

APPENDIX A
ABBREVIATED SITE SAFETY
AND HEALTH PLAN

ABBREVIATED SITE SAFETY AND HEALTH PLAN (SSHP)

EASTERN BYPASS
ENGINEERING EVALUATION/
COST ANALYSIS

FORT MCCLELLAN
FORT MCCLELLAN, ALABAMA

Contract No. DACA87-95-D-0026

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Prepared for:

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1.0 SITE DESCRIPTION AND PREVIOUS INVESTIGATIONS

1.1 Site Description

Fort McClellan has been used for artillery training of troops and the National Guard as early as 1912 to present day, and is located in Calhoun County, Alabama, northeast of Anniston (Figure 1). The proposed eastern bypass route begins on the western boundary of the installation in the vicinity of Summerall Gate and proceeds due east approximately one (1) mile, then turns due south for approximately 3.5 miles to the southern boundary.

1.2 Past Uses

The State of Alabama chose this area to conduct annual encampments of Alabama National Guard Units. The slopes of the surrounding hills were similar to an artillery range in Tennessee. Parts of the land were used for rural farming and for timber to make charcoal for the Woodstock Iron Company.

1.2.1 Background

On December 6, 1915, President Woodrow Wilson signed Executive Order 2281 to reserve 1,160 acres for military purposes. This acreage in three parcels was named the Anniston Field Artillery Range, which later became part of the main reservation in 1917.

In 1917, the Federal Government purchased the area as an artillery range. This purchase increased the camp size to 18,997.18 acres. In 1941, the War Department acquired an additional 26,912.17 acres, which was separated from the post by approximately six (6) miles. Also in 1941, an additional 4,160 acres, known as the Choccolocco corridor, was leased. Eleven parcels totalling 297.53 acres, lying along the periphery of the Fort McClellan boundary, were conveyed by quitclaim deed to various interests.

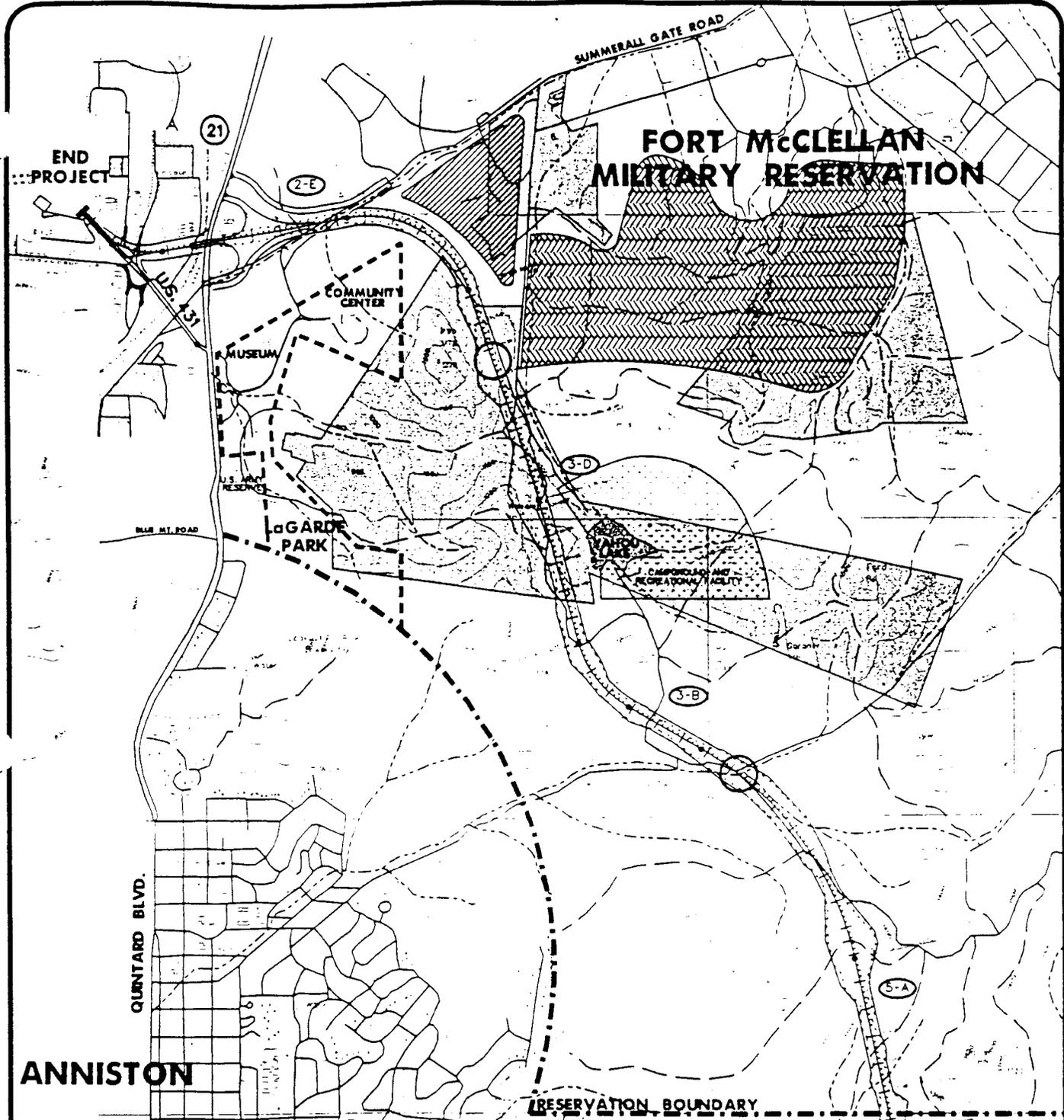
1.2.2 Historical OE Activities

During the Spanish American War, the Fourth Alabama Artillery used the Choccolocco Mountains as a background for firing shells. In 1912, National Guardsmen conducted maneuvers in the area.

During World War I, a Field Artillery Brigade Firing Center was established at Fort McClellan. Training would have included the use of rifle grenade dischargers, 3" or 75mm guns, 37mm guns, anti-aircraft machine guns, heavy machine guns, 6" or 155mm howitzers, and trench mortars.

Subsequent to World War I, the Camp was used for a Reserve Office Training Corps encampment, then redesignated for the Citizens Military Training Camps. In 1929, Camp McClellan was made a permanent Army Post.

FORT McCLELLAN MILITARY RESERVATION



ANNISTON

FORT McCLELLAN UXO AREAS

- POSSIBLE EXPLOSIVE ORDNANCE IMPACT AREAS
- PROPOSED McCLELLAN COMMERCIAL CENTER (APPROXIMATE)
- PROPOSED YAMOU RETREAT (APPROXIMATE)
- PROPOSED McCLELLAN RETIREMENT GOLF COMMUNITY (APPROXIMATE)
- PROPOSED BYPASS ALIGNMENT
- POSSIBLE INTERCHANGE LOCATION

**ANNISTON EAST BYPASS
CALHOUN COUNTY**

PROJECT NO. DPM-0192(001)

800' 0 800' 1,600'

SCALE

**Barge
Waggoner
Sumner and**

RESERVATION BOUNDARY

**4-LANE
MEDIAN
DIVIDED
SECTION**

**5-LANE
SECTION**

**START
PROJECT**

**CHOCOLOCOCO
ROAD**

**WILDEN SPRINGS
ROAD**

COLEMAN ROAD

HENRY ROAD

**DONOHU
SCHOOL**

**LAKE
HOUSE**

SUMMERALL GATE ROAD

21

2-E

3-D

3-B

5-A

**END
PROJECT**

BLUE MT. ROAD

QUINTARD BLVD.

MUSEUM

**COMMUNITY
CENTER**

**La GARDE
PARK**

**CAMPGROUND AND
RECREATION FACILITY**

**U.S. MILITARY
RESERVATION**

During World War II, Fort McClellan became the site of the Branch Immaterial Replacement Training Center, which was later abandoned in favor of Infantry Replacement Training Center, which included vigorous combat training. The firing of 60mm mortars, 37mm anti-tank guns and 57mm anti-tank guns occurred. A rocket range and grenade court were also utilized.

In 1951, Fort McClellan was reactivated for operation of the Chemical Corps Training School as a replacement center for the Chemical Corps. Between the years of 1950 and 1973, Fort McClellan was home to the Women's Army Corps Center and the Women's Army Corps School, the National Guard, the US Army Combat Developments Command Chemical Biological-Radiological Agency, and the Infantry Advance Individual Training Unit.

In 1979, the Military Police School moved to Fort McClellan. During that same year, the US Army Chemical Corps School re-established, along with a training Brigade for Basic Training. FORSCOM units were also garrisoned at the post during the 1970's and 1980's.

1.3 Surrounding Population

Fort McClellan is situated to the northeast of Anniston, Alabama which has a population base of 27,115 persons (US Census Bureau, 1992). Calhoun County registered 116,406 persons during the same time period (US Census Bureau, 1992).

1.4 Previous Sampling/Investigation Results

Environmental Science & Engineering, Inc. has been contracted by the US Army Environmental Center to conduct an Environmental Baseline Survey to determine the environmental condition of the property as part of the base closure process.

2.0 Description of On-Site Activities

ZAPATA ENGINEERING and it's subcontractor, USA Environmental (formerly known as CMS) will perform ground reconnaissance to identify areas of possible OE contamination which are not documented within the area of the proposed bypass. This work is being conducted to select areas for placement of grids to be geophysically mapped and possibly sampled. Identification of possible OE contamination will be performed using handheld magnetometers. No intrusive activities shall be performed during reconnaissance activities.

Prior to conducting the ground reconnaissance, Fort McClellan Range Control and the Military Police will be notified of the locations, schedule, and personnel involved with this task.

3.0 Site Personnel and Responsibilities

Name	Position	Responsibility	Company/Address and Phone Number
*David Cosans	SSHO	Safety and Health	ZAPATA ENGINEERING 1100 Kenilworth Avenue Charlotte, NC 28204 704-358-8240
Ed Komak Jae Yun	UXO Specialist	Senior UXO Supervisor	USA Environmental, Inc. 4904 Eisenhower Boulevard Suite 310 Tampa, Florida 33634 813-882-0148
Thad Stripling	GIS Support		US Army Engineering and Support Center, Huntsville, AL

*David Cosans and Thad Stripling will provide First Aid and CPR treatment, if required.

4.0 Hazard Analysis

4.1 Safety and Health Hazards

Ordnance or explosive hazards may be encountered during the field activities at Fort McClellan. Chemical wastes are not anticipated during the site investigation. Based on telephone conversations with the US Army Engineering and Support Center, ordnance is not likely to be encountered in the site investigation area.

4.2 Overall Hazard Evaluation

The overall hazard evaluation for the field work to be conducted at Fort McClellan is low. However, there is the potential for physical hazards such as slips, trips, and falls, temperature fluctuations, thunderstorms and biological hazards such as poisonous plants, insects and snakes.

4.2.1 Biological Hazards

4.2.1.1 Hazardous Plants

During the conduct of site activities the number and variety of hazardous plants that may be encountered is large and extensive. The ailments associated with these plants range from mild hay fever to contact dermatitis, to carcinogenic affects. However the plants which present the greatest degree of risk to site personnel (i.e., potential for contact vs. affect produced) are those which produce skin reactions and skin and tissue injury.

Contact with splinters, thorns and sharp leaf edges is of special concern to site personnel. This concern stems from the fact that punctures, cuts and even minor scrapes caused by accidental contact may result in non-infectious skin lesions, and the introduction of fungi or bacteria through the skin or eye. Personnel receiving any of the injuries listed above, even minor scrapes, should report immediately to the Site Safety and Health Officer for initial and continued observation and care of the injury.

The poisonous plants of greatest concern are poison oak, poison sumac, and poison ivy. Poison oak is mostly found in the southeast and west. Poison oak resembles poison ivy, with one important difference. The poison oak leaves are more rounded rather than jagged like poison ivy and the underside of poison oak leaves are covered with hair. Poison ivy thrives in all types of light and usually grows in the form of a trailing vine, however, it can also grow as a bush and can attain heights of 10 feet or more. Poison ivy has shiny, pointed leaves that grow in clusters of three. Poison sumac is a tall shrub or slender tree that usually grows along swampy areas or ponds in wooded areas. Each poison sumac leaf stalk has 7 to 13 leaflets which have smooth edges.

The skin reaction associated with contacting these plants is caused by the body's allergic reaction to toxins contained in oils produced by the plant. Becoming contaminated with the oils does not require contact with just the leaves. Contamination can be achieved through contact with other parts of the plant such as the branches, stems or berries, or contact with contaminated items such as tools and clothing. The allergic reaction associated with exposure to these plants will generally cause the following signs and symptoms:

- Blistering at the site of contact, usually occurring within 12 to 48 hours after contact.
- Reddening, swelling, itching and burning at the site of contact.
- Pain, if the reaction is severe.
- Conjunctivitis, asthma, and other allergic reactions if the person is extremely sensitive to the poisonous plant toxin.

If the rash is scratched, secondary infections can occur. The rash usually disappears in one (1) to two (2) weeks in cases of mild exposure and up to three (3) weeks when exposure is severe. Preventative measures which can prove effective for most site personnel are:

- Avoid contact with any poisonous plants on-site, and keep a steady watch to identify, report and mark poisonous plants found on-site.

- Wash hands, face or other exposed areas at the beginning of each break period and at the end of each work day.
- Avoid contact with, and wash on a daily basis, contaminated tools, equipment and clothing.
- Barrier creams, detoxification/wash solutions and orally administered desensitization may prove effective and should be tried to find the best preventative solution.

4.2.1.2 Reptiles and Animals

When site activities are conducted in warm weather at sites that are located in wooded, grassy or rocky environments, the potential for contact with snakes becomes a very real danger. Normally, if a person is approaching a snake, the noise created by the person is usually sufficient to frighten the snake off. However, during the warm months, extreme caution must be exercised when conducting site operations around areas where snakes might be found (i.e., rocks, bushes, logs, or in holes, crevices, and abandoned pipes). If poisonous snakes are identified on-site, the ZAPATA ENGINEERING Site Safety and Health Officer will determine if protective clothing, such as snake leggings, are to be used by site personnel.

Personnel will be instructed to avoid contact with any snakes identified on the site. Personnel will be cautioned not to reach into places where snakes may hide such as rock and wood piles, or walk through tall grasses.

The following descriptions are provided for the poisonous snakes located around Anniston, Alabama:

- Cottonmouth (Florida Cottonmouth, Cottonmouth Moccasin, Water Moccasin, Moccasin). Average adult size is 20 - 48 inches. A dark colored, heavy bodied snake. Juveniles are brightly colored with reddish brown cross bands on a brown ground color. The dark cross bands contain many dark spots and speckles. The pattern darkens with age so adults retain only a hint of the former banding or are uniform black. The head is thick and distinctly broader than the neck, and when viewed from above the eyes cannot be seen. They can be found in any wetlands or waterways in the state. The cottonmouth occasionally wanders far from water and has been found in bushes and trees.
- Eastern Diamondback Rattlesnake (Diamondback, Rattlesnake, Rattler). Average adult size is 36 - 72 inches. A large, heavy bodied snake with a row of large dark diamonds with brown centers and cream borders down its back. The ground color of the body is brownish. The tail ends in a rattle. Diamondbacks are often found in pine flatwoods, longleaf pine and turkey oak and sand pine scrub areas.

- Dusky Pygmy Rattlesnake (Pygmy Rattler, Ground Rattler). Average adult size is 12 - 24 inches. This is a small snake, but very thick for its size. The top of the triangular shaped head is covered with 9 large scales. The body color is light to dark gray. A longitudinal row of black or charcoal, transverse blotches disrupts a reddish brown strip running down the middle of the back. Dark spots on the side line up with the blotches. The tail is slender and ends in a miniature rattle. The snake is found throughout the state. This snake is common in lowland pine flatwoods, prairies, around lakes and ponds, and along the borders of many freshwater marshes and cypress swamps.
- Eastern Coral Snake (Coral Snake). Average adult size is 20 - 30 inches. Body ringed with black, yellow and red; narrow yellow rings separating the wider red and black rings. The rings continue across the belly of the snake. From tip of snout to just behind the eye the head is black. The tail is black and yellow, without any red rings. The snake occurs throughout the state and occupies a variety of habitats. from dry, well drained flatwoods and scrub areas to low, wet hammocks and the borders of swamps. They are secretive and are usually found under debris and in the ground, but occasionally they are found in the open, and have been seen climbing the trunks of live oaks.

The rules to follow if someone is bitten by a snake are:

- Keep the victim calm and immobile.
- Have the victim hold the affected extremity lower than the body while waiting for medical assistance.
- Transport the victim to the Hospital Emergency Room for immediate medical evaluation.
- Do not cut "Xs" over the bite area as this will intensify the effect of the venom.
- Do not apply suction to the wound since this has a minimal effective in removing venom.
- Do not apply a tourniquet since this will concentrate the venom and increase the amount of tissue damage in the immediate area.
- If it safely possible to kill the snake without risk to other personnel, bag it and transport it with the victim or try to get a good look at it so it can be identified for proper selection of anti-venom.
- Do not allow the victim to run for help since running increases the heart rate and will increase the spread of the venom throughout the body.

4.2.1.3 Ticks

The Center for Disease Control (CDC) has noted an increase of Lyme Disease and Rocky Mountain Spotted Fever (RMSF), which are caused by bites from infected ticks that live in and near wooded areas, tall grass, and brush. Ticks are small, ranging from the size of a comma up to about one quarter inch. They are sometimes difficult to see. The tick season extends from spring through summer. When embedded in the skin, they may look like a freckle.

4.2.1.3.1 Lyme Disease

Lyme disease has occurred in 43 states, with the heaviest concentrations in the Northeast (Connecticut, Massachusetts, New Jersey, New York, Pennsylvania), the upper Midwest (Minnesota and Wisconsin), and along the northern Texas coast. It is caused by deer ticks and the lone star ticks which have become infected with spirochetes. Female deer ticks are about one quarter inch in size, and are black and brick red in color. Male deer ticks are smaller, and completely black. Lone star ticks are larger and chestnut brown in color.

4.2.1.3.2 Rocky Mountain Spotted Fever

RMSF has occurred in 36 states, with the heaviest concentrations in Oklahoma, North Carolina, South Carolina, and Virginia. It is caused by Rocky Mountain wood ticks, and dog ticks which have become infected with rickettsia. Both are black in color.

4.2.1.3.3 Symptoms

The first symptoms of either disease are flu-like chills, fever, headache, dizziness, fatigue, stiff neck, and bone pain. If immediately treated by a physician, most individuals recover fully in a short period of time. If not treated, more serious symptoms can occur.

4.2.1.3.4 Treatment

If you believe you have been bitten by a tick, or if any of the signs and symptoms noted above appear, contact the ZAPATA ENGINEERING Site Safety and Health Officer, who will direct you to a physician for an examination and possible treatment.

4.2.1.3.5 Protective Measures

Standard field gear (work boots, socks, and work uniform) provide good protection against tick bites, particularly if the openings are taped. However, even when wearing field gear, the following precautions should be taken when working in areas that might be infested with ticks:

- When in the field, check yourself often for ticks, particularly on your lower legs and areas covered with hair.
- Spray outer clothing, particularly your pant legs and socks, **BUT NOT YOUR SKIN**, with an insect repellent that contains permethrin.
- When walking in wooded areas, avoid contact with bushes, tall grass, or brush as much as possible.
- If you find a tick, remove it by pulling on it gently with tweezers.
- Do not use matches, a lit cigarette, nail polish or any other type of chemical to "coax" the tick out.
- Be sure to remove all parts of the tick's body, and disinfect the area with alcohol or a similar antiseptic after removal.
- For several days to several weeks after removal of the tick, look for the signs of the onset of Lyme disease, such as a rash that looks like a bulls-eye or an expanding red circle surrounding a light area, frequently seen with a small welt in the center.
- Also look for the signs of the onset of RMSF, such as an inflammation which is visible in the form of a rash comprising many red spots under the skin, which appears three (3) to 10 days after the tick bite.

4.2.1.4 Bees, Hornets and Wasps

Contact with stinging insects like bees, hornets and wasps may result in site personnel experiencing adverse health affects that range from mild discomfort to life threatening. Therefore, stinging insects present a serious hazard to site personnel, and extreme caution must be exercised whenever site and weather conditions increase the risk of encountering stinging insects. Some of the factors related to stinging insects that increase the degree of risk associated with accidental contact are as follows:

- The nests for these insects are frequently found in remote wooded, grassy areas where many waste sites are located.
- The nests can be situated in trees, rocks, bushes or in the ground, and are usually difficult to see.
- Accidental contact with these insects is highly probable, especially during warm weather conditions when the insects are most active.

- If a site worker accidentally disturbs a nest, the worker may be inflicted with multiple stings, causing extreme pain and swelling which can leave the worker incapacitated and in need of medical attention.
- Some people are hypersensitive to the toxins injected by a sting, and when stung, experience a violent and immediate allergic reaction resulting in a life-threatening condition known as anaphylactic shock. Anaphylactic shock manifests itself very rapidly and is characterized by extreme swelling of the body, eyes, face, mouth and respiratory passages.
- The hypersensitivity needed to cause anaphylactic shock, can in some people, accumulate over time and exposure; therefore, even if someone has been stung previously, and has not experienced an allergic reaction, there is no guarantee that they will not have an allergic reaction upon receipt of another sting.

4.2.1.4.1 Protective Measures

With these things in mind and with the high probability of contact with stinging insects, all site personnel will comply with the following safe work practices:

- If a worker knows that he is hypersensitive to bee, wasp or hornet stings, they must inform the ZAPATA ENGINEERING Site Safety and Health Officer of this condition prior to participation in site activities.
- All site personnel will be watchful for the presence of stinging insects and their nests, and will advise the ZAPATA ENGINEERING Site Safety and Health Officer a stinging insect nest or presence of a swarm of bees is located or suspected in the area.
- Any nests located on-site will be flagged and site personnel will be notified of its presence.
- If stung, site personnel will immediately report the ZAPATA ENGINEERING Site Safety and Health Officer to obtain treatment and to allow the ZAPATA ENGINEERING Site Safety and Health Officer to observe them for signs of allergic reaction.
- Site personnel with a known hypersensitivity to stinging insects will keep required emergency medication on or near their person at all times.

4.2.1.5 Biting Insects

Many types of biting insects such as mosquitoes, flies and fleas may be encountered on-site. The use of insect repellents will be encouraged by the ZAPATA ENGINEERING Site

Safety and Health Officer if deemed necessary. The biting insects of greatest concern are spiders, especially the black widow and the brown recluse. These spiders are of special concern due to the significant adverse health effects that can be caused by their bite.

4.2.1.5.1 Black Widow Spider

The spider is not aggressive unless agitated when guarding her egg sac. They live in a variety of natural and domestic habitats such as under rocks, wooden boards and in dense plant growth. The female spider is glossy black and marked with a characteristic red hourglass on the underside of the abdomen. The female has a body length of about ½” with a total length of about 1 ½”. The male, which is rarely seen, is smaller and has four pairs of red marks along the sides of the abdomen. Young black widow spiders are tan-to-gray in color and have orange and white “racing stripes” on their abdomens. Black widow spider venom affects the nervous system. The venom causes pain in the lymph nodes. Other symptoms of a severe bite include nausea, elevated blood pressure, sweating, tremors and increased white blood cell counts. The wound may appear as a bluish red spot, surrounded by a whitish area. Victims of a black widow bite may exhibit the following signs or symptoms:

- Sensation of pinprick or minor burning at the time of the bite.
- Appearance of small punctures (but sometimes none are visible).
- After 15 to 60 minutes, intense pain is felt at the site of the bite which spreads quickly, and is followed by profuse sweating, rigid abdominal muscles, muscle spasms, breathing difficulty, slurred speech, poor coordination, dilated pupils and generalized swelling of face and extremities.

4.2.1.5.2 Brown Recluse Spider

Adult brown recluse spiders are soft bodied, yellowish tan to dark brown, about ¼ to ½ inch long and have long, delicate grayish to dark brown legs covered with short, dark hairs. The leg span is about the size of a half dollar. Distinguishing characteristics are the presence of three pairs of eyes arranged in a semicircle on the forepart of the head and a violin-shaped, dark marking immediately behind the semicircle of eyes with the neck of the violin pointing towards the abdomen. The spider may be found in sheltered corners among debris, in wood piles, under loose bark and stones. Human hands, underarms, lower abdomen and the ankles are the areas of the body most likely to be bitten. A bite may go unnoticed for 6 - 8 hours, before a reddening, swelling and blistering of the wound starts to appear. A severe bite can produce an area of dead skin tissue that may require surgery. Victims of a brown recluse bite may exhibit the following signs or symptoms:

- Blistering at the site of the bite, followed by a local burning at the site 30 to 60 minutes after the bite.

- Formation of a large, red, swollen, pustulating lesion with a bull's-eye appearance.
- Systemic affects may include a generalized rash, joint pain, chills, fever, nausea and vomiting; and pain may become severe after eight (8) hours, with the onset of tissue necrosis.

4.2.1.5.3 Scorpions

Average scorpion length is 1 to 1 ½ inches. Young scorpions are pale yellowish brown, usually with two lengthwise dark stripes on their abdomen, older scorpions are uniformed dark brown with the stripes faint or lacking. Scorpions have a pair of enlarged pinchers at their front which they use to grab prey. A scorpion has a pair of eyes in the middle of its back, as well as two (2) to five (5) additional pairs of eyes along the front edge of its body. Scorpions sting with their tail. The sting resembles a bee sting. The human victim may feel the sting or a burning sensation at first but an allergic reaction can occur requiring immediate medical treatment.

4.2.1.5.4 Fire Ants

Fire ants are particularly an aggressive pest. When attacking they first attach themselves to their victim using their jaws. They have the ability to repeatedly sting their victim by inserting, removing, and reinserting their stingers. There are three different reactions one can get from a fire ant sting. These are local, extended, and generalized. Almost everyone is sensitive to the local reaction. This consists of immediate pain and intensely itchy welts at the site of stings. After several hours pustules form as the welts disappear. If left alone, the pustules will break open in 3-7 days, and full healing occurs in 7-14 days. The pustules that form are sterile. They should be left alone, as infection only occurs after scratching them open. The extended reaction consists of a large area of extremely itchy redness and swelling around the stings, which can involve an entire leg or arm. It usually lasts from 1-3 days. Treatment of severe cases may require a physician's attention. The generalized reaction may affect individuals who are allergic to bee stings and are at especially high risk. Symptoms include itchy hives over the entire body and swelling of the throat making it difficult to breathe or swallow. Other symptoms may include flushing, chest or stomach pains, nausea, vomiting, and fainting. If these symptoms occur in any individual after being bitten, seek emergency treatment immediately.

4.2.1.5.5 Treatment For Spider, Scorpion, and Ant Bites

There is no effective first aid treatment for any of these bites. Except for very young, very old or weak victims, these bites are not considered to be life threatening, however medical treatment must be sought to reduce the extent of damage caused by the injected toxins. If any of the described spiders are suspected or known to be on-site, the ZAPATA

ENGINEERING Site Safety and Health Officer will brief the site personnel as to the identification and avoidance of the spiders. As with stinging insects, site personnel should report to the ZAPATA ENGINEERING Site Safety and Health Officer if they locate these spiders or scorpions on-site or notice any type of bite while involved in site activities. Treatment for fire ant bites can consist of ice-packs and anti-itch lotions and sprays to control the itching. If a severe reaction is noted in the individual after being bitten by any of the above, seek emergency medical treatment immediately.

4.2.1.6 Hantavirus Pulmonary Syndrome

Hantavirus pulmonary syndrome (HPS) is a serious, often deadly, respiratory disease that has been found mostly in rural areas of the western United States. The disease is caused by a Hantavirus that is carried by rodents and passed onto humans. The Hantavirus, which is found in rodent urine, saliva, and feces, gets into the air as a mist from urine and saliva or dust from feces. Inhalation of the virus is the most common route of exposure; however, a person can also become infected by touching the mouth or nose after handling contaminated materials. Transmission may also occur when fresh or dried materials contaminated by rodent excreta are disturbed, directly introduced into broken skin, introduced into the eyes, or possibly ingested in contaminated food or water. Persons have also become infected after being bitten by rodents. HPS is not contagious from person-to-person. In the Southeast, the cotton rat (*Sigmodon hispidus*), as well as the rice rat (*Oryzomys palustris*), are known to carry the Black Creek Canal Hantavirus.

- The cotton rat has a body about 5 - 7 inches and a 3 - 4 inch tail. The hair is long and coarse, of a grayish brown color, even grayish black. The cotton rat prefers overgrown areas with shrubs and tall grasses.
- The rice rat is slightly smaller than the cotton rat, having a body about 5 - 6 inches and a very long, 4 - 7 inch tail. Rice rats have short, soft, grayish brown fur on top, and gray or tawny underbellies. Their feet are whitish. The rice rat likes marshy areas and is semiaquatic.

HPS is a rare disease and presents a minor risk to personnel conducting outdoor construction activities in rural areas. The symptoms of HPS usually appear within two (2) weeks after exposure but may appear as early as three (3) days to as late as six (6) weeks after infection. First symptoms are general and flu-like with fever (101° - 104° F), headache, abdominal, joint and lower back pain, with nausea and vomiting. The primary symptom is difficulty in breathing, which is caused by fluid build-up in the lungs and quickly progresses to an inability to breath. Almost half of the reported cases of HPS, or 44.8%, have resulted in death. If any combination of the symptoms occur after direct or indirect exposure to rodents, especially difficulty in breathing, immediate and intensive medical care is essential. There is no vaccine against the Hantavirus infection.

The following preventive measures are to be followed by site personnel to reduce the risk of exposure to HPS:

- All site personnel will be watchful for the presence of rodents, rodent droppings and their nests (burrows). Any rodent sightings or nests shall be immediately reported to the ZAPATA ENGINEERING Site Safety and Health Officer.
- All contact with rodents or their nests shall be avoided to the maximum extent possible.
- Personnel shall wash their hands, faces and other exposed skin surfaces prior to leaving the site and before eating.
- All food brought onto the site shall be maintained where rodents have no access, such as, vehicle trunks or portable coolers.
- All food wastes shall be placed within a trash receptacle with lid, and shall be emptied on a daily basis.

4.2.2 PHYSICAL HAZARDS

4.2.2.1 Thunderstorms

Thunderstorms are common in Alabama. All project activities will be safely terminated and personnel shall seek shelter if a thunderstorm approaches. The Site Safety and Health Officer shall safely terminate all project activities when he/she sees or hears an approaching thunderstorm. Lightning takes the shortest path. It hits the highest object, a tall tree or building, a tower or a person standing alone in a flat field. Common signs of an impending lightning strike are the feeling of hair standing on end and the taste of copper in your mouth. If you are outside, get inside a vehicle and avoid contact with the metal. Avoid using telephones, unless it is an emergency. Do not stand under a natural lightning rod such as a tall, isolated tree in an open area. Do not stand on a hilltop or an open field. Get away from construction vehicles and stay away from wire fences, metal pipes, rails and other metallic paths which could carry lightning to you from some distance away. If out in the open, seek shelter in a low place such as a ravine. If an individual is struck by lightning, first aid should be rendered to those not breathing within four (4) to six (6) minutes to prevent irrevocable damage to the brain. Mouth-to-mouth resuscitation and cardiopulmonary resuscitation (CPR) may be required to be administered by persons with proper training.

4.2.2.2 Heat Stress

Extreme temperature fluctuations within the Anniston, Alabama area may cause serious safety and health impacts on site workers. The ZAPATA ENGINEERING Site Safety and

Health Officer will identify and monitor personnel for heat stress symptoms. Heat stress is one of the most common (and potentially serious) illnesses that can affect hazardous waste site workers. Individuals will vary in their susceptibility and degree of response to the stress induced by increased body heat. Factors which may predispose a worker to heat stress include: lack of physical fitness; lack of acclimatization to hot environments; degree of hydration; level of obesity; current health status (i.e., having an infection, chronic disease, diarrhea, etc.); alcohol or drug use; and the worker's age and sex. Proper training and preventive measures shall help avert serious illness and loss of work productivity. ZAPATA ENGINEERING shall provide drinking water. Preventing heat stress is particularly important, because after suffering from heat stroke or heat exhaustion, a person may be predisposed to additional heat injuries.

5.0 Accident Prevention

5.1 General Precautions

Prior to the on-site visit to Fort McClellan, all team members are required to read this abbreviated SSHP and sign the form acknowledging that they have read and will comply with the plan. In addition, the Site Safety and Health Officer and Senior UXO Supervisor shall hold a brief tailgate meeting in which site-specific topics regarding the day's activities will be discussed. The buddy system will be enforced at all times. If unanticipated hazardous conditions arise, team members are to stop work, leave the immediate area and notify the Site Safety and Health Officer.

6.0 Standard Operation Safety Procedures, Engineering Controls and Work Practices

The abbreviated SSHP shall describe the standard operating safety procedures, engineering controls and safe work practices to be implemented for the field work at Fort McClellan. These shall include, but not be limited to, the following:

6.1 Site Rules/Prohibitions

ZAPATA ENGINEERING shall ensure that the following safe work practices are incorporated during field work at the project site:

- Site personnel shall not touch or pick up anything from the ground.
- All team members will stay within sight of each other.
- The Team Leader shall contact the CEHNC and the authorities if suspected ordnance or hazardous substances are found.
- The buddy system shall be employed during all site activities.

- Site personnel shall adhere to the provisions contained within the abbreviated SSHP.
- Site personnel shall adhere to verbal health and safety instructions issued by the Site Safety and Health Officer.
- During the tailgate meeting, site personnel will be informed of the designated areas for eating, drinking and smoking.
- A first-aid kit shall be immediately available for use.
- Outdoor field activities are not permitted during the night nor in occurring or approaching electrical storms.
- Material handling is not permitted during field activities.
- Site personnel shall not enter excavated areas.
- Site personnel shall use existing sanitary facilities.
- Site personnel shall not step where they cannot see where they place their foot.
- Site personnel shall wear clothing appropriate for the existing weather conditions. This shall include a minimum of short-sleeved shirts and long trousers. Steel-toed work boots are required during the site visit, except when such wear will interfere with magnetometer surveys.

7.0 Site Communications

7.1 On-Site Communications

Verbal communications will be used among the team members to communicate to each other on site. If verbal communication is not possible, hand signals shall be developed and used:

- Both hands on hips - Leave area immediately.
- Hands on top of head - Help; I need assistance.
- Thumbs up - I'm all right; I understand.
- Thumbs down - No; negative.
- Hands gripping throat - Choking; can't breathe.

- Hand gripping nose - Unusual smell detected.

7.2 Off-Site Communications

Off-site communications shall be established on every site. ZAPATA ENGINEERING will be using cellular phones for off-site communications.

7.3 Emergency Signals

Verbal signals or hand signals shall be used for emergency signaling during field activities at Fort McClellan.

8.0 Emergency Response

8.1 Potential Dangers

All team members are to be alert for potential dangers associated with the site at all times. If an unanticipated hazardous condition arises, stop work, evacuate the immediate area and notify CEHNC.

8.2 First Aid

A first aid kit will be provided during field activities. Two members of the field team will be qualified to administer and perform first aid and CPR.

8.3 Emergency Telephone Numbers

AGENCY	TELEPHONE NUMBER
Fire Department (from land-based line)	911
Military Police	256-848-5178
Stringfellow Memorial Hospital. Ambulance	256-235-8900
Patient First Health Care	256-835-4756
Dr. John Beard (ZAPATA ENGINEERING Nalle Clinic Physician)	704-342-8000
Range Control	256-848-4623
Wayne Galloway (For emergencies involving the discovery of OE)	256-865-1582
Mary F. Richards, Vice President (ZAPATA ENGINEERING)	704-358-8240
CHEMTREC (Hazardous Chemical Information Hotline)	1-800-424-9300
Poison Control Center	1-800-332-6632

8.4 Hospital/Medical Facility Information

To reach the Stringfellow Memorial Hospital from Fort McClellan, proceed with the following directions and Hospital Route Map (Figure 2):

Hospital Name	Hospital Address	Hospital Phone Number
Stringfellow Memorial Hospital	301 E. 18 th Street	205-235-8900

- Proceed on Rocky Hollow Road, due southwest to Thomas Avenue.
- Proceed on Thomas Avenue, due west, to 18th Street.

OR

- Proceed west on Summerall Gate Road to Route 21 / Quintard Avenue.
- Proceed south on Route 21 / Quintard Avenue to 18th Street, Anniston.

9.0 Monitoring Equipment and Procedures

9.1 Exposure Monitoring

Field activities at Fort McClellan will not require exposure monitoring.

9.2 Heat and Cold Stress Monitoring

Heat and cold stress monitoring will not be required during field activities being conducted at Fort McClellan. However, a source of water or electrolytic drink, for fluid replacement, shall be close to the work area.

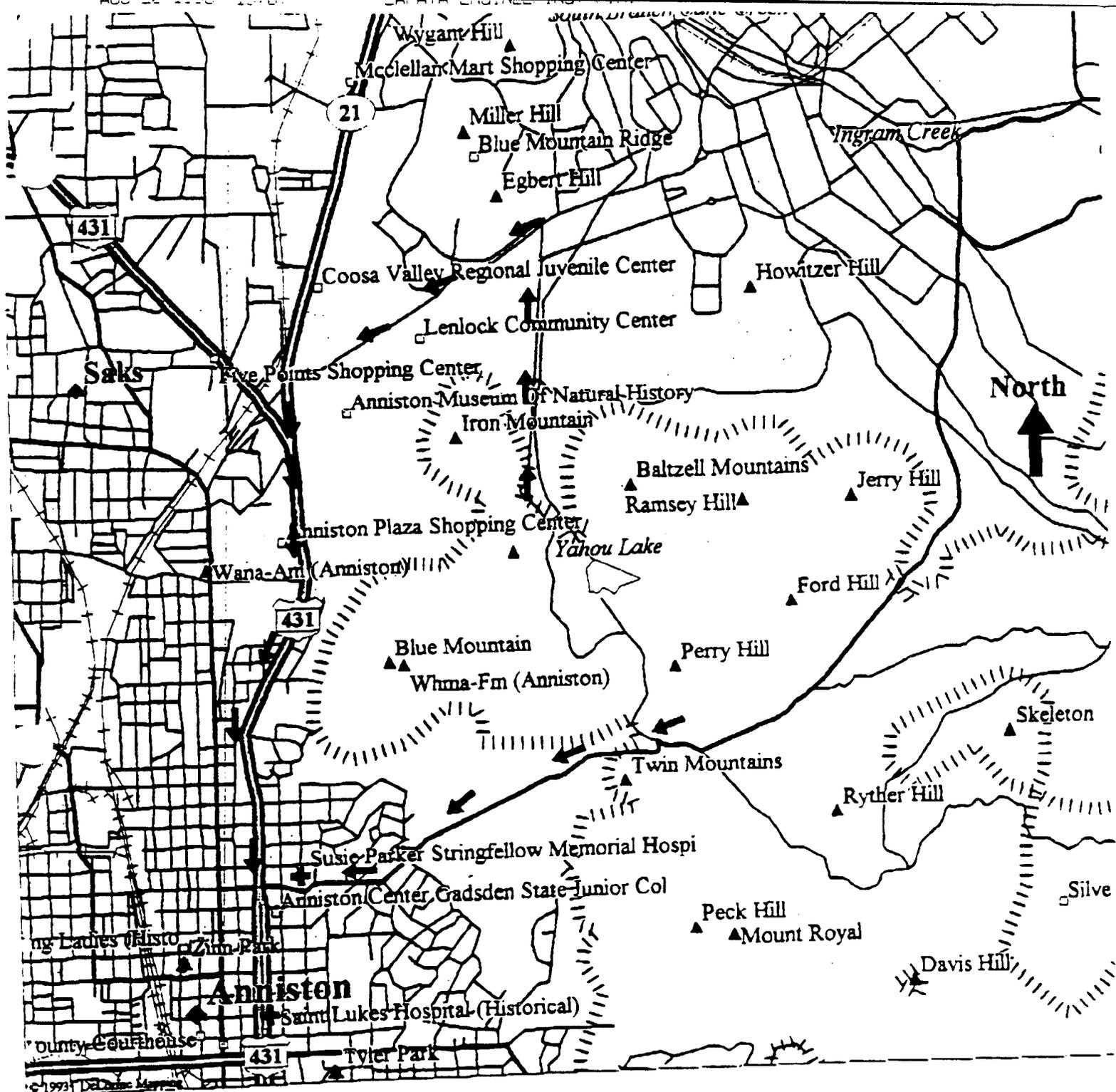
10.0 Personal Protective Equipment

10.1 General

The field activities being conducted at Fort McClellan will not include intrusive testing or sampling of soil or the ground surface. The required level of protection will be Level D. Hard hats will be worn if an overhead hazard exists, safety shoes or boots will be worn, and safety glasses will be worn if an eye hazards exists.

10.2 Non-Intrusive Site Visit

Level D protection will be used during field activities, if site conditions warrant a higher level of protection. the site will be evacuated.



LEGEND

- State Route
- Geo Feature
- ◆ Town, Small City
- ◆ Large City
- ▲ Hill
- ⊕ Hospital
- ▲ Park
- ▬ US Highway
- Population Center

- Street Road
- Major Street/Road
- ▬ State Route
- ▬ US Highway
- Railroad
- River
- Intermittent River
- Open Water
- ▬ Contours

Scale 1:37,500 (at center)

2000 Feet

1000 Meters

Figure 2: Hospital Route Map

Mag 13.00

Thu Aug 06 12:25:32 1998

11.0 Decontamination Procedures

Decontamination procedures are not anticipated for this site investigation. Team members are cautioned not to walk, kneel, or sit on any surface with potential leaks, spills or contamination.

12.0 Training

All site personnel shall have completed the training required by EM 385-1-1 and 29 CFR 1910.120 (e). The Project Manager shall ensure and the Site Safety and Health Officer shall verify that all on-site persons shall have completed appropriate training prior to submitting the plan to the safety office for review. Additionally, the Site Safety and Health Officer shall inform personnel, before entering, of any potential site-specific hazards and procedures.

13.0 Medical Surveillance Program

The Project Manager shall ensure and the SSHS shall verify that all on-site personnel are on the Medical Surveillance Program meeting the requirements of 29 CFR 1910.120, and ANSI Z-88.s, as appropriate, depending on the PPE and site specific task.

The following is information on the Training and Medical Surveillance for on-site personnel:

Name	Course Date (40 Hour, 8 Hour)	Medical Exam Date	First Aid/CPR Training Date
David Cosans	2/10/95, 10/3/97	6/19/98	1/6/98
Ed Komak	5/98	8/10/98	N/A
*Jae Yun	N/A	N/A	N/A
Thad Stripling	6/5/98	8/21/98	12/12/97

* Mr. Yun will accompany Mr. Komak during the ground reconnaissance, and not enter areas with identified OE contamination.

14.0 Logs, Reports and Record Keeping

Site logs are maintained by the Site Safety and Health Officer. This is to include historical data, personnel authorized to visit the site, all records, standard operating procedures and the SSHP submitted.

15.0 General

The number of persons visiting the site shall be held to a minimum. No more than 8 people per Site Safety and Health Officer shall be allowed on-site. The more persons on-site, the greater potential for an accident. The Site Safety and Health Officer may modify this abbreviated SSHP if site conditions warrant it and without risking the safety and health of the team members. This modification will be coordinated with the team members and the CEHNC-ED representative.

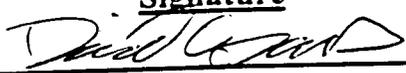
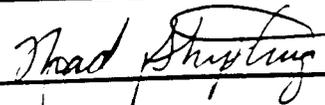
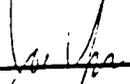
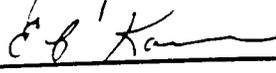
ATTACHMENT I

Site Safety and Health Briefing Log

SITE SAFETY AND HEALTH PLAN BRIEFING LOG

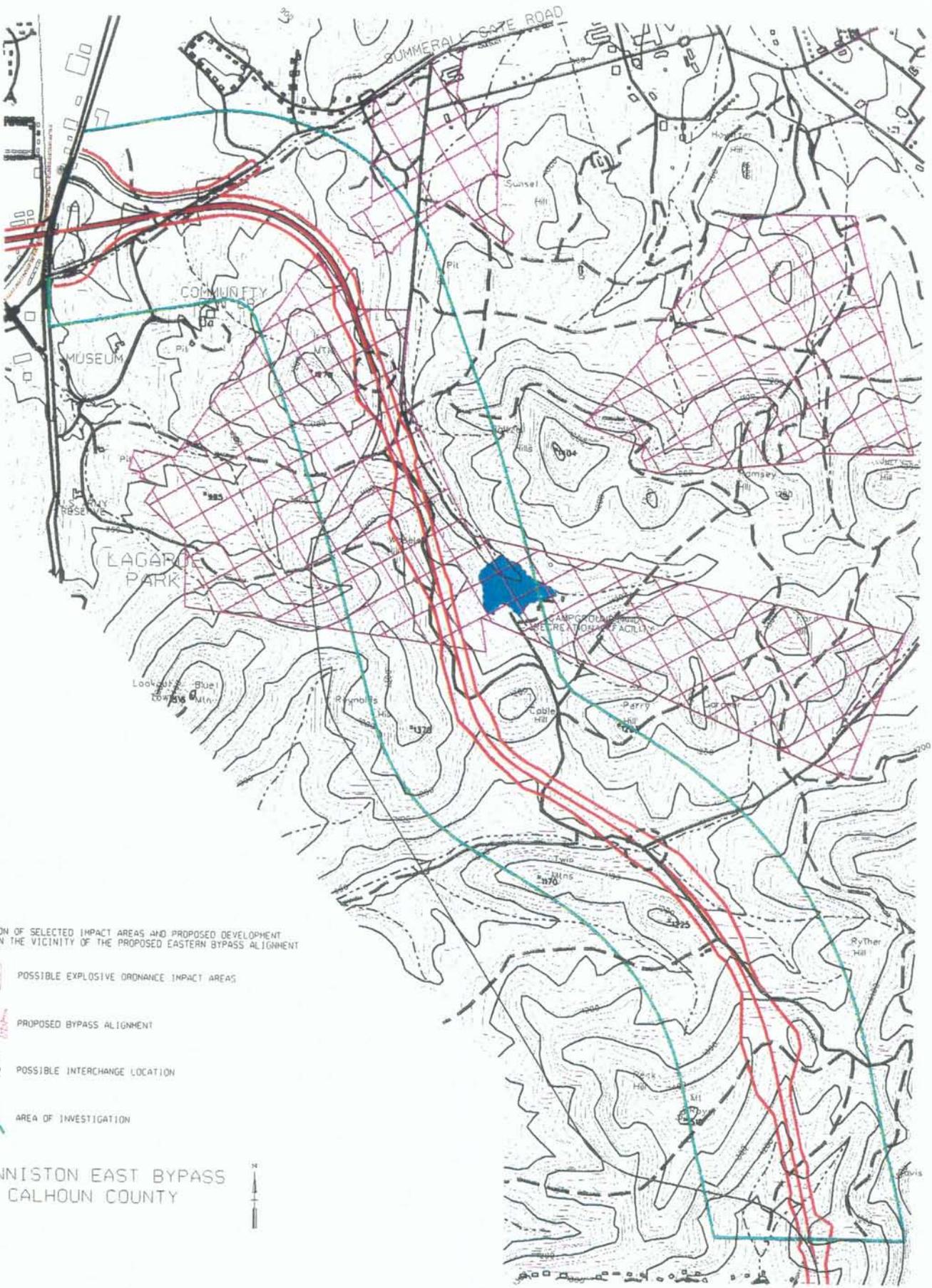
FORT MCCLELLAN EASTERN BYPASS GROUND RECONNAISSANCE

ANNISTON, AL

<u>Name (Print)</u>	<u>Signature</u>	<u>Date</u>
David Cosans		8/24/98
Thad Stripling		8/25/98
Jae Yun		8/24/98
E F Kemac		24 Aug 98

APPENDIX B

SITE MAPS



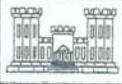
LOCATION OF SELECTED IMPACT AREAS AND PROPOSED DEVELOPMENT AREAS IN THE VICINITY OF THE PROPOSED EASTERN BYPASS ALIGNMENT

-  POSSIBLE EXPLOSIVE ORDNANCE IMPACT AREAS
-  PROPOSED BYPASS ALIGNMENT
-  POSSIBLE INTERCHANGE LOCATION
-  AREA OF INVESTIGATION

ANNISTON EAST BYPASS
CALHOUN COUNTY



1100 KENILWORTH AVENUE CHARLOTTE, NC 28204
PHONE: (704) 358-8240 FAX: (704) 358-8342
E-MAIL: ZAPATA@ZAPENG.COM WEB SITE: WWW.ZAPENG.COM

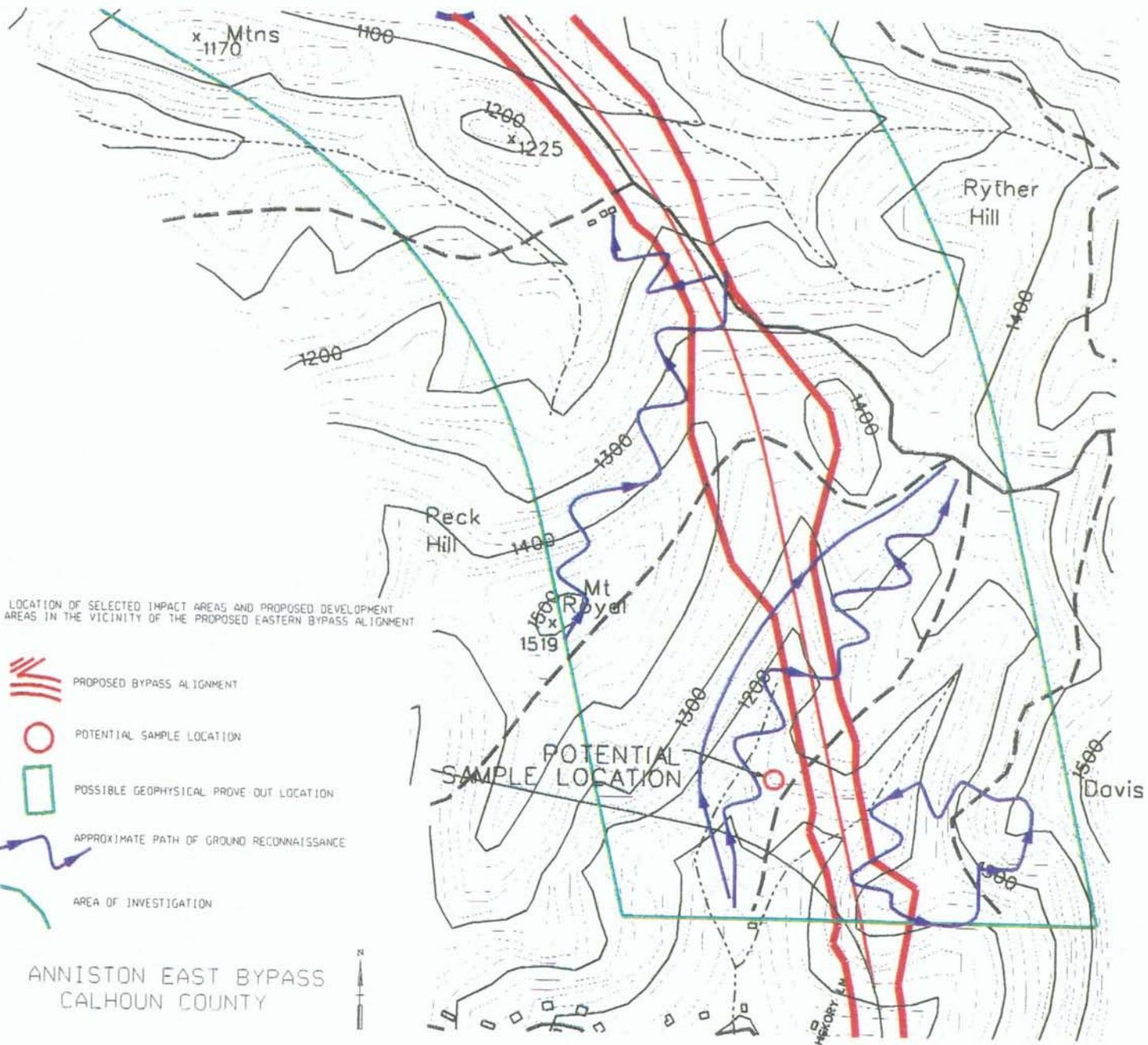


US ARMY ENGINEERING & SUPPORT CENTER
HUNTSVILLE, ALABAMA

PROJECT TITLE: FORT McCLELLAN EASTERN BYPASS

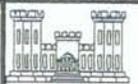
DRAWING TITLE: VICINITY MAP

PROJECT #:	REF. #:	DATE:	DRAWN BY:	SCALE:	DRAWING #:
		4 SEPT 98	CMS	NOT TO SCALE	FIGURE 1



ZAPATA ENGINEERING
TRUST · INTEGRITY · QUALITY

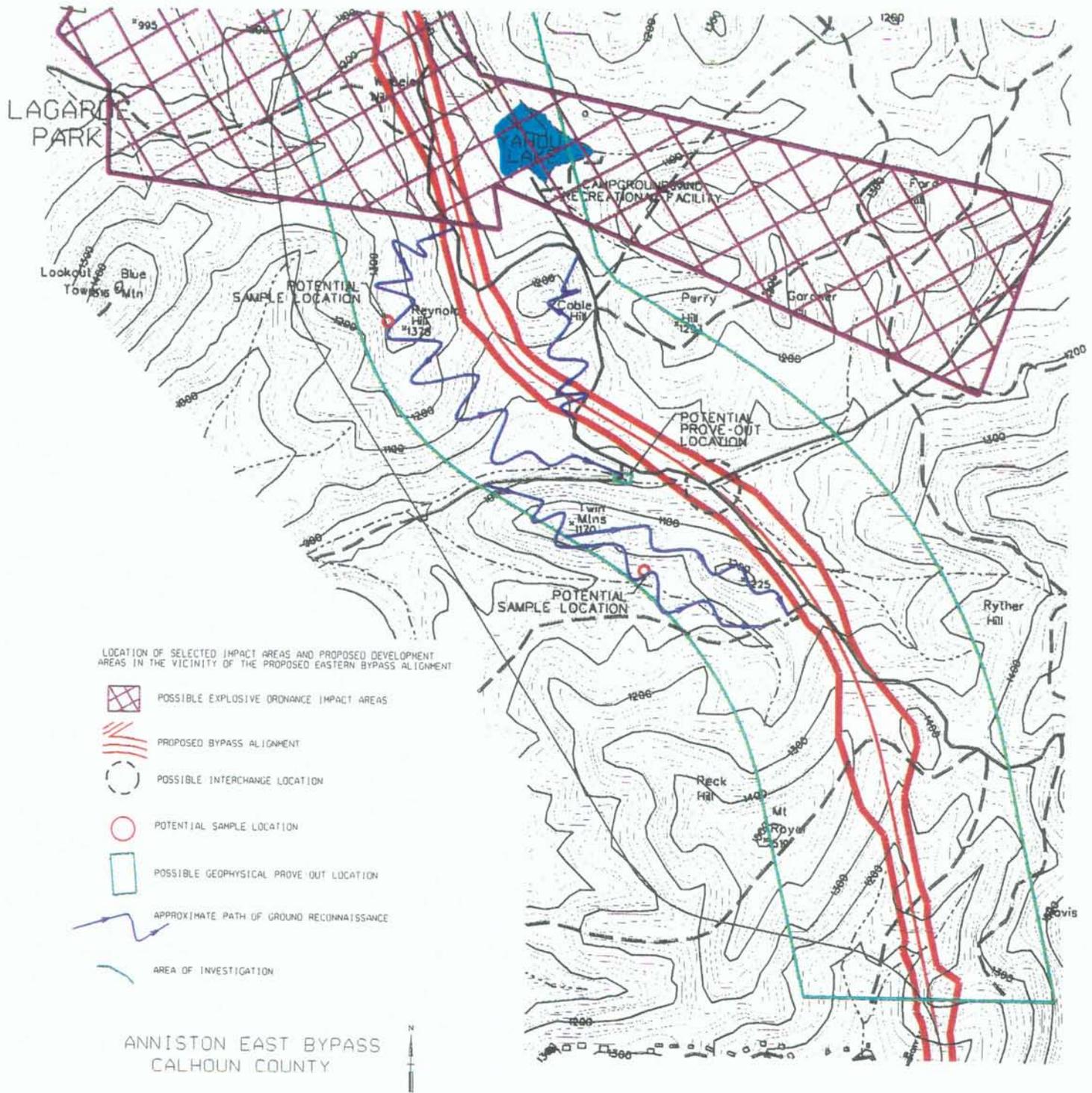
1100 NEMILWORTH AVENUE CHARLOTTE, NC 28204
PHONE: (704) 358-8240 FAX: (704) 358-8332
E-MAIL: ZAPATA@ZAPENG.COM WEB SITE: WWW.ZAPENG.COM



US ARMY ENGINEERING & SUPPORT CENTER
HUNTSVILLE, ALABAMA

PROJECT TITLE: FORT McCLELLAN EASTERN BYPASS
DRAWING TITLE: DAY 3 RECONNAISSANCE

PROJECT #:	REF. #:	DATE:	DRAWN BY:	SCALE:	DRAWING #:
		4 SEPT 98	DJC	NOT TO SCALE	FIGURE 3



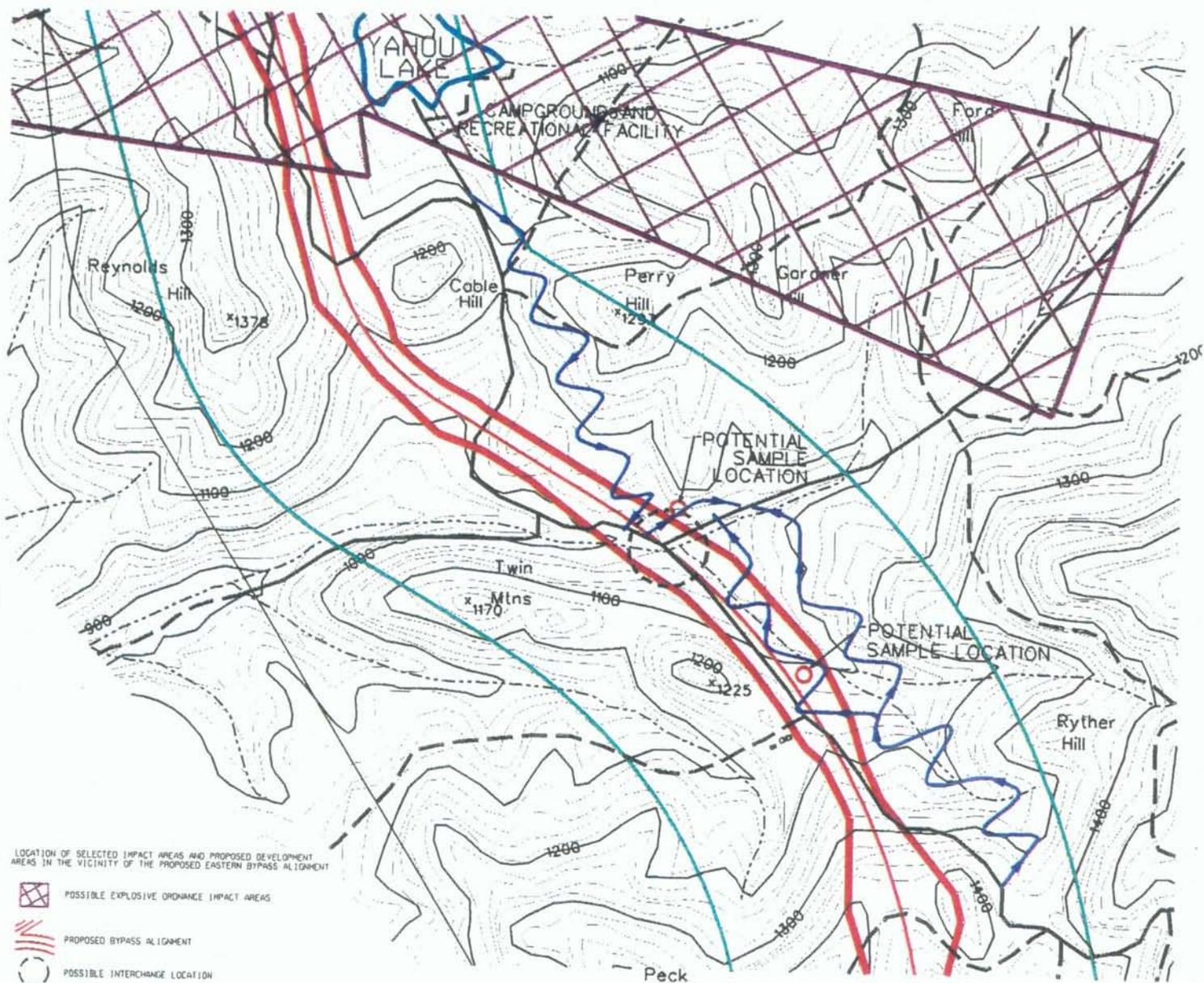
1100 KEHLWORTH AVENUE CHARLOTTE, NC 28204
 PHONE: (704) 358-8240 FAX: (704) 358-8343
 E-MAIL: ZAPATA@ZAPENG.COM WEB SITE: WWW.ZAPENG.COM



US ARMY ENGINEERING
 & SUPPORT CENTER
 HUNTSVILLE, ALABAMA

PROJECT TITLE: FORT McCLELLAN
 EASTERN BYPASS
 DRAWING TITLE: DAY 4 RECONNAISSANCE

PROJECT #:	REF. #:	DATE:	DRAWN BY:	SCALE:	DRAWING #:
		4 SEPT 98	DJC	NOT TO SCALE	FIGURE 4



LOCATION OF SELECTED IMPACT AREAS AND PROPOSED DEVELOPMENT AREAS IN THE VICINITY OF THE PROPOSED EASTERN BYPASS ALIGNMENT

-  POSSIBLE EXPLOSIVE ORDNANCE IMPACT AREAS
-  PROPOSED BYPASS ALIGNMENT
-  POSSIBLE INTERCHANGE LOCATION
-  POTENTIAL SAMPLE LOCATION
-  POSSIBLE GEOPHYSICAL PROVE-OUT LOCATION
-  APPROXIMATE PATH OF GROUND RECONNAISSANCE
-  POTENTIAL SAMPLE LOCATION

ANNISTON EAST BYPASS
CALHOUN COUNTY



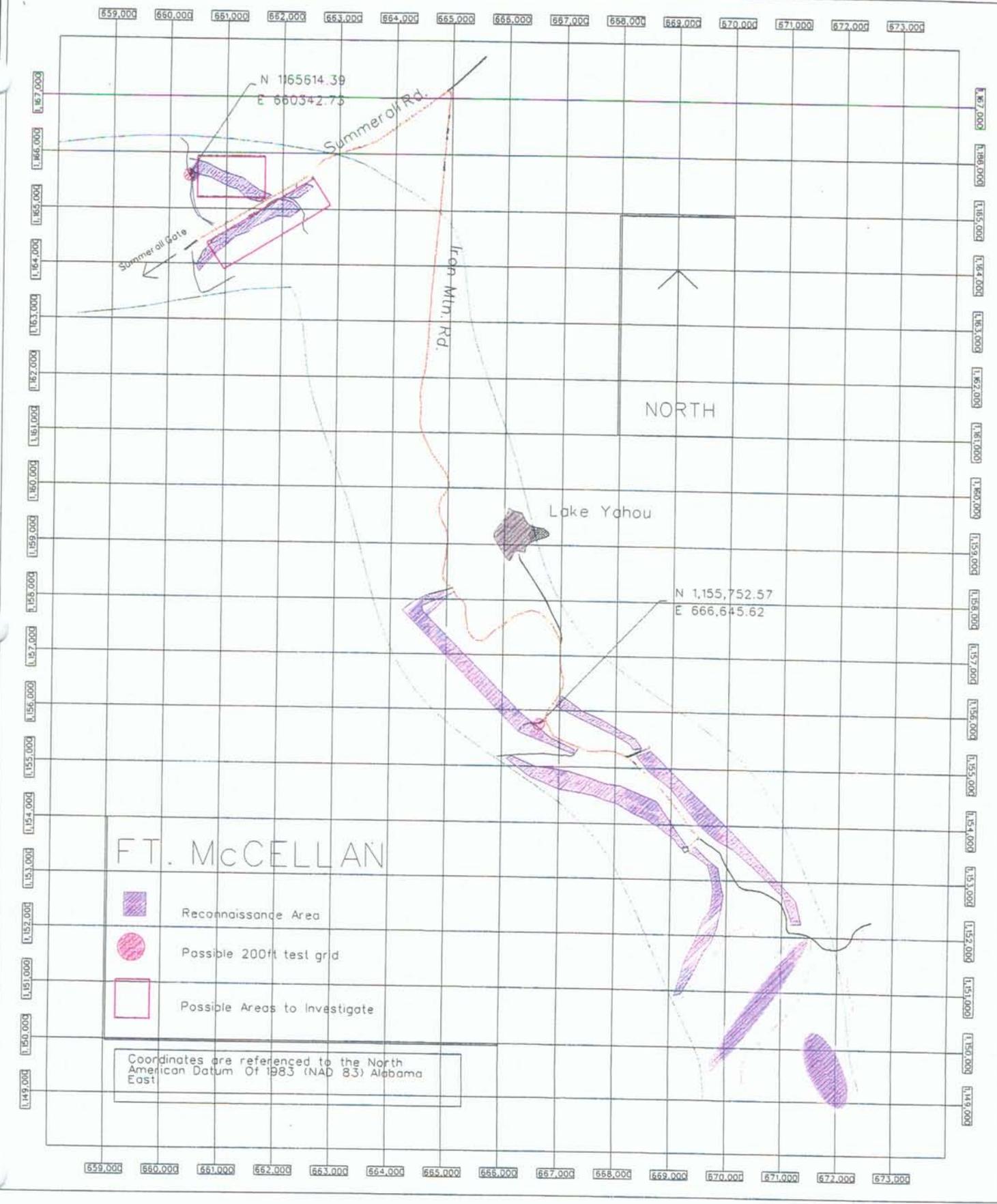
ZAPATA ENGINEERING
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1100 NENLWORTH AVENUE CHARLOTTE, NC 28204
PHONE: (704) 358-8240 FAX: (704) 358-8342
E-MAIL: ZAPATA@ZAPENG.COM WEB SITE: WWW.ZAPENG.COM

 **US ARMY ENGINEERING & SUPPORT CENTER**
HUNTSVILLE, ALABAMA

PROJECT TITLE: FORT McCLELLAN EASTERN BYPASS
DRAWING TITLE: DAY 5 RECONNAISSANCE

PROJECT #:	REF. #:	DATE: 4 SEPT 98	DRAWN BY: DJC	SCALE: NOT TO SCALE	DRAWING #: FIGURE 5
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Coordinates are referenced to the North American Datum Of 1983 (NAD 83) Alabama East

ZAPATA ENGINEERING
TRUST INTEGRITY QUALITY

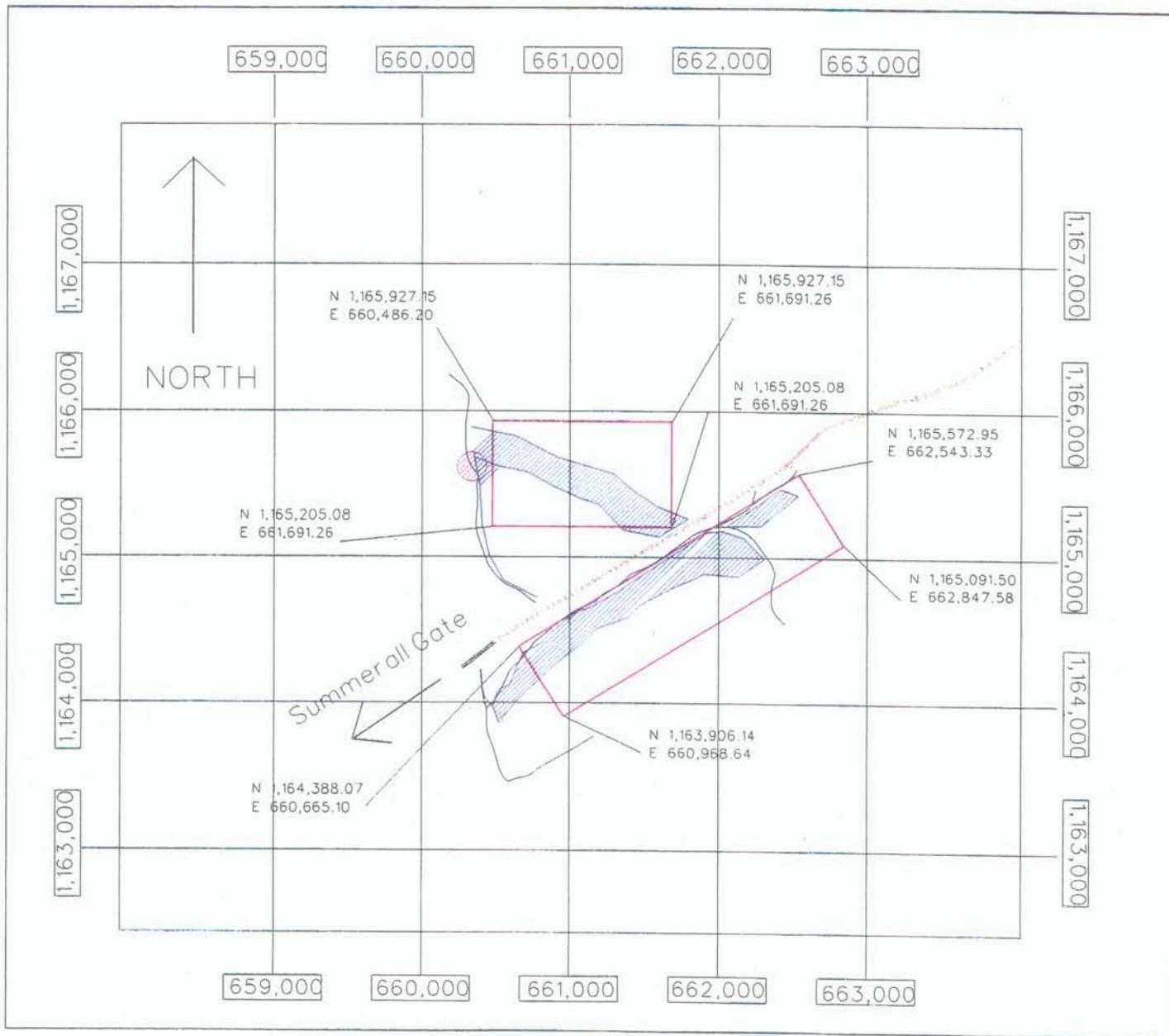
1100 KENILWORTH AVENUE CHARLOTTE, NC 28204
PHONE: (704) 358-8240 FAX: (704) 358-8342
E-MAIL: ZAPATA@ZAPENG.COM WEB SITE: WWW.ZAPENG.COM

US ARMY ENGINEERING & SUPPORT CENTER
HUNTSVILLE, ALABAMA

PROJECT #: REF. #: DATE: 4 SEPT 98

PROJECT TITLE: FORT McCLELLAN EASTERN BYPASS
DRAWING TITLE: GPS GRID

DRAWN BY: JY SCALE: NOT TO SCALE DRAWING #: FIGURE 6



1100 KEHL WORTH AVENUE CHARLOTTE, NC 28204
PHONE: (704) 358-8240 FAX: (704) 358-8342
E-MAIL: ZAPATA@ZAPENG.COM WEB SITE: WWW.ZAPENG.COM



US ARMY ENGINEERING
& SUPPORT CENTER
HUNTSVILLE, ALABAMA

PROJECT TITLE: FORT McCLELLAN
EASTERN BYPASS
DRAWING TITLE: GPS LOCATIONS

PROJECT #:	REF. #:	DATE:	DRAWN BY:	SCALE:	DRAWING #:
		4 SEPT 98	JY	NOT TO SCALE	FIGURE 7

APPENDIX B

HISTORICAL AERIAL PHOTOGRAPHY INTERPRETATION

**HISTORICAL AERIAL PHOTOGRAPHY INVESTIGATION
OF THE
FORT McCLELLAN EAST BY-PASS STUDY AREA**

August 11, 1998

A. L. King
P. A. Hamlett
K. C. Cutshaw

Lockheed Martin Energy Research Corporation
Geographic Information Science and Technology
Oak Ridge National Laboratory

Prepared for the U. S. Army Engineering and Support Center, Huntsville

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HISTORICAL AERIAL PHOTOGRAPHY INVESTIGATION OF THE FORT McCLELLAN EAST BY-PASS STUDY AREA

PURPOSE AND SCOPE

This report documents the historical aerial photograph interpretation of the East By-Pass Study Area at Fort McClellan, Alabama. It includes a description of the study area location and boundary derivation, the photo-interpretation methods used, and the findings of the investigation.

LOCATION OF STUDY AREA

The East By-Pass Study Area comprises approximately 691 acres on the western edge of the Fort McClellan, Alabama Army Installation. The study area boundary was devised by the adding a 450-ft buffer along the proposed East By-Pass Highway Corridor coverage (BWSC 1992). The study area encompasses only land owned by Fort McClellan and does not include the northern- and southern-most portions of the proposed East By-Pass Highway Corridor.

METHODS USED

Historical aerial photography was analyzed to detect possible contamination-related activities using two different methods: a date-by-date analysis and a temporal analysis of landscape trends. The collection and analysis of historical aerial photography were conducted in the following steps:

1. Good quality copies of aerial photographs provided by the U. S. Army Engineering and Support Center, Huntsville (USAESCH) were reviewed and selected based on completeness of coverage, quality, scale, and date. Complete photographic coverage of the study area was available for 8 years of photographic coverage from 1937 to 1994 (see Appendix A for the meta data record of available and interpreted photography).
2. A modified version of the United States Geological Survey (USGS) land use/cover classification system was developed to classify land use/cover (see Table 1 for the Fort McClellan classification system) (Anderson et al., 1976).
3. Selected aerial photographs were scanned at 600 dots per inch (dpi) and converted to Erdas Imagine (.img) format. Photographs were subset for the study area prior to rectification. Second or third order transformations were applied to rectify the photography to available USGS digital line graph (DLG) coverages. Rectified images were exported to Erdas .lan format for photo-interpretation.
4. Land use/cover features were digitized and attributed for each successive year of historical aerial photography.

Table 1. Fort McClellan Land Use/ Cover Classification System

Fort McClellan Aerial Photographic Interpretation Land Use/Cover Classification System		
Level I	Level II	Level III
Developed Land	(Dc) Commercial	
	(De) Excavation	
	(Di) Industrial	(Dia) Airport (including runways, towers, buildings, etc.)
		(Dib) Building
		(Dih) Hazardous Waste Operations
	(Dn) Institutional	(Dna) Ammunition Range
		(Dnc) Cemetery
		(Dnj) Correctional
		(Dne) Educational
	(Dng) Governmental Building	
	(Dnl) Landscaped Area	
	(Do) Open Land	
	(Dp) Pile	
	(Dr) Recreational	(Drg) Golf Course
		(Drp) Park
		(Drm) Marina or Boat Dock
		(Drs) Stadium, Fairgrounds, Race Track
	(Ds) Residential	(Dss) Single House
		(Dsm) Subdivision
	(Dt) Transportation	(Dtr) Railroad
		(Dth) Road (major roads and highways)
		(Dtp) Parking Lot
	(Du) Utility	
Agricultural	(Ab) Building	
	(Ac) Cropland/Pastureland	
	(Ao) Orchard	
Undeveloped	(Ub) Bare Land	
	(Ue) Erosion	
	(Uf) Forest	
	(Ug) Grassland	
	(Us) Scrub/Shrub	
Water	(Wl) Lake/Pond	
	(Wr) Reservoir	
	(Ws) River/Stream	
(Lw) Wetland		

5. Anomalies were computed from the digital databases by analyzing the changes in land use/cover over time relative to the expected land use/cover progression.
6. The anomalies were mapped and a quality assurance review was conducted.
7. Anomalies were reviewed to determine the cause of each anomaly. Available sources of information, including Fort McClellan aerial photographs and historic maps, were used to conduct the review.

8. Historical aerial photographs and vector coverages were converted from Environmental Systems Research Institute, Inc. (ESRI)-based software formats to Intergraph-based formats. Scanned historical aerial photographs were imported as .tif files into Intergraph Microstation 95 software and linked to a .dgn file (fmcplan.dgn) to create first order rectified images in .cot format. Vector coverages (land use/cover and anomaly coverages) were converted from ESRI ArcInfo files to Intergraph Microstation 95 files.
9. All hard copy deliverables were transmitted to the USAESCH via Federal Express and digital data were transmitted via file transfer protocol (FTP).

FINDINGS

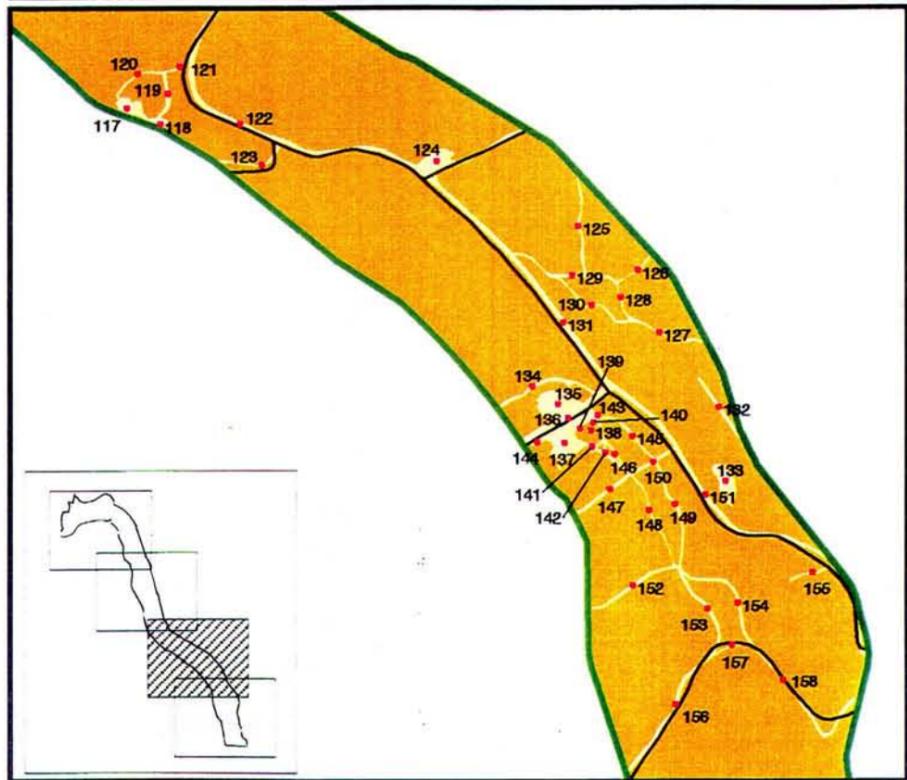
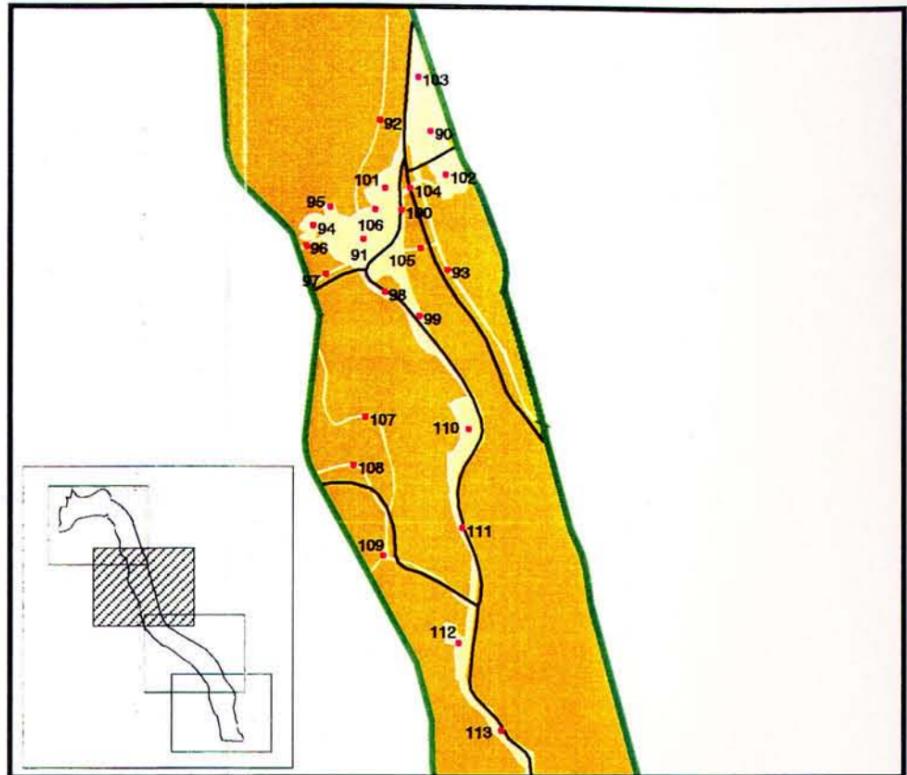
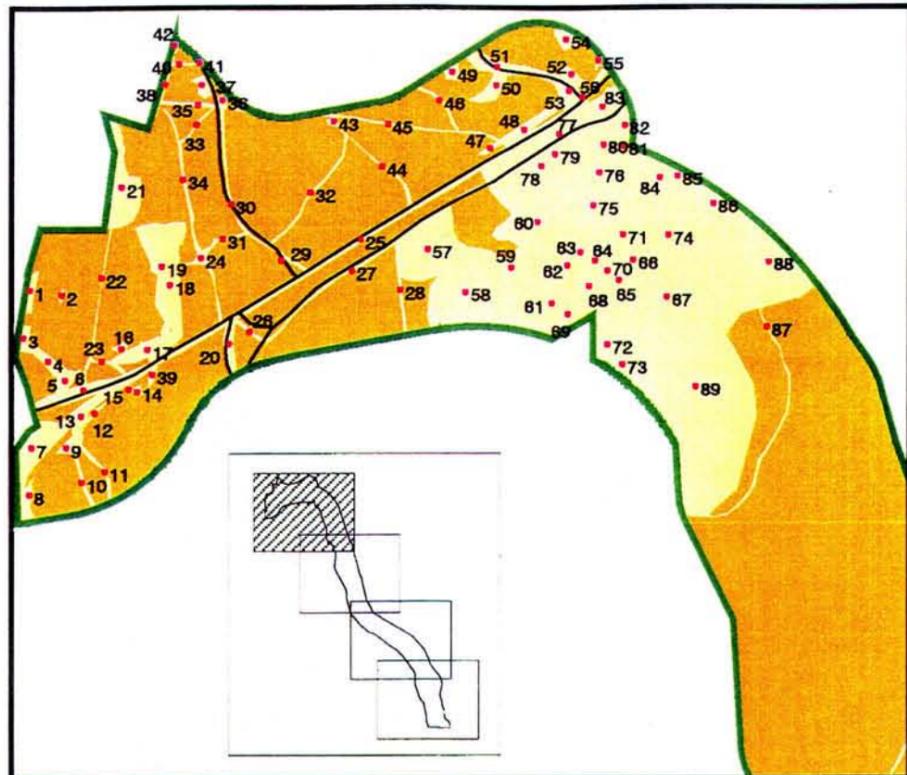
One hundred sixty-one anomalies were identified by the historical aerial photography investigation and are shown on the figure titled "Anomalies from Interpretation of Historical Aerial Photography: 1937-1994." Table 2 contains information for each anomaly; including the anomaly tracking number, the center point coordinate (in Alabama State Plane East, North American Datum [NAD] 83 coordinates), the reason (or cause) of the anomaly, and comments. During the final quality assurance review of the land use/cover anomalies, four anomalies were determined to be photographic interpretation errors. These anomalies are identified as "QA" in Table 2 and will not be discussed further. The remaining 157 anomalies were caused by or associated with the following:

- the creation/widening/destruction of roads and trails (97 anomalies),
- the construction or existence of buildings (6 anomalies),
- firing range/ammunition areas (3 anomalies), and
- cleared or disturbed areas of unknown cause (51 anomalies).

In the northern part of the Fort McClellan East By-Pass Study Area, the greatest change in landcover and the cause for most anomalous areas of concern occurred during the years of World War II. Between 1937 and 1944 the terrain was deforested and criss-crossed with numerous roads, trails and vehicle paths. The figure, "1944 Disturbed Area" depicts these activities in a 1944 photograph of the northwest portion of the study area. Located approximately .25 miles south of this area, along the eastern boundary of the study area, is a firing range or ammunition area. First evident after the end of the war, gradual increase in activity can be observed in photographs acquired in 1954 through 1994. The figure "Firing/Ammunition Range" shows photographs of this area for the five time periods of concern.

While all roads are considered human disturbance to landcover and are identified as anomalies, those of concern are the many roads that appear for only a brief period of time. This phenomenon occurred predominately during the 1960's. It is possible that these roads were built in association with disposal or training activities.

Other common anomalies include small areas that were cleared or partially cleared of vegetation. While the reason for some of these clearings (e.g., construction of a building complex) is evident in the photographs, the cause for many others is unknown.



Anomalies from Interpretation of Historical Aerial Photography: 1937-1994

Fort McClellan East By-Pass Study Area

 Historical Photography Anomalies

Base Data:

 Roads, Parking, and Bridges

 Study Area Boundary

Geographic Information Science and Technology
Oak Ridge National Laboratory
Oak Ridge, Tennessee

0 500 1000 1500 2000 Meters

0 2000 4000 6000 Feet

Alabama State Plane, NAD83



Data Source: Aerial Photography from U.S. Army COE
Prepared by: Geographic Information Science and Technology, ORNL
Date prepared: August 10, 1998



1944 Disturbed Area

Fort McClellan East By-Pass
Study Area

Index Map

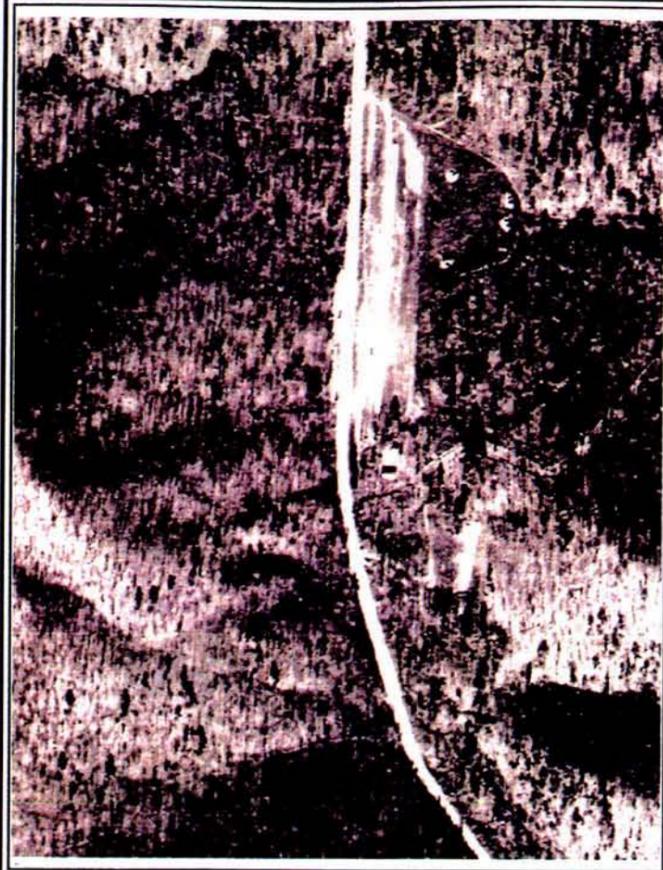


-  Inset Area
- Base Data:
 Roads, Parking, and Bridges
 Study Area Boundary

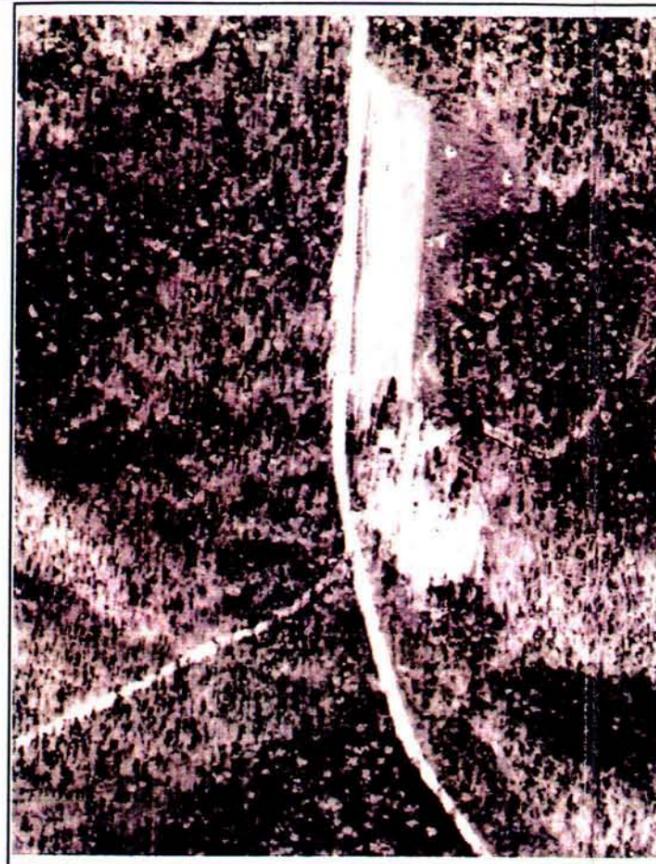
Geographic Information Science
and Technology
Oak Ridge National Laboratory
Oak Ridge, Tennessee



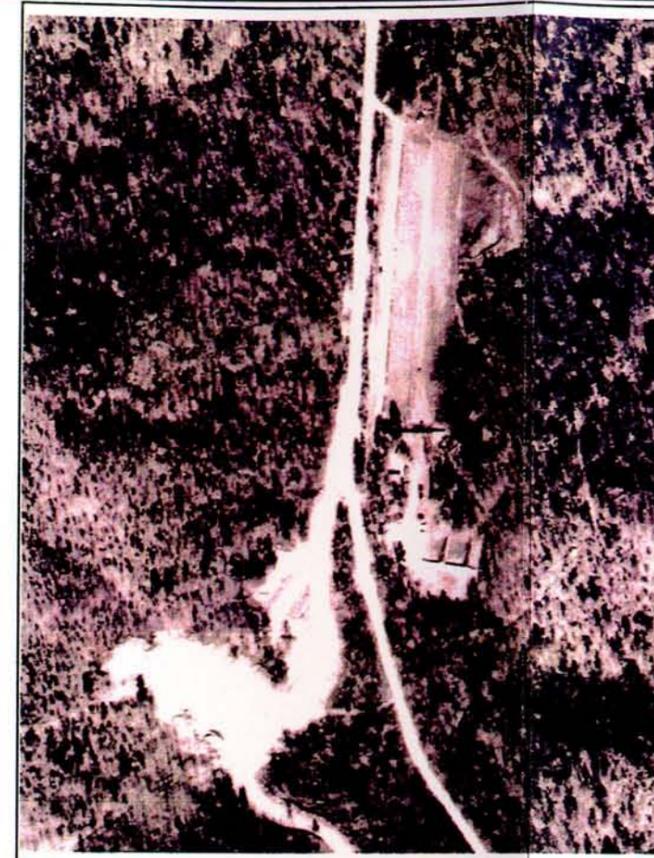
Data Source: Aerial Photography from U.S. Army COE
Prepared by: Geographic Information Science and Technology, ORNL
Date prepared: August 10, 1998



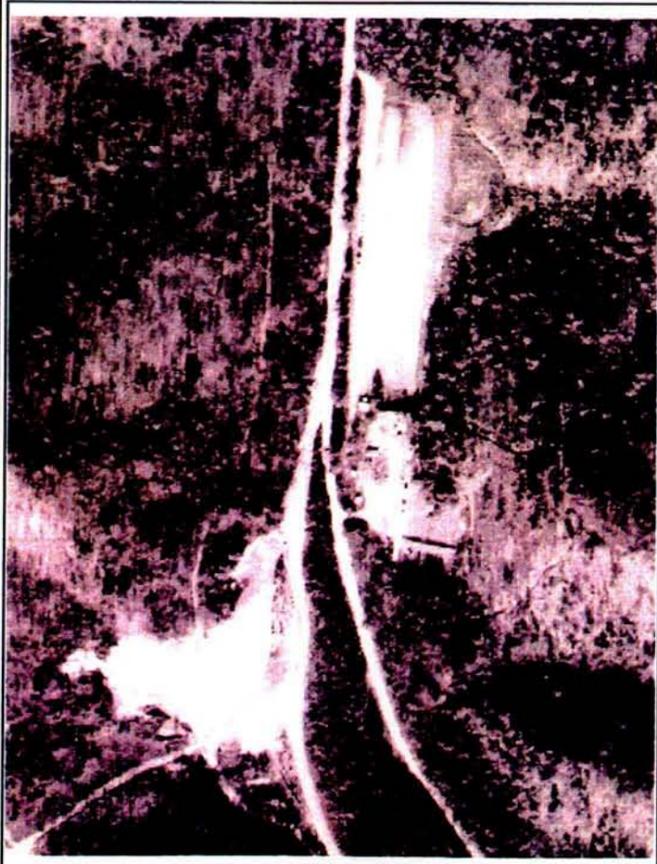
1954



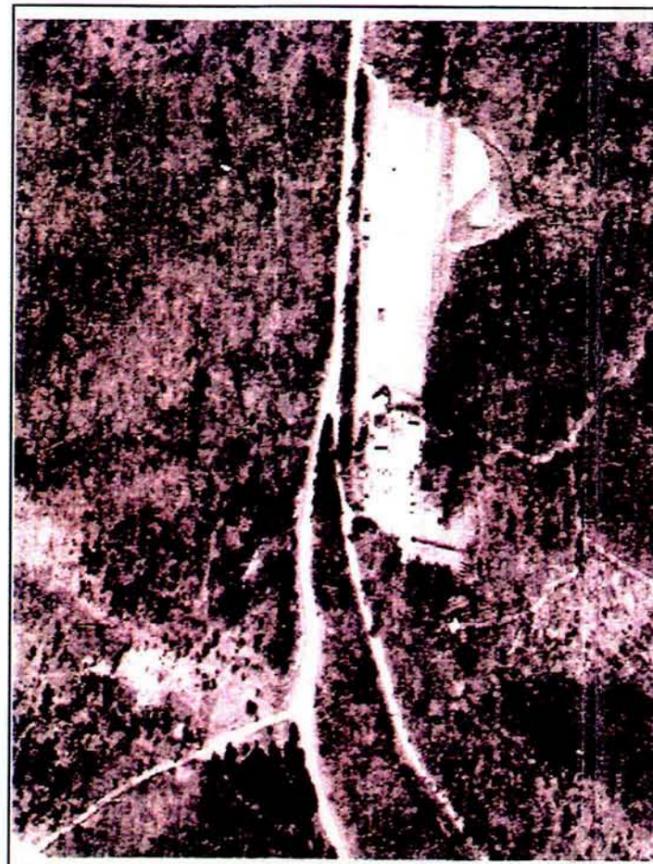
1961



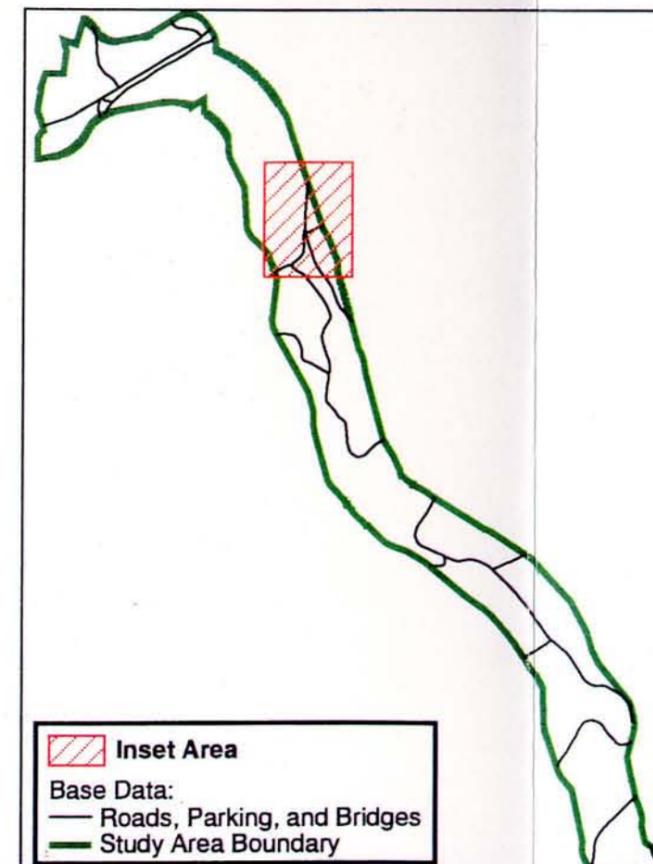
1969



1982



1994



 Inset Area
 Base Data:
 Roads, Parking, and Bridges
 Study Area Boundary

Index Map

Firing/Ammunition Range

Fort McClellan East By-Pass Study Area

Geographic Information Science
 and Technology
 Oak Ridge National Laboratory
 Oak Ridge, Tennessee



Data Source: Aerial Photography from U.S. Army COE
 Prepared by: Geographic Information Science and Technology, ORNL
 Date prepared: August 10, 1998

Table 2. Historical Photography Anomaly Identification

Historical Photography Anomaly Identification				
Anomaly #	Alabama State Plane East, NAD 83		Reason for anomaly	Comment
	X-Coordinate	Y-Coordinate		
1	659306.46224	1164557.02835	Road widening	Area cleared between 1954 and 1961
2	659489.02836	1164527.30828	QA	None
3	659268.25073	1164281.05631	Road widening	Area cleared between 1954 and 1961
4	659412.60533	1164149.43888	Road construction	Area cleared between 1944 and 1954
5	659506.01126	1164039.05006	Road construction	Area cleared between 1940 and 1944
6	659612.15435	1163983.85565	Road	Evident 1944 through 1994
7	659314.95369	1163652.68920	Road	Evident 1937 through 1954
8	659302.21652	1163380.96289	Road construction/ widening	Work between 1982 and 1994
9	659514.50270	1163652.68920	Road	Road/shoulder widened between 1969 and 1994
10	659603.66290	1163453.14019	Road	Evident 1937 through 1944
11	659735.28033	1163516.82605	Road	Evident 1954 and 1961 (partially overgrown in 1969)
12	659680.08593	1163852.23822	Road	Evident 1940 and 1944
13	659599.41718	1163835.25532	Road	Evident 1937 through 1944
14	659922.09218	1163975.36420	Building construction	Forest cleared between 1982 and 1994; construction adjacent to road
15	659875.38922	1163988.10138	Building/trailer	Evident 1982 and 1994
16	659832.93198	1164221.61618	Unknown	Area cleared in 1944 photograph. adjacent to road
17	659981.53231	1164217.37045	Unknown	Area cleared in 1944 photograph. adjacent to road
18	660108.90402	1164586.74842	Unknown	Area badly scarred with many trails and roads (1944)
19	660062.20106	1164692.89151	Unknown	Area badly scarred with many trails and roads (1944)
20	660448.56191	1164247.09052	Road	Evident 1937 through 1944
21	659832.93198	1165147.18394	Unknown	Area completely cleared in 1969 photograph
22	659718.29744	1164629.20565	Road	Evident 1937 through 1969
23	659718.29744	1164149.43888	Road	Evident in 1954
24	660287.22441	1164739.59447	Road	Evident 1937 through 1944
25	661208.54645	1164845.73756	Road	Evident 1937 through 1944

Historical Photography Anomaly Identification				
Anomaly #	Alabama State Plane East, NAD 83		Reason for anomaly	Comment
	X-Coordinate	Y-Coordinate		
26	660567.44218	1164315.02210	Road	Evident 1954 through 1961
27	661157.59777	1164667.41717	Road	Area disturbed in 1944 photograph; road 1954, 1961, 1982, 1994 (road not visible 1969 photograph)
28	661437.81553	1164557.02835	Road	Area disturbed in 1944 photograph; road 1954 through 1994
29	660754.25402	1164722.61157	Building	Evident in 1994 photograph
30	660461.29909	1165049.53230	Road	Evident 1937 through 1969
31	660414.59612	1164849.98328	Road	Evident 1937 through 1944
32	660919.83724	1165117.46388	Road	Evident in 1944 photograph
33	660265.99580	1165508.07046	Road	Evident in 1944 photograph
34	660185.32705	1165193.88690	Road	Evident 1937 through 1944
35	660270.24152	1165622.70500	Road	Evident 1937 through 1944
36	660410.35040	1165648.17934	Unknown	Trees cleared between 1969 and 1982
37	660291.47014	1165737.33954	Unknown	Tress cleared between 1940 and 1944
38	660079.18395	1165741.58526	Road	Evident in 1994 photograph
39	660007.00665	1164073.01585	Unknown	Road construction/cleared area in 1944 photograph
40	660159.85270	1165856.21980	Road	Evident 1944 through 1954
41	660278.73297	1165864.71125	Road	Evident 1944 through 1954
42	660134.37836	1165966.60861	Building construction	Area cleared between 1969 and 1982; building constructed adjacent to area
43	661051.45468	1165525.05335	Road	Evident in 1944
44	661331.67244	1165266.06421	Road	Evident in 1944
45	661365.63823	1165508.07046	Road	Evident in 1944
46	661662.83889	1165643.93361	Road	Evident in 1944
47	661951.54810	1165372.20730	Road shoulder	Trees cleared in 1944 through 1961 photographs
48	662146.85139	1165478.35039	Road shoulder	Trees cleared in 1944 through 1961 photographs
49	661735.01619	1165809.51684	QA	None
50	661985.51389	1165733.09381	Unknown	Cleared cut-off from road in 1961 photograph

Historical Photography Anomaly Identification

Anomaly #	Alabama State Plane East, NAD 83		Reason for anomaly	Comment
	X-Coordinate	Y-Coordinate		
51	661989.75961	1165839.23690	Road shoulder	Widened in 1961
52	662418.57771	1165801.02539	Road shoulder	Widened in 1961
53	662405.84054	1165703.37375	Road shoulder	Widened in 1961
54	662388.85764	1166000.57440	QA	None
55	662575.66948	1165877.44842	Road shoulder	Cleared in 1961 photograph
56	662482.26356	1165665.16223	Road	Evident 1937 through 1994
57	661594.90731	1164790.54315	Unknown	Area disturbed with many trails in 1944 photograph
58	661811.43922	1164544.29118	Unknown	Area disturbed with many trails in 1944 photograph
59	662074.67409	1164684.40006	Road	Evident in 1954 and 1961 photographs
60	662227.52014	1164947.63493	Unknown	Area disturbed with many trails in 1944 photograph
61	662308.18889	1164476.35960	Unknown	Area disturbed with many trails in 1944 photograph; road in 1982 and 1994
62	662397.34909	1164697.13723	Road	Evident 1961 through 1994
63	662473.77211	1164773.56026	Unknown	Area disturbed with many trails in 1944 photograph
64	662558.68659	1164722.61157	Unknown	Area disturbed with many trails in 1944 photograph; road in 1982
65	662694.54975	1164612.22276	Road	Evident 1944 and 1954
66	662779.46422	1164726.85730	Road	Evident 1944
67	662974.76751	1164514.57111	Road	Evident 1944
68	662524.72080	1164578.25697	Unknown	Area disturbed with many trails in 1944 photograph
69	662401.59481	1164416.91947	Unknown	Area disturbed with many trails in 1944 photograph
70	662630.86389	1164667.41717	Unknown	Area disturbed with many trails in 1944 photograph
71	662720.02409	1164875.45763	Unknown	Area disturbed with many trails in 1944 photograph
72	662630.86389	1164242.84480	Unknown	Disturbed in 1944 photograph
73	662715.77836	1164128.21026	Unknown	Disturbed in 1944 photograph
74	662983.25896	1164871.21190	Unknown	Area disturbed with many trails in 1944 photograph
75	662550.19514	1165041.04085	Unknown	Area disturbed with many trails in 1944 photograph; cleared in 1954 and 1961 photographs

Historical Photography Anomaly Identification				
Anomaly #	Alabama State Plane East, NAD 83		Reason for anomaly	Comment
	X-Coordinate	Y-Coordinate		
76	662584.16093	1165232.09842	Unknown	Area disturbed with many trails in 1944 photograph; cleared in 1961 photograph
77	662350.64613	1165452.87605	Unknown	Area disturbed with many trails in 1944 photograph; road in 1954, 1961, 1982, 1994 (road not visible in 1969 photograph)
78	662248.74876	1165270.30993	Unknown	Area disturbed with many trails in 1944 photograph; road in 1954
79	662325.17179	1165338.24151	Unknown	Area disturbed with many trails in 1944 photograph; road in 1961 and 1969 photographs
80	662605.38955	1165393.43592	Road	Evident in 1944 photograph
81	662724.26981	1165384.94447	Unknown	Area disturbed with many trails in 1944 photograph; road 1961, 1982, 1994 (road not visible in 1969 photograph)
82	662728.51554	1165503.82473	Unknown	Area disturbed with many trails in 1944 photograph
83	662601.14383	1165609.96782	Unknown	Area disturbed with many trails in 1944 photograph
84	662932.31027	1165202.37835	Unknown	Area disturbed with many trails in 1944 photograph
85	663034.20764	1165210.86980	Unknown	Area disturbed with many trails in 1944 photograph
86	663242.24810	1165053.77802	Unknown	Area disturbed with many trails in 1944 photograph
87	663556.43166	1164344.74217	Road	Evident in 1982 and 1994 photographs
88	663564.92310	1164718.36585	Unknown	Slightly disturbed area with trails in 1944 photograph
89	663140.35073	1164000.83855	Unknown	Slightly disturbed area with trails in 1994 photograph
90	664735.97552	1162010.06884	Firing Range/ Ammunition Area	Evident 1954 through 1994
91	664300.83316	1161312.19901	Unknown	Cleared area in 1969 and 1982 photographs
92	664407.56619	1162075.75071	Road	Evident in 1982 photograph
93	664850.91879	1161115.15342	Road	Evident 1937 through 1994
94	663973.79220	1161397.38412	Unknown	Cleared area in 1969 and 1982 photographs
95	664084.12704	1161517.31329	Unknown	Cleared area in 1969 and 1982 photographs
96	663930.61770	1161267.86061	Road	Evident in 1961 and 1969 photographs
97	664060.14120	1161085.56826	Road	Evident 1969 through 1994
98	664443.91456	1160970.43626	Road	Evident in 1969 and 1982 photographs
99	664669.38141	1160816.92691	Road	Evident in 1982 and 1994 photographs

Historical Photography Anomaly Identification				
Anomaly #	Alabama State Plane East, NAD 83		Reason for anomaly	Comment
	X-Coordinate	Y-Coordinate		
100	664549.45223	1161498.12462	Road	Evident 1969 through 1994
101	664443.91456	1161642.03963	Unknown	Cleared area in 1969 and 1982 photographs
102	664837.28225	1161728.38864	Firing Range/ Ammunition Area	Evident 1954 through 1994; road in 1944 photograph
103	664654.98991	1162356.81751	Firing Range/ Ammunition Area	Evident 1954 through 1994
104	664607.01824	1161642.03963	Road	Evident in 1961 photograph
105	664674.17857	1161253.46911	Road	Evident in 1969 photograph
106	664376.75422	1161502.92179	Road	Evident in 1961 photograph
107	664314.39105	1160169.30937	Road	Evident 1969 through 1994
108	664237.63638	1159857.49352	Road	Evident in 1982 and 1994 photographs
109	664434.32023	1159277.03632	Road	Evident 1969 through 1994
110	664990.79159	1160092.55470	Unknown	Cleared area along road in 1969 and 1982 photographs
111	664947.61709	1159454.53150	Road	Evident 1969 through 1994
112	664923.63126	1158710.97062	Unknown	Cleared area along road in 1969 photograph
113	665206.66411	1158149.70209	Road	Evident 1969 through 1994
114	665513.68279	1157310.19787	Road	Evident in 1969 photograph
115	665897.45615	1157492.49021	Road	Evident 1969 through 1994
116	665595.23463	1156816.08967	Road	Evident 1969 through 1994
117	666425.14451	1155564.02909	Unknown	Cleared area at end of road in 1969 photograph
118	666641.01703	1155458.49142	Unknown	Cleared area at end of road in 1969 photograph
119	666688.98870	1155655.17527	Road	Evident in 1969 photograph
120	666497.10202	1155779.90161	Road	Evident in 1969 photograph
121	666765.74337	1155827.87328	Road	Evident in 1969 photograph
122	667154.31389	1155458.49142	Road	Evident 1932 through 1994
123	667293.43173	1155194.64724	Road	Evident 1944 through 1994
124	668420.76597	1155218.63307	Unknown	Area cleared 1937 through 1994; adjacent to road intersection

Historical Photography Anomaly Identification

Anomaly #	Alabama State Plane East, NAD 83		Reason for anomaly	Comment
	X-Coordinate	Y-Coordinate		
125	669332.22769	1154801.27955	Road	Evident in 1969 photograph
126	669716.00105	1154518.24670	Road	Evident in 1969 photograph
127	669855.11889	1154120.08184	Road	Evident in 1969 photograph
128	669605.66621	1154345.54869	Road	Evident in 1969 photograph
129	669293.85036	1154484.66653	Road	Evident in 1969 photograph
130	669418.57670	1154292.77985	Road	Evident in 1969 photograph
131	669236.28435	1154182.44501	Road	Evident 1937 through 1994
132	670238.89225	1153640.36514	Road	Evident in 1982 photograph
133	670282.06675	1153165.44561	Unknown	Area completely cleared in 1982
134	669034.80334	1153774.68582	Road	Evident in 1969 photograph
135	669202.70418	1153659.55381	Unknown	Cleared in photographs available from 1969 through 1994; building construction in 1982 and 1994 photographs
136	669265.06735	1153573.20481	Road	Evident 1954 through 1994
137	669241.08152	1153410.10113	Unknown	Area completely cleared in 1969 and 1982 photographs
138	669413.77953	1153491.65297	Unknown	Clearing near building construction in 1982 and 1994 photographs
139	669341.82203	1153501.24730	Building	Evident in 1994 photograph
140	669428.17103	1153539.62464	Unknown	Clearing near building construction in 1982 and 1994 photographs
141	669423.37386	1153386.11529	Unknown	Clearing at end of road in 1961 photograph
142	669504.92570	1153347.73796	Road	Evident in 1961 photograph
143	669456.95403	1153587.59631	Building	Evident in 1994 photograph
144	669068.38351	1153414.89830	Unknown	Area cleared with trails around it in 1982 photograph
145	669682.42088	1153453.27563	Road	Evident 1969 through 1994
146	669567.28887	1153338.14363	Road	Evident in 1961 photograph
147	669538.50587	1153112.67678	Road	Evident 1961 through 1994
148	669787.95855	1152978.35610	Road	Evident 1961 through 1994
149	669955.85940	1153016.73344	Road	Evident 1969 through 1994

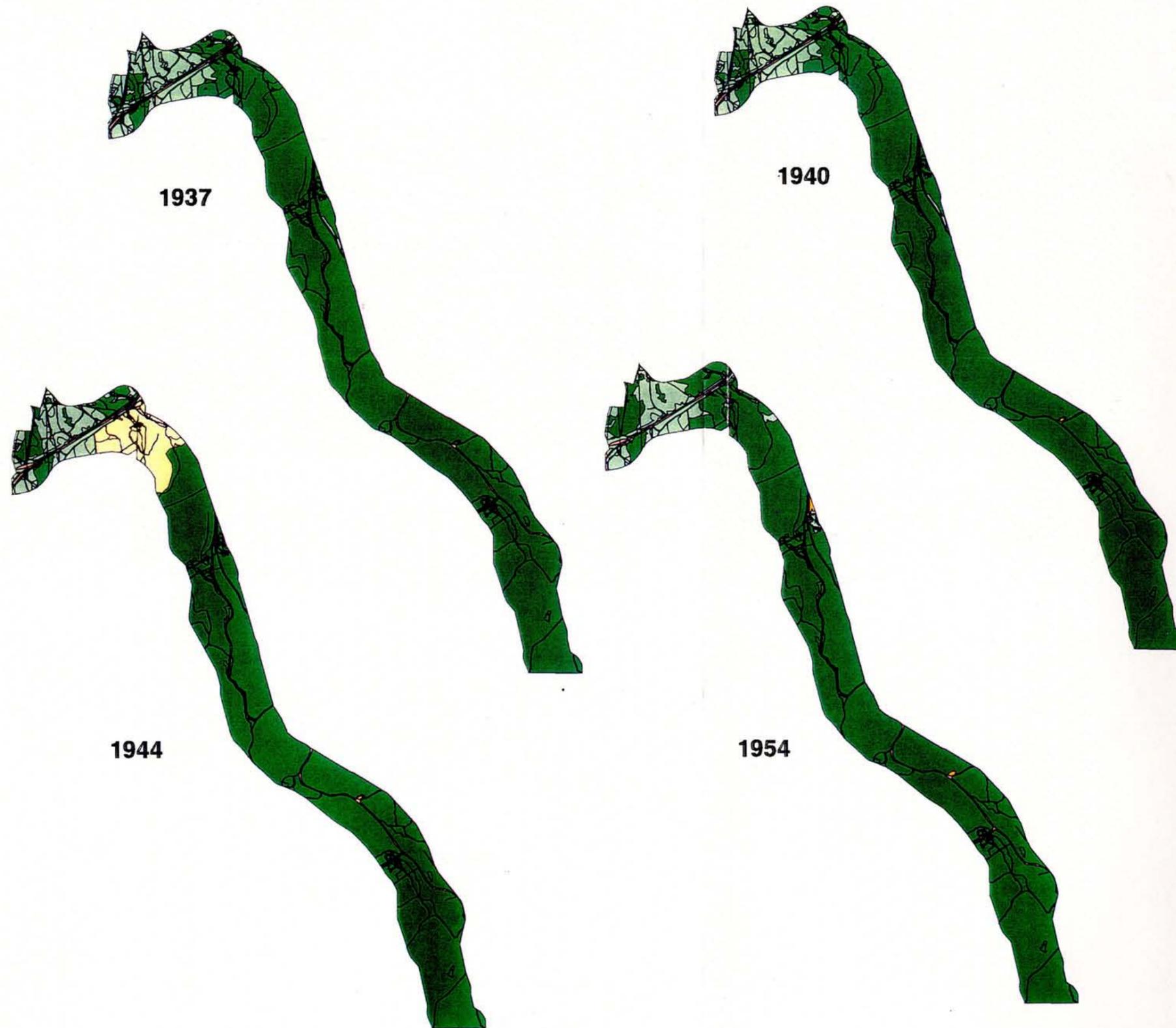
Historical Photography Anomaly Identification				
Anomaly #	Alabama State Plane East, NAD 83		Reason for anomaly	Comment
	X-Coordinate	Y-Coordinate		
150	669816.74155	1153290.17196	Road	Evident 1961 through 1994
151	670152.54324	1153079.09661	Road	Evident 1937 through 1994
152	669687.21805	1152498.63941	Road	Evident in 1982 and 1994 photographs
153	670166.93474	1152349.92723	Road	Evident in 1961 photograph
154	670363.61859	1152388.30457	Road	Evident 1969 through 1994
155	670848.13245	1152580.19125	Road	Evident in 1982 photograph
156	669960.65656	1151735.88986	Road	Evident 1961 through 1994
157	670325.24125	1152119.66322	Road	Evident 1969 through 1994
158	670656.24577	1151894.19637	Road	Evident 1969 through 1994
159	670819.34945	1150656.52730	QA	None
160	670464.35909	1149869.79191	Road	Evident 1954 through 1994
161	671548.51883	1149399.66955	Road	Evident 1954 through 1994

Two "Landuse/Cover" figures depict the study landuse/cover features for each year of photography interpreted. The figures include the following years of coverage: 1937, 1940, 1944, 1955, 1961, 1969, 1982, and 1994.

REFERENCES

Barge, Waggoner, Sumner, and Cannon (BWSC). 1992. Map titled "Anniston East Bypass Calhoun County." Project Number DPI-0192 (001). Digital coverage.

Anderson et al. 1976. *A Land Use and Land Cover Classification System for Use with Remote Sensor Data*, U. S. Geological Survey Professional Paper 964.



Landuse/Cover

Fort McClellan East By-Pass Study Area

Landuse/Cover Class:

-  Ammunition Range
-  Industrial Buildings
-  Paved Road
-  Shrubland
-  Grassland
-  Upland Forest
-  Excavated Land
-  Barren Land
-  Not Interpreted

Geographic Information Science and Technology
Oak Ridge National Laboratory
Oak Ridge, Tennessee

0 2000 4000 6000 Meters

0 5000 10000 15000 20000 Feet

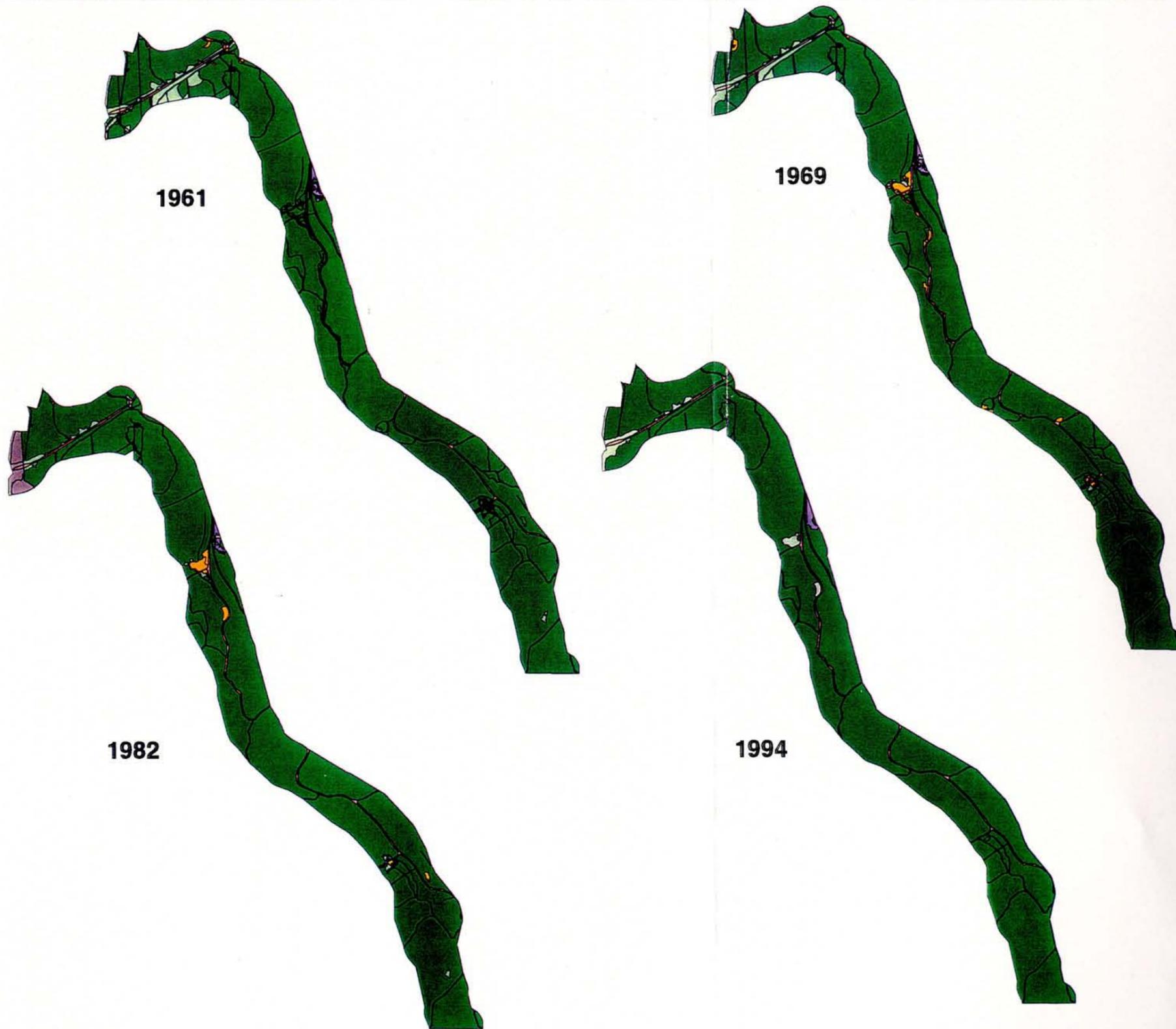
Alabama State Plane East, NAD 83



Data Source: Aerial Photography from U.S. Army COE

Prepared by: Geographic Information Science and Technology, ORNL

Date prepared: August 10, 1998



Landuse/Cover

Fort McClellan East By-Pass Study Area

Landuse/Cover Class:

-  Ammunition Range
-  Industrial Buildings
-  Paved Road
-  Shrubland
-  Grassland
-  Upland Forest
-  Excavated Land
-  Barren Land
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Geographic Information Science and Technology
Oak Ridge National Laboratory
Oak Ridge, Tennessee

0 2000 4000 6000 Meters

0 4000 8000 12000 16000 20000 Feet

Alabama State Plane East, NAD 83



Data Source: Aerial Photography from U.S. Army COE

Prepared by: Geographic Information Science and Technology, ORNL

Date prepared: August 10, 1998

APPENDIX

META DATA RECORD

**PHOTOGRAPHS AVAILABLE FOR THE EAST BY-PASS STUDY AREA
AT FORT McCLELLAN, ALABAMA**

YEAR	PHOTO NUMBER	COLLECTION DATE	SCALE	AGENCY	INTERPRETATION?
1937	GR-4-13	13809	Unknown	ASCS	No
1937	GR-4-15	13809	Unknown	ASCS	Yes
1937	GR-4-17	13809	Unknown	ASCS	Yes
1937	GR-4-19	13809	Unknown	ASCS	No
1937	GR-8A-1	13834	1:20,000	ASCS	No
1937	GR-8A-3	13834	1:20,000	ASCS	Yes
1937	GR-8A-5	13834	1:20,000	ASCS	No
1937	GR-8A-7	13834	1:20,000	ASCS	No
1937	GR-8A-9	13834	1:20,000	ASCS	No
1940	GR-1A-193	14881	1:20,000	National Archives, MD	No
1940	GR-1A-195	14881	1:20,000	National Archives, MD	Yes
1940	GR-1A-197	14881	1:20,000	National Archives, MD	No
1940	GR-1A-199	14881	1:20,000	National Archives, MD	No
1940	GR-1A-213	14881	1:20,000	National Archives, MD	Yes
1940	GR-1A-214	14881	1:20,000	National Archives, MD	Yes
1940	GR-2A-?	14881	1:20,000	National Archives, MD	No
1944	16PS4MA655-2:7	?/?/44	Unknown	Unknown	Yes
1944	16PS4MA655-2:9	?/?/44	Unknown	Unknown	Yes
1944	16PS4MA655-2:11	?/?/44	Unknown	Unknown	Yes
1944	16PS4MA655-2:13	?/?/44	Unknown	Unknown	No
1944	16PS4MA655-2:21	?/?/44	Unknown	Unknown	Yes
1944	16PS4MA655-2:22	?/?/44	Unknown	Unknown	Yes
1944	16PS4MA655-2:23	?/?/44	Unknown	Unknown	Yes
1944	16PS4MA655-2:25	?/?/44	Unknown	Unknown	Yes
1954	GR-10M-54	20067	1:20,000	Horizons, Inc., ASCS	No
1954	GR-10M-56	20067	1:20,000	Horizons, Inc., ASCS	Yes
1954	GR-10M-58	20067	1:20,000	Horizons, Inc., ASCS	Yes
1954	GR-10M-60	20067	1:20,000	Horizons, Inc., ASCS	No
1954	GR-10M-90	20067	1:20,000	Horizons, Inc., ASCS	No
1954	GR-10M-92	20067	1:20,000	Horizons, Inc., ASCS	Yes

YEAR	PHOTO NUMBER	COLLECTION DATE	SCALE	AGENCY	INTERPRETATION?
1961	GR-2CC-138	22614	1:20,000	Horizons, Inc., ASCS	No
1961	GR-2CC-140	22614	1:20,000	Horizons, Inc., ASCS	Yes
1961	GR-2CC-160	22614	1:20,000	Horizons, Inc., ASCS	Yes
1961	GR-2CC-162	22614	1:20,000	Horizons, Inc., ASCS	Yes
1961	GR-2CC-164	22614	1:20,000	Horizons, Inc., ASCS	Yes
1961	GR-2CC-166	22614	1:20,000	Horizons, Inc., ASCS	No
1969	GR-2LL-194	25527	1:20,000	Horizons, Inc., ASCS	Yes
1969	GR-2LL-196	25527	1:20,000	Horizons, Inc., ASCS	Yes
1969	GR-2LL-198	25527	1:20,000	Horizons, Inc., ASCS	Yes
1969	GR-2LL-217	25527	1:20,000	Horizons, Inc., ASCS	No
1969	GR-2LL-219	25527	1:20,000	Horizons, Inc., ASCS	Yes
1982	SAH-A7-92-2-001	30298	1:24,000	Horizon's Inc., Corps of Engineers, Mobile	Yes
1982	SAH-A7-92-2-005	30298	1:24,000	Horizon's Inc., Corps of Engineers, Mobile	Yes
1994	SAM-A7-923-5-7	34391	1:24,000	Horizon's Inc., Corps of Engineers, Mobile	Yes
1994	SAM-A7-923-5-11	34391	1:24,000	Horizon's Inc., Corps of Engineers, Mobile	Yes
1994	SAM-A7-923-6-7	34391	1:24,000	Horizon's Inc., Corps of Engineers, Mobile	Yes
1994	SAM-A7-923-6-9	34391	1:24,000	Horizon's Inc., Corps of Engineers, Mobile	Yes