the following requirements of CERCLA: (1) protects

human health and the environment, (2) complies with ARARs, (3) is cost-effective, and (4) uses treatment as a principal element. ICs will prevent exposure until concentrations allow for unlimited use and unrestricted exposure.

As long as COCs remain at the site at levels that do not allow for unlimited use and unrestricted exposure, ANG will review the final remedial action no less than every 5 years after initiation in accordance with CERCLA Section 121(c) and NCP at 40 CFR Section 300.4309f)(4)(ii). If results of the 5-year reviews reveal that remedy integrity is compromised and protection of human health is insufficient, additional remedial actions would be evaluated by the parties and implemented by ANG.

11. Community Participation

The public is encouraged to participate in the decision-making process by providing comments on the PP Amendment and/or attending a public meeting. Site documents are available for community review and may be accessed at https://www.125fw.ang.af.mil/Information/Environment/Restoration/. Documents can also be obtained by contacting the ANG Restoration Project Manager, Robert Lewis, robert.lewis.100.ctr@us.af.mil.

The public comment period extends from March 17 to April 16, 2025. This gives citizens an opportunity to provide their views on the PP Amendment and the preferred alternative to ANG. Comments received will be included in the Administrative Record and summarized in the ROD. The ROD sets forth the selected remedy for sites OW004, DP001, and DP002. A final decision on a remedial action for each site will not be made until a review of the comments received during the comment period is complete. Comments must be postmarked no later than April 16, 2025.

Submit written comments by mail to:

Robert Lewis
ANG Restoration Project Management
ANG Readiness Center, NGB/A4VR
3501 Fetchet Avenue
Joint Base Andrews, MD 20762-5157
Phone: (240) 612-8473
Email: robert.lewis.100.ctr@us.af.mil

If there is interest from the public, ANG will hold a public meeting to explain the PP Amendment and preferred alternative for sites OW004, DP001, and DP002. The meeting would take place at or near Camp Blanding. Members of the public interested in attending a public meeting must contact ANG by April 1, 2025. ANG will issue additional public notices to announce the date, time, and location of the meeting, if there is interest expressed by the public. Additional oral or written comments would be accepted at the meeting.

Figure 11. OW004 Institutional Controls and Monitoring Wells

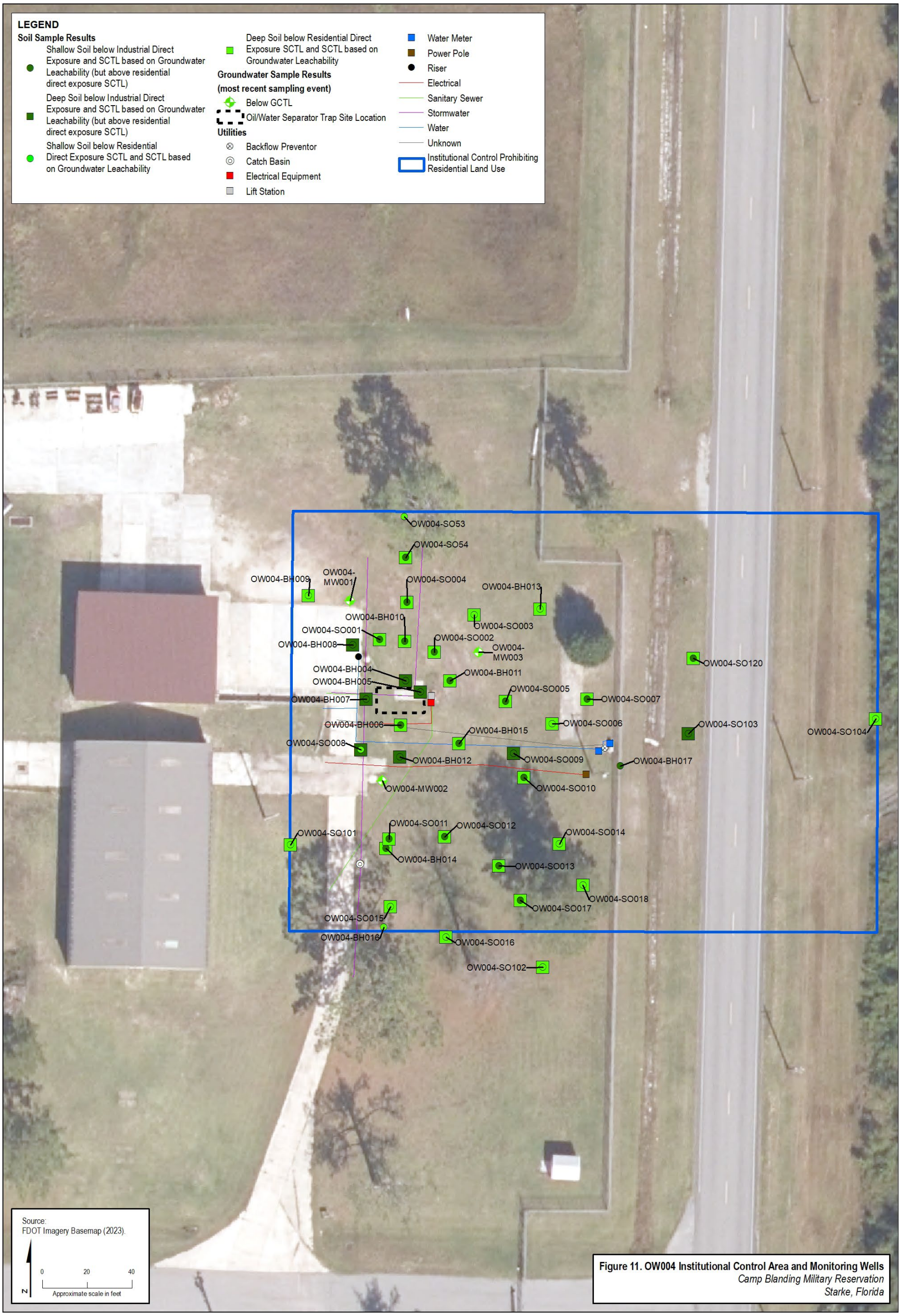


Figure 11. OW004 Institutional Control Area and Monitoring Wells
Camp Blanding Military Reservation
Starke, Florida

Figure 12. DP001 Excavation Areas, Institutional Controls, and Monitoring Wells

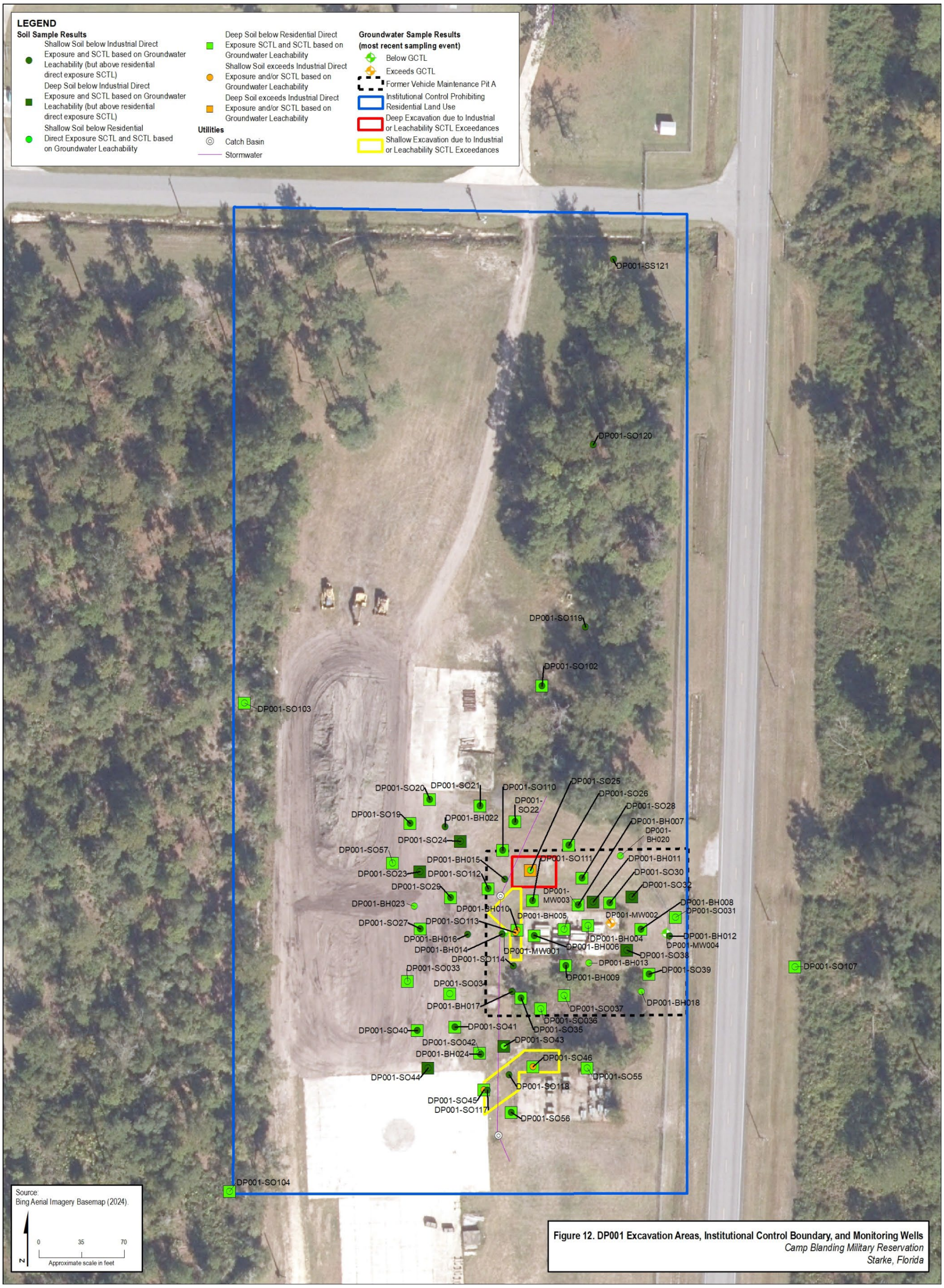


Figure 13. DP002 Excavation Areas, Institutional Controls, and Monitoring Wells

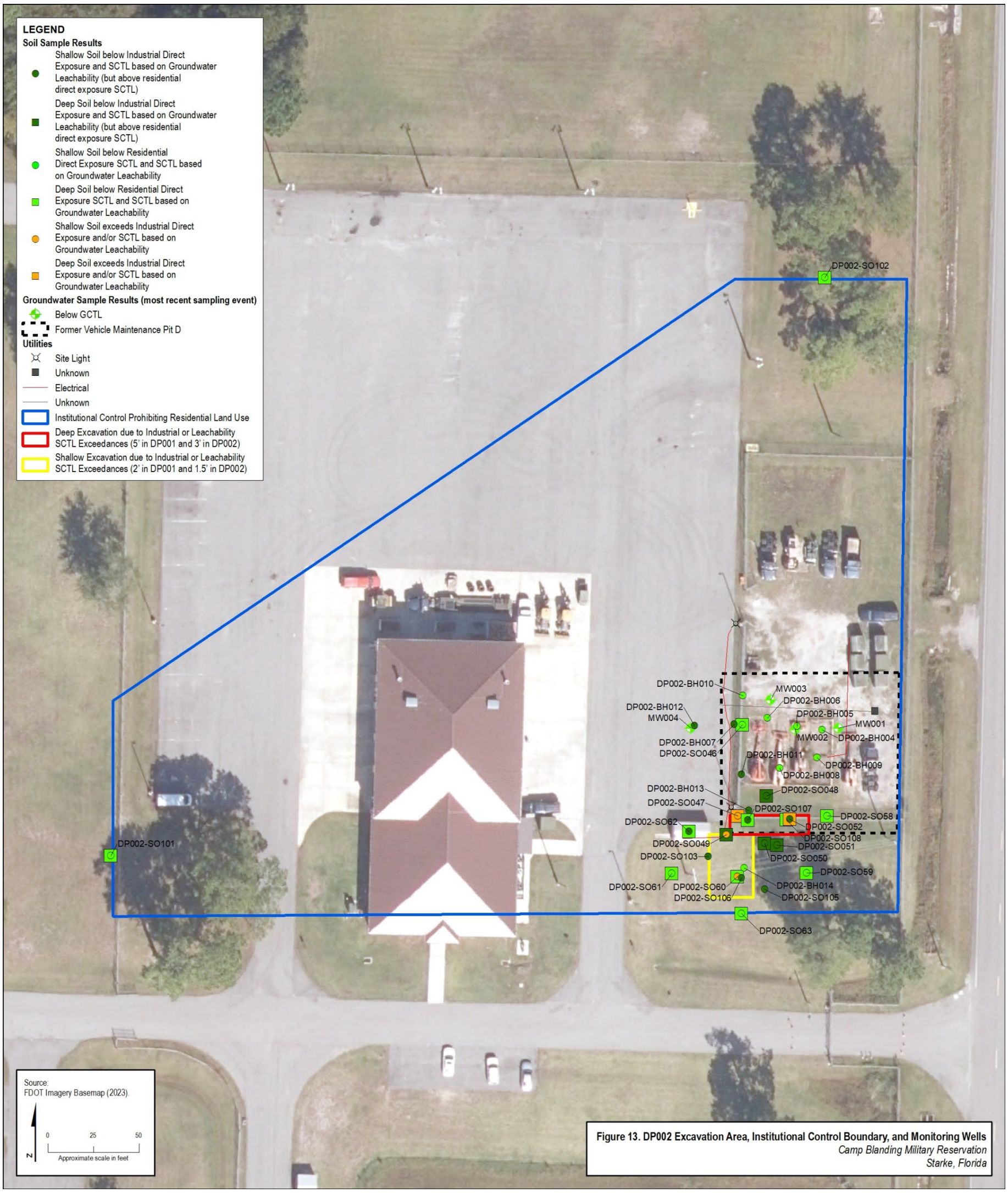


Figure 13. DP002 Excavation Area, Institutional Control Boundary, and Monitoring Wells
Camp Blanding Military Reservation
Starke, Florida

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13. Glossary

Administrative Record: The official repository of public documents related to an Installation Restoration Program site.

Air National Guard (ANG): A civilian reserve component of the U.S. Air Force that provides prompt mobilization during war and assistance during national emergencies. ANG is responsible for operations at the Camp Blanding Military Reservation in Starke, Florida, and for cleanup of sites OW004, DP001, and DP002.

Air sparging: A remedial technology that involves injecting air into groundwater to promote the volatilization and biodegradation of contaminants.

Amendment: A solid or liquid material added to the subsurface that is designed to promote degradation of contaminants.

Applicable or Relevant and Appropriate Requirements (ARARs): Federal and state requirements that must be met during state or federally regulated cleanup actions.

Aquifer: An underground layer of permeable rock or unconsolidated material like sand, silt, or gravel that yields water.

Balancing criteria: Five of the nine CERCLA criteria used to further evaluate remedial alternatives (long-term effectiveness and permanence; reduction of toxicity, mobility, and volume through treatment; short-term effectiveness; implementability; and cost).

Best Management Practice: BMP is a device, practice, or method used to manage stormwater runoff and improve water quality.

Biodegradation: The use of natural occurring microbial organisms, such as bacteria, to degrade and chemically dissolve environmental pollutants.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): The 1980 federal law, as amended by the 1986 Superfund Amendments and Reauthorization Act, that addresses problems resulting from releases of hazardous substances to the environment, primarily at inactive sites.

Contaminant: A chemical constituent present in the environment at concentrations above background concentrations.

Constituent of concern (COC): A chemical substance found in the environment that the EPA has determined poses an unacceptable risk to human health or the environment. COCs are the substances that are addressed by cleanup actions.

Department of Defense: A department of the federal executive branch entrusted with formulating military policies and maintaining American military forces. Its top official is the civilian Secretary of Defense.

Environmental Restoration Program (ERP): The program under which potential contamination at Department of Defense installations and formerly owned or used properties is investigated and cleaned up, as appropriate.

Feasibility study (FS): A comprehensive evaluation of potential alternatives for remediating contamination. It identifies general response actions, screens potentially applicable technologies and process options, assembles alternatives, and evaluates alternatives in detail.

Florida Administrative Code (F.A.C.): Official compilation of all adopted rules and regulations that are in effect in the State of Florida.

Florida Department of Environmental Protection (FDEP): A state government entity with the mission to safeguard environmental quality consistent with the social and economic needs of the state to protect health, welfare, property, and quality of life. FDEP is the lead regulatory authority for sites OW004, DP001, and DP002 and is responsible for review of and concurrence with all key remedial decisions.

Groundwater: Water that occurs underground in the pores in soil or openings in rock. Groundwater is often produced from municipal or domestic wells to be used for drinking water. (Groundwater beneath sites OW004, DP001, and DP002 is not used for drinking water.)

Groundwater cleanup target levels (GCTLs): Minimum criteria for groundwater cleanup concentrations. GCTLs are developed based on human health risk calculations and aesthetic considerations (that is, taste, odor, and color) that may degrade the water quality and, therefore, its suitability as a drinking water source.

Institutional control (IC): Institutional controls may consist of non-engineered restrictions, such as administrative and legal controls

Leachability: A measure of the degree to which a chemical in soil will be released to water when the chemical comes into contact with water.

Maximum contaminant level: MCL is the maximum allowable amount of a contaminant in drinking water that is delivered to the consumer.

Microgram(s) per kilogram (µg/kg): A unit of measurement for solid media equivalent to parts per billion (ppb). An ink concentration of 1 ppb is roughly equivalent to adding one drop of ink to the volume of a large gasoline tanker truck.

Microgram(s) per liter (µg/L): A unit of measurement for liquid media equivalent to parts per billion (ppb). An ink concentration of 1 ppb is roughly equivalent to adding one drop of ink to the volume of a large gasoline tanker truck.

Modifying criteria: Two of the nine CERCLA criteria used to evaluate remedial alternatives (state acceptance and community acceptance).

Monitoring well: A well drilled into the subsurface used to obtain groundwater samples (to determine contaminant concentrations) or to measure groundwater surface levels.

Natural attenuation: Natural attenuation relies on natural processes to clean up or attenuate pollution in soil or groundwater. Natural attenuation occurs at the most polluted sites. However, the right conditions must exist underground to clean sites properly. If not, cleanup will not be quick enough or complete enough. Scientists monitor these conditions to make sure natural attenuation is working.

Natural attenuation monitoring (NAM): FAC has established criteria for when natural attenuation can be used and how to determine it is effective. A NAM plan would be created to identify the sampling requirements, such as the number and locations of monitoring wells to be sampled, how often sampling will occur, how long sampling will occur, and what samples will be tested for to show the site is moving toward cleanup.

Nonaqueous phase liquid: Liquids that are resistant to mixing with water, such as oil, and are typically present either floating on water or sinking through the water to a surface that acts as a barrier.

National Guard Bureau: A joint bureau of the departments of the Army and Air Force that is responsible for the administration of the United States National Guard.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): Federal regulations specifying the methods and criteria for cleaning up sites under CERCLA, codified at 40 CFR Part 300.

Polycyclic aromatic hydrocarbon (PAH): A chemical compound containing only carbon and hydrogen that is composed of multiple aromatic rings. PAHs occur naturally in coal, crude oil, and gasoline. Most PAHs are insoluble in water but adhere to soil and sediment where they persist for long periods of time.

Preferred alternative: The cleanup approach proposed by the lead agency based on the information contained in the FS. The preferred alternative, as presented in this PP, is subject to change or revision based on public comment.

Preliminary assessment (PA): An initial phase of evaluation within the CERCLA process during which background information is collected to determine whether a Site Inspection is warranted.

Preliminary remediation goal (PRG): Specific cleanup concentrations or levels based on federal and state environmental laws and regulations or the health risk on a given site.

Proposed Plan (PP): A CERCLA document regarding the plan to clean up a contaminated site that is available for public review and comment. The PP typically provides a brief synopsis of site history, assessment activities, and an analysis of the cleanup options being considered, as well as the planned cleanup approach.

Remedial action objective (RAO): Narrative statement defining the extent of site cleanup necessary to meet the objective of protecting human health and the environment.

Remedial investigation: A study conducted, following a preliminary assessment and site inspection, to determine the nature and extent of contamination at the site. The remedial investigation includes sampling and monitoring, as necessary, and includes the gathering of sufficient information to determine the necessity for remedial action and to support the evaluation of remedial alternatives in the feasibility study.

Residential-Type Land Use: Land use consisting of agricultural use including forestry, fishing, and mining; hotels or lodging, recreational uses including amusement parks, parks, camps, museums, zoos, or gardens; residential uses; and educational uses such as elementary or secondary schools or day care services.

Response action: An action taken to mitigate a threat to human health or the environment. The action may be temporary in nature while a final action is developed.

Record of Decision (ROD): A legal document issued following the remedial investigation/feasibility study (if required), and the PP that sets forth the selected remedy for cleanup of a site as decided by the authorized decision maker for the federal lead agency.

Site Inspection: An initial phase of evaluation within the CERCLA process that includes collecting and analyzing environmental media samples to determine whether hazardous substances are present at a site and migrating to the surrounding environment.

Soil: The unconsolidated mineral or organic matter on the surface of the Earth that serves as a natural medium for plant growth.

Soil cleanup target levels (SCTLs): Minimum criteria for soil cleanup concentrations set forth in Florida Administrative Code 62-777. SCTLs are developed based on direct human contact (that is, direct exposure) and on soil acting as a source of groundwater or surface water contamination (that is, leachability).

Threshold criteria: The first two of the nine CERCLA criteria (overall protection of human health and the environment, and compliance with ARARs).

To be considered (TBC): Advisories or guidance from federal or state government that are not legally binding and do not qualify as ARARs.

Volatilization: Transformation of a chemical from liquid or solid phase to vapor (gas).

Please print or type your comments here

Mark Your Calendar for the Public Comment Period

Public Comment Period

March 17 through April 16, 2025.

Submit Written Comments no later than April 16, 2025.

Public Meeting

If there is interest from the public, ANG will provide an opportunity to explain the PP and preferred alternative for sites OW004, DP001, and DP002 of the Camp Blanding Military Reservation. Members of the public interested in attending a public meeting must contact ANG by April 1, 2025. ANG will issue additional public notices to announce the date, time, and location of the meeting. Additional oral or written comments will be accepted at the meeting.

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