FINAL
Preliminary Assessment Report
Marianna Readiness Center
Marianna, Florida

Perfluorooctanesulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA) Impacted Sites
ARNG Installations, Nationwide

August 2020

Prepared for:

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

UNCLASSIFIED

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Acronyms and Abbreviations

°F	degrees Fahrenheit
AECOM	AECOM Technical Services, Inc.
AFFF	aqueous film forming foam
AGCTL	Alternative Groundwater Cleanup Target Level
AOI	Area of Interest
ARNG	Army National Guard
ASCTL	Alternative Soil Cleanup Target Level
AST	Above Ground Storage Tank
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CSM	conceptual site model
EDR™	Environmental Data Resource, Inc.™
FDOT	Florida Department of Transporation
FDEP	Florida Department of Environmntal Protection
FLARNG	Florida Army National Guard
FTA	fire training area
HA	Health Advisory
LUST	Leaking Under Ground Storage Tank
PA	Preliminary Assessment
PFAS	per- and poly-fluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
ppt	parts per trillion
SI	Site Inspection
TIIF	Trustees of the Internal Improvemnet Fund
US	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VSI	visual site inspection

Executive Summary

The Army National Guard (ARNG) is performing *Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) Impacted Sites at ARNG Facilities Nationwide*. A PA for per- and polyfluoroalkyl substances (PFAS)-containing materials was completed for the Marianna Readiness Center in Marianna, Florida, to assess potential PFAS release areas and exposure pathways to receptors. The current Marianna Readiness Center is constructed on a parcel of land owned by the state of Florida and leased to the Florida ARNG (FLARNG). The performance of this PA included the following tasks:

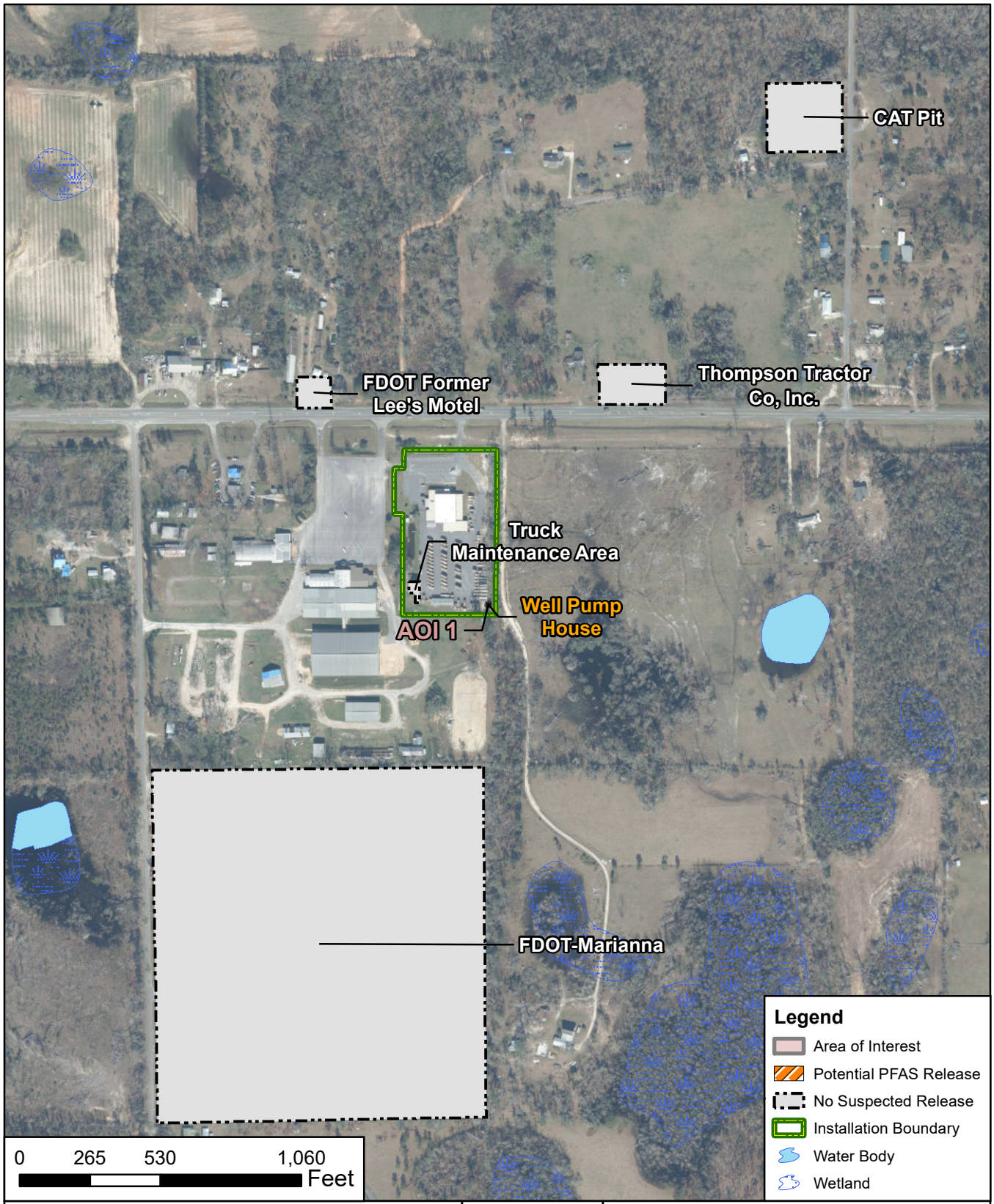
- Reviewed available administrative record documents and Environmental Data Resources, Inc. (EDR)™ report packages to obtain information relevant to potential PFAS releases, such as: drinking water well locations, historical aerial photographs, Sanborn maps, and environmental compliance actions in the area surrounding the facility;
- Conducted a site visit on 30 January 2019 and completed visual site inspections (VSIs) at locations where PFAS-containing materials were suspected of being stored, used, or disposed;
- Interviewed current Marianna FLARNG personnel during the site visit and FLARNG environmental managers and operations staff;
- Identified Area(s) of Interest (AOIs) and developed a preliminary conceptual site model (CSM) to summarize potential source-pathway-receptor linkages of potential PFAS in soil, groundwater, surface water, and sediment for each AOI.

Prior to conducting the PA at the Marianna Readiness Center, PFAS constituents were detected in the facility supply well located at the southeast corner of the property. This well is currently equipped with a chlorination and filtration treatment system. Consequently, the well pump house has been identified as an AOI related to a potential PFAS release at the Marianna Readiness Center. The AOI is shown on **Figure ES-1** and described in **Table ES-1** below:

Table ES-1: AOIs at Marianna Readiness Center

Area of Interest	Name	Used by	Potential Release Date
AOI 1	Well Pump House	FLARNG	Unknown

Based on potential PFAS release at the AOI, there is potential for exposure to PFAS contamination in media at or near the facility. The preliminary CSM for Marianna Readiness Center, which presents the potential receptors and media impacted, is shown on **Figure ES-2**.



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Marianna Readiness Center, FL			
REVISED	6/9/2020	GIS BY	GC	6/9/2020
SCALE	1:6,360	CHK BY	BM	6/9/2020
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/9/2020

Summary of Findings

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure ES-1

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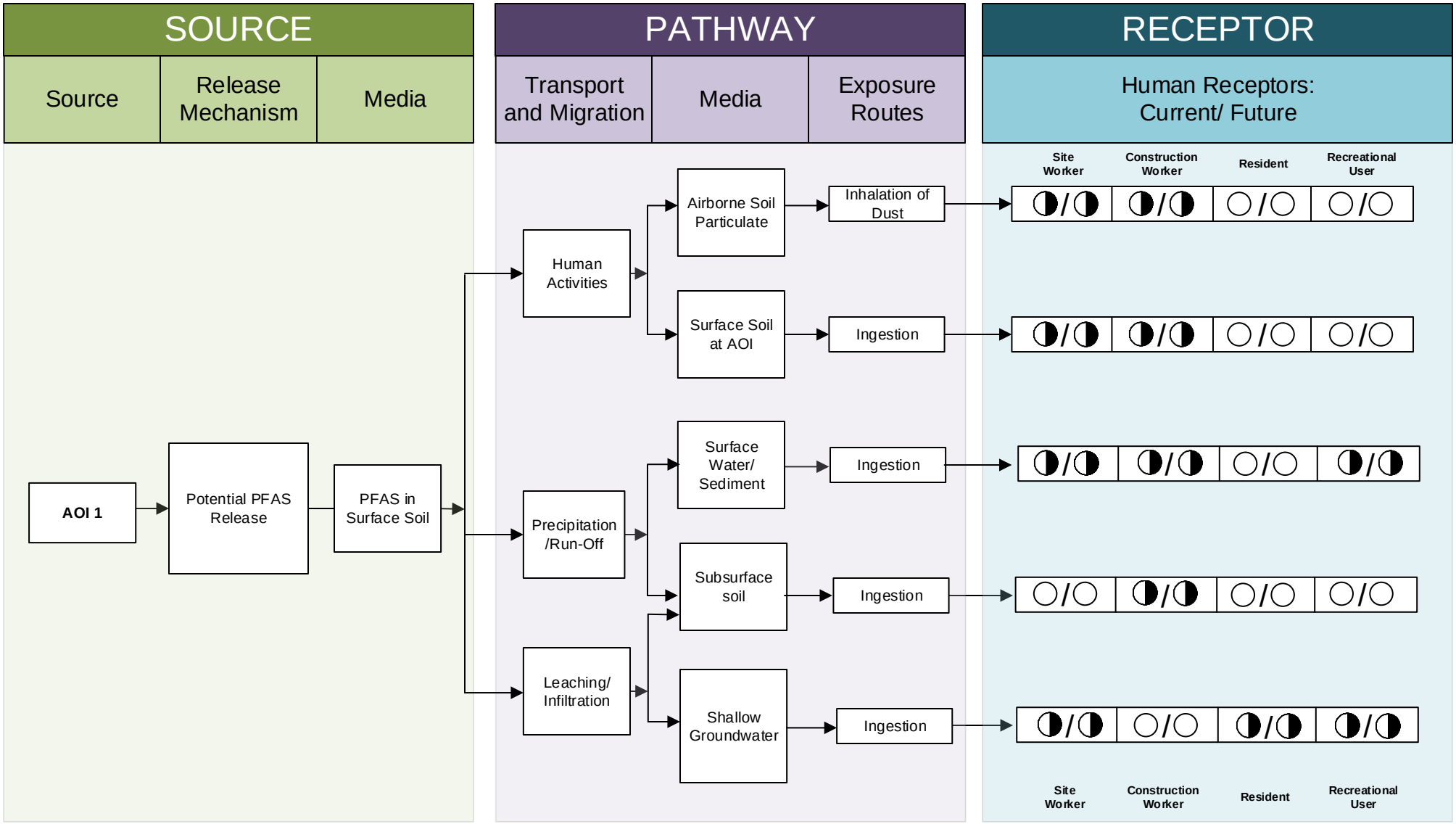


LEGEND

- Flow-Chart Stops
- Flow-Chart Continues
- Partial / Possible Flow
- Incomplete Pathway
- Potentially Complete Pathway
- Complete Pathway

Notes:

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

2. Dermal contact exposure pathway is incomplete for PFAS

Figure ES-2
Preliminary Conceptual Site Model
Marianna Readiness Center, Florida

1. Introduction

1.1 Authority and Purpose

The Army National Guard (ARNG) G9 is the lead agency in performing *Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) at Impacted Sites at ARNG Facilities Nationwide*. This work is supported by the United States (US) Army Corps of Engineers (USACE) Baltimore District and their contractor AECOM Technical Services, Inc. (AECOM) under Contract Number W912DR-12-D-0014, Task Order W912DR17F0192, issued 11 August 2017.

The ARNG is assessing potential effects on human health related to processes at facilities that used per- and poly-fluoroalkyl substances (PFAS), primarily in the form of aqueous film forming foam (AFFF) released as part of firefighting activities, although other PFAS sources are possible. In addition, the ARNG is assessing businesses or operations adjacent to the ARNG facility (not under the control of ARNG) that could potentially be responsible for a PFAS release.

PFAS are classified as emerging environmental contaminants that are garnering increasing regulatory interest due to their potential risks to human health and the environment. PFAS formulations contain highly diverse mixtures of compounds. Thus, the fate of PFAS compounds in the environment varies. The regulatory framework at both federal and state levels continues to evolve. The US Environmental Protection Agency (USEPA) issued lifetime Drinking Water Health Advisories (HAs) for PFOA and PFOS in May 2016, but there are currently no promulgated national standards regulating PFAS in drinking water. The HA is 70 parts per trillion (ppt) for PFOS and PFOA, individually or combined.

This report presents the findings of a PA for PFAS-containing materials at the current Marianna Readiness Center (also referred to as “the facility”), Florida, in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations [CFR] Part 300), and Army requirements and guidance.

This PA documents locations where PFAS may have been released into the environment at the Marianna Readiness Center. The term PFAS will be used throughout this report to encompass all PFAS chemicals being evaluated, including PFOS and PFOA, which are key components of AFFF.

1.2 Preliminary Assessment Methods

The performance of this PA included the following tasks:

- Reviewed available administrative record documents and Environmental Data Resources, Inc. (EDR)™ report packages to obtain information relevant to potential PFAS releases, such as: drinking water well locations, historical aerial photographs, Sanborn maps, and environmental compliance actions in the area surrounding the facility;
- Conducted a site visit on 30 January 2019 and completed visual site inspections (VSIs) at locations where PFAS-containing materials were suspected of being stored, used, or disposed;
- Interviewed Florida ARNG (FLARNG) personnel including environmental managers and operations staff during the site visit;

- Identified Area(s) of Interest (AOIs) and developed a preliminary conceptual site model (CSM) to summarize potential source-pathway-receptor linkages of potential PFAS in soil, groundwater, surface water, and sediment for each AOI.

1.3 Report Organization

This report has been prepared in accordance with the USEPA *Guidance for Performing Preliminary Assessments under CERCLA* (USEPA 1991). The report sections and descriptions of each are:

- **Section 1** – **Introduction:** identifies the project purpose and authority and describes the facility location, environmental setting, and methods used to complete the PA.
- **Section 2** – **Fire Training Areas:** describes the Fire Training Areas (FTAs) at the facility identified during the site visit.
- **Section 3** – **Non-Fire Training Areas:** describes other locations of potential PFAS releases at the facility identified during the site visit.
- **Section 4** – **Emergency Response Areas:** describes areas of potential PFAS release at the facility, specifically in response to emergency situations.
- **Section 5** – **Adjacent Sources:** describes sources of potential PFAS release adjacent to the facility that are not under the control of ARNG.
- **Section 6** – **Preliminary Conceptual Site Model:** describes the pathways of PFAS transport and receptors for the AOIs and the facility.
- **Section 7** – **Conclusions:** summarizes the data findings and presents the conclusions of the PA.
- **Section 8** – **References:** provides the references used to develop this document.
- **Appendix A** – Data Resources
- **Appendix B** – Preliminary Assessment Documentation
- **Appendix C** – Photographic Log

1.4 Facility Location and Description

The Marianna Readiness Center is located off U.S. 90 (parallel to Interstate 10), approximately 4 miles west of the city of Marianna, located in Jackson County, FL (**Figure 1-1**). FLARNG has operated at the subject property since 1956. FLARNG leases the property through the Trustees of the Internal Improvement Fund (TIIF) of the state of Florida for use as a readiness center. The lease document appears in **Appendix A**. The site is situated on approximately 5 acres, with a 20,868 square-foot building (Jackson County Property Appraiser, 2019). Two storage buildings are located south of the main readiness center building, and a covered, non-enclosed structure used for vehicle maintenance is located at the southeast corner of the property. Based on aerial imagery provided in the EDR™ report (**Appendix A**) there does not appear to be evidence of major changes in facility operation from 1961 (the first available aerial image of the property) to the present.

A potable well used by the facility is located at the southeast corner of the property and is enclosed in a brick pump house. The well is equipped with a chlorination and filtration system.

Aerial imagery in the EDR™ report suggest the surrounding properties have remained predominately rural and residential, with the exception of state and county owned facilities to the

west and south of the Marianna Readiness Center. A state-owned facility was located about 1,800 feet southwest of the subject site, prior to 1940. Property records and ARNG personnel interviews indicate that this facility may have operated as a prison prior to converting to the current Florida Department of Transportation (FDOT) maintenance facility. The date of this transfer was not determined during this PA. An agricultural center located adjacent and to the west and south of the Marianna Readiness Center was developed after 1955. Currently, the surrounding area consists of commercial and residential properties to the north, residential and pastureland to the east, and state and county properties to the south and west.

1.5 Facility Environmental Setting

Jackson County is divided into three physiographic units: the Marianna River Valley Lowlands, the Delta Plain Highlands, and the Terraced Coastal Lowlands, all of which are minor units of the Coastal Plain Physiographic Province. The Marianna Readiness Center is situated in the Marianna River Valley Lowlands physiographic unit, which was formed as the result of erosion and deposition by a number of streams, namely the Chattahoochee-Apalachicola rivers, the Chipola River, Dry Creek, and Holes Creek. The lowlands along each of these streams developed as floodplain terraces and are considered one physiographic unit that was developed in the Marianna area through complicated sequences of stream erosion, deposition, and capture (Moore, 1955). The resulting topography is rolling hills consisting of clays, silts, and sands bisected by stream valleys with outcroppings of limestone (WRS Infrastructure & Environment, Inc., 2003).

1.5.1 Geology

The following descriptions were adapted from a Florida Geologic Survey geological map (Green, et al. 2003). Near ground surface, the Pliocene-Pleistocene Citronelle Formation consists of sands and gravels with varying amounts of clay. The Citronelle Formation overlies the Middle Miocene to Early Pliocene-age Alum Bluff group, consisting of clayey sands and gravels, to stiff, greenish, micaceous clays with variable admixtures of silt, sand, and shell.

The Lower Miocene-age Chattahoochee Formation lies unconformably below the Alum Bluff group and consists of brownish-gray, moderately indurated, sandy packstone to wakestone with foraminifera.

Oligocene-age Marianna Limestone lies unconformably below the Chattahoochee Formation and is characterized as cavernous, white to gray, soft, fine gained, poorly indurated, glauconitic fossiliferous wakestone. In and around the town of Marianna, a grayish-yellow or light olive-green dolosilt occurs at the top of the Marianna Limestone.

Late Eocene-age Ocala group limestones lie unconformably below the Marianna Formation. In the northwest portion of Jackson County, Ocala Group limestones are up to 200 feet thick and consist of moderately indurated cream- to white- colored grainstone with large benthic foraminifera. The Bumpnose member of the Ocala group has been identified in the vicinity of the facility and is characterized by poorly- to well- indurated, cream to white, fossiliferous packstone, and in some areas, wakestone.

1.5.2 Hydrogeology

The regional hydrogeologic framework of Jackson County generally consists of three aquifer systems: the surficial aquifer, the intermediate aquifer, and the Floridan Aquifer (WRS Infrastructure & Environment, Inc., 2003).

The surficial aquifer is relatively thin and composed of sand and clay terrace deposits and admixtures. The surficial aquifer surrounding the Marianna Readiness Center is encountered at approximately five feet below ground surface. The surficial aquifer is rarely used for potable water supplies, as the clastic sediments that comprise this aquifer generally have low permeability and produce small quantities of water from wells. The surficial aquifer is generally under unconfined conditions and is recharged by local rainfall (WRS Infrastructure & Environment, Inc., 2003).

The intermediate aquifer is primarily composed of clays, sandy clays, intercalated sands, creamy white limestone, and greenish-gray marls. It is the confining unit between the surficial aquifer and the Floridan Aquifer, but may be breached by sinkholes, which provide localized areas of fluid exchange and semi-confining conditions. This unit is typically the Chattahoochee Formation and often contains thin irregular lenses of sandy limestone and dolomite, which may yield small quantities of water under artesian conditions. Recharge of the intermediate aquifer is through leakage from the overlying surficial aquifer (WRS Infrastructure & Environment, Inc., 2003).

Collectively, the Ocala Group Limestones and Marianna Limestone comprise the Floridan Aquifer system in the Marianna area. All of these limestones are sources of groundwater for most municipalities and industries and are considered artesian (Moore, 1955). Much of the Florida Aquifer contains good secondary porosity caused by dissolution following deposition. The Floridan Aquifer is recharged where the unit outcrops at the surface or is breached by sinkholes. Regional groundwater flow in the Floridan Aquifer is to the south (WRS Infrastructure & Environment, Inc., 2003).

An EDR™ report conducted a well search for a 1-mile radius surrounding the facility (**Appendix A**). Using additional online resources, such as state and local Geographic Information System databases, wells were researched to a 4-mile radius of the facility. Groundwater features surrounding the facility are shown in **Figure 1-2**.

1.5.3 Hydrology

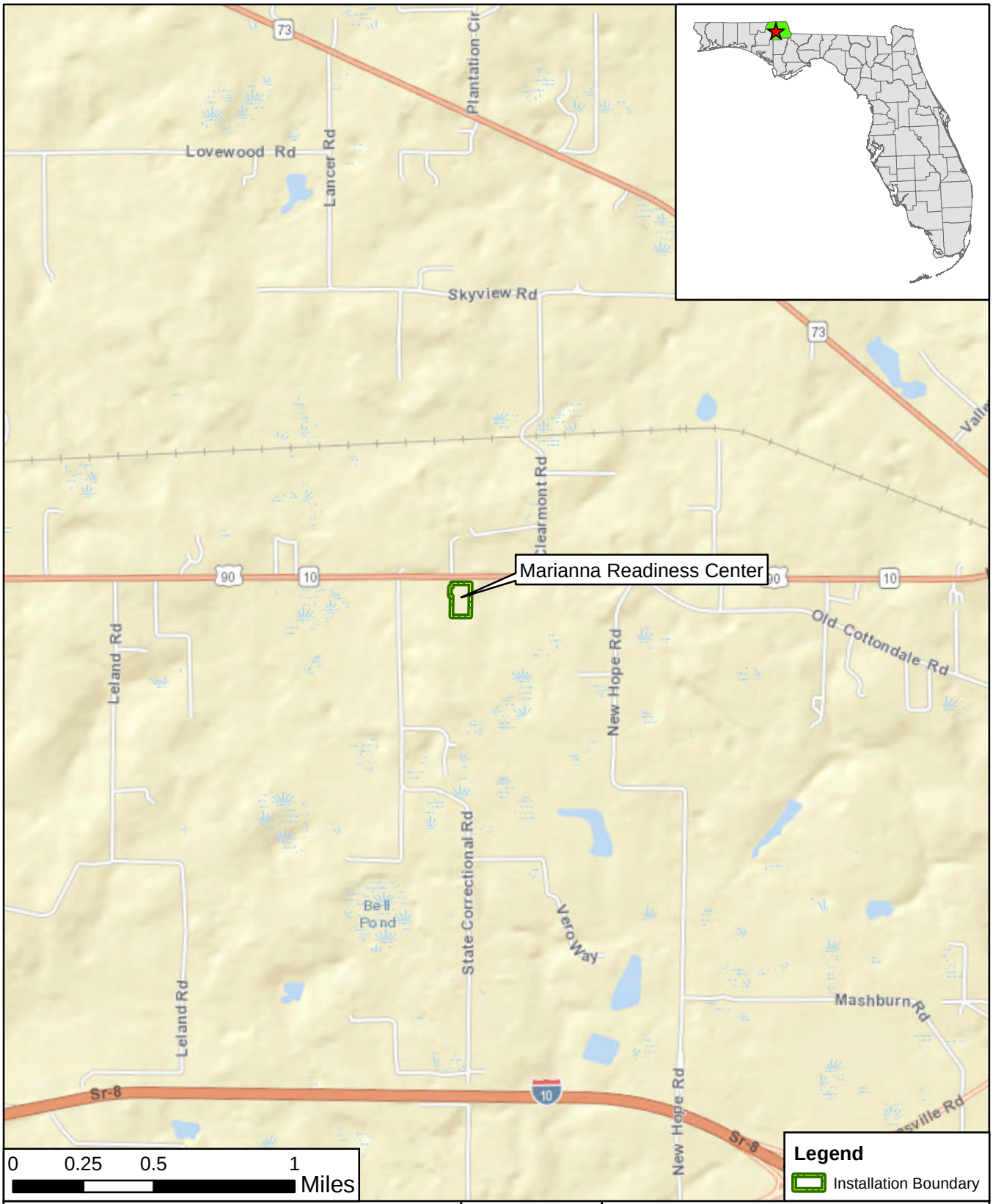
One surface water retention area was identified at the Marianna Readiness Center, located approximately 80 feet southwest of the main building. A surface water drainage ditch runs east-west and parallel to the U.S. 90. Surface water flow appears to be directed to the north and northwest, toward the storm water retention area as well as the storm water drainage ditch located to the north of the Marianna Readiness Center Building. The storm water retention pond is likely connected to local groundwater in the surficial aquifer. Because of the karst topography and geology surrounding the Marianna Readiness Center, springs are abundant in the surrounding area. The facility is located in an area designated by the Florida Geological Survey and the Florida Department of Environmental Protection (FDEP) as a Springs Protections Area (FDEP, 2011). The facility is located approximately 4 miles west of Jackson Blue Spring, which is defined as a 1st magnitude spring located in Jackson County (Bartel, Barrios, Pritzl, & Coates, 2011). Connectivity between the storm water retention pond and local springs is not suspected. Surface water features surrounding the facility are shown in **Figure 1-3**.

1.5.4 Climate

The Marianna Readiness Center is located in Northwest Florida and the climate is characterized subtropical with hot and humid summers and mild winters. The average annual high temperature is 78.8 degrees Fahrenheit (°F), the average annual low temperature is 56.3 °F, and average annual precipitation is 56.77 inches (Climate-Data.org, 2019). The threat of hurricanes is high during the six-month long Atlantic hurricane season, which spans from 1 June to 30 November. Peak hurricane season occurs between mid-August and late October, when waters in the equatorial Atlantic and Gulf of Mexico have warmed enough to help support the development of tropical waves (Florida Climate Center, Florida State University, 2019).

1.5.5 Current and Future Land Use

The Marianna Readiness Center is currently owned by the state of Florida, leased to FLARNG and is developed with the Marianna Readiness Center building, two storage buildings, and one non-enclosed maintenance area. As described in **Section 1.4**, surrounding properties consist of commercial and residential properties to the north, residential and pastureland to the east, and state and county owned facilities to the south and west. Reasonably anticipated future land use is not expected to change from the current land use.



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SCALE	1:31,680	CHK BY	BM	4/3/2019
Base Map: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI,		PM	RG	4/3/2019

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Facility Location

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 1-1

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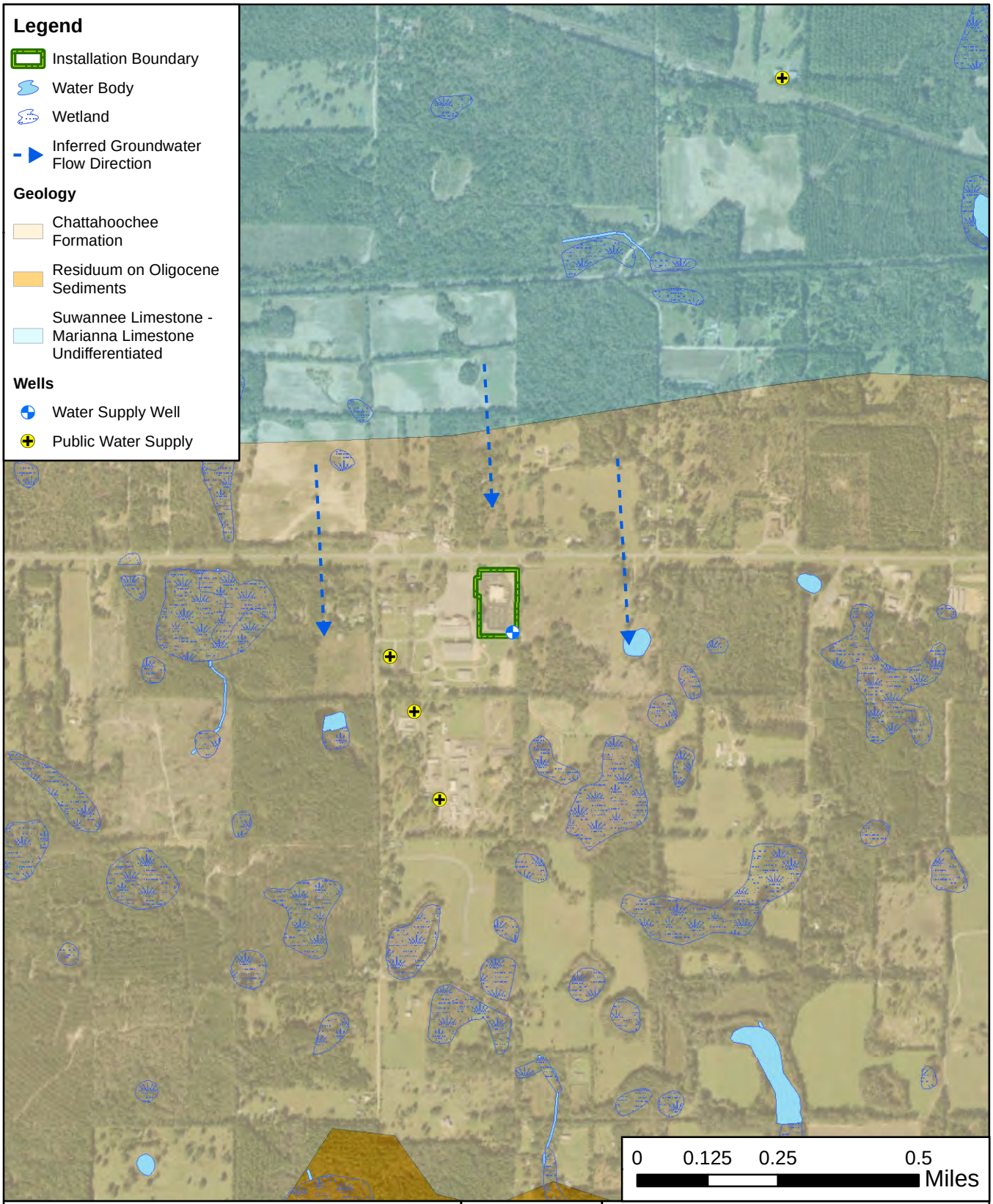

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SCALE	1:15,840	CHK BY	MS	5/6/2019
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	5/6/2019

Groundwater Features

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Figure 1-2

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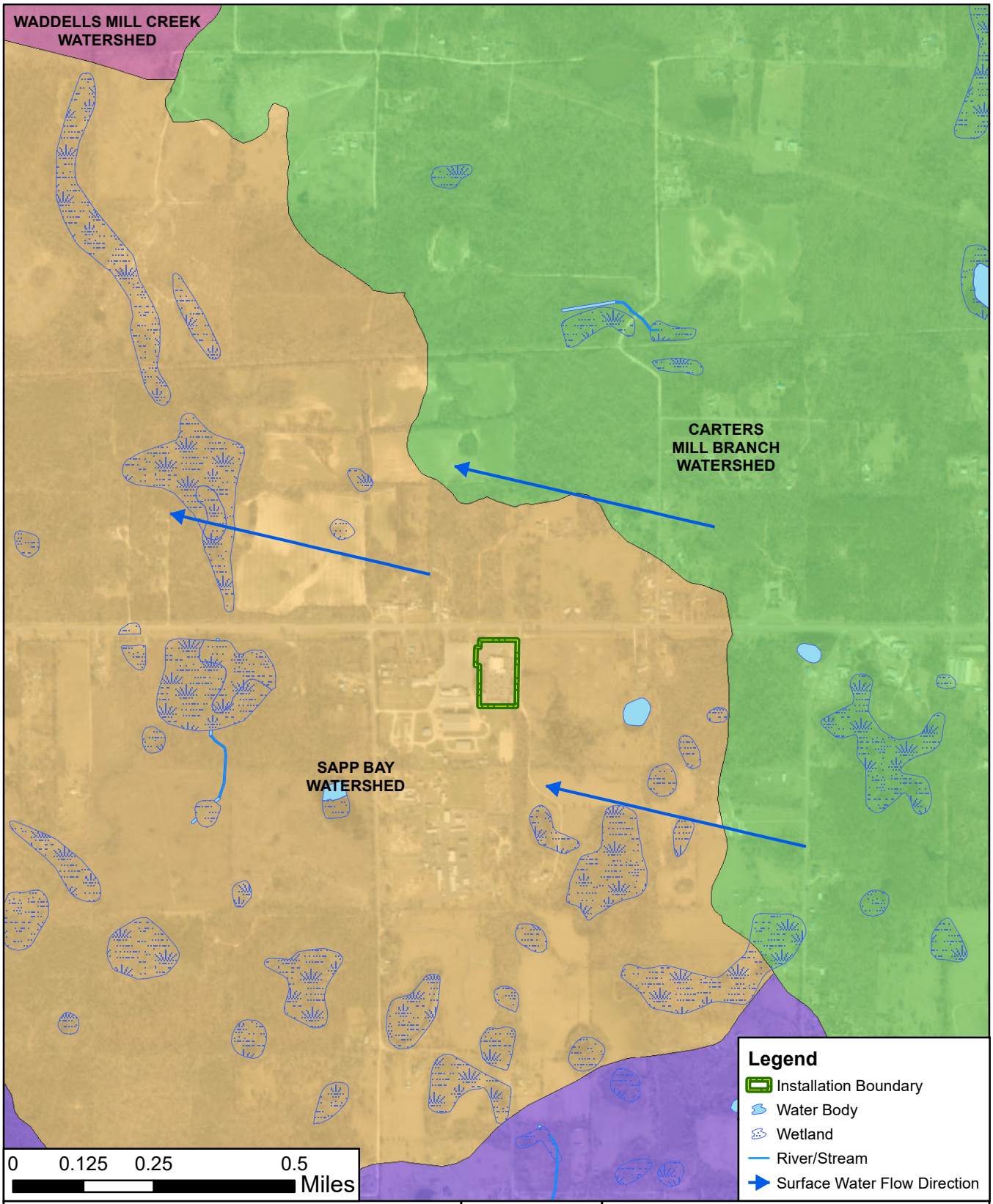

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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/11/2020

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Surface Water Features

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Figure 1-3

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2. Fire Training Areas

Based on information provided by FLARNG personnel with knowledge of the facility dating back to 2007, no FTAs were identified at the Marianna Readiness Center. The FLARNG personnel interviewed did not have knowledge of the property from the beginning of FLARNG occupation in 1956 through to the beginning of their tenure in 2007. AECOM also requested information from the city of Marianna Fire Department regarding any fire training activity in the area; however, a response from the city of Marianna Fire Department was not received.

3. Non-Fire Training Areas

In addition to FTAs, the PA evaluated areas where PFAS-containing materials may have been broadly used, stored, or disposed. This may include buildings with fire suppression systems, paint booths, AFFF storage areas, and areas of compliance demonstrations. Information on these features obtained during the PA are included in **Appendices A** and **B**. Non-FTAs were investigated as part of the PA. A description of each non-FTA is presented below, and the non-FTAs are shown on **Figure 3-1** with photographs appearing in **Appendix C**.

3.1 Truck Maintenance Area

The truck maintenance area is located at the southwestern corner of the Marianna Readiness Center property. The geographic coordinates are 30°46'57.8"N; 85°17'35.8"W. According to FLARNG personnel, this area is used for general vehicle maintenance of ARNG vehicles. All fueling activity takes place offsite at local retail fueling stations. Fire protection in the truck maintenance area is provided by a wall mounted ABC class fire extinguisher. The truck maintenance area was not equipped with an AFFF fire suppression system, and according to FLARNG personnel with knowledge of the site since 2007, AFFF has not been used or stored in this area.

3.2 Well Pump House

The potable well and pump house are located at the southeast corner of the Marianna Readiness Center property and provides water for the readiness center. The geographic coordinates are 30°46'57.1"N; 85°17'32.7"W. The pump is enclosed in a brick structure and is equipped with a chlorination and filtration system. Prior to the PA site visit, a pre-treatment groundwater sample was collected from the potable well and analyzed for PFAS constituents. Results of this data indicate detections of PFAS constituents; however, these concentrations are reported well below the HA of 70 ppt for PFOA and PFOS, individually or combined. Results of the pre-treatment groundwater sampling are provided in **Appendix A**. According to FLARNG personnel with knowledge of the site since 2007, AFFF has not been used or stored in this area. However, the detections of PFAS within the potable well may be indicative of a PFAS release, so the well pump house is conservatively considered a PFAS release area.

CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Marianna Readiness Center, FL			
REVISED	6/9/2020	GIS BY	GC	6/9/2020
SCALE	1:1,560	CHK BY	BM	6/9/2020
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/9/2020

Non-Fire Training Area

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Figure 3-1

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4. Emergency Response Areas

No emergency response areas were identified within the Marianna Readiness Center property during the PA through available interviews or EDR™ reports.

5. Adjacent Sources

No off-facility PFAS sources adjacent to Marianna Readiness Center were identified during the PA. Following a review of the EDR™ report provided in **Appendix A**, the FDOT Former Lee's Motel, Thompson Tractor Co. Inc., FDOT-Marianna, and CAT Pit were reviewed for their potential for off-facility contamination of PFAS at the Marianna Readiness Center. The locations of these facilities are shown on **Figure 5-1**. Based on information provided in the EDR™ report as well as the physical locations of the suspected adjacent sources, the aforementioned properties are not considered to be potential off-site sources of PFAS impacts.

5.1 FDOT Former Lee's Motel

The FDOT Former Lee's Motel is classified as a Leaking Under Ground Storage Tank (LUST) site and is located 0.029 miles northwest of the Marianna Readiness Center. According to public records available in the FDEP OCULUS database, petroleum constituents associated with a former motel/retail station dispenser island and underground storage tank (UST) have been identified in groundwater gauging data collected in 2012 that indicate groundwater flow direction is to the south-southeast, toward the Marianna Readiness Center. A former retail gas station is not considered a likely potential source of PFAS that could affect the Marianna Readiness Center.

5.2 Thompson Tractor Co, Inc.

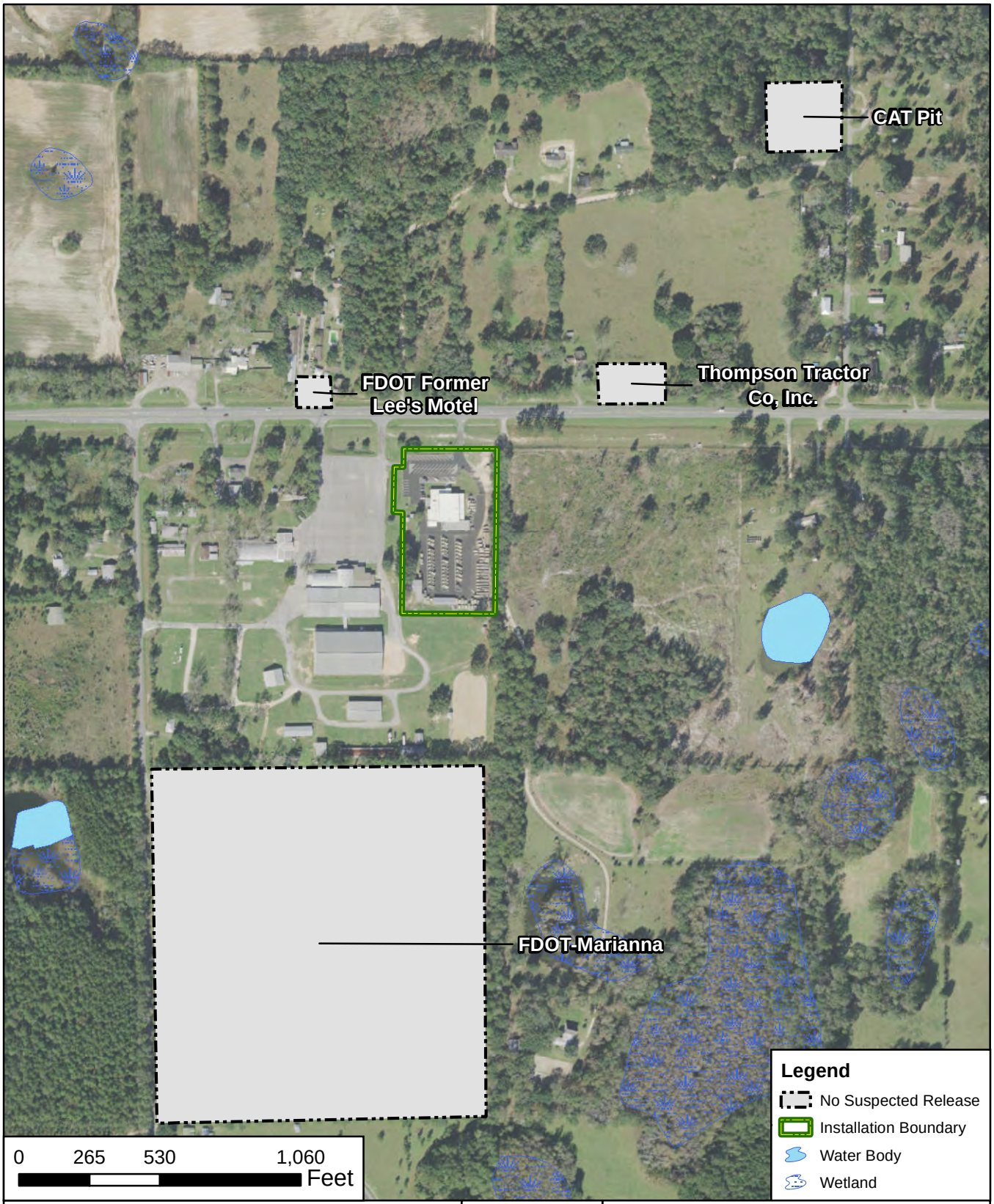
According to the EDR™ report and the FDEP OCULUS database, the Thompson Tractor Co, Inc. facility is located 0.099 miles northeast of the Marianna readiness Center has three registered USTs containing diesel fuel and three above ground storage tanks (ASTs) containing engine oil. Based on available records, the facility is in compliance with state regulations and is not believed to be a potential source of PFAS.

5.3 FDOT-Marianna

An FDOT maintenance facility is located 0.24 miles southwest of the Marianna Readiness Center. According to property records and FLARNG interviews, this property may have operated as a corrections facility prior to becoming a FDOT facility. Public records also indicate that the facility is also registered as a waste tire collector. Storage or use of AFFF at the FDOT maintenance facility or the previous corrections facility is unknown and could not be verified by FLARNG personnel. Based on available information, the FDOT-Marianna facility is not believed to be a potential source of PFAS.

5.4 CAT Pit

According to the EDR™ report and the FDEP OCULUS database, the CAT Pit facility is located 0.0344 miles northeast of the Marianna Readiness Center and is registered as a Yard Trash Processing facility. Because this facility is used to process organic yard waste, the CAT Pit is not believed to be a potential source of PFAS.



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Marianna Readiness Center, FL			
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Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/28/2019

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Adjacent Sources

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Figure 5-1

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6. Preliminary Conceptual Site Model

Based on the PA findings, one non-FTA was identified where PFAS may have been incidentally spilled or discharged to the ground surface. As such, the AOI may be a potential PFAS source area. The AOI and preliminary CSM are shown on **Figure 6-1** and **Figure 6-2**, respectively, and summarized below.

Although the use of AFFF could not be confirmed, the following AOI was identified as a potential PFAS source area: AOI 1 – Well Pump House.

The following section describes the CSM components and the specific preliminary CSM developed for AOI 1. The CSM identifies the three components necessary for a potentially complete exposure pathway: (1) source, (2) pathway, (3) receptor. If any of these elements are missing, the pathway is considered incomplete.

Human exposure via the dermal contact pathway may occur, and current risk practice suggests it is an insignificant pathway compared to ingestion; however, exposure data for dermal pathways are sparse and continue to be the subject of PFAS toxicological study (National Ground Water Association, 2018). Receptors for Marianna Readiness Center include site workers, construction workers, recreational users, and off-facility residents. The preliminary CSM for AOI 1 indicates which specific receptors could potentially be exposed to PFAS.

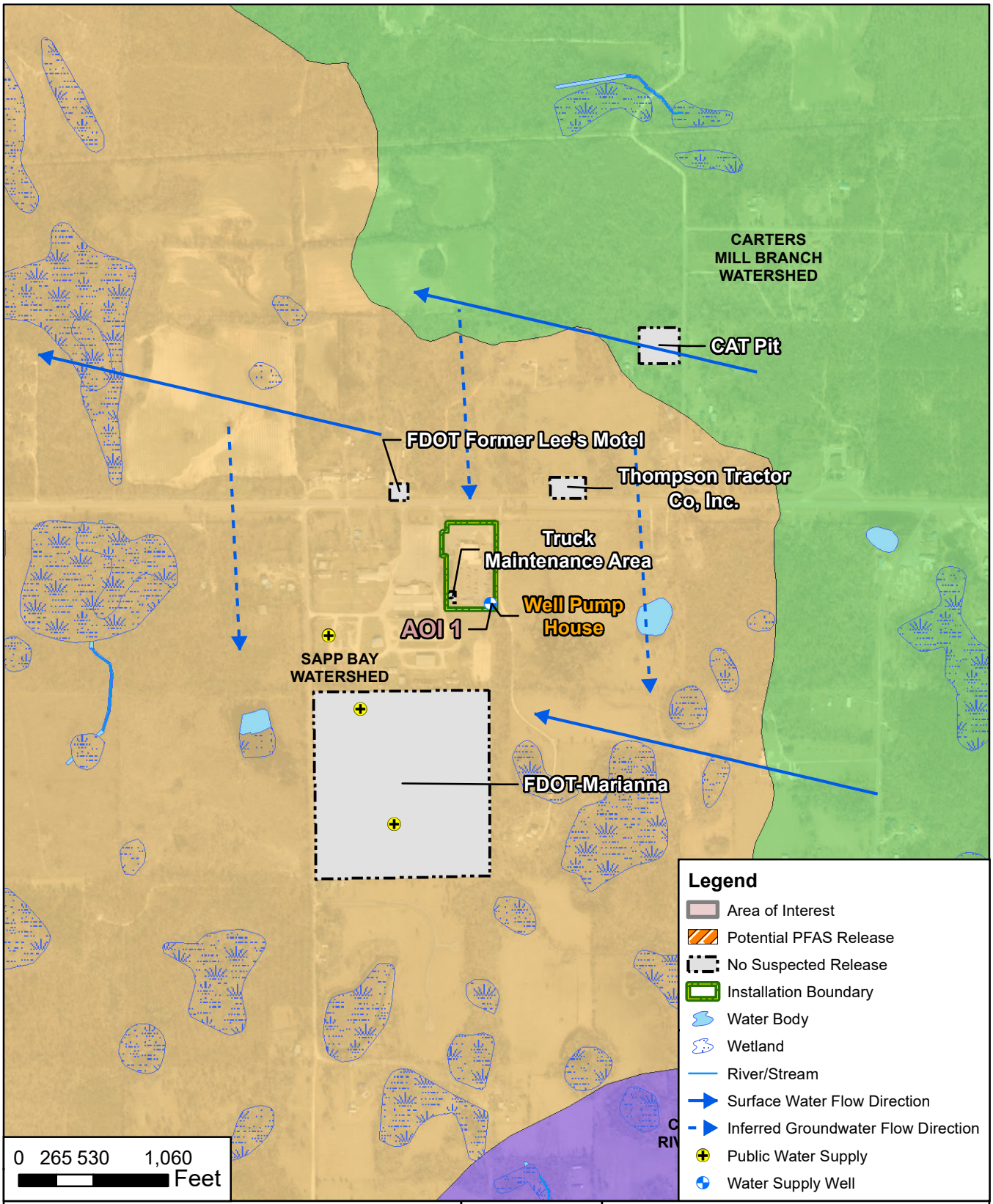
6.1 AOI 1: Well Pump House

AOI 1 includes the well pump house containing the facility's water supply well. In 2017, prior to the PA, the potable well was sampled and measured low-level detections of PFAS below the HA. The detections of PFAS may be indicative of a potential PFAS release in the vicinity of the AOI.

AOI 1 is surrounded by paved and grassy areas. If any PFAS releases occurred on these surfaces, ground-disturbing activities may result in potential exposure to PFAS in surface soils via ingestion and inhalation of dust particles for site workers and construction workers. PFAS releases may have also infiltrated the subsurface via cracks in the pavement, so ground-disturbing activities may result in potential exposure via ingestion of subsurface soils for construction workers.

PFAS are water soluble and can migrate readily from soil to groundwater via leaching. Due to the low-level detections of PFAS within the facility's potable well, site workers are potentially exposed to PFAS via ingestion of groundwater. Three public water supply wells are within a 1-mile radius, southeast of AOI 1, in the inferred cross-gradient groundwater direction. It is possible that off-facility residents may also be exposed to PFAS in groundwater from these wells.

Potential PFAS releases in surface water runoff likely drain into the on-facility drainage ditch running east to west, north of the Marianna Readiness Center Building, or into the storm water retention basin located on the west side of the facility. The storm water retention pond is likely connected to local groundwater in the surficial aquifer. Site workers and construction workers performing work in these areas may be potentially exposed to PFAS via ingestion of surface water or sediment. PFAS in surface water runoff or in groundwater may interact with the abundant springs in the surrounding area, so recreational users of local springs may be potentially exposed to PFAS in surface water/sediment or groundwater.



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Marianna Readiness Center, FL			
REVISED	6/9/2020	GIS BY	GC	6/9/2020
SCALE	1:12,000	CHK BY	BM	6/9/2020
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/9/2020

Area of Interest

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 6-1

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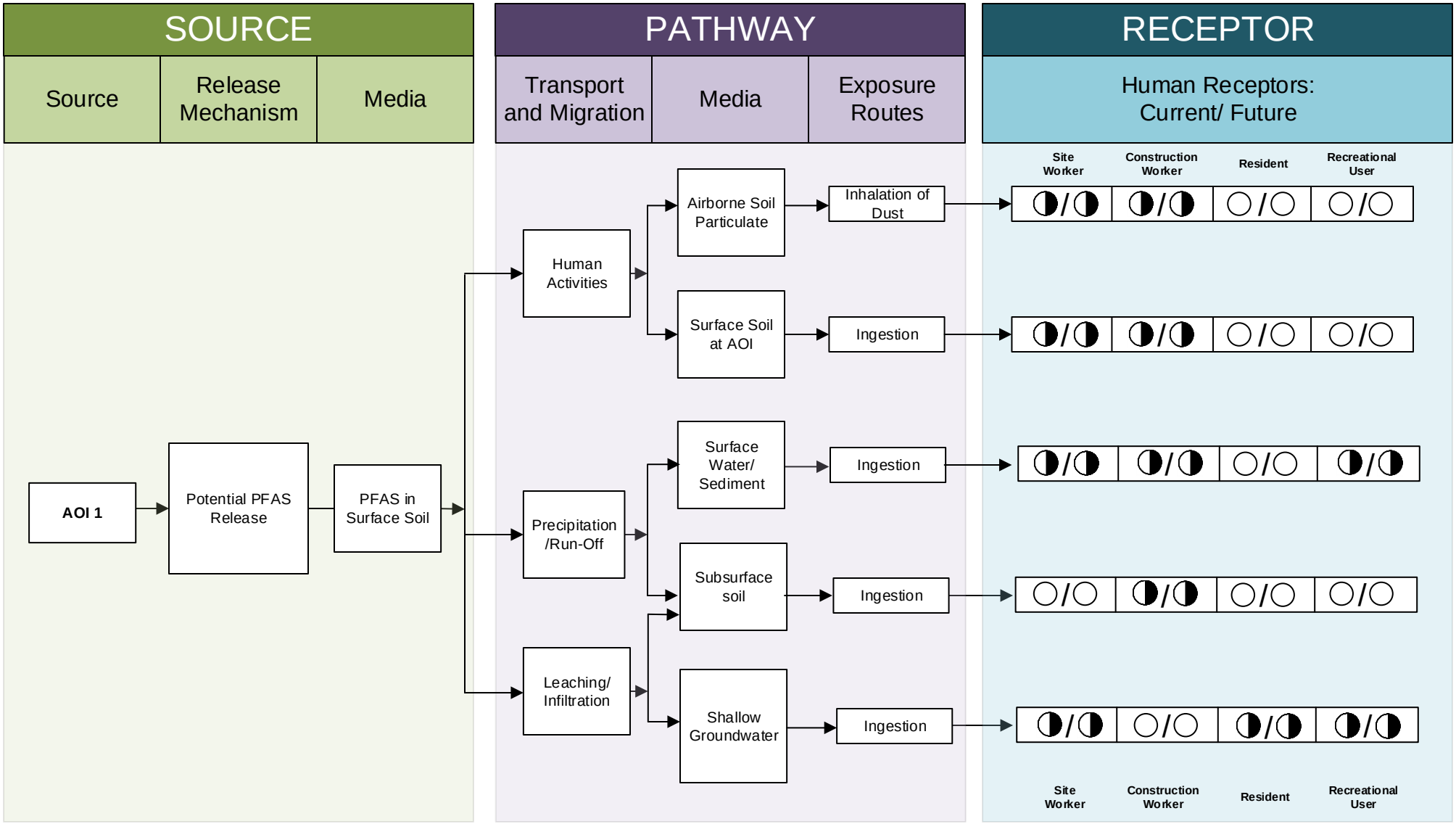


LEGEND

- Flow-Chart Stops
- Flow-Chart Continues
- Partial / Possible Flow
- Incomplete Pathway
- Potentially Complete Pathway
- Complete Pathway

Notes:

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

2. Dermal contact exposure pathway is incomplete for PFAS

Figure 6-2
Preliminary Conceptual Site Model
AOI 1 Well Pump House

7. Conclusions

This report presents a summary of available information gathered during the PA on the use and storage of AFFF and other PFAS-related activities at the current Marianna Readiness Center. The PA findings are based on the information presented in **Appendix A** and **Appendix B**.

7.1 Findings

Prior to conducting the PA at the Marianna Readiness Center, PFAS constituents were detected in the facility supply well located at the southeast corner of the property. This well is currently equipped with a chlorination and filtration treatment system. Consequently, the well pump house has been identified as an AOI related to a potential PFAS release at the Marianna Readiness Center. The AOI is shown on **Figure 7-1** and described in **Table 7-1** below:

Table ES-1: AOIs at Marianna Readiness Center

Area of Interest	Name	Used by	Potential Release Date
AOI 1	Well Pump House	FLARNG	Unknown

Based on potential PFAS release at the AOI, there is potential for exposure to PFAS contamination in media at or near the facility. The preliminary CSM for AOI 1, which presents the potential receptors and media impacted, is shown on **Figure 6-2**.

The following area, which was discussed in **Section 3** and is presented in **Table 7-2** below, was determined to have no suspected release:

Table 7-2: No Suspected Release Areas

No Suspected Release Area	Used by	Rationale
Truck Maintenance Area	FLARNG	The truck maintenance area is used only for general truck maintenance. Fueling takes place offsite at local retail fueling stations. The truck maintenance area is not equipped with an AFFF fire suppression system. Additionally, FLARNG personal with knowledge of the facility dating back to its construction in 2007 confirmed that AFFF has not been stored or used here.

7.2 Uncertainties

A number of information sources were investigated during this PA to determine the potential for PFAS-containing materials to have been present, used, or released at the facility. Historically, documentation of PFAS use was not required because PFAS were considered benign. Therefore, records were not typically kept by the facility or available during the PA on the use of PFAS in training, firefighting, or other non-traditional activities, or on its disposition.

The conclusions of this PA are based on all available information, including: previous environmental reports, EDRs™, observations made during the VSI, and interviews. Interviews of personnel with direct knowledge of a facility generally provided the most useful insights regarding a facility's historical and current PFAS-containing materials. Sometimes the provided information was vague or conflicted with other sources. Gathered information has a degree of uncertainty due

to the absence of written documentation, the limited number of personnel with direct knowledge due to staffing changes, the time passed since PFAS was first used (1969 to present), and a reliance on personal recollection. Inaccuracies may arise in potential PFAS release locations, dates of release, volume of releases, and the concentration of AFFF used. There is also a possibility the PA has missed a source of PFAS, as the science of how PFAS may enter the environment continually evolves.

In order to minimize the level of uncertainty, readily available data regarding the use and storage of PFAS were reviewed, current personnel were interviewed, multiple persons were interviewed for the same potential source area, and potential source areas were visually inspected.

Table 7-3 summarizes the uncertainties associated with the PA:

Table 7-3: Summary of Uncertainties

Location	Source of Uncertainty
AOI 1: Well Pump House	Results of pre-treatment groundwater data collected from the potable well onsite indicate detections of PFAS constituents. However, concentrations are reported below the USEPA established HA of 70 ppt for PFOS and PFOA, individually or combined. While no release of PFAS is indicated at the Marianna Readiness Center, no other potential adjacent source was identified. The source of PFAS in groundwater is unknown. No other details regarding the well construction (e.g. date of establishment and well depth) could be found through a review of available information.
Marianna Readiness Center	Information from FLARNG personnel at the facility was not available for the period before 2007. A data gap exists from the beginning of FLARNG occupation in 1956 to the beginning of interviewee's tenure in 2007.

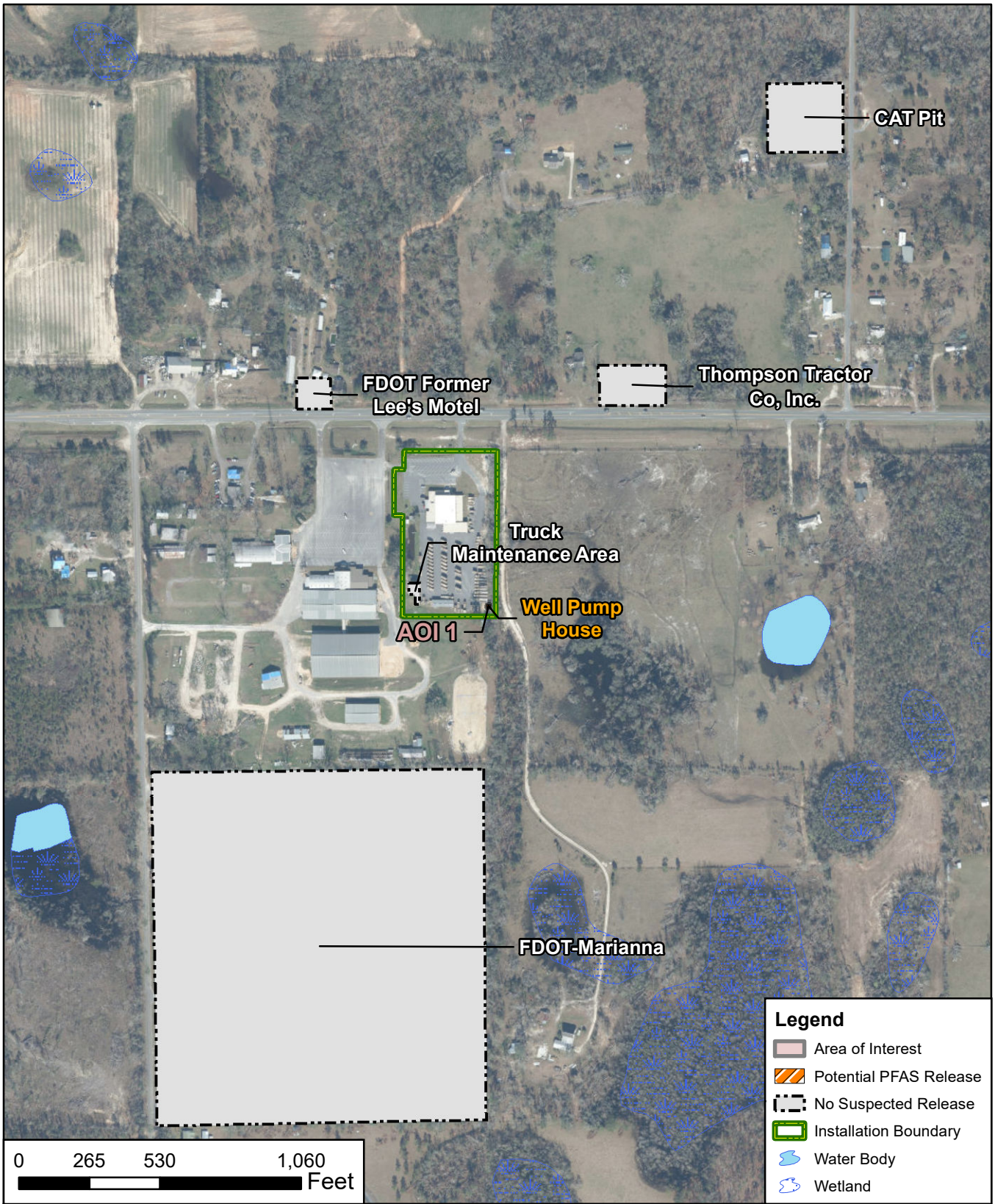
7.3 Potential Future Actions

Prior to conducting the PA at the Marianna Readiness Center, PFAS constituents were detected in the facility supply well located at the southeast corner of the property. This well is currently equipped with a chlorination and filtration treatment system. Consequently, the well pump house has been identified as an AOI related to a potential PFAS release at the Marianna Readiness Center. Based on the preliminary CSM developed for the AOI, there is potential for receptors to be exposed to PFAS contamination in soil, groundwater, surface water, and sediment at the AOI. **Table 7-4** summarizes the rationale used to determine if the AOI should be considered for further investigation under the CERCLA process and undergo an SI.

Table 7-4: PA Findings Summary

Area of Interest	AOI Location	Rationale	Potential Future Action
AOI 1: Well Pump House	30°46'57.1" N; 85°17'32.7" W	Detections of PFAS measured in the facility's potable well	Proceed to an SI, focus on soil, groundwater, surface water, sediment

ARNG will evaluate the need for an SI at Marianna Readiness Center based on the potential receptors, the potential migration of PFAS contamination off the facility, and the availability of resources.



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Marianna Readiness Center, FL			
REVISED	6/9/2020	GIS BY	GC	6/9/2020
SCALE	1:6,360	CHK BY	BM	6/9/2020
Base Map: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,		PM	RG	6/9/2020

Summary of Findings

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 7-1

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Appendix A
Data Resources

Data resources will be provided separately on CD. Data resources for Marianna Readiness Center include:

Environmental Data Resources, Inc.™ Geocheck Report

- 2019 Environmental Data Resources, Inc.™ Geocheck Report for Marianna Readiness Center, FL

Real Property Information

- 1956 Deed By and Between Jackson County, Florida, a political sub-division of the State of Florida and the Armory Board of the State of Florida at the Marianna Readiness Center, FL
- 1968 Deed and Lease Agreement By and Between The Armory Board, State of Florida and the Trustees of the Internal Improvement Fund of the State of Florida at the Marianna Readiness Center, FL, Lease No. 3727

Miscellaneous Data Resources

- 2017 Potable well groundwater analytical data at the Marianna Readiness Center, FL
- 2019 Letter from FDEP regarding alternative groundwater cleanup target levels and alternative soil cleanup target levels

Appendix B
Preliminary Investigation Report

Appendix B.1
Interview Records

PA Interview Questionnaire - Environmental Manager

Facility: Mariana Readiness Center
Interviewer: [redacted]
Date/Time: 01/30/19 0930

Interviewee: Sgt [redacted] **Title:** Readiness NCO / Supply NCO **Phone Number:** [redacted] **Email:** Not given	Can your name/role be used in the PA Report? (Y) or N Can you recommend anyone we can interview? Y or (N)

1. Roles or activities with the Facility/years working at the Facility.

The Building was constructed in 1952. Mr. [redacted] father worked at the facility when he was a child ≈ 1962-1967. Sgt. [redacted] began working at the facility in ≈ 2007. Mr. [redacted] joined the unit in 2005 and started working at the facility in 2010.

2. Where can I find previous facility ownership information?

This information is unknown by Mr. [redacted] + Mr. [redacted]. Jackson County Property appraiser lists property owned by Tiitf / Department of Military AFF, Mariana Armory c/o DOD.

3. What can you tell us about the history of PFAS including aqueous film forming foam (AFFF) at the Facility? Was it used for any of the following activities, circle all that apply and indicate years of active use, if known? Identify these locations on a facility map.

Maintenance N/A. only Changing tires etc.
Fire Training Areas N/A
Firefighting (Active Fire) no active fire. Anecdote about a tanker crash + fuel spill to the NE on Hwy but no fire.
Crash N/A
Fire Suppression Systems (Hangers/Dining Facilities) N/A
Fire Protection at Fueling Stations N/A
Non-Technical/Recreational/ Pest Management N/A
Metals Plating Facility N/A
Waterproofing Uniforms (Laundry Facilities) N/A
Other

4. Fill out CSM Information worksheet with the Environmental Manager.

5. Are any current buildings constructed with AFFF dispensing systems or fire suppression systems? What are the AFFF/suppression system test requirements? What is the frequency of testing the AFFF/suppression system? Do you have "As Built" drawings for the buildings?

No AFFF Dispensing System

PA Interview Questionnaire - Environmental Manager

Facility: Mariana Readiness Center
Interviewer: [redacted]
Date/Time: 01/30/19 0130

6. Are fire suppression systems currently charged with AFFF or have they been retrofitted for use of high expansion foam? If retrofitted, when was that done?

N/A

7. How is AFFF procured? Do you have an inventory/procurement system that tracks use?

N/A

8. What type of AFFF has been/is being used (3%, 6%, Mil Spec Mil-F-24385, High Expansion)? Manufacturer (3M, Dupont, Ansul, National Foam, Angus, Chemguard, Buckeye, Fire Service Plus)?

N/A

9. Where is the AFFF stored? How is it stored (tanks, 55-gallon drums, 5-gallon buckets)? What size are the storage tanks? Is the AFFF stored as a mixed solution (3% or 6%) or concentrated material?

N/A

10. How many FTAs are/were on this facility and where are they? Locate on a map. How many FTAs are active and inactive? For inactive FTAs, when was the last time that fire training using AFFF was conducted at them?

N/A

PA Interview Questionnaire - Environmental Manager

Facility: Montana Reception Center
Interviewer: [redacted]
Date/Time: 01/30/19 0930

11. When a release of AFFF occurs during a fire training exercise, now and in the past, how is the AFFF cleaned and disposed of? Were retention ponds built to store discharged AFFF? Was the AFFF trickled to the sanitary sewer or left in the pond to infiltrate?

N/A

12. Can you recall specific times when city, county, and/or state personnel came on-post for training? If so, please state which state/county agency or military entity? Do you have any records, including photographs to share with us?

No fire training on + off post

13. Did military routinely or occasionally fire train off-post? List the units that you can recall used/trained at various areas.

N/A

14. Did individual units come with their own safety personnel, did they also bring their own AFFF? Was training with AFFF part of these exercises? How were emergencies handled under these circumstances?

N/A

15. Are there specific emergency response incident reports (i.e., aircraft or vehicle crash sites and fires)? If so, may we please copy these reports? Who (entity) was the responder?

None onsite. Mr. [redacted] mentioned an anecdote where a tanker truck ran off the road NE of the site on the Hwy, spilling an unknown ammount of fuel. There was no fire or use of AFFF to clean the spilled fuel.

PA Interview Questionnaire - Environmental Manager

Facility: Marianas Readiness Center
Interviewer: [redacted]
Date/Time: 01/30/19 0130

16. Do you have records of fuel spill logs? Was it common practice to wash away fuel spills with AFFF? Is/was AFFF used as a precaution in response to fuel releases or emergency runway landings to prevent fires?

N/A. No fuel point onsite. all fueling takes place offsite at retail stations

17. Was AFFF used for forest fires or fire management on-post/off-post? If so, please describe what happened and who was involved?

N/A

18. Are there mutual aid/use agreements between county, city, and local fire department? Please list, even if informal. If formalized, may we have a copy of the agreement?

Fire Protection comes from the Mariana Fire Department.

19. Can you provide any other locations where AFFF has been stored, released, or used (i.e. hangars, buildings, fire stations, firefighting equipment testing and maintenance areas, emergency response sites, storm water/surface water, waste treatment plants, and AFFF ponds)?

N/A. No AFFF storage onsite.

20. Are you aware of any other creative uses of AFFF? If so, how was AFFF used? What entities were involved?

No / N/A

PA Interview Questionnaire - Environmental Manager

Facility: Marianas Readiness Center
Interviewer: [redacted]
Date/Time: 01/30/19 0730

21. Are there past studies you are aware of with environmental information on plants/animals/ groundwater/soil types, etc., such as Integrated Cultural Resources Management Plans or Integrated Natural Resources Management Plans?

None that Mr. [redacted] or Mr. [redacted] are aware of

22. What other records might be helpful to us (environmental compliance, investigation records, admin record) and where can we find them?

None that Mr. [redacted] or Mr. [redacted] are aware of

23. Do you have or did you have a chrome plating shop on base? What were/are the years of operation of that chrome plating shop?

N/A No Chrome plating shop

24. Do you know whether the shop has/had a foam blanket mist suppression system or used a fume hood for emissions control? If foam blanket mist suppression was used, where was the foam stored, mixed, applied, etc.?

N/A

25. How is off-spec AFFF disposed (used for training, turned in, or given to a local Fire Station)? If applicable, do you know the name of the vendor that removes off-spec AFFF? Do you have copies of the manifest or B/L?

N/A No AFFF stored onsite.

PA Interview Questionnaire - Environmental Manager

Facility: Marion Reclamation Center
Interviewer: [redacted]
Date/Time: 01/30/19 0930

26. Do you recommend anyone else we can interview? If so, do you have contact information for them?

No recommendations

Appendix B.2
Visual Site Inspection Checklists

Facility ST
Visual Survey Inspection Log

Recorded by: [redacted]

ARNG Contact: Sgt [redacted]

Date: 01/30/19

Site Name / Area Name / Unique ID: Mariana Readiness Center - Truck Maintenance Area

Site / Area Acreage: Readiness Center is ≈ 5 Acres.

Historic Site Use (Brief Description): Truck maintenance.

Current Site Use (Brief Description): Truck maintenance

1. Was AFFF used at the site/area? Y / (N)

3a. If yes, document how AFFF was used and usage time (e.g., *fire fighting training 2001 to 2014*) N/A

2. Has usage been documented? Y / (N)

2a. If yes, keep a record (place electronic files on a disk)

N/A

Significant Topographical Features:

1. Has the infrastructure changed at the site/area? Y / (N)

1a. If so, please describe change: (*ex. Structures structures longer exist.*)

2. Is the site/area vegetated? (Y) / N

2a. If not vegetated, briefly describe the site/area composition: Vegitation on the NW, W, + South side of building

3. Does the site or area exhibit evidence of erosion? (Y) / N

3a. If yes, describe the location and extent of the erosion : Some erosion along the fence line behind the west side of the building

4. Does the site/area exhibit any areas of ponding or standing water? Y / (N)

4a. If yes, describe the location and extent of the ponding :

Stormwater retention at South & North end of building

Migration Potential:

1. Does site/area drainage flow off installation? (Y) / N

1a. If so, please note observation and location: water flows NW offsite. Stormwater retention at west side of property.

2. Is there standing water or drainage issues within the site/area? Y / (N)

2a. If so, please note observation and location:

Stormwater directed to retention pond at west side of property.

3. Is there channelized flow within the site/area? (Y) / N

3a. If so, please note observation and location: ~~storm~~ ~~end~~ man made channel at South end of maintenance building

4. Have man-made drainage channels been constructed within the site/area? (Y) / N

4a. If so, please note the location of the channel: See above.

Additional Notes

Maintenance of trucks include changing tires etc. No washing on site. No records of fuel spills or fuel spill logs. No ~~over~~ AFFF suppression. Fire surpression includes ABC fire extinguisher and water overhead.

Facility ST
Visual Survey Inspection Log

Photographic Log

Photo ID/Name	Date & Location	Description	Photograph
1	1/30/19 Truck Maintenance area	General view of the Truck maintenance area	looking west.
2	1/30/19 Truck maintenance area	ABC Fire Extinguisher at maintenance area	Looking South

Facility ST
Visual Survey Inspection Log

Recorded by: [redacted]

ARNG Contact: Sgt. [redacted]

Date: 01/30/19

Site Name / Area Name / Unique ID: Marianna Readiness Center - well Pump House

Site / Area Acreage: Readiness Center ≈ 5 Acres

Historic Site Use (Brief Description): Potable well

Current Site Use (Brief Description): Potable well

1. Was AFFF used at the site/area? Y / (N)

3a. If yes, document how AFFF was used and usage time (e.g., *fire fighting training 2001 to 2014*) N/A

2. Has usage been documented? Y / (N)

2a. If yes, keep a record (place electronic files on a disk)
N/A

Significant Topographical Features:

1. Has the infrastructure changed at the site/area? Y / (N)

1a. If so, please describe change: (*ex. Structures structures longer exist.*)

2. Is the site/area vegetated? Y / N

2a. If not vegetated, briefly describe the site/area composition: Grass surrounding pump house on all sides.

3. Does the site or area exhibit evidence of erosion? (Y) / N

3a. If yes, describe the location and extent of the erosion : Some erosion around building. Damage to area still evident from Hurricane Michael.

4. Does the site/area exhibit any areas of ponding or standing water? Y / (N)

4a. If yes, describe the location and extent of the ponding : Retention pond on west side of property.

Migration Potential:

1. Does site/area drainage flow off installation? (Y) / N

1a. If so, please note observation and location: water collects at retention pond & flows NW.

2. Is there standing water or drainage issues within the site/area? Y / (N)

2a. If so, please note observation and location:

3. Is there channelized flow within the site/area? (Y) / N

3a. If so, please note observation and location: Drainage to retention pond & stormwater drains to NW

4. Have man-made drainage channels been constructed within the site/area? (Y) / N

4a. If so, please note the location of the channel: Storm drains flow to retention pond at west side of property.

Additional Notes

PFAS constituents were historically detected at well (pre-treatment). Well is currently equipped with a filtration system as well as Chlorination treatment. Well provides water for the facility. Upgradient to the site (topographically) is the FDOT maintenance facility. Agricultural Center to the Southwest.

Facility ST
Visual Survey Inspection Log

Photographic Log

Photo ID/Name	Date & Location	Description	Photograph
3	1/30/19 well House	Outside well House	looking east.
4	1/30/19 well House	view inside well house	looking Southeast
5	1/30/19 well House	view inside well house	looking Southwest
6	1/30/19 well House	upgradient property. Agricultural Center	Looking South west

Appendix B.3
Conceptual Site Model Information

Preliminary Assessment – Conceptual Site Model Information

Site Name: Marianna Readiness Center

Why has this location been identified as a site?

Previous PFAS detection in well sample onsite.

Are there any other activities nearby that could also impact this location?

Jackson County Agricultural Center to the west/Southwest. Jackson County DMV to the west. FDOT maintenance facility to the Southwest.

Training Events

Have any training events with AFFF occurred at this site? None

If so, how often? N/A

How much material was used? Is it documented? N/A

Identify Potential Pathways: Do we have enough information to fully understand over land surface water flow, groundwater flow, and geological formations on and around the facility? Any direct pathways to larger water bodies?

Surface Water:

Surface water flow direction? west - Northwest.

Average rainfall? 53" per year

Any flooding during rainy season?

Direct or indirect pathway to ditches? Drainage Ditch running E-W along US 90

Direct or indirect pathway to larger bodies of water? None

Does surface water pond any place on site? Stormwater Pond / ditch located SW of Building

Any impoundment areas or retention ponds? Stormwater pond

Any NPDES location points near the site?

How does surface water drain on and around the flight line? Drains west & Northwest to retention area & ~~Storm drain~~ Storm water ditch to the North of Site.

Preliminary Assessment – Conceptual Site Model Information

Groundwater:

Groundwater flow direction? Presumably follows topography west/northwest

Depth to groundwater? ≈ 5' to Surficial Aquifer

Uses (agricultural, drinking water, irrigation)? well onsite at SE Corner of Property.

Any groundwater treatment systems? none

Any groundwater monitoring well locations near the site?

Is groundwater used for drinking water? well at SE Corner of Property.

Are there drinking water supply wells on installation? well at SE Corner of Property

Do they serve off-post populations? NO

Are there off-post drinking water wells downgradient NO

Waste Water Treatment Plant:

Has the installation ever had a WWTP, past or present? NO

If so, do we understand the process and which water is/was treated at the plant? N/A

Do we understand the fate of sludge waste? N/A

Is surface water from potential contaminated sites treated? N/A

Equipment Rinse Water

1. Is firefighting equipment washed? Where does the rinse water go? NO

2. Are nozzles tested? How often are nozzles tested? Where are nozzles tested? Are nozzles cleaned after use? Where does the rinse water flow after cleaning nozzles? NO

3. Other?

Preliminary Assessment – Conceptual Site Model Information

Identify Potential Receptors:

Site Worker — Receptors unlikely. No source of PFAS identified onsite.

Construction Worker — However, constituents were detected in site well

Recreational User

Residential

Child

Ecological

Note what is located near by the site (e.g. daycare, schools, hospitals, churches, agricultural, livestock)?

Agricultural center to the west & FDOT facility to the South.

Documentation

Ask for Engineering drawings (if applicable).

Has there been a reconstruction or changes to the drainage system? When did that occur? No Change.

Appendix C
Photographic Log

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Mariana Readiness Center	Mariana, Florida

Photograph No. 1

Description:

Looking west.

General view of the truck maintenance area.

Photo date 1/30/19

Photograph No. 2

Description:

Looking south.

ABC fire extinguisher stored within the truck maintenance building.

Photo Date: 1/30/19

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Mariana Readiness Center	Mariana, Florida

Photograph No. 3

Description:

Looking east toward the potable well and pump house.

Photo Date: 1/30/19

Photograph No. 4

Description:

Looking southeast inside the pump house.

Photo Date: 1/30/19

APPENDIX C – Photographic Log

Army National Guard, Preliminary Assessment for PFAS	Mariana Readiness Center	Mariana, Florida

Photograph No. 5

Description:

Looking southwest inside the pump house

Photo Date: 1/30/19

Photograph No. 6

Description:

Looking southwest to topographically up gradient property, the Jackson County Agricultural Center. Beyond this property is an FDOT maintenance facility.

Photo Date: 1/30/19