Final
Site-Specific Field Sampling Plan, Site-Specific Safety and Health Plan, and Site-Specific Unexploded Ordnance Safety Plan Attachments, Former 81mm Mortar Range, Parcel 137Q-X

Fort McClellan
Calhoun County, Alabama

Task Order CK10
Contract No. DACA21-96-D-0018
IT Project No. 796887

April 2002

Final
Site-Specific Field Sampling Plan Attachment
Former 81mm Mortar Range, Parcel 137Q-X

Fort McClellan
Calhoun County, Alabama

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Revision 0

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List of Acronyms

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Executive Summary

In accordance with Contract Number DACA21-96-D-0018, Task Order CK10, IT Corporation (IT) will conduct site investigation activities at the Former 81mm Mortar Range, Parcel 137Q-X, 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 is to provide technical guidance for sampling activities at the Former 81mm Mortar Range, Parcel 137Q-X.

The Former 81mm Mortar Range, Parcel 137Q-X, is located in the northeast corner of the Main Post at FTMC. According to the environmental baseline survey, the range was identified by the Environmental Photographic Interpretation Center and is visible on aerial photos dated 1949, 1954, and 1961. The aerial photos from 1972 and 1984 show the range is overgrown and abandoned.

The range is shown on Plate 6 (1950 to 1973 Range Use) and Plate 10 (Cumulative Map of All Ranges) of the U.S. Army Corps of Engineers July 1999 *Archives Search Report (ASR), Maps, Fort McClellan, Anniston, Alabama.* The ASR records that the range first appears on the 1958 range map but that by 1967 the range was abandoned. The history of explosive ordnance used at the Former 81mm Mortar Range, Parcel 137Q-X, is unknown; however, an expended 81mm high explosive mortar round was found on the range during the site visit conducted to complete the ASR. The ASR maps indicate the safety fan for the range extends to the south and southeast, encompassing approximately 960 acres on the Main Post and extending an additional 180 acres into Choccolocco Corridor. The site investigation area covers approximately 41 acres of the range.

During site walks conducted by IT personnel in January 2002, an east-west trending trench approximately 900 feet long was observed running between the two secondary roads that bound the east and west sides of the site investigation area. Within the trench were numerous surface features, including several one- to- five gallon drums (positively identified), metal debris, and circular pits. In the vicinity of the trench were rusted supertropical bleach drums, possible showerheads, possible gas cans, and rusted truck beds. A rusted truck with multiple holes that appeared to have been used for small arms target practice was observed in the southwest portion of the site. Along the western-most unimproved road were one- to five-gallon drums (some corrugated) and a rusted truck bed. In the southeast portion of the site, near the eastern edge of the trench, were several surface depressions that appeared to be foxholes.

Based on observations at the Former 81mm Mortar Range, Parcel 137Q-X, and review of aerial photographs, the parcel boundary was relocated approximately 600 feet west of the original location. IT conducted several site walks of Parcel 137Q-X. However, IT did not observe any evidence of this area being used as an 81mm mortar range. The ASR did not indicate the location of the high explosive mortar round found at the site.

IT will collect 15 surface soil samples, 15 subsurface soil samples, 4 groundwater samples, 5 surface water samples, 5 sediment samples, and 1 depositional soil sample at this site. Potential contaminant sources at the Former 81mm Mortar Range, Parcel 137Q-X, are primarily metals and explosives. Chemical analyses of the samples collected during the field program will include nitroaromatic/nitramine explosives and metals; in addition, a select number of samples will be analyzed for volatile organic compounds, semivolatile organic compounds, organophosphorus pesticides, chlorinated pesticides and chlorinated herbicides. Results from these analyses will be compared with site-specific screening levels, ecological screening values, and background values to determine if potential site-specific chemicals are present at the site at concentrations that pose an unacceptable risk to human health or the environment.

The Former 81mm Mortar Range, Parcel 137Q-X, falls within the "Possible Explosive Ordnance Impact Areas" shown on Plate 10 of the U.S. Army Corps of Engineers July 1999 *Archives Search Report, Maps, Fort McClellan, Anniston, Alabama.* Therefore, unexploded ordnance (UXO) surface sweeps and downhole surveys of soil borings will be required to support field activities at the Former 81mm Mortar Range, Parcel 137Q-X. The surface sweeps and downhole surveys will be conducted to identify anomalies for the purposes of UXO avoidance.

This site-specific field sampling plan attachment to the SAP for the Former 81mm Mortar Range, Parcel 137Q-X, will be used in conjunction with the site-specific safety and health plan, the site-specific UXO safety plan, the installation-wide work plan, and the SAP. The SAP includes the installation-wide safety and health plan, well installation and maintenance plan, investgative-derived waste management plan, ordnance and explosives management plan, and quality assurance plan. Site-specific hazard analyses are included in the site-specific safety and health plan.

1.0 Project Description

1.1 Introduction

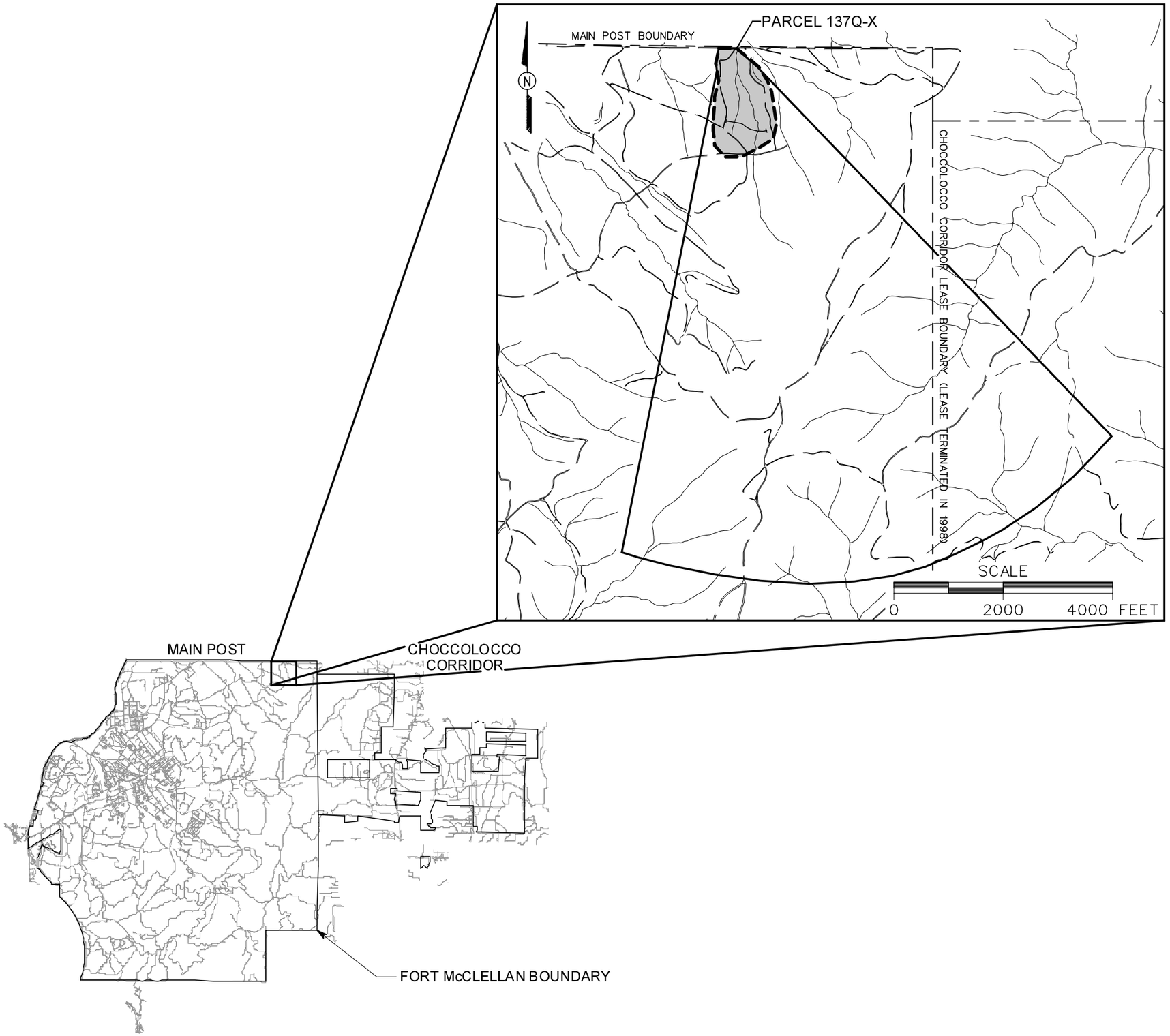
The U.S. Army is conducting studies of the environmental impact of suspected contaminants at Fort McClellan (FTMC) in Calhoun County, Alabama, under the management of the U.S. Army Corps of Engineers (USACE)-Mobile District. The USACE has contracted IT Corporation (IT) to provide environmental services for the site investigation (SI) at the Former 81mm Mortar Range, Parcel 137Q-X, under Task Order CK10, Contract Number DACA21-96-D-0018.

This site-specific field sampling plan (SFSP) is an attachment to the installation-wide sampling and analysis plan (SAP) for FTMC (IT, 2002a) and has been prepared to provide technical guidance for sample collection and analysis at the Former 81mm Mortar Range, Parcel 137Q-X. This SFSP will be used in conjunction with the site-specific safety and health plan (SSHP) and site-specific unexploded ordnance (UXO) safety plan developed for the Former 81mm Mortar Range, Parcel 137Q-X, and the installation-wide work plan (WP) (IT, 2002b) and SAP. The SAP includes the installation-wide safety and health plan, well installation and maintenance plan, investigative-derived waste management plan, ordnance and explosives management plan, and quality assurance plan (QAP). Site-specific hazard analyses are included in the SSHP.

1.2 Site Description

The Former 81mm Mortar Range, Parcel 137Q-X, is located in the northeast corner of the Main Post at FTMC (Figure 1-1). According to the Environmental Baseline Survey (EBS) (Environmental Science and Engineering, Inc. [ESE], 1998), the range was identified by the Environmental Photographic Interpretation Center (EPIC) (U.S. Environmental Protection Agency [EPA], 1990). It is visible on aerial photos dated 1949, 1954, and 1961. The aerial photos from 1972 and 1984 show the range is overgrown and abandoned (ESE, 1998).

The Former 81mm Mortar Range, Parcel 137Q-X, is shown on Plate 6 (1950 to 1973 Range Use) and Plate 10 (Cumulative Map of All Ranges) of the USACE July 1999 *Archives Search Report (ASR), Maps, Fort McClellan, Anniston, Alabama.* The ASR records that the range first appears on the 1958 range map but by 1967 the range was abandoned. The history of explosive ordnance used at the Former 81mm Mortar Range, Parcel 137Q-X, is unknown; however, an expended 81mm high explosive mortar round was found on the range during the site walk conducted to complete the ASR (USACE, 1999a). The safety fan for the range extends to the south and southeast, encompassing approximately 960 acres on the Main Post and extending an additional



LEGEND

- UNIMPROVED ROADS AND PARKING
- PAVED ROADS AND PARKING
- PARCEL BOUNDARY
- AREA OF INVESTIGATION
- SURFACE DRAINAGE / CREEK

FIGURE 1-1
SITE LOCATION MAP
FORMER 81mm MORTAR RANGE
PARCEL 137Q-X

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

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180 acres into Choccolocco Corridor (Figure 1-1). The SI area covers approximately 41 acres of the range (Figure 1-2). The site investigation area is the estimated location of the ordnance impact area as defined by ESE during the EBS (ESE, 1998). ESE delineated the area based on review of historical usage and aerial photographs. Figure 1-3 shows the 81 mm mortar range safety fan location as presented on Plate 6 (1950-1973) of the ASR (USACE, 1999a).

During site walks conducted by IT personnel in January 2002, an east-west trending trench approximately 900 feet long was observed running between the two secondary roads that bound the east and west sides of the SI area. Within the trench were numerous surface features, including several one- to- five gallon drums, metal debris, and circular pits. In the vicinity of the trench were rusted supertropical bleach drums (positively identified), possible showerheads, possible gas cans, and rusted truck beds. A rusted truck with multiple holes that appeared to have been used for small arms target practice was observed in the southwest portion of the site. Along the western-most unimproved road were one- to five-gallon drums (some corrugated) and a rusted truck bed. In the southeast portion of the site, near the eastern edge of the trench, were several surface depressions that appeared to be foxholes (Figure 1-2).

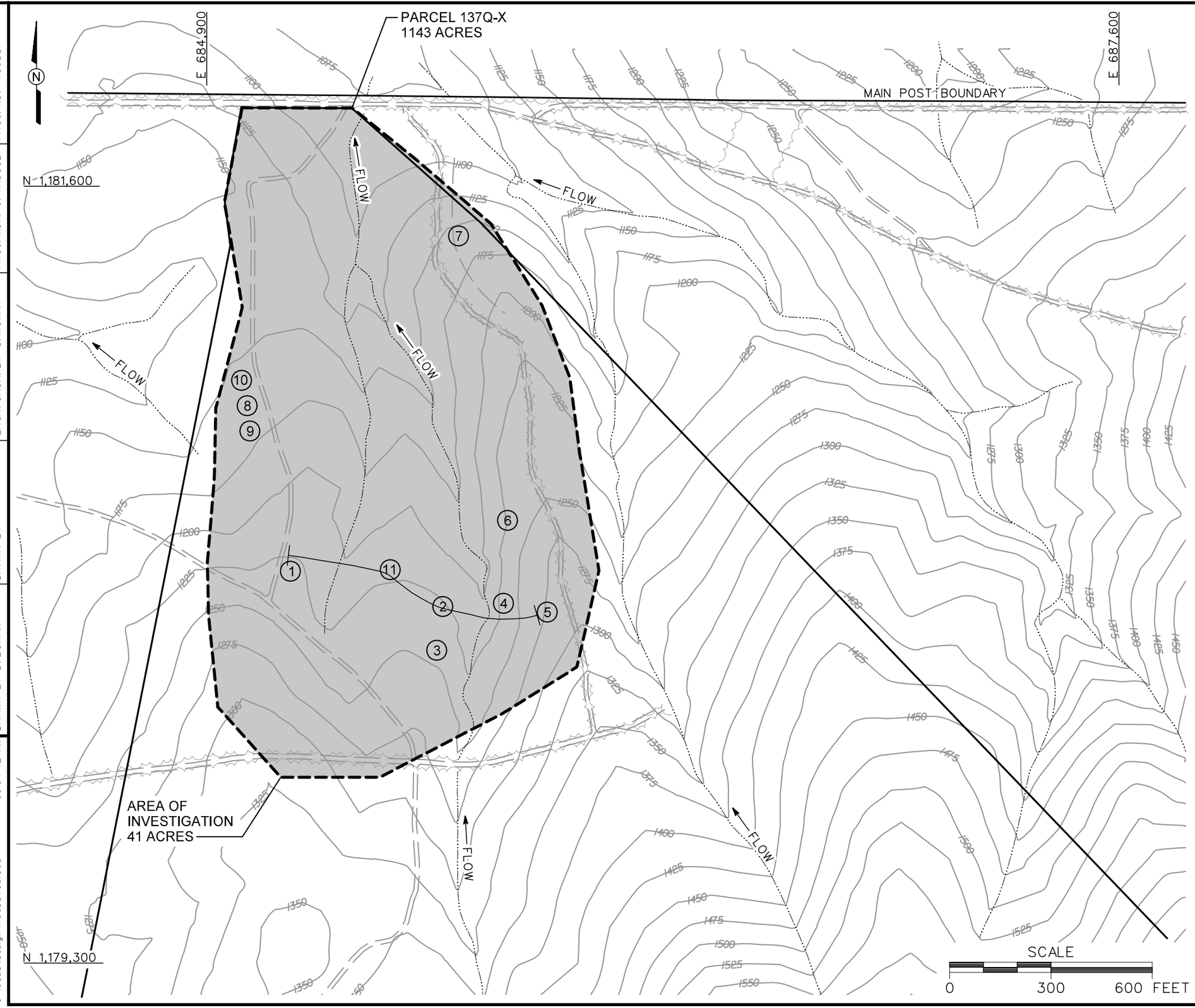
Based on observations at the Former 81mm Mortar Range, Parcel 137Q-X, and review of aerial photographs, the parcel boundary was relocated approximately 600 feet west of the original location. IT conducted several site walks of Parcel 137Q-X. However, IT did not observe any evidence of this area being used as an 81mm mortar range. The ASR did not indicate the location of the high explosive mortar round found at the site.

Surface water at the site appears to drain to the northwest. Local shallow groundwater direction at the site is probably controlled by topography; therefore, groundwater direction in the residuum is likely to the northwest.

1.2.1 Aerial Photographs

Available aerial photographs were reviewed to define historical activity in the study area. The following is a summary of the review of aerial photographs for the Former 81mm Mortar Range, Parcel 137Q-X.

1937 and 1940. The 1937 and 1940 aerial photographs show the area of investigation to be completely forested.



LEGEND

- UNIMPROVED ROADS AND PARKING
- PAVED ROADS AND PARKING
- BUILDING
- TOPOGRAPHIC CONTOURS (CONTOUR INTERVAL - 25 FOOT)
- TREES / TREELINE
- AREA OF INVESTIGATION
- SURFACE DRAINAGE / CREEK
- TRENCH WITH NUMEROUS SURFACE DEPRESSIONS THROUGHOUT

TRAINING AIDS/PHYSICAL FEATURES OBSERVED

1. OLD RUSTED TRUCK WITH BULLET HOLES
2. TRENCH WITH EMPTY RUSTED STB DRUMS (3), POSSIBLE METAL SHOWER HEAD, AND ONE FOXHOLE
3. SEVERAL RUSTED 1-5 GALLON DRUMS (POSSIBLE GAS CANS AND STB DRUMS), SHOWER HEADS, AND THE BACK OF AN OLD TRUCK
4. 2 SURFACE DEPRESSIONS
5. SURFACE DEPRESSION WITH RUSTED METAL SHEET IN BOTTOM (APPEARS TO BE WALLS OF OLD TUB)
6. DISTURBED AREA
7. OLD ROAD RUNNING PARALLEL TO SECONDARY ROAD
8. 4 RUSTED DRUMS (SOME ARE CONSTRUCTED OF CORRUGATED STEEL) IN DIRT MOUND
9. RUSTED DRUM WEST OF DIRT MOUND
10. OLD RUSTED TRUCK BED AND DISTURBED AREA WITH MOUNDS AND DEPRESSIONS
11. PIT IN TRENCH WITH METAL IN BOTTOM

FIGURE 1-2
SITE MAP
FORMER 81mm MORTAR RANGE
PARCEL 137Q-X

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

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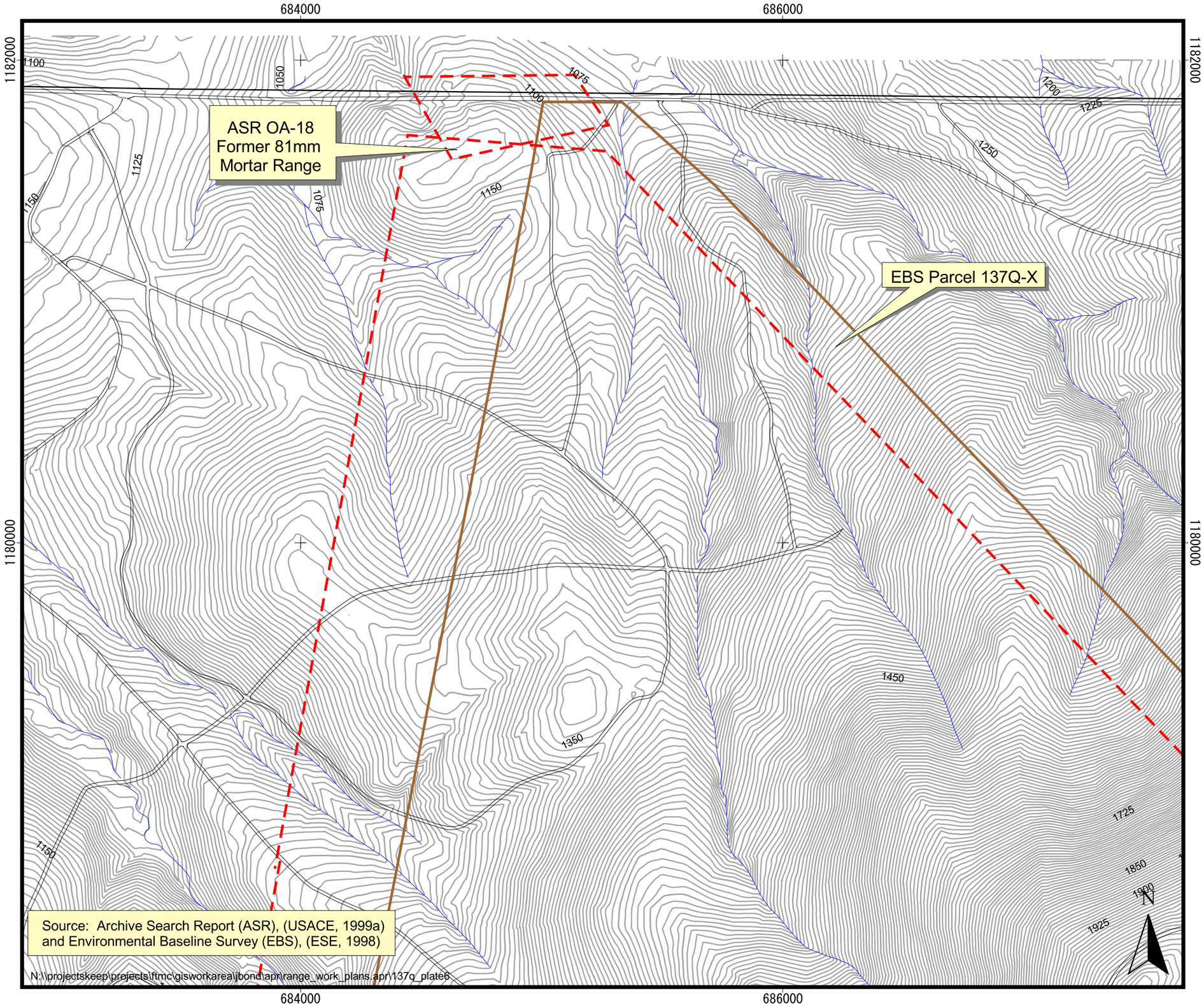

Figure 1-3

ASR Plate 6 (1950 to 1973) Range Location Map Parcel 137Q-X, Former 81mm Mortar Range Fort McClellan, Alabama

Legend

- EBS Parcel
- ASR OA-18 Former 81mm Mortar Range
- Roads
- Streams
- Topographic Contours 5-foot Interval

400 0 400 Feet

NAD83 State Plane Coordinates

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1949. The 1949 aerial photograph shows a secondary road that appears to be the secondary road located on the west side of the study area (Figure 1-4). The site has been cleared of trees in the vicinity of the road and on the western slope of the eastern ridge. The secondary road on the east side of the site is not visible.

1954. The 1954 aerial photograph shows both the eastern and western secondary roads that border the site (Figure 1-5). Between the roads, the site appears deforested on the western side of the site. There are a few small cleared areas; however, the land-use activity is unclear, and there is not a distinct firing line.

1961. The 1961 aerial photograph shows an increase in vegetation and tree cover. Both the eastern and western secondary roads are still visible; however, the area appears to have been abandoned sometime between the 1954 and the 1961 photographs.

1969, 1976, and 1982. Aerial photographs from 1969 through 1982 show the range to be abandoned and vegetated. The two secondary roads are still visible; however, they do not appear to be used in conjunction with range activity.

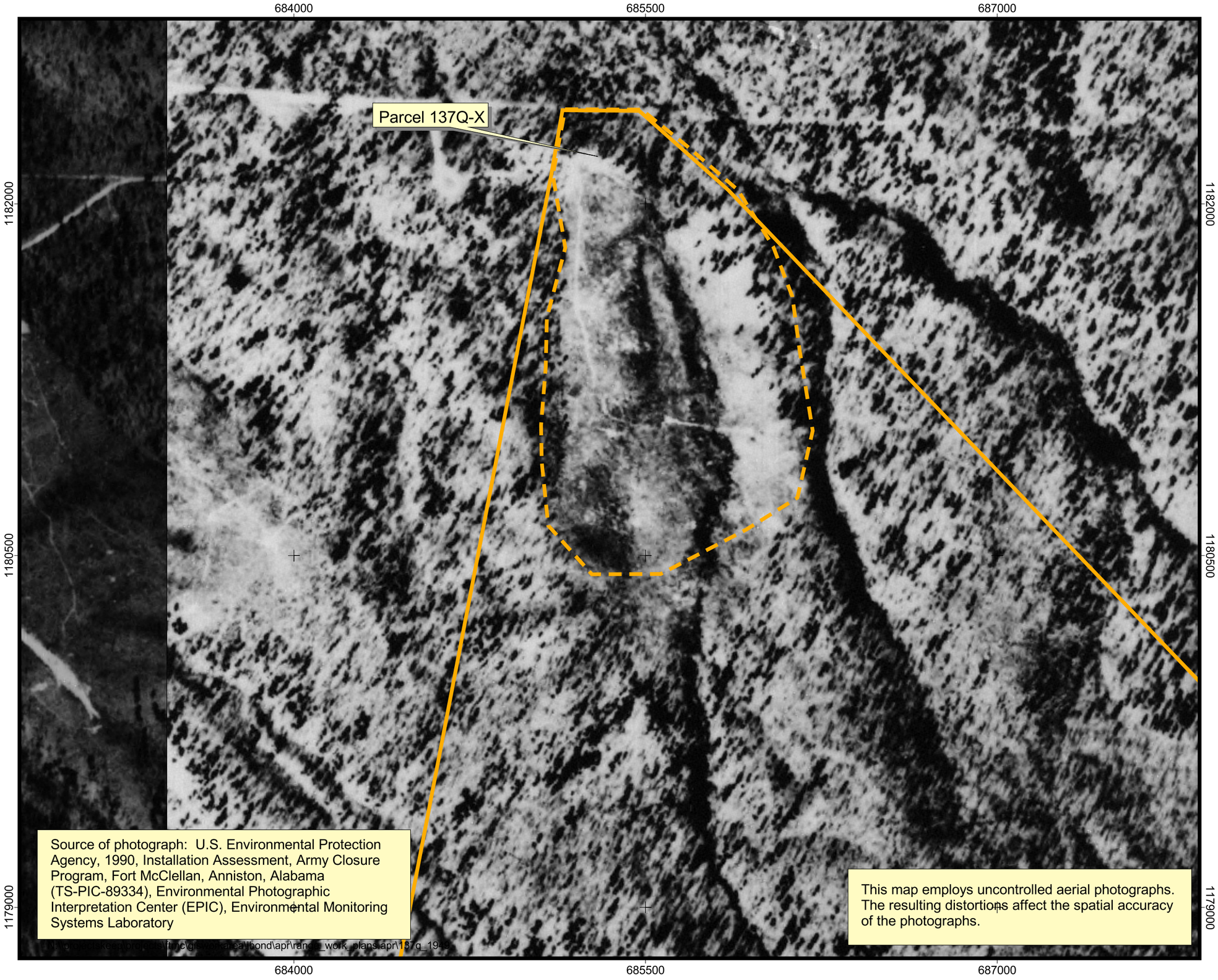
1994. The 1994 color photograph shows that most of the range is wooded (Figure 1-6). Areas covered by sparse vegetation may indicate possible ground scars from former use as an active range.

1.2.2 Soil Types

The soil survey for Calhoun County, Alabama, classifies soil at the Former 81mm Mortar Range, Parcel 137Q-X, as Stony Rough Land Sandstone (Ss) (U.S. Department of Agriculture [USDA], 1961). This land type consists of rough, mountainous areas with outcrops of sandstone and quartzite bedrock, loose rock fragments, and scattered patches of sandy soil material. It also includes rock escarpments on higher parts of the Choccolocco and Coldwater Mountains, where quartzite of the Weisner Formation is common. Slopes generally are more than 25 percent. The soil material is generally shallow over bedrock. Runoff is high, infiltration is slow, and the capacity for available moisture is low (USDA, 1961).

1.3 Scope of Work

The scope of work for activities associated with the SI at the Former 81mm Mortar Range, Parcel 137Q-X, as specified by the statement of work (USACE, 1999b), includes the following tasks:



Source of photograph: U.S. Environmental Protection Agency, 1990, Installation Assessment, Army Closure Program, Fort McClellan, Anniston, Alabama (TS-PIC-89334), Environmental Photographic Interpretation Center (EPIC), Environmental Monitoring Systems Laboratory

This map employs uncontrolled aerial photographs. The resulting distortions affect the spatial accuracy of the photographs.

Figure 1-4

1949 Aerial Photograph

Former 81mm
Mortar Range
Parcel 137Q-X
Fort McClellan, AL

Legend

Area of Investigation

Parcel Boundary

0 400 Feet

NAD83 State Plane Coordinates

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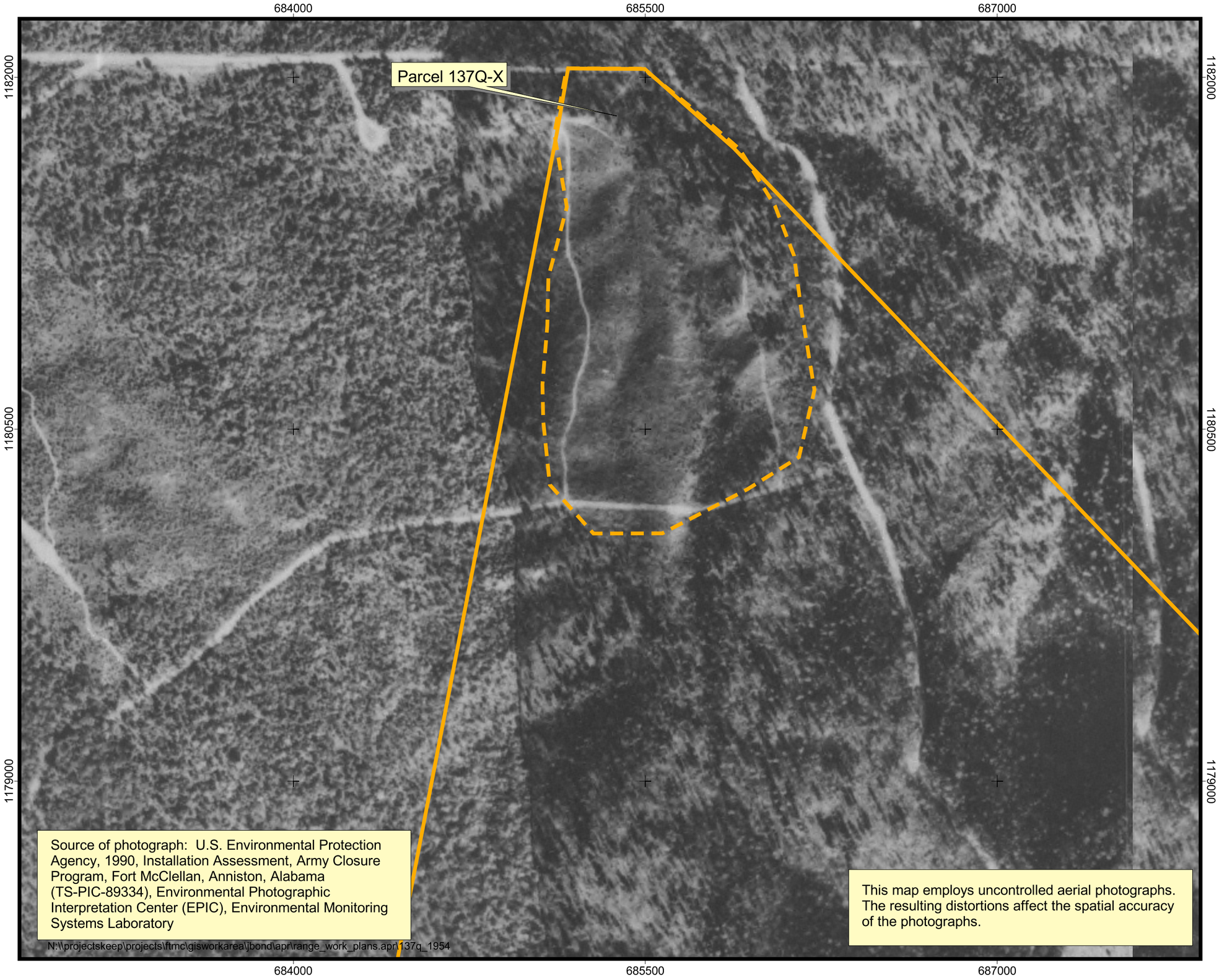

Figure 1-5

1954 Aerial Photograph

Former 81mm
Mortar Range
Parcel 137Q-X
Fort McClellan, AL

Legend

Area of Investigation

Parcel Boundary

0 400 Feet

NAD83 State Plane Coordinates

N

U.S. Army Corps of Engineers
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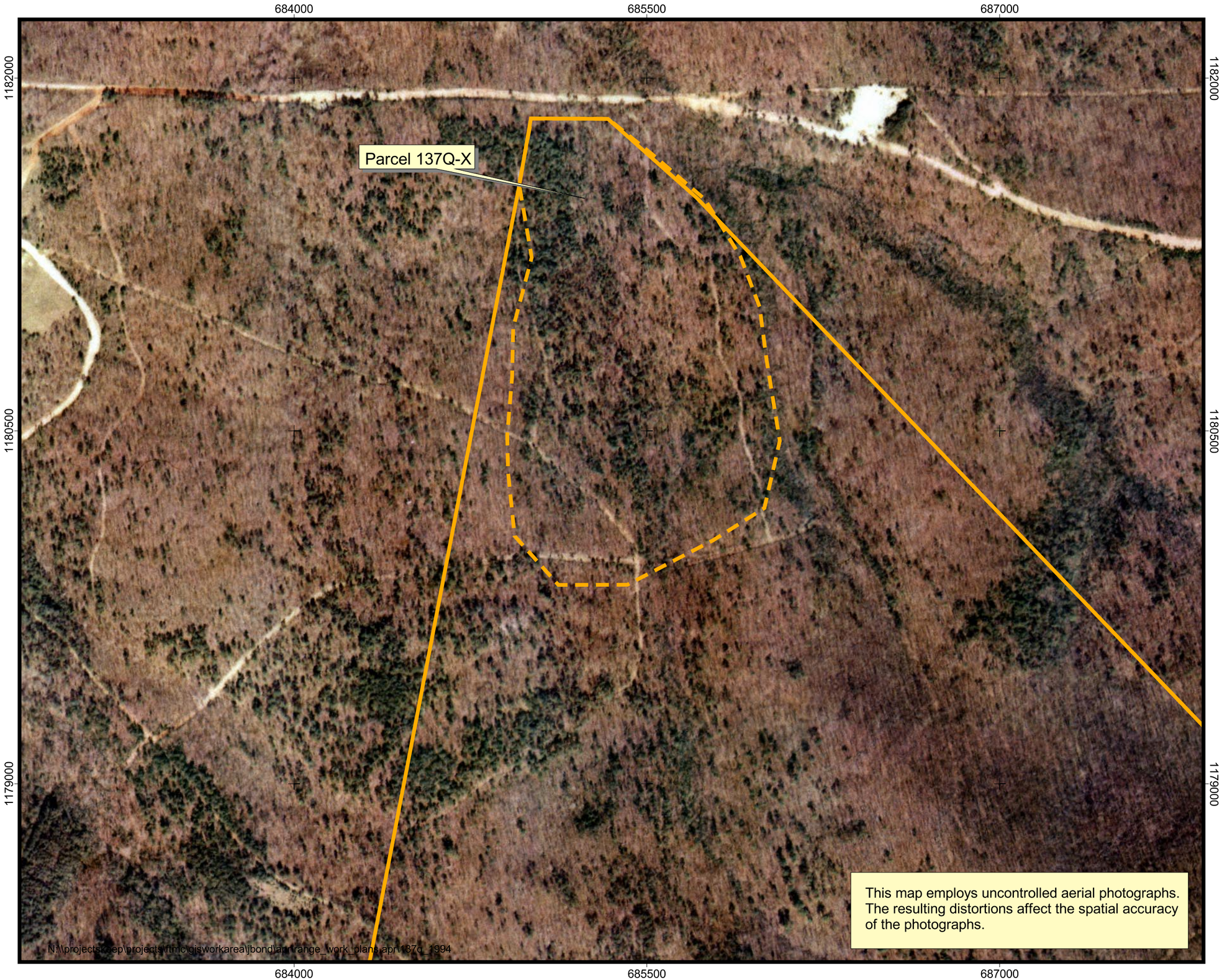

Figure 1-6

1994 Aerial Photograph

Former 81mm
Mortar Range
Parcel 136Q-X
Fort McClellan, AL

Legend

Area of Investigation

Parcel Boundary

0 400 Feet

NAD83 State Plane Coordinates

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- Develop the SFSP attachment.
- Develop the SSHP attachment.
- Develop the UXO safety plan attachment.
- Conduct a surface and near-surface UXO survey over all areas to be included in the sampling effort.
- Provide downhole UXO support for all intrusive drilling to determine buried downhole hazards.
- Collect 15 surface soil samples, 15 subsurface soil samples, 4 groundwater samples, 5 surface water and 5 sediment samples, and 1 depositional soil sample to determine whether potential site-specific chemicals (PSSC) are present and to provide data useful for supporting any future planned corrective measures and closure activities.
- Analyze samples for the parameters listed in Section 4.5.

The Former 81mm Mortar Range, Parcel 137Q-X, falls within the "Possible Explosive Ordnance Impact Areas" shown on Plate 10 of the USACE July 1999 *Archives Search Report, Maps, Fort McClellan, Anniston, Alabama.* Therefore, UXO surface sweeps and downhole surveys of soil borings will be required to support field activities at the Former 81mm Mortar Range, Parcel 137Q-X. The surface sweeps and downhole surveys will be conducted to identify anomalies for the purposes of UXO avoidance. The site-specific UXO safety plan attachment addresses the manner in which the avoidance will be conducted.

At completion of the field activities and sample analyses, an SI summary report will be prepared to evaluate the absence or presence of PSSCs at this site and to recommend further actions, if appropriate. The SI summary report will be prepared in accordance with current EPA, Region IV, and Alabama Department of Environmental Management (ADEM) guidelines.