

# Site Investigations

## Site-Specific Field Sampling Plan and Site-Specific Safety and Health Plan Attachments Buildings South of Reilly Airfield (Parcel 501)

**Fort McClellan**  
Calhoun County, Alabama

**October 1999**

Delivery Order CK08  
Contract Number DACA21-96-D-0018



US Army Corps  
of Engineers  
Mobile District



**Final  
Site-Specific Field Sampling Plan and  
Site-Specific Safety and Health Plan Attachments  
Buildings South of Reilly Airfield, Parcel 501(7)**

**Fort McClellan  
Calhoun County, Alabama**

**Delivery Order CK08  
Contract No. DACA21-96-D-0018  
IT Project No. 783149**

**October 1999**

**Revision 1**

**Final  
Site-Specific Field Sampling Plan Attachment  
Site Investigation at the Buildings South of Reilly Airfield,  
Parcel 501(7)**

**Fort McClellan  
Calhoun County, Alabama**

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**Delivery Order CK08  
Contract No. DACA21-96-D-0018  
IT Project No. 783149**

**October 1999**

**Revision 1**

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## **List of Acronyms**

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ADEM	Alabama Department of Environmental Management
ASTM	American Society for Testing and Materials
bgs	below ground surface
CERFA	Community Environmental Response Facilitation Act
CESAS	Corps of Engineers South Atlantic Savannah
CLP	Contract Laboratory Procedure
CSEM	conceptual site exposure model
DCS	Directorate of Community Safety
DOD	U.S. Department of Defense
DQO	data quality objective
EBS	environmental baseline survey
EPA	U.S. Environmental Protection Agency
ESE	Environmental Sciences and Engineering, Inc.
FTMC	Fort McClellan
GPS	global positioning system
IDW	investigation-derived waste
IT	IT Corporation
NGVD	National Geodetic Vertical Datum
PID	photoionization detector
PSSC	potential site-specific chemical
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
QAP	installation-wide quality assurance plan
SAP	installation-wide sampling and analysis plan
SFSP	site-specific field sampling plan
SHP	installation-wide safety and health plan
SI	site investigation
SSHP	site-specific safety and health plan
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
UST	underground storage tank
WP	installation-wide work plan

## ***Executive Summary***

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In accordance with Contract No. DACA21-96-D-0018, Delivery Order CK08, IT Corporation (IT) will conduct site investigation activities at the Buildings South of Reilly Airfield, Parcel 501(7), at Fort McClellan (FTMC), Calhoun County, Alabama, to determine the presence or absence of potential site-specific chemicals at this site. The purpose of this site-specific field sampling plan (SFSP) is to provide technical guidance for sampling activities at the Buildings South of Reilly Airfield.

The Buildings South of Reilly Airfield, Parcel 501(7), are located in the northern area of the Main Post. The Buildings South of Reilly Airfield are located at the north end of 10th Street and south of the Reilly Airfield. Reilly Airfield is a small asphalt airstrip with a paved parking area and four buildings. Reilly Airfield does not have an air traffic control tower. The area surrounding the Buildings South of Reilly Airfield comprise approximately 16 acres and is divided into two separate fenced and gated areas.

The parcel number for the Buildings South of Reilly Airfield (Buildings 416, 421, and 425) was changed from Parcel 161(1), a Category 1 where no storage, release, or disposal has occurred to Parcel 501(7), a Category 7 that requires further evaluation to determine the condition of the site. The change of category for the site was made after FTMC Directorate of Environment (DOE) personnel reviewed the history of the buildings and conducted a site visit. DOE personnel determined that activities were conducted during the operation as an airfield and later as a vehicle impoundment yard and U.S. Army Military Police driving course that may have impacted the site. Therefore, these buildings require further investigation.

The first fenced area just south of the airstrip is controlled by the FTMC Directorate of Community Safety (DCS) and is used as an impoundment yard for abandoned vehicles (Smith, 1999). There is a storage shed east of the impoundment yard. Previously, this area was used (for about 8 to 9 years) to store vehicles, campers, etc. for FTMC dependent housing personnel stationed at FTMC (Smith, 1999). Before the area was used to store FTMC personnel vehicles, this area was used to refuel helicopters using Reilly Airfield. The refueling was conducted with tanker trucks. There was not any underground storage tanks reported to be at this site. The impoundment yard is currently used to store abandoned vehicles collected on base.

The second fenced area adjacent and south of the impoundment yard, is controlled by the Special Operations of the U.S. Army Military Police as part of the Protective Services' Evasive Driving Course (Weems, 1999). This area contains buildings for administration and maintenance and areas for vehicle storage and maintenance. The Protective Services' Evasive Driving Course uses the airstrip for driver training. The compound has been used as part of the Protective Services Evasive Driving Course for about 15 to 16 years (Weems, 1999). Previously, this compound was used by the FTMC Recreation Services to store and rent recreational equipment such as boats, campers, and camping gear to FTMC personnel. This compound contains 3 buildings: Building 421, an office building for the evasive driving course; Building 425, a building used for light vehicle maintenance; and Building 416, a flammable storage shed used to store vehicle oils and fluids (Weems, 1999). Other than in vehicles, gasoline is not stored on site. Within the fenced parking area, the site currently contains approximately 80 vehicles. Some auto parts, batteries and old tires are accumulated throughout the site. There are not any reports or evidence of any underground storage tanks at the site.

Specifically, IT will collect 10 surface soil samples, 10 subsurface soil samples, 6 groundwater samples, 1 surface water sample, 1 sediment sample, and 2 depositional soil samples at this site. Potential contaminant sources at the Buildings South of Reilly Airfield, Parcel 501(7), include petroleum products (e.g., gasoline, diesel, heating oil, waste oil, antifreeze, and lubricants), solvents, and metals. Chemical analyses of the samples collected during the field program will include volatile organic compounds, semivolatile organic compounds, and metals. In addition, the sediment sample will be analyzed for total organic carbon (TOC) and grain size. Results from these analyses will be compared with site-specific screening levels specified in the installation-wide work plan (WP) and regulatory agency guidelines.

This SFSP attachment to the installation-wide sampling and analysis plan (SAP) for the Buildings South of Reilly Airfield will be used in conjunction with the site-specific safety and health plan (SSHP), the WP, and the SAP. The SAP includes the installation-wide safety and health plan, waste management plan, and quality assurance plan. Site-specific hazard analyses are included in the SSHP.

## **1.0 Project Description**

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### **1.1 Introduction**

The U.S. Army is conducting studies of the environmental impact of suspected contaminants at Fort McClellan (FTMC) in Calhoun County, Alabama, under the management of the U.S. Army Corps of Engineers (USACE)-Mobile District. The USACE has contracted IT Corporation (IT) to provide environmental services for the site investigation (SI) of the Buildings South of Reilly Airfield, Parcel 501(7), under Delivery Order CK08, Contract No. DACA21-96-D-0018.

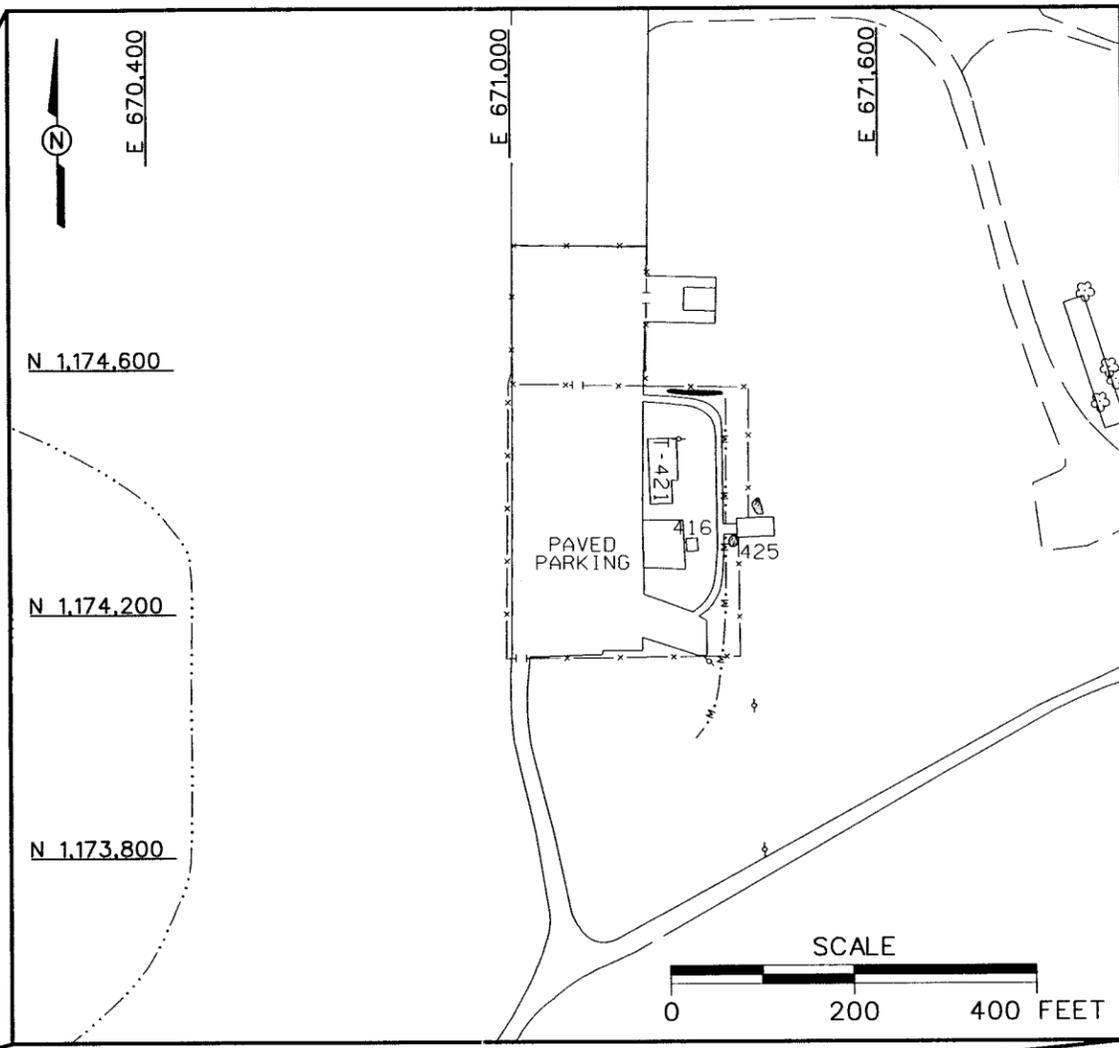
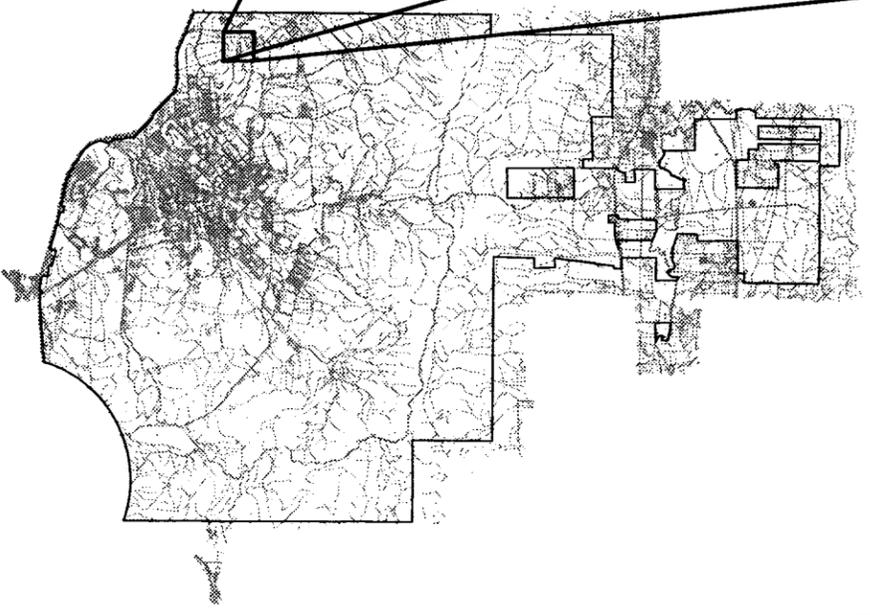
This site-specific field sampling plan (SFSP) attachment to the installation-wide sampling and analysis plan (SAP) (IT, 1998a) for FTMC has been prepared to provide technical guidance for sample collection and analysis at the Buildings South of Reilly Airfield, Parcel 501(7). This SFSP will be used in conjunction with the site-specific safety and health plan (SSHP) developed for the Buildings South of Reilly Airfield, Parcel 501(7), and the installation-wide work plan (WP) (IT, 1998b) and SAP. The SAP includes the installation-wide safety and health plan (SHP), waste management plan, and quality assurance plan (QAP). Site-specific hazard analyses are included in the SSHP.

The parcel number for the Buildings South of Reilly Airfield (Buildings 416, 421, and 425) was changed from Parcel 161(1), a Category 1 where no storage, release, or disposal has occurred to Parcel 501(7), a Category 7 that requires further evaluation to determine the condition of the site. The change of category for the site was made after FTMC Directorate of Environment (DOE) personnel reviewed the history of the buildings and conducted a site visit. DOE personnel determined that activities were conducted during the operation as an airfield and later as a vehicle impoundment yard and U.S. Army Military Police driving course that may have impacted the site. Therefore, these buildings require further investigation.

### **1.2 Site Description**

The Buildings South of Reilly Airfield, Parcel 501(7), are located in the northern area of the Main Post (Figure 1-1). Buildings South of Reilly Airfield are located at the north end of 10th Street and south of the Reilly Airfield (Figure 1-2). Reilly Airfield is a small asphalt airstrip with a paved parking area and four buildings. Reilly Airfield does not have an air traffic control tower. A prefabricated hanger was once located on the east side of the parking area, but has been removed. A review of aerial photographs, 1964 through 1982, showed a building located south

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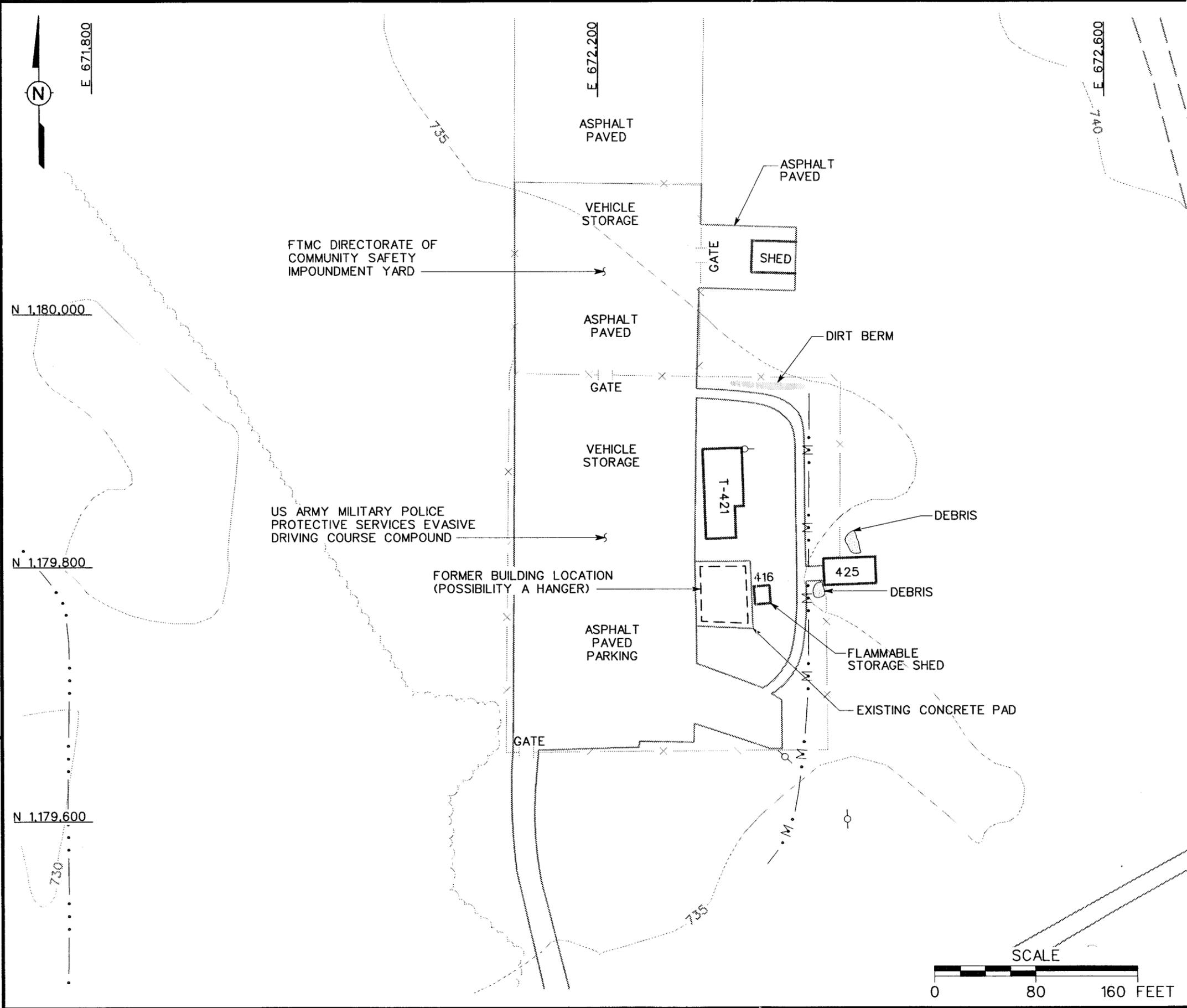
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- UNIMPROVED ROADS AND PARKING
  - PAVED ROADS AND PARKING
  - BUILDING
  - SURFACE DRAINAGE / CREEK
  - MANMADE SURFACE DRAINAGE FEATURE
  - FENCE
  - UTILITY POLE

**FIGURE 1-1**  
 SITE LOCATION MAP  
 BUILDINGS SOUTH OF REILLY AIRFIELD  
 PARCEL 501(7)

U. S. ARMY CORPS OF ENGINEERS  
 MOBILE DISTRICT  
 FORT McCLELLAN  
 CALHOUN COUNTY, ALABAMA  
 Contract No. DACA21-96-D-0018



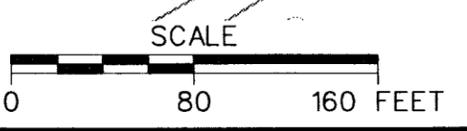
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**LEGEND**

- UNIMPROVED ROADS AND PARKING
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- BUILDING
- TOPOGRAPHIC CONTOURS
- TREES / TREELINE
- SURFACE DRAINAGE / CREEK
- MANMADE SURFACE DRAINAGE FEATURE
- FENCE
- UTILITY POLE

**FIGURE 1-2**  
**SITE MAP**  
**BUILDINGS SOUTH OF REILLY AIRFIELD**  
**PARCEL 501(7)**  
 U. S. ARMY CORPS OF ENGINEERS  
 MOBILE DISTRICT  
 FORT McCLELLAN  
 CALHOUN COUNTY, ALABAMA  
 Contract No. DACA21-96-D-0018  
**IT CORPORATION**  
*A Member of The IT Group*



of Building 421, where the concrete pad is. From the aerial photographs, it appears that the building was removed between 1982 and 1994. Based on the description of the hanger, this is the likely location of the hanger.

The Buildings South of Reilly Airfield comprise approximately 16 acres and are divided into two separate fenced and gated areas. The first fenced area just south of the airstrip is controlled by the FTMC Directorate of Community Safety (DCS) and is used as an impoundment yard for abandoned vehicles (Smith, 1999). There is a storage shed east of the impoundment yard. This area has only been the impoundment yard for less than a year. Previously, this area was used (for about 8 to 9 years) to store vehicles, campers, etc. for FTMC dependent housing personnel stationed at FTMC (Smith, 1999). Before the area was used to store FTMC personnel vehicles, this area was used to refuel helicopters using Reilly Airfield. The refueling was conducted with tanker trucks. There are not any underground storage tanks (UST) reported to be at this site. The impoundment yard is currently used to store abandoned vehicles collected on base. Also, some vehicles in the impoundment yard are left from earlier personnel storage, but are considered abandoned because they have remained unclaimed for three or more years. Some of these vehicles are considered "junkers" (Smith, 1999). The DCS is planning to eventually dispose of the vehicles stored in the impoundment yard.

The second fenced area, adjacent and south of the DCS impoundment yard, is controlled by the Special Operations of U.S. Army Military Police as part of the Protective Services' Evasive Driving Course (Weems, 1999). This area contains buildings for administration and maintenance and areas for vehicle storage and maintenance (Figure 1-2). The Protective Services' Evasive Driving Course uses the airstrip for driver training. The compound has been used as part of the Protective Services' Evasive Driving Course for about 15 to 16 years (Weems, 1999). Previously, this compound was used by the FTMC Recreation Services to store and rent recreational equipment such as boats, campers, and camping gear to FTMC personnel. This compound contains 3 buildings: Building 421, an office building for the evasive driving course; Building 425, a building used for light vehicle maintenance; and Building 416, a flammable storage shed used to store vehicle oils and fluids (Weems, 1999). Other than in vehicles, gasoline is not stored on site. Within this fenced parking area, the site currently contains approximately 80 vehicles. These vehicles are used in several aspects of driver training by the Protective Services' Evasive Driving Course for driving, shooting with live ammunition and demolition (Weems, 1999). Before the vehicles are demolished, they first are emptied of any fluids. However, there are typical oil and fluid stains evident on the asphalt parking area from the vehicle storage (Weems, 1999). After vehicles are demolished and no longer useful in the

driving course, the vehicles are removed from the site for disposal. Some auto parts, batteries and old tires are accumulated throughout the site. There are not any reports or evidence of any USTs at the site.

The elevation of the site is approximately 740 feet (National Geodetic Vertical Datum [NGVD] of 1929). Surface water appears to drain to the southwest. Local shallow groundwater direction, based on previous groundwater contour maps prepared for Landfill No. 3, is probably to the west-northwest.

Soils at the Buildings South of Reilly Airfield consist of the Cumberland Series (U.S. Department of Agriculture [USDA], 1961). The Cumberland Series of soils consists of deep, well drained soils on stream terraces. These soils have developed in old general alluvium that washed from soils derived mainly from limestone and cherty limestone, and to some extent, shale and sandstone. Rounded chert, sandstone, and quartzite gravel, as much as 3 inches in diameter, are throughout the soils. Depth to bedrock is typically from 4 feet below ground surface (bgs) to greater than 20 feet bgs. The depth to water is typically greater than 20 feet bgs.

Soils at this site fall into the Cumberland gravelly loam, 2 to 6 percent slopes, eroded type soil (CoB2) (USDA, 1961). The surface soil ranges from very dark brown to reddish brown. The subsoil ranges from dark red to red and from silty clay loam to clay in texture. The thickness of the alluvium ranges from 2 to 15 feet or more. In some areas, this soil is underlain by beds of gravel or sand. Infiltration is medium, permeability is moderate, and the capacity for available moisture is high. Runoff is medium and is a slight hazard.

### **1.3 Scope of Work**

The scope of work for activities associated with the SI at the Buildings South of Reilly Airfield, Parcel 501(7), as specified by the statement of work (USACE, 1999), includes the following tasks:

- Develop the SFSP attachment.
- Develop the SSHP attachment.
- Collect 10 surface soil samples, 10 subsurface soil samples, 6 groundwater samples, 1 surface water sample, 1 sediment sample, and 2 depositional soil samples to determine whether potential site-specific chemicals (PSSC) are present

at the Buildings South of Reilly Airfield, Parcel 501(7) site and to provide data useful for supporting any future planned corrective measures and closure activities.

- Samples will be analyzed for the parameters listed in Section 4.5.

At completion of the field activities and sample analyses, draft and final SI summary reports will be prepared to evaluate the absence or presence of PSSCs at this site, and to recommend further actions, if appropriate.

## ***2.0 Summary of Existing Environmental Studies***

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An environmental baseline study (EBS) was conducted by Environmental Science and Engineering, Inc. (ESE) to document current environmental conditions of all FTMC property (ESE, 1998). The study was to identify sites that, based on available information, have no history of contamination and comply with U.S. Department of Defense (DOD) guidance for fast-track cleanup at closing installations. The EBS also provides a baseline picture of FTMC properties by identifying and categorizing the properties by seven criteria.

1. Areas where no storage, release, or disposal (including migration) has occurred.
2. Areas where only storage has occurred.
3. Areas of contamination below action levels.
4. Areas where all necessary remedial actions have been taken.
5. Areas of known contamination with removal and/or remedial action underway.
6. Areas of known contamination where required response actions have not been taken.
7. Areas that are not evaluated or require further evaluation.

The EBS was conducted in accordance with the Community Environmental Response Facilitation Act (CERFA) (CERFA-Public Law 102-426) protocols and DOD policy regarding contamination assessment. Record searches and reviews were performed on all reasonably available documents from FTMC, Alabama Department of Environmental Management (ADEM), U.S. Environmental Protection Agency (EPA) Region IV, and Calhoun County, as well as a database search of Comprehensive Environmental Response, Compensation, and Liability Act-regulated substances, petroleum products, and Resource Conservation and Recovery Act-regulated facilities. Available historic maps and aerial photographs were reviewed to document historic land uses. Personal and telephone interviews of past and present FTMC employees and military personnel were conducted. In addition, visual site inspections were conducted to verify conditions of specific property parcels.

The Buildings South of Reilly Airfield were identified as a Category 7 CERFA site. A Category 7 CERFA site is a parcel where PSSCs were possibly stored, and released onto the site or to the

environment, and/or were possibly disposed of on site property. There have not been any investigations recorded at this area. The Buildings South of Reilly Airfield site lack adequate documentation and, therefore, requires additional evaluation to determine the environmental condition of the parcel.

## **3.0 Site-Specific Data Quality Objectives**

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### **3.1 Overview**

The data quality objective (DQO) process is followed to establish data requirements. This process ensures that the proper quantity and quality of data are generated to support the decision making process associated with the action selection for the Buildings South of Reilly Airfield, Parcel 501(7). This section incorporates the components of the DQO process described in the publication EPA 540-R-93-071 *Data Quality Objectives Process for Superfund* (EPA, 1993). The DQO process as applied to the Buildings South of Reilly Airfield site is described in more detail in Section 4.3 of the WP. Table 3-1 provides a summary of the factors used to determine the appropriate quantity of samples, and the procedures necessary to meet the objectives of the SI and establish a basis for future action at this site.

The samples will be analyzed using EPA SW-846 methods, including Update III Methods where applicable, as presented in Chapter 4.0 in this SSFP and Table 6-1 in the QAP. Data will be reported and evaluated in accordance with Corps of Engineers South Atlantic Savannah (CESAS) Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP). Chemical data will be reported via hard copy data packages by the laboratory using Contract Laboratory Program (CLP)-like forms. These packages will be validated in accordance with EPA National Functional Guidelines by Level III criteria.

### **3.2 Data Users and Available Data**

The available data, presented in Table 3-1, related to the SI at the Buildings South of Reilly Airfield site have been used to formulate a site-specific conceptual model. This conceptual model was developed to support the development of this SFSP, which is necessary to meet the objectives of these activities and to establish a basis for future action at the site. The data users for the data and information generated during field activities are primarily EPA, USACE, ADEM, FTMC, and the USACE supporting contractors. This SFSP, along with the necessary companion documents, has been designed to provide the regulatory agencies with sufficient detail to reach a determination as to the adequacy of the scope of work. The program has also been designed to provide the level of defensible data and information required to confirm or rule out the existence of residual chemical contamination in site media.

Table 3-1

**Summary of Data Quality Objectives  
Site Investigation  
Buildings South of Reilly Airfield , Parcel 501(7)  
Fort McClellan, Calhoun County, Alabama**

Potential Data Users	Available Data	Conceptual Site Model	Media of Concern	Data Uses and Objectives	Data Types	Analytical Level	Data Quantity
EPA, ADEM USACE, DOD FTMC, IT Corporation Other contractors, and possible future land users	None available	<u>Contaminant Source</u> Buildings South of Reilly Airfield  <u>Migration Pathways</u> Infiltration to subsurface soil, infiltration and leaching to groundwater, and dust emissions and volatilization to ambient air  <u>Potential Receptors</u> Groundskeepers (current and future) construction workers (future), and residents (future)  <u>PSSC</u> Petroleum products (e.g., gasoline, diesel, heating oil, waste oil, antifreeze, and lubricants), solvents, and metals	Surface soil	SI to confirm the presence or absence of contamination in the site media  Definitive quality data for future decision-making	Surface Soil TCL VOCs, TCL SVOCs, TAL Metals	Definitive data in CESAS Level B data packages	10 direct-push soil samples + QC
			Subsurface Soil		Subsurface Soil TCL VOCs, TCL SVOCs, TAL Metals		
			Groundwater		Groundwater TCL VOCs, TCL SVOCs, TAL Metals	Definitive data in CESAS Level B data packages	6 groundwater samples + QC
			Depositional Soil		Depositional Soil TCL VOCs, TCL SVOCs, TAL Metals	Definitive data in CESAS Level B data packages	2 depositional soil samples + QC
			Surface Water		Surface Water TCL VOCs, TCL SVOCs, TAL Metals	Definitive data in CESAS Level B data packages	1 subsurface water sample + QC
			Sediment		Sediment TCL VOCs, TCL SVOCs, TAL Metals, TOC, Grain Size	Definitive data in CESAS Level B data packages	1 sediment sample + QC

ADEM - Alabama Department of Environmental Management.  
 CESAS - Corps of Engineers South Atlantic Savannah.  
 DOD - U.S. Department of Defense.  
 EPA - U.S. Environmental Protection Agency.  
 USACE - U.S. Army Corps of Engineers.  
 FTMC - Fort McClellan.  
 SI - Site inspection.

PSSC - Potential site-specific chemicals.  
 QC - Quality control.  
 TAL - Target analyte list.  
 TCL - Target Compound list.  
 VOC - Volatile organic compound.  
 SVOC - Semivolatile organic compound.  
 TOC - Total organic carbon.

### **3.3 Conceptual Site Exposure Model**

The conceptual site exposure model (CSEM) provides the basis for identifying and evaluating potential risks to human health in the risk assessment. The CSEM includes receptors and potential exposure pathways appropriate to all plausible scenarios. The CSEM facilitates consistent and comprehensive evaluation of risk to human health through graphically presenting all possible exposure pathways, including sources, release and transport pathways, and exposure routes. In addition, the CSEM helps to ensure that potential pathways are not overlooked. The elements of a complete exposure pathway and CSEM are:

- Source (i.e., contaminated environmental) media
- Contaminant release mechanisms
- Contaminant transport pathways
- Receptors
- Exposure pathways.

Primary contaminant releases were probably limited to leaks and spills that entered surface soil. Significant potential contaminant transport pathways include infiltration to subsurface soil, infiltration and leaching to groundwater, and dust emissions and volatilization to ambient air.

Future land use in this area is likely industrial, but is unclear (FTMC, 1997). Plausible human health receptor scenarios addressed in the CSEM include:

- The resident scenario is included for future land-use purposes.
- The groundskeeper scenario is considered for both current and future purposes, as at least a portion of the area is currently maintained, and will probably be maintained in the future.
- The construction worker scenario is considered for future purposes only, because the site is currently not under construction, but could undergo construction in preparing for, or during, future use(s) under the anticipated industrial site usage.

Human health receptor scenarios excluded from the CSEM include:

- The recreational site user scenario is not considered because the area is largely paved and is expected to continue to be utilized for industrial purposes in the future, thus it is unlikely to be used for recreation.
- The venison and fish consumption scenarios are not considered since this area is largely paved with no surface water to support fishing activities.

A summary of relevant contaminant release and transport mechanisms, source and exposure media, and receptors and exposure pathways for this site is provided in Table 3-1 and Figure 3-1.

### **3.4 Decision-Making Process, Data Uses, and Needs**

The decision-making process consists of a seven-step process that is presented in detail in Section 4.3 of the WP and will be followed during the SI at the Buildings South of Reilly Airfield, Parcel 501(7). Data uses and needs are summarized in Table 3-1.

#### **3.4.1 Risk Evaluation**

Confirmation of contamination at the Buildings South of Reilly Airfield, Parcel 501(7), will be based on comparing detected site chemicals of potential concern to site-specific screening levels developed in the WP. EPA definitive data with CESAS Level B data packages will be used to achieve detection limits sufficient to determine whether or not the established guidance criteria are exceeded in site media. Definitive data will be adequate for confirming the presence of site contamination and for supporting a feasibility study and risk assessment.

Assessment of potential ecological risk associated with sites or parcels (e.g., depositional soil sampling, specific ecological assessment methods, etc.) will be addressed in accordance with the procedures in the WP.

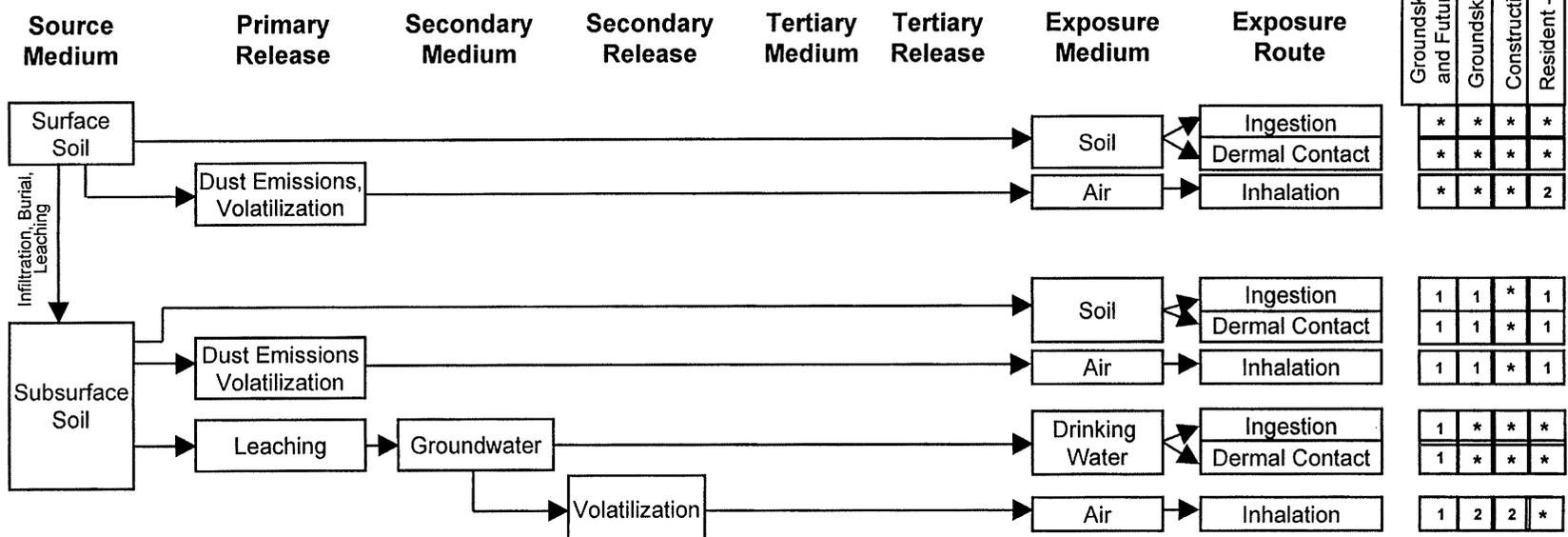
#### **3.4.2 Data Types and Quality**

Surface soil, subsurface soil, groundwater, surface water, sediment, and depositional soil samples will be sampled and analyzed to meet the objectives of the SI at the Buildings South of Reilly Airfield. Quality assurance/quality control (QA/QC) samples will be collected for all sample types as described in Chapter 4.0 of this SFSP. Samples will be analyzed by EPA-approved SW-846 Methods Update III, where available; comply with EPA definitive data requirements; and be reported using hard copy data packages. In addition to meeting the quality needs of this SI, data analyzed at this level of quality are appropriate for all phases of site characterization, remedial investigation, and risk assessment.

#### **3.4.3 Precision, Accuracy, and Completeness**

Laboratory requirements of precision, accuracy, and completeness for this SI are provided in Section 9.0 of the QAP.

**Figure 3-1**  
**Human Health Conceptual Site Exposure Model**  
**Buildings South of Reilly Airfield, Parcel 501(7)**  
**Fort McClellan, Alabama**



\* = Complete exposure pathway evaluated in the streamlined risk assessment.

1 = Incomplete exposure pathway.

2 = Although theoretically complete, this pathway is judged to be insignificant and is not evaluated in the streamlined risk assessment.

## **4.0 Field Activities**

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### **4.1 Utility Clearances**

Prior to performing any intrusive sampling, a utility clearance will be performed at all locations where soil and groundwater samples will be collected, using the procedure outlined in Section 4.2.6 of the SAP. The site manager will mark the proposed locations with stakes, coordinate with the installation to clear the proposed sample locations for utilities, and obtain digging permits. Once the locations are cleared, the stakes will be labeled as cleared.

### **4.2 Environmental Sampling**

The environmental sampling program at the Buildings South of Reilly Airfield, Parcel 501(7) site includes the collection of surface soil, subsurface soil, groundwater, and depositional soil samples for chemical analyses. These samples will be collected and analyzed to provide data for characterizing the site to determine the environmental condition of the site and any further action to be conducted at the site.

#### **4.2.1 Surface Soil Sampling**

Surface soil samples will be collected from ten soil locations at the Buildings South of Reilly Airfield site.

##### **4.2.1.1 Sample Locations and Rationale**

The surface soil sampling rationale are listed in Table 4-1. Proposed sampling locations are shown in Figure 4-1. Surface soil sample designations and required QA/QC sample requirements are summarized in Table 4-2. The final soil boring sampling locations will be determined in the field by the on-site geologist, based on actual field conditions.

##### **4.2.1.2 Sample Collection**

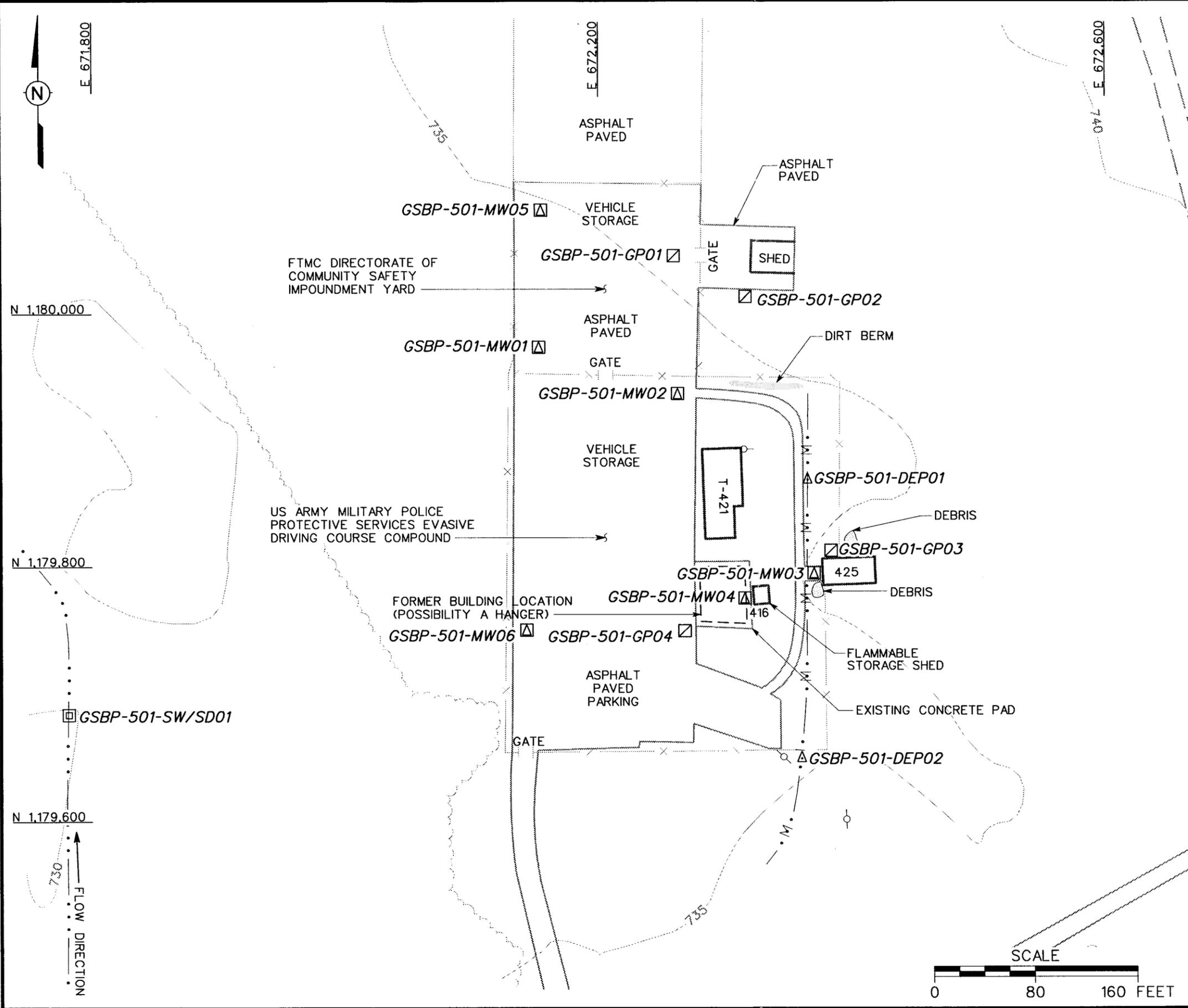
Surface soil samples will be collected from the upper 1 foot of soil by direct-push methodology as specified in Section 4.7.1.1 of the SAP (IT, 1998a). Collected soil samples will be screened using a photoionization detector (PID) in accordance with Section 4.15 of the SAP. Surface soil samples will be screened for information purposes only, and not to select samples for analysis. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Section 5.0, Table 5-1, of the QAP. Sample documentation and chain-of-

Table 4-1

**Sample Locations And Rationale  
Buildings South of Reilly Airfield, Parcel 501(7)  
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Media	Sample Location Rationale
GSBP-501-MW01	Surface soil, subsurface soil and groundwater	Soil boring for surface soil, subsurface soil and groundwater samples to be placed at the southwest corner of the DCS impoundment yard. Sample data will indicate if contaminant releases into the environment have occurred from use of this impoundment yard and if contaminated soil exists at this site. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer.
GSBP-501-MW02	Surface soil, subsurface soil and groundwater	Soil boring for surface soil, subsurface soil and groundwater samples to be placed at the northeast corner of the parking area of the MP evasive driving course compound. Sample data will indicate if contaminant releases into the environment have occurred from use of this compound in this area and if contaminated soil exists at this site. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer.
GSBP-501-MW03	Surface soil, subsurface soil and groundwater	Soil boring for surface soil, subsurface soil and groundwater samples to be placed west and in front of Building 425 in the MP evasive driving course compound. Sample data will indicate if contaminant releases into the environment have occurred from use of this building and the compound in this area and if contaminated soil exists at this site. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer.
GSBP-501-MW04	Surface soil, subsurface soil and groundwater	Soil boring for surface soil, subsurface soil and groundwater samples to be placed west of Building 416 in the MP evasive driving course compound. Sample data will indicate if contaminant releases into the environment have occurred from use of this building and the compound in this area and if contaminated soil exists at this site. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer.
GSBP-501-MW05	Surface soil, subsurface soil and groundwater	Soil boring for surface soil, subsurface soil and groundwater samples to be placed at the northwest corner of the DCS impoundment yard. Sample data will indicate if contaminant releases into the environment have occurred from use of the compound in this area and if contaminated soil exists at this site. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer.
GSBP-501-MW06	Surface soil, subsurface soil and groundwater	Soil boring for surface soil, subsurface soil and groundwater samples to be placed north of the southwest corner of the parking area in the MP evasive driving course compound inside the entrance gate. Sample data will indicate if contaminant releases into the environment have occurred from use of the compound in this area and if contaminated soil exists at this site. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer.
GSBP-501-GP01	Surface soil and subsurface soil	Soil boring for surface soil and subsurface soil samples to be placed at the east side of the DCS impoundment yard near the gate to the storage shed. Sample data will indicate if contaminant releases into the environment have occurred from use of this impoundment yard in this area and if contaminated soil exists at this site.
GSBP-501-GP02	Surface soil and subsurface soil	Soil boring for surface soil and subsurface soil samples to be placed at the southwest corner of the storage shed, east of the DCS impoundment yard. Sample data will indicate if contaminant releases into the environment have occurred from use of this impoundment yard in this area and if contaminated soil exists at this site.
GSBP-501-GP03	Surface soil and subsurface soil	Soil boring for surface soil and subsurface soil samples to be placed at the northwest corner of Building 425 of the MP evasive driving compound. Sample data will indicate if contaminant releases into the environment have occurred from use of the compound in this area and if contaminated soil exists at this site.
GSBP-501-GP04	Surface soil and subsurface soil	Soil boring for surface soil and subsurface soil samples to be placed at the southwest corner of the concrete parking pad west of Building 416 in the MP evasive driving compound. Sample data will indicate if contaminant releases into the environment have occurred from use of the compound in this area and if contaminated soil exists at this site.
GSBP-501-DEP01	Depositional Soil	Sample location is in the drainage ditch east of Building 421. Sample data will indicate if contaminant releases have occurred from runoff from the facilities in MP evasive compound.
GSBP-501-DEP02	Depositional Soil	Sample location is in the drainage ditch at the southeast corner of the MP evasive driving course compound. Sample data will indicate if contaminant releases have occurred from runoff from the facilities in MP evasive compound.
GSBP-501-SW/SD01	Surface water and sediment	Sample location is in the intermittent stream approximately 350 feet west of the south gate to the Buildings South of Reilly Airfield. Sample data will indicate if contaminant releases have occurred from runoff for the Buildings South of Reilly Airfield to the intermittent stream that flows north, west of the site.

DWG. NO.: \78314\_96.s.063  
 PROJ. NO.: 783149  
 INITIATOR: J. RAGSDALE  
 PROJ. MGR.: J. YACOUB  
 DRAFT. CHK. BY:  
 ENGR. CHK. BY: J. RAGSDALE  
 DATE LAST REV.:  
 DRAWN BY:  
 STARTING DATE: 06/22/99  
 DRAWN BY: D. BILLINGSLEY  
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- LEGEND**
- UNIMPROVED ROADS AND PARKING
  - PAVED ROADS AND PARKING
  - BUILDING
  - TOPOGRAPHIC CONTOURS
  - TREES / TREELINE
  - SURFACE DRAINAGE / CREEK
  - MANMADE SURFACE DRAINAGE FEATURE
  - FENCE
  - UTILITY POLE
  - PROPOSED SURFACE WATER/SEDIMENT SAMPLE LOCATION
  - PROPOSED SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION
  - PROPOSED GROUNDWATER, SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION
  - PROPOSED DEPOSITIONAL SOIL SAMPLE LOCATION

**FIGURE 4-1**  
**PROPOSED SAMPLE LOCATIONS**  
**BUILDINGS SOUTH OF REILLY AIRFIELD**  
**PARCEL 501(7)**

U. S. ARMY CORPS OF ENGINEERS  
 MOBILE DISTRICT  
 FORT McCLELLAN  
 CALHOUN COUNTY, ALABAMA  
 Contract No. DACA21-96-D-0018

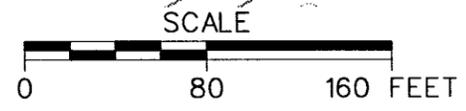


Table 4-2

**Surface Soil, Subsurface Soil, Depositional Soil, and Sediment Sample Designations and QA/QC Sample Quantities  
Buildings South of Reilly Airfield, Parcel 501(7)  
Fort McClellan, Alabama**

Sample Location	Sample Designation	Sample Depth (ft)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
GSBP-501-MW01	GSBP-501-MW01-SS-BX0001-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals,
	GSBP-501-MW01-DS-BX0002-REG	a				
GSBP-501-MW02	GSBP-501-MW02-SS-BX0003-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals,
	GSBP-501-MW02-DS-BX0004-REG	a	GSBP-501-MW02-DS-BX0005-FD	GSBP-501-MW02-DS-BX0006-FS		
GSBP-501-MW03	GSBP-501-MW03-SS-BX0007-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals,
	GSBP-501-MW03-DS-BX0008-REG	a				
GSBP-501-MW04	GSBP-501-MW04-SS-BX0009-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals,
	GSBP-501-MW04-DS-BX0010-REG	a				
GSBP-501-MW05	GSBP-501-MW05-SS-BX0011-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals,
	GSBP-501-MW05-DS-BX0012-REG	a			GSBP-501-MW05-DS-BX0012-MS GSBP-501-MW05-DS-BX0012-MSD	
GSBP-501-MW06	GSBP-501-MW06-SS-BX0013-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals,
	GSBP-501-MW06-DS-BX0014-REG	a				
GSBP-501-GP01	GSBP-501-GP01-SS-BX0015-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals,
	GSBP-501-GP01-DS-BX0016-REG	a				
GSBP-501-GP02	GSBP-501-GP02-SS-BX0017-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals,
	GSBP-501-GP02-DS-BX0018-REG	a				
GSBP-501-GP03	GSBP-501-GP03-SS-BX0019-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals,
	GSBP-501-GP03-DS-BX0020-REG	a				
GSBP-501-GP04	GSBP-501-GP04-SS-BX0021-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals,
	GSBP-501-GP04-DS-BX0022-REG	a				
GSBP-501-DEP01	GSBP-501-DEP01-DEP-BX0023-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals,
GSBP-501-DEP02	GSBP-501-DEP02-DEP-BX0024-REG	0-1	GSBP-501-DEP02-DEP-BX0025-FD			TCL VOCs, TCL SVOCs, TAL Metals,
GSBP-501-SW/SD01	GSBP-501-SW/SD01-SD-BX1001-REG	0-.5				TCL VOCs, TCL SVOC, TAL Metals, TOC, Grain Size

Actual sample depth selected for analysis will be at the discretion of the site geologist and will be based on field observation.

FD - Field duplicate.  
 FS - Field split.  
 MS/MSD - Matrix spike/matrix spike duplicate.  
 QA/QC - Quality assurance/quality control.  
 REG - Field sample.

TAL - Target analyte list.  
 TCL - Target compound list.  
 VOC - Volatile organic compound.  
 SVOC - Semivolatile organic compound.

custody will be recorded as specified in Section 4.13 of the SAP. The samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

#### **4.2.2 Subsurface Soil Sampling**

Subsurface soil samples will be collected from the ten soil borings installed at the Buildings South of Reilly Airfield site.

##### **4.2.2.1 Sample Locations and Rationale**

Subsurface soil samples will be collected from the soil borings proposed on Figure 4-1. The subsurface soil sampling rationale are listed in Table 4-1. Subsurface soil samples to be collected are listed in Table 4-2. The final soil boring sampling locations will be determined in the field by the on-site geologist, based on actual field observations and utility clearance results.

##### **4.2.2.2 Sample Collection**

Subsurface soil samples will be collected from soil borings at a depth greater than 1 foot bgs in the unsaturated zone. The soil borings will be advanced and soil samples collected using the direct-push sampling procedures specified in Section 4.7.1.1 of the SAP (IT, 1998a).

Soil samples will be collected continuously for the first 12 feet or until either groundwater or refusal is reached. A detailed lithological log will be recorded by the on-site geologist for each borehole. At least one subsurface soil sample from each borehole will be selected for analyses. The collected subsurface soil samples will be field-screened using a PID in accordance with Section 4.15 of the SAP to measure samples exhibiting elevated readings exceeding background (readings in ambient air). Typically, the subsurface soil sample showing the highest reading (above background) will be selected and sent to the laboratory for analysis. If none of the samples indicate readings exceeding background using the PID, the deepest interval from the soil boring will be sampled and submitted to the laboratory for analyses. Subsurface soil samples will be selected for analyses from any depth interval if the on-site geologist suspects PSSCs at the interval. Site conditions such as lithology may also determine the actual sample depth interval submitted for analyses. More than one subsurface soil sample will be collected if field measurements and observations indicate a possible layer of PSSCs and/or additional sample data would provide insight to the existence of any PSSCs.

Sample documentation and chain of custody will be recorded as specified in Section 4.13 of the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Section 5.0, Table 5-1 of the QAP. The samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

### **4.2.3 Permanent Residuum Monitoring Wells**

Six permanent residuum monitoring wells will be installed at the Buildings South of Reilly Airfield site. The permanent residuum monitoring well locations are shown on Figure 4-1. The rationale for the monitoring well locations are presented in Table 4-1. The monitoring well boreholes will be drilled to the top of bedrock using a truck-mounted hollow-stem auger drill rig. Depth to bedrock is approximately 20 to 50 feet bgs at the site. The monitoring well casing will consist of new 2-inch inside-diameter, Schedule 40, threaded, flush-joint, polyvinyl chloride (PVC) pipe. Attached to the bottom of the well casing will be a section of new threaded, flush-joint, 0.010-inch continuous wrap PVC well screen, 10 to 20 feet long.

Soil samples for lithology will be collected continuously every 5 feet to the total depth of the hole during hollow-stem auger drilling to provide a detailed lithologic log. The samples will be collected for lithology using a 24-inch-long, 2-inch-or-larger-diameter, split-spoon sampler. The soil borings will be logged in accordance with American Standard for Testing and Materials (ASTM) Method D 2488 using the Unified Soil Classification System. The soil samples will be screened in the field using a PID. The permanent residuum monitoring wells will be drilled, installed, and developed as specified in Section 4.8 and Appendix C of the SAP (IT, 1998a). The exact monitoring well locations will be determined in the field by the on-site geologist, based on actual field conditions.

### **4.2.4 Groundwater Sampling**

Groundwater samples will be collected from the six monitoring wells completed at the Buildings South of Reilly Airfield is presented in Section 4.2.3.

#### **4.2.4.1 Sample Locations and Rationale**

Groundwater samples will be collected from the monitoring well locations shown on Figure 4-1. The groundwater sampling rationale is listed in Table 4-1. The groundwater sample designations, depths, and required QA/QC sample quantities are listed in Table 4-3.

Table 4-3

**Groundwater and Surface Water Sample Designations and QA/QC Sample Quantities  
Buildings South of Reilly Airfield, Parcel 501(7)  
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Designation	Sample Matrix	Sample Depth (ft)	QA/QC Samples			Analytical Suite
				Field Duplicates	Field Splits	MS/MSD	
GSBP-501-MW01	GSBP-501-MW01-GW-BX3001-REG	Groundwater	a	GSBP-501-MW01-GW-BX3002-FD	GSBP-501-MW01-GW-BX3003-FS		TCL VOCs, TCL SVOCs, TAL Metals,
GSBP-501-MW02	GSBP-501-MW02-GW-BX3004-REG	Groundwater	a			GSBP-501-MW02-GW-BX3004-MS GSBP-501-MW02-GW-BX3004-MSD	TCL VOCs, TCL SVOCs, TAL Metals,
GSBP-501-MW03	GSBP-501-MW03-GW-BX3005-REG	Groundwater	a				TCL VOCs, TCL SVOCs, TAL Metals,
GSBP-501-MW04	GSBP-501-MW04-GW-BX3006-REG	Groundwater	a				TCL VOCs, TCL SVOCs, TAL Metals,
GSBP-501-MW05	GSBP-501-MW05-GW-BX3007-REG	Groundwater	a				TCL VOCs, TCL SVOCs, TAL Metals,
GSBP-501-MW06	GSBP-501-MW06-GW-BX3008-REG	Groundwater	a				TCL VOCs, TCL SVOCs, TAL Metals,
GSBP-501-SW/SD01	GSBP-501-SW/SD01-SW-BX2001-REG	Surface Water	NA				TCL VOCs, TCL SVOCs, TAL Metals,

\*Sample depth will depend on where sufficient first water is encountered to collect a water sample.

- FD - Field duplicate.
- FS - Field split.
- MS/MSD - Matrix spike/matrix spike duplicate.
- QA/QC - Quality assurance/quality control.
- REG - Field sample.
- SVOC - Semivolatile organic compound.
- TAL - Target analyte list.
- TCL - Target compound list.
- VOC - Volatile organic compound.
- NA - Not applicable.

#### **4.2.4.2 Sample Collection**

Prior to sampling monitoring wells, static water levels will be measured from each of the six monitoring wells installed at the site to define the groundwater flow in the residuum aquifer. Water level measurements will be performed as outlined in Section 4.18 of the SAP (IT, 1998a). Groundwater samples will be collected in accordance with the procedures outlined in Section 4.9.1.4 of the SAP.

Sample documentation and chain of custody will be recorded as specified in Section 4.13 of the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Section 5.0, Table 5-1 of the QAP (IT, 1998a). The samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

#### **4.2.5 Depositional Soil Sampling**

Two depositional soil samples will be collected at the Buildings South of Reilly Airfield site.

##### **4.2.5.1 Sample Locations and Rationale**

The depositional soil samples will be collected in the surface drainage feature along the east side of the Buildings South of Reilly Airfield site. The sampling rationale are listed in Table 4-1 and the proposed sampling locations are shown on Figure 4-1. The depositional soil sample designations, depth, and required QA/QC sample quantities are listed in Table 4-2. The actual depositional soil sample points will be at the discretion of the ecological sampler, based on the physical characteristics of the drainage area and actual field observations.

##### **4.2.5.2 Sample Collection**

The depositional soil samples will be collected in accordance with the procedures for surface soil sample collection specified in Section 4.9.1.1 of the SAP (IT, 1998a). Sample documentation and chain of custody will be recorded as specified in Section 4.13 of the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Section 5.0, Table 5-1 of the QAP. The samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

#### **4.2.6 Surface Water Sampling**

One surface water sample will be collected from the intermittent stream that flows north, west of the site.

#### **4.2.6.1 Sample Locations and Rationale**

The surface water sampling rationale is listed in Table 4-1. The surface water sample will be collected from the proposed location on Figure 4-1. The surface water sample designations and required QA/QC sample requirements are listed in Table 4-4. The exact sampling location will be determined in the field by the ecological sampler, based on drainage pathways and actual field observations.

#### **4.2.6.2 Sample Collection**

The surface water sample will be collected in accordance with the procedures specified in Section 4.9.1.3 of the SAP. Sample documentation and chain-of-custody will be recorded as specified in Section 4.13 of the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Section 5.0, Table 5-1, of the QAP. The sample will be analyzed for the parameters listed in Section 4.5.

#### **4.2.7 Sediment Sampling**

One sediment sample will be collected from the Area 1600 Motor Pool. This sediment sample will be collected at the same location as the surface water sample described in Section 4.2.6.

##### **4.2.7.1 Sample Locations and Rationale**

The proposed location for the sediment sample is shown in Figure 4-1. Sediment sampling rationale is presented in Table 4-1. The sediment sample designation and required QA/QC sample requirements are listed in Table 4-4. The actual sediment sample point will be at the discretion of the ecological sampler, based on the drainage pathways and actual field observations.

##### **4.2.7.2 Sample Collection**

The sediment sample will be collected in accordance with the procedures specified in Section 4.9.1.2 of the SAP. Sample documentation and chain-of-custody will be recorded as specified in Section 4.13 of the SAP. The sediment sample will be analyzed for the parameters listed in Section 4.5.

#### **4.3 Decontamination Requirements**

Decontamination will be performed on sampling and nonsampling equipment to prevent cross-contamination between sampling locations. Decontamination of sampling equipment will be

Table 4-4

**Analytical Samples  
Site Investigation  
Buildings South of Reilly Airfield, Parcel 501(7)  
Fort McClellan, Calhoun County, Alabama**

Parameters	Analysis Method	Sample Matrix	TAT Needed	Field Samples			QA/QC Samples <sup>a</sup>					Quanterra	QA Lab
				No. of Sample Points	No. of Events	No. of Field Samples	Field Dups (10%)	Splits w/ QA Lab (5%)	MS/MSD (5%)	Trip Blank (1/ship)	Eq. Rinse (1/wk/matrix)	Total No. Analysis	Total No. Analysis
<b>Buildings South of Reilly Airfield: 7 water matrix samples (6 groundwater samples and 1 surface water sample); 23 soil matrix samples (10 surface soil samples, 10 subsurface soil samples, 2 depositional soil samples and 1 sediment sample)</b>													
TCL VOCs	8260B	water	normal	7	1	7	1	1	1	3	1	14	1
TCL SVOCs	8270C	water	normal	7	1	7	1	1	1		1	11	1
Tot TAL Metals	6010B/7000	water	normal	7	1	7	1	1	1		1	11	1
TCL VOCs	8260B	soil	normal	23	1	23	2	1	1		1	28	1
TCL SVOCs	8270C	soil	normal	23	1	23	2	1	1		1	28	1
TAL Metals	6010B/7000	soil	normal	23	1	23	2	1	1		1	28	1
TOC	9060	sediment	normal	1	1	1						1	
Grain Size	ASTM D-421/D422	sediment	normal	1	1	1						1	
<b>Buildings South of Reilly Airfield Subtotal:</b>				<b>92</b>	<b>9</b>	<b>6</b>	<b>6</b>	<b>3</b>	<b>6</b>	<b>122</b>	<b>6</b>		

<sup>a</sup>Field duplicate, QA split, and MS/MSD samples were calculated as a percentage of the field samples collected per site and were rounded to the nearest whole number. Trip blank samples will be collected in association with water matrix samples for VOC analysis only. Assumed four field samples per day to estimate trip blanks. Equipment blanks will be collected once per event whenever sampling equipment is field decontaminated and re-used. They will be repeated weekly for sampling events that are anticipated to last more than 1 week. Assumed 20 field samples will be collected per week to estimate number of equipment blanks.

Ship samples to:

Quanterra Environmental Services  
5815 Middlebrook Pike  
Knoxville, Tennessee 37921  
Attn: John Reynolds  
Tel: 423-588-6401  
Fax: 423-584-4315

USACE Laboratory split samples  
are shipped to:

U.S. Army Engineer District, Savannah  
Environmental & Materials District  
Attn: Sample Receiving  
200 North Cobb Parkway  
Building 400, Suite 404  
Marietta, Georgia 30062  
Tel: 678-354-0310

QA/QC - Quality assurance/quality control.  
MS/MSD - Matrix spike/matrix spike duplicate.  
TAL - Target analyte list.  
TCL - Target compound list.  
VOC - Volatile organic compound.  
SVOC - Semivolatile organic compound.

performed in accordance with the requirements presented in Section 4.10.1.1 of the SAP (IT, 1998a). Decontamination of nonsampling equipment will be performed in accordance with the requirements presented in Section 4.10.1.2 of the SAP.

#### **4.4 Surveying of Sample Locations**

Sampling locations will be marked with pin flags, stakes, and/or flagging and will be surveyed using either global positioning system (GPS) or conventional civil survey techniques, as necessary to obtain the required level of accuracy. Horizontal coordinates will be referenced to the U.S. State Plane Coordinate System, Alabama East Zone, North American Datum (NAD83), 1983. Elevations will be referenced to the NGVD of 1929 or the North American Vertical Datum of 1988 (soon to be established on site).

Horizontal coordinates for soil locations will be recorded using a GPS to provide accuracy within 1 meter. Because of the need to use permanent monitoring wells to determine water levels, a higher level of accuracy is required. Monitoring wells will be surveyed to an accuracy of 0.1 foot for horizontal coordinates and 0.01 foot for elevations, using survey-grade GPS techniques and/or conventional civil survey techniques, as required. Procedures to be used for GPS surveying are described in Section 4.3 of the SAP. Conventional land survey requirements are presented in Section 4.19 of the SAP.

#### **4.5 Analytical Program**

Samples collected at locations specified in this chapter of this SFSP will be analyzed for the specific suites of chemicals and elements based the history of site usage, as well as EPA, ADEM, FTMC, and USACE requirements. Target analyses for samples collected from the Buildings South of Reilly Airfield, Parcel 501(7), consist of the following list of analytical suites:

- Target Compound List Volatile Organic Compounds - Method 5035/8260B
- Target Compound List Semivolatile Organic Compounds - Method 8270C
- Target Analyte List Metals - Method 6010B/7000.

In addition, the sediment sample will be analyzed for the following parameters:

- Total Organic Carbon - Method 9060
- Grain Size - ASTM D-421/D-422.

The samples will be analyzed using EPA SW-846 methods, including Update III Methods where applicable, as presented in Table 4-4 in this SFSP and Table 6-1 in the QAP. Data will be

reported and evaluated in accordance with CESAS Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP). Chemical data will be reported via hard copy data packages by the laboratory using CLP-like forms. These packages will be validated in accordance with EPA National Functional Guidelines by Level III criteria.

#### **4.6 Sample Preservation, Packaging, and Shipping**

Sample preservation, packaging, and shipping will follow the procedures specified in Section 4.13.2 of the SAP (IT, 1998a). Completed analysis request/chain of custody records will be secured and included with each shipment of coolers to:

Attn: John Reynolds  
Quanterra Environmental Services  
5815 Middlebrook Pike  
Knoxville, Tennessee 37921  
Telephone: (423) 588-6401.

QA split samples collected for the USACE laboratory will be shipped to the following address:

U.S. Army Engineer District, Savannah  
Environmental & Materials Unit  
Attn: Sample Receiving  
200 North Cobb Parkway  
Building 400, Suite 404  
Marietta, Georgia 30062  
Telephone: (678) 354-0310.

#### **4.7 Investigation-Derived Waste Management**

Management and disposal of the investigation-derived wastes (IDW) will follow procedures and requirements as described in Appendix D of the SAP (IT, 1998a). The IDW expected to be generated at the Buildings South of Reilly Airfield site will include decontamination fluids and disposable personal protective equipment. The IDW will be staged in the fenced area surrounding Buildings 335 and 336 while awaiting final disposal.

#### **4.8 Site-Specific Safety and Health**

Health and safety requirements for this SI are provided in the SSHP attachment for the Buildings South of Reilly Airfield, Parcel 501(7). The SSHP attachment will be used in conjunction with the installation-wide SHP.

## **5.0 Project Schedule**

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The project schedule for the SI activities will be provided by the IT project manager to the Base Realignment and Closure Cleanup Team and will be in accordance with the WP.

## 6.0 References

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Environmental Science and Engineering, Inc. (ESE), 1998, *Final Environmental Baseline Survey, Fort McClellan, Alabama*, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, January.

Fort McClellan (FTMC), 1997, *Fort McClellan Comprehensive Reuse Plan*, Fort McClellan Reuse and Redevelopment Authority of Alabama, prepared under contract to the Calhoun County Commission, November.

IT Corporation (IT), 1998a, *Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama*, August.

IT Corporation (IT), 1998b, *Final Installation-Wide Work Plan, Fort McClellan, Calhoun County, Alabama*, August

Smith, Michael, FTMC Directorate of Community Safety, 1999, Telephone Communication with John Ragsdale, IT Corporation, June 11.

U.S. Army Corps of Engineers (USACE), 1999, *Statement of Work for Task Order CK08, Underground Storage Tank (UST) Closure Assessments, Ground Scars/Boiler Plants Site Investigations at Fort McClellan, Alabama*, April.

U.S. Army Corps of Engineers (USACE), 1994, *Requirements for the Preparation of Sampling and Analysis Plan*, Engineer Manual EM 200-1-3, September 1.

U.S. Department of Agriculture (USDA), 1961, *Soil Survey, Calhoun County, Alabama*, Soil Conservation Service, Series 1958, No. 9, September 1961.

U.S. Environmental Protection Agency (EPA), 1993, *Data Quality Objectives Process for Superfund, Interim Final Guidance*, EPA 540-R-93-071, September.

Weems, Tom, Special Operations, U.S. Army Military Police, 1999, Telephone Communication with John Ragsdale, IT Corporation, June 15.