Targeted Brownfields Assessment
Oklahoma Army National Guard
Mangum
Mangum, Oklahoma

ASTM E 1527-05
Phase I Environmental Site Assessment
All Appropriate Inquiry

December 18, 2007

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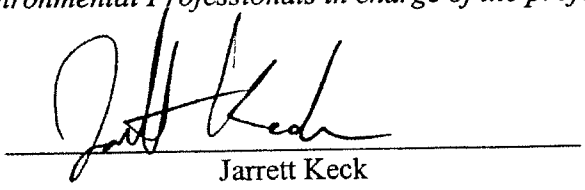
I declare that to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in Section 312.10 of this part. I have specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Environmental Professionals in charge of the project:



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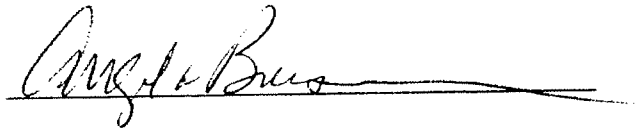

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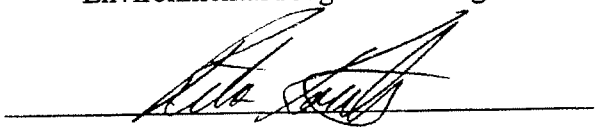

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Environmental Programs Manager

Background and Disclaimer: The purpose of an environmental site assessment is to identify actual or potential "recognized environmental conditions" that may result in liability or land use restrictions. The ASTM Phase I Environmental Site Assessment E 1527 – 05 is the minimum standard for environmental due diligence in the commercial real estate industry and meets the standard for All Appropriate Inquiry under the Small Business Liability Relief and Brownfields Revitalization Act of 2002. A diligent effort in accordance with generally accepted good commercial and customary standards and practices was undertaken to identify the "recognized environmental conditions" that might affect the redevelopment project. However, the identification of old hazardous waste sites is an evolving process; therefore, DEQ cannot state with absolute certainty that no other hazards are located in the area. In no event shall the DEQ or its employees be liable for any damages, injury, loss, cost or expense whatsoever arising in connection with the use or reliance on the information contained in this report, except as otherwise provided by law.

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1.0 Executive Summary

This Phase I Targeted Brownfield Assessment of the Mangum Armory was performed in accordance with the ASTM E 1527-05, a guide for conducting Environmental Site Assessments. Jarrett Keck performed the site reconnaissance on January 9, 2007.

The site is described as being located in the original town of Mangum, Block 33 all lots, in Greer County, Oklahoma. The site address is 115 East Lincoln Street in Mangum, Oklahoma. The main entrance is located at latitude 34° 52' 20.83", longitude -99° 30' 11.67".

A cursory summary of findings is provided below. However, details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein.

- An indoor firing range (IFR) and associated dust residue is contaminated by lead based on past sampling of the IFR indicating elevated lead concentrations are present in the building and IFR vent. Lead dust was also found to have contaminated the adjacent ammo room. Lead dust residue may also be present in the soil outside the IFR vent window. The sand trap is missing from the IFR and its disposition is unknown. The indoor firing range constitutes a recognized environmental condition (REC) based on the lead concentrations and its leachability.

- A floor drain is located in the middle of the lead contaminated firing range. This drain was used to drain waste water from within the firing range if present. National Guard representatives do not recall water every being present the IFR. The waste water, if present would drain into the city sewer system.

- Mercury may be present in thermostats, lighting, and other equipment in the facility. Mercury containing equipment can be used safely when it is in good working order. The equipment in the armory appeared to be in good condition during the site visit

- The original paint on in the armory remains in most areas of the building and has began chipping in some areas. Due to the timeframe the building was in operation, lead based paint may have been used.

- Soils below exterior painted surfaces may have been contaminated with lead based paint chips.

- Because of the age of the building, there is a potential for Asbestos Containing Material (ACM) to be present in building materials (roofing materials, floor tiles, mastic, ceiling tiles, window putty, and insulating materials). Inspection and sampling at the armory indicates ACM is present in the 9x9 floor tile and associated mastic on the stage area and maintenance office. Sanborn fire insurance maps reviewed during this investigation describe the armory to be of "Fire Proof Construction".

- Polychlorinated biphenyls (PCB's) containing equipment purchased prior to 1978 may be present since PCB's were in electrical equipment such as lighting ballasts and capacitors. Damaged PCB containing equipment may be a hazard to occupants. Electrical equipment containing PCBs should be maintained or properly handled and disposed if damaged or leaking

  No leaks or stains were observed during the site visit. This evidence indicated that PCB contamination does not affect the property.

- One 1,000-gallon underground storage tank (UST) formerly used to contain gasoline was removed from the southwest corner of the property in 1993. Soil samples collected beneath the tank indicated there was no contamination present resulting from the UST.

Recommendations

Based on the findings of this assessment, The DEQ recommends that additional investigation be conducted to evaluate areas of the property that may need future clean up and remediation.

- The IFR and other areas found to be lead contaminated should be remediated.
- The drain in the middle of the IFR should also be investigated as a possible pathway for lead into the sewer system.
- Building materials found to contain asbestos should be removed and disposed of properly.
- The presence and condition of mercury containing devices and Polychlorinated Biphenyl containing electrical equipment should be evaluated.

2.0 Introduction

The State of Oklahoma Department of Environmental Quality (DEQ) under a Brownfield Assistance Agreement (No. VC98677601) (Ref. 1) with the U.S. Environmental Protection Agency (EPA) conducted a Targeted Brownfield Assessment of the Mangum Armory.

2.1 Purpose

The purpose of this assessment is to look at the environmental conditions within the target area and provide this information to the City of Mangum to assist in its redevelopment planning as well as meet the All Appropriate Inquiry requirement of the landowner liability protections under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA, better known as Superfund – Ref. 2), as provided in the Small Business Liability Relief and Brownfields Revitalization Act of 2002 (Public Law 107-118, Subtitle B – Ref. 3). The purpose of a Phase I Environmental

Site Assessment is to identify, to the extent feasible, recognized environmental conditions in connection with the target property through a systematic review of readily available information sources and a site reconnaissance.

The DEQ is providing technical assistance to the project by evaluating the environmental condition of the property prior to the City acquiring the property. Funding for this assessment has been provided by the U.S. Environmental Protection Agency (EPA).

2.2 Detailed Scope-of-Services

The DEQ examined the current use of the property and then identified the historical uses of the property to determine if recognized environmental conditions exist. The DEQ examined historical documents, governmental databases, deed records, aerial photographs, governmental environmental files, Sanborn Fire Insurance Maps, conducted interviews with past unit members, and performed a site reconnaissance of the area. A good faith effort was made to identify possible environmental conditions that might affect the development of the property.

2.3 Significant Assumptions

Significant assumptions and past studies of the Oklahoma Army National Guard Armories suggest there is a possibility of lead and asbestos contamination at the Mangum Armory. Most of the State armories, such as the Mangum Armory, have indoor firing ranges. These ranges usually contain concentrations of lead from past shooting activity. Since most of the armories were built before 1978, there is a high potential of finding PCB's, and ACM in the armory buildings. The U.S. began banning the use of asbestos and PCB's in 1978. ACMs may be found in the insulation wrapping of the heating pipes and/or heaters and surfacing materials, which were prevalent during the time the Mangum Armory was built. PCBs are commonly found in electrical transformers and ballasts. Mercury containing thermostats, lighting, and sump pump switches are commonly found in building process equipment and may be present in the armory.

The Oklahoma Military Department verbally informed the DEQ that a significant asbestos abatement of the pipe was conducted in the 1990s, but that asbestos remains on the elbow joints. Visual inspection by the DEQ of the Mangum Armory indicated that ACM may still be present in the building.

2.4 Limitations and Exceptions

The purpose of an environmental site assessment is to identify actual or potential "recognized environmental conditions" that may result in liability, land use restrictions, or cause delays in redevelopment. The ASTM Phase I Environmental Site Assessment E 1527 – 05 (Ref. 4) is the minimum standard for environmental due diligence in the commercial real estate industry and meets the standard for All Appropriate Inquiry under the Small Business Liability Relief and Brownfields Revitalization Act of 2002. A

diligent effort in accordance with generally accepted good commercial and customary standards and practices was undertaken to identify the "recognized environmental conditions" that might affect the redevelopment project. However, the identification of old hazardous waste sites is an evolving process; therefore, DEQ cannot state with absolute certainty that no other potential hazardous waste sites are located in the area. This assessment was conducted under constraints of time, cost, and scope and reflects a limited investigation and evaluation. It reflects the normal degree of care and skill that is ordinarily exercised by environmental professionals conducting business in this or similar localities. In no event shall the DEQ or its employees be liable for any damages, injury, loss, cost or expense whatsoever arising in connection with the use or reliance on the information contained in this report, except as otherwise provided by law.

The information in this report is based on a review of governmental records, interviews with knowledgeable residents in the community, information provided by the City of Mangum, the Oklahoma Military Department and observations of the environmental professional. The result of this assessment, as written in this report, is valid as of the date of report.

2.5 Special Terms and Conditions

This assessment report has been prepared for the City of Mangum by the DEQ using EPA funding. Information about this report will be provided to the EPA for its files. This report and the working file are public record and subject to the Oklahoma Open Records Act and the Federal Freedom of Information Act.

3.0 Site Description

3.1 Location and Legal Description

The site location is described as Block 33 all lots, Original Town of Mangum, Greer County, Oklahoma. The site address is 115 East Lincoln in Mangum, Oklahoma. The main entrance is located at latitude 34° 52' 20.83", longitude -99° 30' 11.67".

3.2 Site and Vicinity General Characteristics

Environmental Setting

The general topography of the area is shown in Figure 1 of Appendix A. The Armory is surrounded by city streets with businesses and residences.

Mangum County is in the southwestern part of Oklahoma. It is bounded on the north by Beckam County, on the south by Jackson County and on the west by Harmon County, and on the east by Kiowa County. It has an area of 637 square miles. Mangum is the county seat (Ref. 5).

Greer County is at the western edge of the Central Great Plains, encompassing some of the best agricultural land in Oklahoma. Average annual precipitation ranges from about 25 to 38 inches across the county. Most of the precipitation comes in the springtime, with nearly one-third of the annual total falling in May and June. Autumn can also bring heavy rains, but not as consistently as the springtime. More than half of the winters have at least one inch of snow, with ten inches or more occurring about once every six years (Ref. 6).

Temperatures average from 59 degrees in northern parts of the county to 62 degrees along its southern border. Temperatures range from an average daytime high of 98 degrees in July to an average low of 25 degrees in January. Greer County averages a growing season of 211 days, but plants that can withstand short periods of colder temperatures may have an additional five weeks (Ref. 6)

Groundwater

The subject property overlies Quaternary alluvium and terrace deposits comprised of sand, clay, and gravel; thickness ranging from 5 to 50 feet to bedrock and is part of the Western Oklahoma bedrock basin (Ref. 7).

One well located in the area is reported to encounter groundwater at 26 feet and yields an average of 100 gallons per minute. Water quality in this area is extremely variable (Ref. 7).

There are three domestic wells located within a one mile radius of the site. Surface topography appears to gently dip towards the south. Based on surface topography dipping gently to the south, only one well appears to be immediately down gradient of the site. A second well located east-south east of the site appears to be nearly side gradient to the site. The three reported domestic wells are installed from 40 to 50 feet below grade surface. Reported yields from these wells range from eight to twenty-five gallons per minute (Ref. 8).

Five irrigation wells within a one mile radius are located up-gradient of the site based on surface topography. These wells are installed to an average depth ranging from 33 to 60 feet below grade surface. Reported yields for these wells range from 10 to 300 gallons per minute (Ref. 8).

The City of Mangum obtains the city water supply from groundwater wells approximately 15 miles north of Mangum near the City of Willow (Ref. 9).

Based on available information historic activities at the site do not appear to have affected the groundwater quality at the site. Additionally, activities at adjacent and up gradient properties do not appear to have impacted groundwater at this site.

Soils

The Miles-Springer-Tivoli soil association underlies the subject property. These soils are nearly level to strongly sloping of the uplands formed in material air deposited from old alluvium (Ref. 5).

This association is partially comprised of the Miles and Altus soil series. This series is described as a well-drained fine sandy loam with 0 to 1 percent slopes occurring on uplands. Available water capacity is moderate. The principal problems in managing this soil association are controlling wind and water erosion, soil structure, and fertility (Ref. 5).

Air

The prevailing wind is from the south-southeast. Average wind speed is highest, at 9.4 miles per hour (Ref. 6)

During the March 8, 2007 site visit, no odors were observed (Ref. 7). Based on a report provided by the military department, an indoor firing range (IFR) and associated dust residue is contaminated by lead based on past sampling of the IFR indicating elevated lead concentrations are present in the building and IFR vent. Lead dust was also found to have contaminated the adjacent ammo room (Appendix F). An exhaust vent is located in the east wall of the IFR and exits outside through an approximately 16 inch square opening which is approximately 18 inches above ground surface. The soils outside the IFR vent should be evaluated for lead dust contamination. Due to the age of the building, friable ACM may be present. Asbestos sampling at the armory indicates ACM is present in the 9x9 floor tile and associated mastic on the stage area and maintenance office.

Surface water

The general slope in the City of Mangum and similarly the Armory is toward the south into the Salt Fork of the Red River. The surface elevation in Greer county ranges from 1100 to 1300 feet above sea level. The city of Mangum is approximately 1600 feet above sea level (Ref.5)

Average annual precipitation ranges from about 25 to 38 inches across the county. Most of the precipitation comes in the springtime, with nearly one-third of the annual total falling in May and June. Autumn can also bring heavy rains, but not as consistently as the springtime. More than half of the winters have at least one inch of snow, with ten inches or more occurring about once every six years (Ref. 6)

No flood maps are available for this property (Ref. 10). Based on surface topography, it is unlikely the property is affected by flooding.

Based on visual observation of the Site, there are no surface water issues impacted by or affecting the Site.

Utilities

Utility information was obtained from the Oklahoma Corporation Commission Utility Directory. Natural gas is supplied by Center Point Energy and electricity is supplied by the City of Mangum. Telephone service is supplied by AT&T (Ref. 11). The City supplies the water and sanitary sewer for the property. There are no electric utility transformers on the property. An above ground electrical supply connection and underground natural gas supply pipeline connection and associated gas meter for the building are located on the north side of the building along Court Street. Water and sewer lines are located along the west and north sides of the property (Ref. 9).

Underground features

A 1,000-gallon underground storage tank (UST), used to store gasoline, was located on the property. Based on soil samples collected under the tank after its removal, there is no indication the tank leaked. The tank site was closed under Oklahoma Corporation Commission jurisdiction in 1989. Underground water and gas lines run along the south and west perimeter of the property. No evidence of oil or gas exploration or production was observed during the site visit. No oil or gas leases associated with the property were found during the property record search. Floor drains are located in the facility restrooms, maintenance bay, and indoor firing range. Wastewater from the Armory is directed to the City sanitary sewer system. The IFR floor drain appears to be filled or clogged with compacted soil or sand. According to an interview with the Oklahoma National Guard representative, Staff Sergeant Carlos Ramirez, no water ever entered the IFR. Subsequently, the IFR floor drain was never used. According to SSG Ramirez , the drain located in the vehicle wash bay was plugged with cement sometime in the 1990's to ensure future activities at the Armory would not discharge contaminants to the City sanitary sewer. According to representatives from the City and the National Guard, no septic tanks or cisterns were used at this property. No evidence of septic tanks or cisterns was observed during the site visit (Ref. 9).

Structures

The Mangum Armory building was built in 1936 and is constructed of stone, mortar, and steel. According to SSG Ramirez, several remodeling and maintenance efforts have been conducted at the armory through the years such as adding drop ceiling panels, and fluorescent lighting to several offices, painting and roofing. Only one layer of ceiling tiles was observed during the site visit. The main entrance to the armory is to the south. After entering the Armory, an entry hall leads past three room entrances on the west and two entrances to the east. Exiting the hallway to the north is the drill floor. This room is currently used to temporarily park military vehicles and equipment. Miscellaneous vehicle cleaners and lubricants are kept in a chemical storage cabinet on the south drill floor wall. Adjacent to the storage cabinet is storage room housing miscellaneous equipment. The equipment does not appear to be organized. Yellow personnel lockers lining the perimeter of the drill floor are empty. The IFR basement entrance is on the northeast side of the drill floor. Stairs down approximately 8 feet lead to the IFR through a locked door labeled "Restricted Area". Adjacent to the indoor firing range (IFR) entrance is s chain link fence cage runs nearly the entire length of the east side drill floor housing miscellaneous military equipment. A door located in the southeast corner of the

drill floor leads to a utility room. The IFR, located in the basement, runs the entire length of the drill floor. It is comprised of the long basement hall and an adjacent target room. There are no other exterior structures located on the facility property (Ref. 9).

Aboveground Storage Tanks (ASTs)
No ASTs were observed during the site visit. Interviews with City and National Guard representatives during the site visit indicate no ASTs were used at the Facility. No evidence of staining or support structures that would indicate the past presence of an AST was observed during the site visit (Ref. 9).

Landfills, Dumping, Disturbed Soil
There are no landfills, dumping, or disturbed soil at the subject property or adjoining properties (Ref. 7). The City of Mangum currently uses the City of Altus Landfill for disposal of household waste (Ref. 12).

Impoundments
There are no surface impoundments on the Armory property. There are no surface impoundments near the property (Ref. 9).

Air Emissions, Wastewater Discharge
Lead dust from the IFR may have been exhausted through the IFR vent during its operations. There is a potential for lead dust in the IFR to migrate into adjacent rooms. Twenty-three lead wipe samples were collected in various locations in the armory. The ammo room was found to be contaminated. Lead contamination from the IFR may be present in the IFR floor drain and potentially can migrate into the sanitary sewer system. The facility's wastewater is discharged to the city sanitary sewer system. An asbestos inspection was conducted on March 7, 2007 and found ACM present in 9x9 floor tiles and mastic. No wastewater discharge or air emissions from adjacent facilities affect the property (Ref. 9). Remediation of lead and asbestos impacted areas should be conducted.

Industrial Activities
Other than temporary military equipment storage, there are no industrial activities on the subject property. According to a representative from the National Guard, light vehicle maintenance such as vehicle washing occurred from at the facility through the mid 1990's. No other historic industrial activities occurred at this facility (Ref. 9).

There are 65 registered USTs within a one-mile radius of the facility. Of these, ten are reported as "currently in use." The remainder of the USTs are either removed, closed in place, or temporarily out of use. One of the closed UST sites is a 1000 gallon underground storage tank formerly located in the southwest corner of the property. The UST stored gasoline and was in use until it was removed in 1993. Information of these industrial activities was obtained from the site visits and the Oklahoma Corporation Commission UST Notification Database (App. C).

Monitoring Wells
No monitoring wells are present on the property. The Oklahoma Water Resources Board well record database of recorded wells indicates two monitoring well within a one mile radius of the site. The wells are located up-gradient of the property based of surface topography. The wells are installed at depths of approximately 20 feet (Ref. 8).

Stained Soils
No stained soils were observed on the facility property (Ref.9).

Seeps
Damage to an interior wall in the room off the southeast corner of the drill floor is likely due to a historic roof leak. According to SSG Ramirez, the roof was replaced some time in the late 1990's. Visual observation during the site visit indicates the leak has been repaired and no further damage has occurred since. No seeps were observed during the site visit (Ref.9).

Chemical Spills
No significant chemical spills were observed at the facility. During the site visit, two or three small oil leaks resulting form the temporary storage of military vehicles on the drill floor were observed. No reports on the property are recorded in the Emergency Response Notification System (ERNS) database (Ref. 13).

Oil and Gas Exploration
No evidence of oil and gas exploration was observed on the facility property. No oil or gas leases were found during the property record search (Ref. 9).

Known Groundwater or Surface Water contamination
No up gradient properties are known to have groundwater or surface water contamination. There is no information abailable that would sugest that historic activities at the facility have not affected groundwater or surface water. No evidence of contamination (such as stressed vegetation, odors, sheen, or stains) affecting the property or affected by the property was observed during the site visit (Ref. 9).

Farm Waste
No farm waste was observed during the site visit. No farm waste was observed within a one half mile radius of the property (Ref. 9).

Known Pesticide Misapplication
During the site visit National Guard representative Staff Sergeant (SSG) Ramirez indicated to his knowledge, no pesticides or rodenticides were used at this armory. No misapplication was observed during the site visit or known to have occurred at the property (Ref. 9)

Discharges and Runoff from Adjacent Property Affecting the Site

No evidence of a discharge and/or runoff was observed from any of the adjacent properties that would affect the subject property (Ref. 9).

Pipelines

No oil or gas production pipelines are located near the property (Ref 4). A 1,000-gallon underground storage tank (UST), used to store gasoline, was formerly located on the property. The tank was removed in 1993. Soil samples collected after the removal indicate no contamination of the soil from the UST. Underground water, sewer, and natural gas utility lines run along the south and west perimeters of the facility. No evidence of oil or gas exploration or production was observed during the site visit. No oil or gas leases associated with the property were found during the property record search. Floor drains are located in the facility latrines, kitchen, and indoor firing range. Wastewater from the Armory is directed to the City sanitary sewer system. A drain located in the maintenance bay was sealed in the 1990's with concrete. The drain was used during vehicle washing. The indoor firing range drain is plugged with a compacted sand or soil. The drain leads into the city sanitary sewer. A sump and pump located in the IFR also lead to the sanitary sewer. The IFR is currently dry and according to SSG Ramirez, it has remained dry for at least twenty years. Lead dust may be present in the pipe and may potentially migrate into the sanitary sewer. According to representatives from the City and the National Guard, no septic tanks or cisterns were used at this property. No evidence of septic tanks or cisterns was observed during the site visit (Ref. 9).

Transformers/PCB Equipment

PCBs were used in electrical equipment prior to 1978. There are no pole mounted transformers located on or around the property. Because of the age of the building, PCB containing electrical equipment purchased prior to 1978 may have been used at the facility, Polychlorinated Biphenyls (PCBS) may also be present in electric equipment such as lighting ballasts, transformers, and capacitors installed prior to 1978. No leaks or stains were observed during the site visit (Ref. 9). Electrical equipment containing PCBs should be maintained or properly handled and disposed of if damaged or leaking

Other known or Suspected Environmental Concerns On the Site

The indoor firing range dust residue is contaminated by lead. Past sampling has been conducted to characterize the lead concentration of this room. A statewide sampling event for lead was conducted by C.H. Guernsey & Company for the Oklahoma Army National Guard on all armories containing indoor firing ranges. This report is called the "Indoor Firing Range Lead Issues Report" (Ref. 14). Two samples were collected inside the firing range room (IFR) and two samples were collected outside the IFR. The following are the locations and concentrations of lead found in the room.

- 30,170.0 ug/ft^2 of lead was found at the west end of the IFR near the former bullet trap.

- 153.80 ug/ft^2 of lead was found near the stairs at the entry to the IFR.

- 54.85ug/ft^2 of lead was found on the window sill immediately outside the IFR.
- 22.25 ug/ft^2 of lead was found on the drill floor outside the IFR.

An additional survey was conducted on March , 2007 and found contamination in the Ammo room at 530.75 ug/ft^2 .

Copies of the Mangum Armory lead survey reports can be found in Appendix F.

Floor drains located in the IFR may also have associated lead contamination. The sand trap is missing from the IFR and its disposition is unknown.

Lead based paint which may be on windows and walls of the facility may be of environmental concern. Lead paint purchased prior to 1978 may have been used at the facility. Paint chips from cracked or peeling paint may have caused elevated lead concentrations in soils beneath the exterior painted surfaces.

Asbestos containing materials (ACMs) purchased prior to 1978 including floor tiles, roofing products, insulation in the space heaters and wrapping around the elbow connections may have been used in the facility. Asbestos sampling at the armory indicates ACM is present in the 9x9 floor tile and associated mastic on the stage area and maintenance office (App. F). A Sanborn map identifies the Armory as having "fire proof construction" which may indicate the use of asbestos.

Polychlorinated biphenyls containing equipment purchased prior to 1978 may have been used in electrical equipment such as lighting ballasts and capacitors. Damaged PCB containing equipment may be a hazard to occupants. Electrical equipment containing PCBs should be maintained or properly handled and disposed of if damaged or leaking
No leaks or stains associated with electrical equipment were observed during the site visit. Evidence indicates that PCB contamination is not affecting the property.

Mercury containing switches, thermostats and other building process equipment may be present in the building. Damaged mercury containing equipment may be a hazard to occupants. No damaged equipment was observed during the site visit.

Historical Recognized Environmental Conditions on the Site
Lead based paint, mercury, PCBs, and asbestos purchased prior to 1978 may have been used at the facility. There is known lead contamination in the IFR. A 1000 gallon UST used for gasoline was removed by the Oklahoma Military Department in 1993. Samples collected at the site indicate no contamination of soil resulting from the UST. The site was closed under Oklahoma Corporation Commission (OCC) jurisdiction (Appendix C).

3.3 Operational History

The Mangum Armory was built in 1936 and was managed and maintained by the Oklahoma Military Department to support the military mission of the Oklahoma Army National Guard (OKARNG). The Mangum Armory served as a training facility, stored military training materials, and military equipment. The OKARNG is a component of the United States Army and fulfills the military mission of national security (Ref. 15).

Prior to the construction of the Mangum Armory in 1936, the property was used by Greer County as a Jail at least as early as 1902. Prior to this, historic accounts of the area obtained from the City, state that the City of Mangum was unoccupied land used by cattle herders on the way to Texas. The land now known as the City of Magnum was originally owned by A.S. Mangum. It was first surveyed and platted as a city in 1882.

3.4 Current Use of the Property

The Armory is currently used by the Oklahoma National Guard for use as a recruitment office and for temporary storage of military equipment, supplies, and vehicles (Ref. 9).

3.5 Adjacent Properties

Adjacent to the north, across Court Street, is a self storage building and adjacent to the northwest is a "Slicks" hamburger stand. Further north on the same block is a hair salon and a dentist office. To the west across Janeway Street is Ferguson's Auto Sales, a small used auto dealer. Further west across Pennsylvania Street are City and county government buildings. North of the auto dealer on the same block is a restaurant and a real estate office. The rear of the buildings on this block is used for storage. Further Northwest is an Oklahoma State University (OSU) extension office and a real estate office. To the south are Ace Hardware, a printing shop, and auto repair shop. Further south, southeast, and southwest is residential housing. To the east of the armory is the JCMA Family Medical Clinic. To the Northeast is a corner lot with a snack stand called the "Sugar Shack" (Ref. 9).

3.6 Site Inspection

Site reconnaissance was performed on March 8, 2007 by DEQ representative, Jarrett Keck. The site visit is explained in detail in Section 6.0.

4.0 User Provided Information

4.1 Title and Judicial Records

Title and judicial records were researched and reviewed on March 8, 2007. Since that time the Oklahoma Military Department deeded the property to the Oklahoma Department of Environmental Quality (DEQ) on April 19, 2007. The property was

owned by the Oklahoma Military Department in 1935. Since this time the armory has been the only facility located on this property. Prior to the construction completion of Mangum Armory in 1936, the property was used by Greer County as a Jail at least as early as 1902. Prior to this, historic accounts of the area obtained from the City state the City of Mangum was unoccupied land used by cattle herders on the way to Texas. The land now known as the City of Magnum was originally owned by A.S. Mangum resulting from a military retirement compensation. It was first surveyed and platted as a city in 1882 (Ref. 9).

4.2 Environmental Liens or Activity and Use Limitations (AULs)

There are no environmental liens or activity and use limitations that are known on the subject property (Ref. 9).

4.3 Specialized Knowledge or Experience of User

The Mangum Armory supported the military mission of the Oklahoma Army National Guard (OKARNG) since the construction of the armory in early 1936. The OKARNG is a component of the United States Army and fulfills the military mission of national security (Ref. 15).

The Oklahoma National Guard currently utilizes the armory as a recruiting office and to temporarily store military vehicles, supplies, and equipment (Ref 9).

4.4 Actual Knowledge of User

Prior to DEQ ownership, the Oklahoma National Guard currently utilizes the armory for a recruiting office and to temporarily store military vehicles and equipment. The armory is now vacant. The City would like to take ownership of the property as soon as possible. However according to established armory disposal procedure, this Phase I Targeted Brownfield Assessment and remedial activities must occur before this can happen. Currently, the DEQ owns the property. The property will be transferred to the City of Mangum once environmental cleanup is completed.

4.5 Commonly Known or Reasonably Ascertainable Information

The subject property is owned by the State of Oklahoma. The property is currently vacant. The armory has undergone remodeling through the years since its opening in 1936. Due to elevated lead concentrations found in the IFR, the IFR currently remains locked with access limited to military personnel. Remedial activities will have to be performed before the title of the property will be transferred.

4.6 Valuation Reduction for Environmental Issues

This section is out of the scope of this assessment.

4.7 Owner, Property Manager, and Occupant Information

The property is occupied by the Oklahoma National Guard and used for temporary military equipment and vehicle storage.

4.8 Reason for Performing Phase I

The DEQ performed this Phase I Targeted Brownfield Assessment (TBA) to analyze whether there are any recognized environmental conditions that need to be addressed prior to transfer of ownership and to provide the city the prior purchase requirement of the Bona Fide Prospective Purchaser Protection from Superfund. The City of Mangum would like to continue the use the Mangum Armory property for Department of Corrections (DOC) Housing which would supply the city with labor. Before this can occur, this Phase I TBA must be finalized and any necessary remedial actions must be accomplished.

5.0 *Records Review*

5.1 Standard Environmental Record Sources

A regulatory database search was conducted by the DEQ. This search included, at a minimum, those records and distances from the site dictated as appropriate in the ASTM standard. The DEQ performed a review of available federal and state databases to assess whether the subject property or proximate properties were listed as having environmental concerns, which could have an adverse impact on the subject property. The following provides a summary of the databases reviewed.

Federal National Priorities List (NPL) Sites within one Mile
The property is not listed on the NPL. There are no NPL sites reported within a one-mile radius of the subject property (Ref. 16).

Federal Delisted NPL site list within one-half mile
The property is not a delisted NPL site. There are no delisted NPL sites within one-half mile (Ref. 17).

Federal Active Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Sites within one-half mile
The property is not listed on CERCLIS. There are no CERCLIS sites reported within a 0.50-mile radius of the subject property. The Atlas Missile Site # 10 located 6.5 miles southwest of Mangum is the nearest CERCLIS site (Ref. 17).

Federal Archived CERCLIS (NFRAP) Sites within one-half mile
The property is not an archived CERCLIS site. There are no archived CERCLIS sites reported within a 0.50-mile radius of the subject property (Ref. 17).

Federal RCRA CORRACTS Facilities List within one mile
The property does not have any federal RCRA CORRACTS facilities within a one mile radius (Ref. 18).

RCRA non-CORRACTS TSD Facilities List within one-half mile
The property does not have any RCRA non-CORRACTS TSD facilities within a one-half mile radius (Ref. 18).

Federal RCRA Generators List (property and adjoining properties)
The property does not have any listed RCRIS-Large Quantity Generator (LQG) or RCRIS-Small Quantity Generator (SQG) sites. There are no RCRIS LQG or SQG sites reported at the adjoining properties (Ref. 19).

Federal Institutional Control/Engineering control registries (property only)
There are no Institutional Control/Engineering controls on the property (Ref. 9); therefore, it is not listed on a Federal registry.

Federal Emergency Response Notification System (ERNS) list (property only)
The property is not listed as an ERNS site (Ref. 13).

State lists of hazardous waste sites identified for investigation or Remediation (property only)
The site is on the Oklahoma Department of Environmental Quality's Site Cleanup Assistance Program list for remediation of hazardous substances (Ref. 9). The cleanup will be performed to assist the city in acquiring the property.

State Landfill and/or Solid Waste Disposal Sites within one-half mile
The subject property does not have any listed state landfills within a one-half mile radius (Ref. 20).

State Leaking Underground Storage Tank (LUST) List within one-half Mile
There are no active LUST sites within one-half mile of the subject site. The UST Notification Database maintained by the Oklahoma Corporation Commission (OCC) has one closed LUST site at 230 North Louis Tittle which is within one-half mile of the Mangum Armory. This LUST site was closed by the OCC in 2002 (App C).

State Registered Storage Tank Lists (property and adjoining properties)
There are 65 state registered UST's within a one-mile radius of the facility. Of these, ten UST's are reported as "currently in use. A 1000 gallon UST which contained gasoline was removed from the armory property and closed under OCC jurisdiction in 1993.

This information was obtained from the site visit and the Oklahoma Corporation Commission UST Notification Database (App. C).

State Institutional Control/Engineering control Registries (property only)
The subject property is not listed in any State Institutional/Engineering Control Registries (Ref. 7).

State Voluntary Cleanup Sites and Brownfield Sites within one-half mile
No State Voluntary Cleanup Sites or Brownfield Sites listed in the DEQ database are within one-half mile of the facility (Ref. 21).

5.2 Additional Environmental Record Sources

No City permit violations were found to be issued to the facility.

Tribal records were not searchable in a reasonable timeframe and therefore are not included in this report.

5.3 Physical Setting Sources

Physical Setting sources were obtained from the U.S. Geological Survey, Federal Emergency Management Association, the United States Department of Agriculture Soil Conservation Service Soil Survey of Greer County, and a site visit conducted on March 8, 2007.

5.4 Historical Use Information on the Property

Construction of the Mangum Armory completed in 1936. It was formerly used by the Oklahoma National Guard as a recruiting office and to temporarily store military vehicles and equipment. Prior to the construction of the Armory; the land was used as a County Jail. Historical accounts prior to that indicate the land was originally owned by A. S. Mangum who surveyed and platted the land in 1882. Prior to this the land was used as a cattle range (Ref. 9).

5.5 Historical Use Information on Adjoining Properties

Aerial Photo Review
Archived aerial photographs of the subject property were reviewed at the Oklahoma Department of Libraries.

The earliest aerial photograph reviewed was taken in 1941 the Armory can be seen in the photograph surrounded by the commercial and residential development within the City of Mangum.

A second photograph taken in 1995 shows the Armory surrounded by commercial and residential development relatively unchanged from 1941.

A 2005 photo again shows the Armory surrounded by commercial and residential development. The Armory's surroundings again appear relatively unchanged.

These aerial photographs can be found in Appendix C.

Zoning/Land Use Records Review
No zoning/land use records were reviewed while conducting this Phase I Targeted Brownfield Assessment of the Mangum Armory.

Fire Insurance Maps
The following Sanborn Maps were reviewed (Ref. 9):

March 1902 –county jail located southwest corner of Block 33; Recorders office noted on northwest corner

March 1904 – Jail facilities located on southeast corner of Block 33; county jail located to the west; former recorders office now identified as "courtroom" located northwest.

March 1907 - "Calaboose" (old term for Jail) noted on property; County Jail located west. Coal fired heating plant for courthouse and jail identified north of the county jail.

February 1910- No significant change from 1907

October 1916 – Former coal heating plant north of the county jail now identified as "Steam Heating Plant for courthouse and jail". The footprint of the heating plant expanded slightly from 1910.

March 1930 –No structures identified on Block 33 where Jail facilities were identified in previous years.

March 1930- February 1941 – National Guard Armory now identified occupying Block 33. Structure is labels as "fire proof construction"

Property Tax files
No property tax files were reviewed while conducting this Phase I Targeted Brownfield Assessment of the Mangum Armory.

City Directories
No city directories were reviewed while conducting this Phase I Targeted Brownfield Assessment of the Mangum Armory.

Building Department Records
A review of available city records with the City Clerk indicate no city permit violations were issued to the facility (Ref. 9).

Interviews
The investigation interviews were conducted with Mangum, City Manager, Candi Richardson, Staff Sergeant Carlos Ramirez from the Oklahoma National Guard, as well as Captain Greg Bull and David Mitchell representing the Oklahoma Department of Corrections (DOC). Information on the interviews is located in Section 7.3, "Interviews with Operators and Occupants of the property."

6.0 Site Reconnaissance

6.1 Methodology and Limiting Conditions

A site visit at the Mangum Armory was performed on January 9, 2007 by DEQ representative, Jarrett Keck. The site reconnaissance consisted of an inspection of the armory building and its surrounding property. All rooms in the facility were inspected.

6.2 General Site conditions

The main entrance is on the south side of the building. Vehicles enter through either of two bay doors on the west side of the building. The structure appears to be in good condition. No wells were observed on the site. All water comes directly from the City of Mangum water supply. Drainage at the site is towards the southeast. Miscellaneous National Guard equipment remains inside the building. Some remediation is required prior to the National Guard transferring ownership of the property (Ref. 9).

6.3 Exterior observations

Underground natural gas, water, and sewer utility lines run along the south and west perimeter of the property. Electric power lines are located to the north, on utility poles. There are no pole mounted transformers on or near the property. No visible spills or stains were observed during the site visit. The building has no visible cracks or structural repairs and appears in good condition. Roof drains are located on the west, north, and east sides of the facility. No indication of septic tanks, leach fields, or wells were observed during the site visit (Ref. 9).

6.4 Interior observations

The Mangum Armory building first opened in 1936 and is constructed of stone, mortar, and steel. A site visit was conducted on January 9, 2007. According to SSG Ramirez, several remodeling and maintenance efforts have been conducted at the armory through the years such as adding drop ceiling panels and fluorescent lighting to several offices,

painting and roofing. Only one layer of ceiling tiles was observed during the site visit. The main entrance to the armory is to the south. After entering the Armory, an entry hall leads past three room entrances on the west and two entrances to the east. The recruiter's office is the first room on the west. It is comprised of an office space, a closet, and a latrine with a shower. Across the hall to the east is the orderly room. This is comprised of a latrine and shower facilities and three separate offices. The drop ceiling and carpeting in this space appear to be in good condition. The supply room is north of the orderly room on the east. The supply room is used to store military supplies and equipment. This room is comprised of a set of locker/cabinets along the east wall, and an empty safe formerly used to store sensitive radiation detectors equipment. Military Supplies were being kept in this room. The room north of the recruiter's office on the west side is comprised of a kitchen, classroom, and vehicle maintenance bay. The vehicle maintenance bay was used for personal vehicle parking (motorcycle), and houses the lawnmower and other miscellaneous lawn maintenance equipment. A drain located in the middle of the floor has been sealed shut with concrete. A bay door on the west wall of this room exits to the outside. A storage room is located north of this entrance. Miscellaneous military equipment was being kept in this room. Exiting the hallway to the north is the drill floor. This room was used to temporarily park the recruiters personal vehicle, military vehicles, and military equipment. Some minor oil stains were seen on the drill floor resulting from the vehicles. Cans of diesel fuel were kept by the large bay door on the east wall. Miscellaneous cleaners and lubricants are kept in a chemical storage cabinet on the south drill floor wall. Adjacent to the storage cabinet is storage room housing miscellaneous equipment. The equipment does not appear to be organized. The yellow personnel lockers that line the perimeter of the drill floor were empty. The IFR basement entrance is on the northeast side of the drill floor. Stairs lead down approximately 8 feet to the locked IFR door labeled "Restricted Area". The IFR, located in the basement, runs north-south the entire length of the east wall of the drill floor. It is comprised of a long basement hall and an adjacent target room at the south end. The IFR houses miscellaneous military equipment. A vent window is located in the middle of the room and vents outside through the east wall. A gravity fed floor drain is located in the middle of the IFR floor. It is filled with compacted dirt. A floor sump and pump is located in the floor near the middle of the west IFR wall. The pump is unplugged. The IFR appears dry and does not appear to ever have had water entering the area. The target room entrance is at the south end of the IFR opening to the west. Miscellaneous military equipment is stored in this room. Adjacent to the IFR entrance is a chain link fence cage running nearly the entire length of the east side drill floor, which houses miscellaneous military equipment. A door located in the southeast corner of the drill floor leads to a utility room. Some water damage can be seen for a historic roof leak. According to a National Guard representative SSG Ramirez, a new roof was installed in the 1990's and repaired the leak. Miscellaneous military equipment was stored in this room. A door on the south wall of this room leads outside to a landing approximately twelve feet from the ground surface. North of this room was a weight room. Most of the military equipment has been removed but a few items remain. Suspect asbestos containing 9"x9" tile was observed in this room (Ref. 9).

7.0 Interviews

7.1 Interviews with Past and Present Owners of the property

A Oklahoma National Guard Representative, Staff Sergeant Carlos Ramirez, who was stationed at the Mangum Armory for over twenty years during his career, was present during the site visit for an interview. The DEQ has had several conversations regarding environmental and safety issues at the armories, with various employees of the military department. Major Merkle, Colonel Peck, and Richard Brooks were among the individuals that the DEQ has spoken with. A meeting was held with DEQ, the Oklahoma Military Department (OMD), and Department of Central Services (DCS) on September 20, 2006, to discuss the environmental issues at the armories in the state. The Oklahoma Military Department (OMD) provided a Baseline Assessment of the property to the DEQ, and the DEQ was able to review the OMD files on the indoor firing range.

Interviews with City officials are discussed in Section 7.3

7.2 Interviews with Key Site Manager

The DEQ is the current site manager for the facility. During the reconnaissance, the facility was managed by the National Guard See section 7.3.

7.3 Interviews with Operators and Occupants of the property

An Oklahoma National Guard Representative, Staff Sergeant (SSG) Carlos Ramirez, who was stationed at the Mangum Armory for over twenty years during his career, was present during the site visit for interview. SSG Ramirez stated he does not recall any significant chemical storage or spills affected by or affecting the property. He stated the wastewater from the armory discharges to the City sanitary sewer. He added the roof was repaired in the late 1990's. The wastewater discharge in the vehicle maintenance bay was concreted over also in the 1990's. This was done after a military department inspector recommended the drain be sealed to limit the potential for environmental liability at the site. He stated that all vehicle maintenance is conducted at Fort Sill. Some very minor maintenance activities occur at the property but no major repair or maintenance activities have taken place since the 1990's. He confirmed that the IFR is kept locked and access is restricted.

7.4 Interviews with State and/or Local Government Officials

Representatives from the city of Mangum that were interviewed were: City Manager, Candi Richardson; Deputy City Clerk, Leanne Coffman; Department of Corrections (DOC) representatives Captain Gregg Bull and Case manager David Mitchell.

Candi Richardson confirmed the City supplies the water, sanitary sewer, and electricity for the Armory. She stated the City is negotiating with the Oklahoma Department of Corrections and the Oklahoma National Guard to discuss terms for leasing the property after ownership transfers to the City.

Captain Greg Bull from DOC stated the DOC was present during a recent DOC inspection of the facility. He states that the drill floor was filled with parked military vehicles at that time. He stated the DOC plans to use the building for DOC inmate housing which will provide a labor source for the City of Mangum.
Deputy Clerk, Leanne Coffman stated that early city records are not available due to a fire in 1901 in the county offices (Ref.9).

7.5 Interviews with Others

No additional interviews were conducted during this investigation.

8.0 Findings

This Phase I Targeted Brownfield Assessment of the Mangum Armory was performed in accordance with the ASTM E 1527-05, a guide for conducting Environmental Site Assessments. DEQ representative, Jarrett Keck performed the site reconnaissance on March 8, 2007.

The site is described as being located in the original town of Mangum, Block 33 all lots, in Greer County, Oklahoma. The site address is 115 East Lincoln Street in Mangum, Oklahoma. The main entrance is located at latitude 34° 52' 20.83", longitude -99° 30' 11.67"

A cursory summary of findings is provided below. However, details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein.

- An indoor firing range (IFR) and associated dust residue is contaminated by lead based on past sampling of the IFR indicating elevated lead concentrations are present in the building and IFR vent. Lead dust was also found to have contaminated the adjacent ammo room. Lead dust residue may also be present in the soil outside the IFR vent window. The sand trap is missing from the IFR and its disposition is unknown. The indoor firing range constitutes a recognized environmental condition (REC) based on the lead concentrations and its leachability.

- A floor drain is located in the middle of the lead contaminated firing range. This drain was used to drain waste water from within the firing range if present. National Guard representatives do not recall water every being present the IFR. The waste water, if present would drain into the city sewer system.

- Mercury may be present in thermostats, lighting, and other equipment in the facility. Mercury containing equipment can be used safely when it is in good working order. The equipment in the armory appeared to be in good condition during the site visit

- The original paint on in the armory remains in most areas of the building and has began chipping in some areas. Due to the timeframe the building was in operation, lead based paint may have been used.

- Soils below exterior painted surfaces may have been contaminated with lead based paint chips.

- Because of the age of the building, there is a potential for Asbestos Containing Material (ACM) to be present in building materials (roofing materials, floor tiles, mastic, ceiling tiles, window putty, and insulating materials). Inspection and sampling at the armory indicates ACM is present in the 9x9 floor tile and associated mastic on the stage area and maintenance office. Sanborn fire insurance maps reviewed during this investigation describe the armory to be of "Fire Proof Construction".

- Polychlorinated biphenyls (PCB's) containing equipment purchased prior to 1978 may be present since PCB's were in electrical equipment such as lighting ballasts and capacitors. Damaged PCB containing equipment may be a hazard to occupants. Electrical equipment containing PCBs should be maintained or properly handled and disposed if damaged or leaking

  No leaks or stains were observed during the site visit. This evidence indicated that PCB contamination does not affect the property.

- One 1,000-gallon underground storage tank (UST) formerly used to contain gasoline was removed from the southwest corner of the property in 1993. Soil samples collected beneath the tank indicated there was no contamination present resulting from the UST.

9.0 Opinion

Based on the findings of this assessment, The DEQ recommends that additional investigation be conducted to evaluate areas of the property that may need future clean up and remediation.

Areas of additional evaluation consist of the following:

- The IFR and other areas found to be lead contaminated should be remediated.

- The drain in the middle of the IFR should also be investigated as a possible pathway for lead into the sewer system.

- Building materials found to contain asbestos should be removed and disposed of properly.

- The presence and condition of mercury containing devices and Polychlorinated Biphenyl containing electrical equipment should be evaluated.

10.0 Data Gaps

Due to the age of the building, some equipment and building materials are assumed to contain hazardous materials until sampled and analyzed.

11.0 Conclusions

A Phase I Targeted Brownfield Assessment in conformance with the scope of work and ASTM Practice E 1527-2005 was performed on the subject property. This assessment revealed recognized environmental conditions that may need additional investigation and remediation before the subject property is transferred to the City. The information provided in this assessment is to assist the City of Mangum in its redevelopment planning as well as meet the All Appropriate Inquiry requirement of the Landowner liability protections under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, better known as Superfund – Ref. 2), as provided in the Small Business Relief and Brownfields Revitalization Act of 2002 (Public Law 107-118, Subtitle B – Ref. 3).

12.0 Additional Services

No additional services were provided during this Phase I Targeted Brownfield Assessment other than the lead and asbestos survey given in Section 3.2, "Other known or Suspected Environmental Concerns on the Site." In addition to the Phase I Targeted Brownfield Assessment, the DEQ will assist the city with removal of the environmental contaminants and ensure that the property is ready for redevelopment.

13.0 Deviations

No deviations and deletions from E 1527-05 were made for this Phase I site investigation.

14.0 References

1. U.S. Environmental Protection Agency. (2001). Oklahoma *Brownfields Assistance Agreement (No* #RP97641210*)*. July 19, 2001. Unpublished Document. State of Oklahoma: Oklahoma City, Oklahoma.

2. U.S. Environmental Protection Agency. (1980). *Comprehensive Environmental Response, Compensation, and Liability Act.* (Public Law 96-510). Washington, DC: U.S. Government Printing Office.

3. U.S. Environmental Protection Agency. (2002). *Small Business Liability Relief and Brownfields Revitalization Act.* (Public Law 107-118, Subtitle B). Washington, DC: U.S. Government Printing Office.

4. ASTM International. (2005). Water and Environmental Technology: Phase I Environmental Site Assessment E 1527 – 05. Baltimore, Maryland.

5. United States Department of Agriculture, Soil Conservation Service (1967). *Soil Survey of Greer County, Oklahoma. March 1967.* U.S. Government Printing Office: Washington, D.C.

6. The Climate of Greer County: http://climate.ocs.ou.edu/county_climate/Products/County_Climatologies/county_climate_greer.pdf

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8. Oklahoma Water Resources Board. http://www.owrb.state.ok.us/wd/search/search.php.

9. Jarrett Keck (2007). Field Notes for Site Reconnaissance of the Mangum Armory (Armory), March 8, 2007.

10. Federal Emergency Management Association (FEMA). https://msc.fema.gov.

11. Oklahoma Corporation Commission (OCC) list of Regulated Utilities. http://www.occ.state.ok.us/Divisions/PUD/RegUtilities/REGCOMPS.HTM

12. State Landfill site list: http://www.deq.state.ok.us/LpDnew/swindex.html.

13. Emergency Response Notification System: http://www.nrc.uscg.mil/foia.html.

14. Oklahoma Army National Guard. *Indoor Firing Range Lead Issues Report.* C.H. Guernsey & Company. (2005).

15. Oklahoma Military Department Environmental Office (OKDE-ENV). Limited Environmental Baseline Assessment, Mangum Armory. January 8, 2007.

16. EPA NPL list: http://www.epa.gov/superfund/sites/npl/ok.htm.

17. CERCLIS current and archived sites: http://cfpub.epa.gov/supercpad/cursites/srchsites.cfm.

18. RCRA database: http://www.epa.gov/enviro/html/rcris/rcris_query_java.html.

19. RCRA NOTIFIERS sorted by county and then city: http://www.deq.state.ok.us/LPDnew/HW/Notifiers/notifiersbycountycity.pdf.

20. State Hazardous Waste Sites: http://www.deq.state.ok.us/LPDnew/hwindex.html.

21. DEQ Dataviewer: http://maps.scigis.com/deq%5Fwq/.

15.0 Signature(s) of Environmental Professional(s)

See page two for signatures of environmental professionals.

16.0 Environmental Professional(s) Statement

See page two for Environmental Professional(s) Statement.

17.0 Appendices

Appendix A - Site (Vicinity) Map
Appendix B - Site Photographs
Appendix C - Historical Research Documentations
Aerial Photographs
Topographical Map
Appendix D - Interview Documentation
Appendix E - Qualification(s) of Environmental Professionals
Appendix F – Lead Survey -2005; 2007 and Asbestos Inspection Report 2007

Appendix A - Site (Vicinity) Map

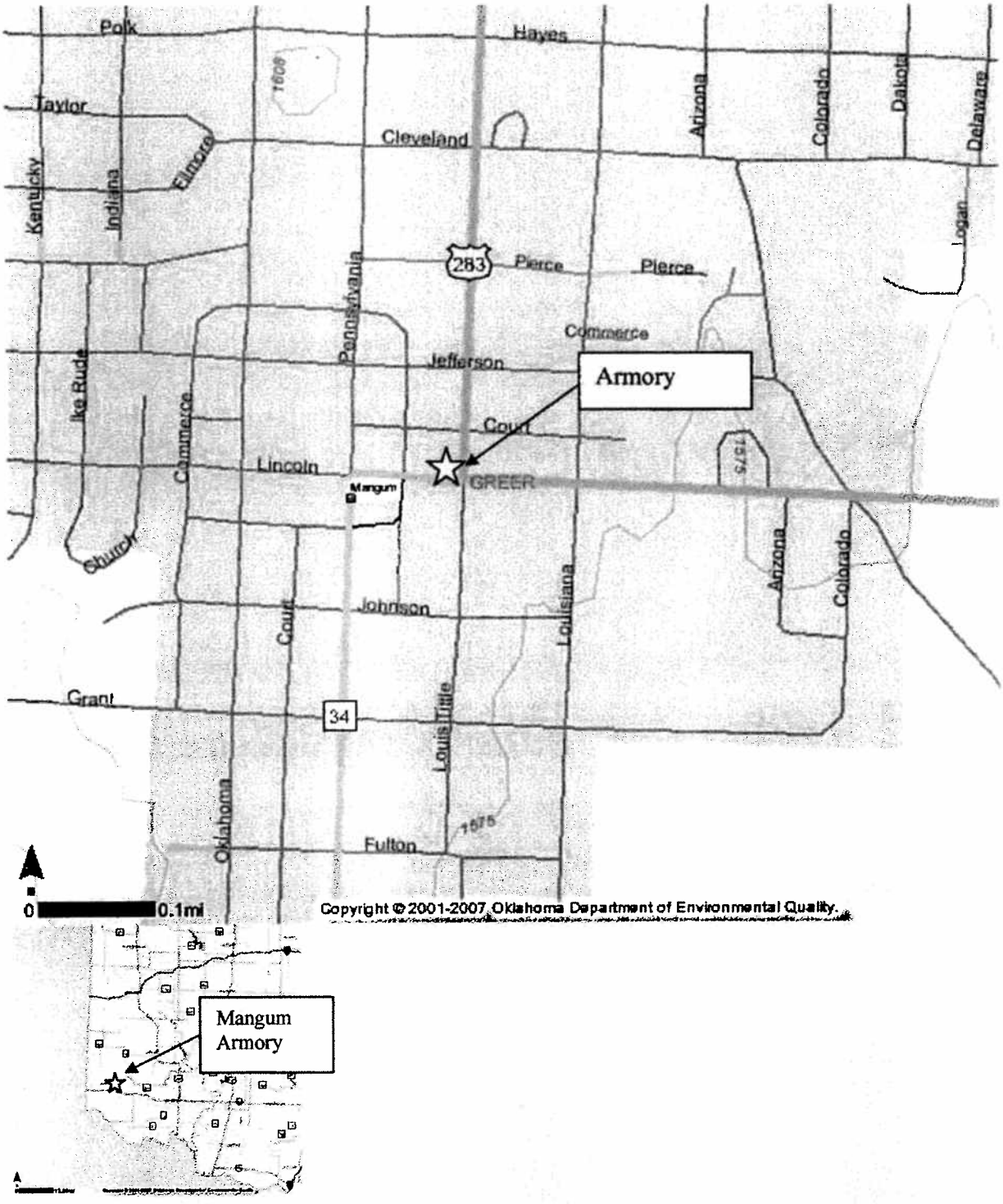


Figure 1. Site Vicinity Map

Appendix B - Site Photographs

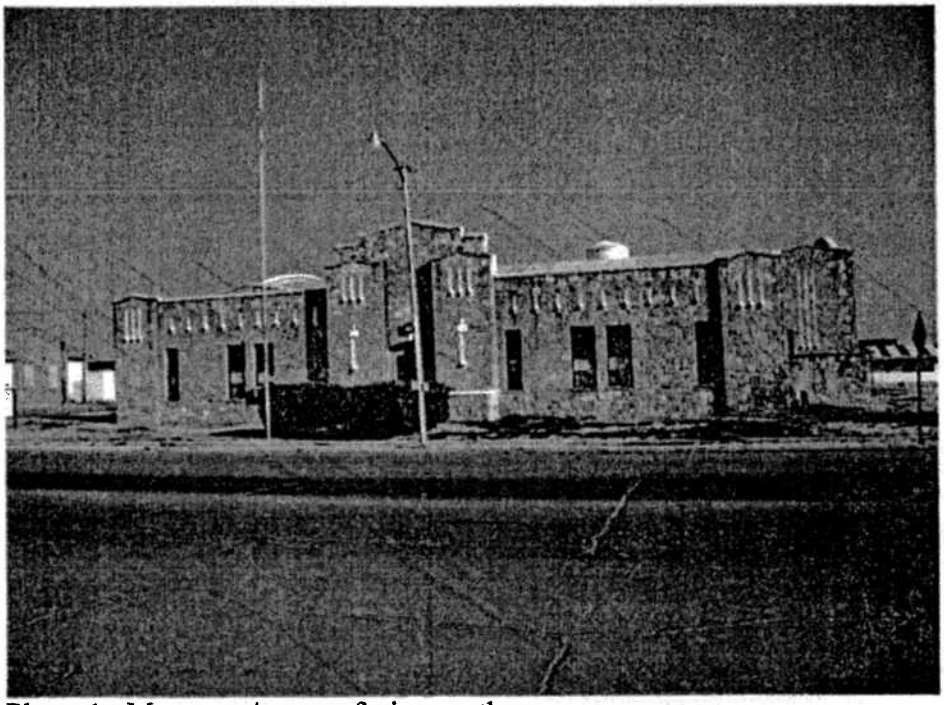


Photo 1. Mangum Armory facing north.

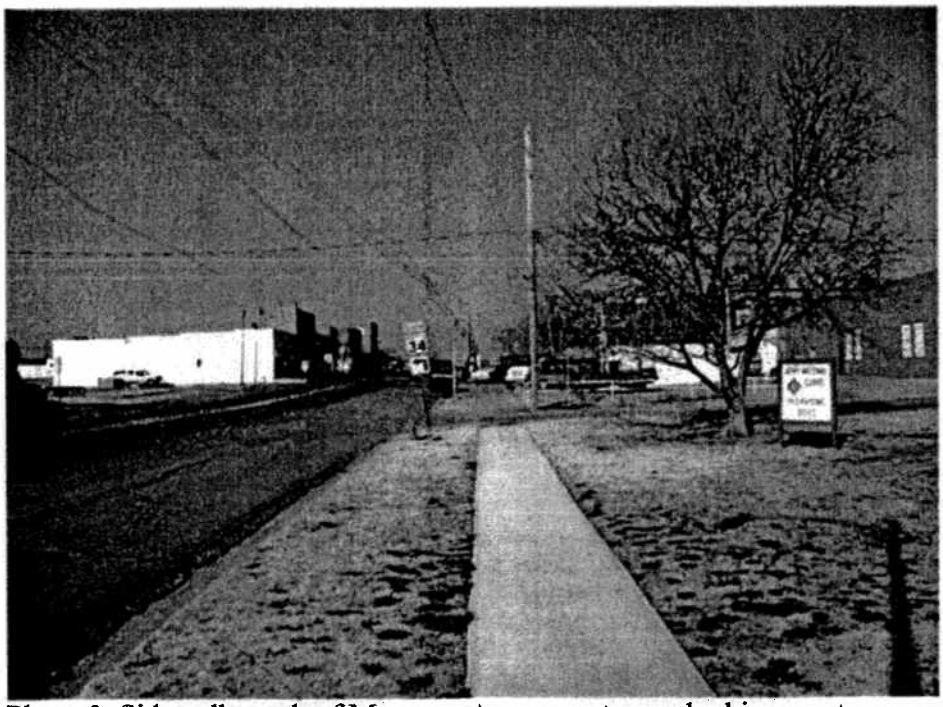


Photo 2. Sidewalk north of Mangum Armory entrance looking west.

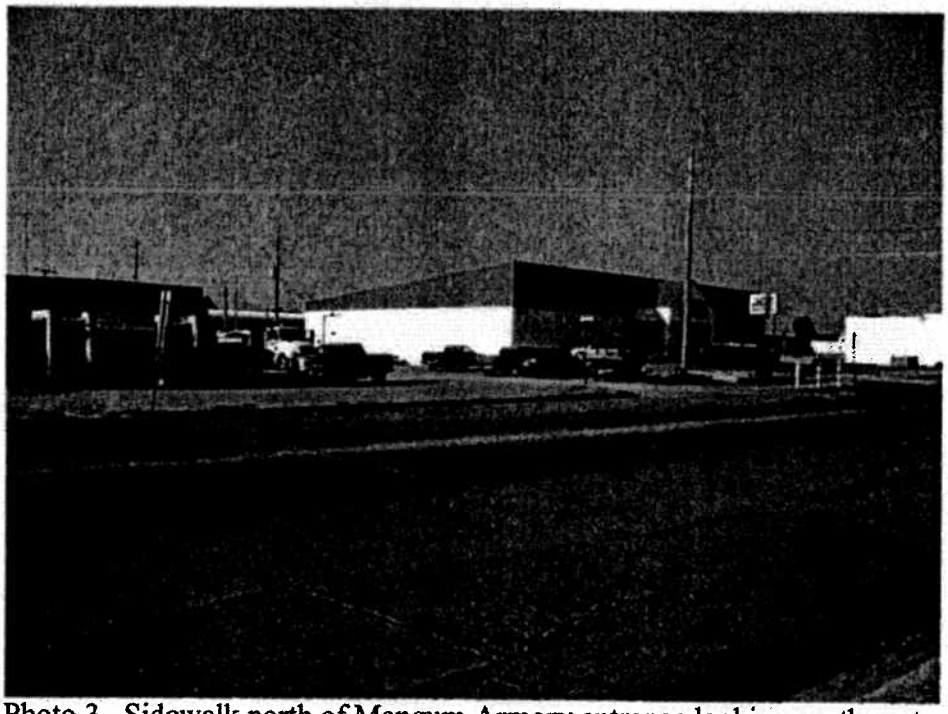


Photo 3. Sidewalk north of Mangum Armory entrance looking southwest.

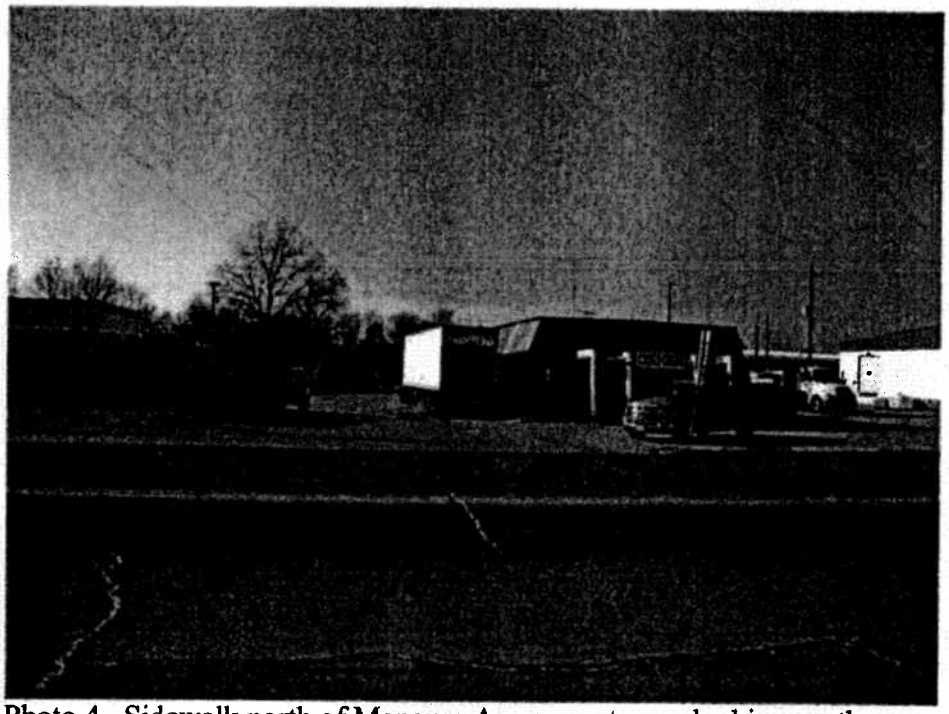


Photo 4. Sidewalk north of Mangum Armory entrance looking south.

Photo 5. Sidewalk north of Mangum Armory entrance looking southeast.

Photo 6. Sidewalk north of Mangum Armory entrance looking east-southeast.

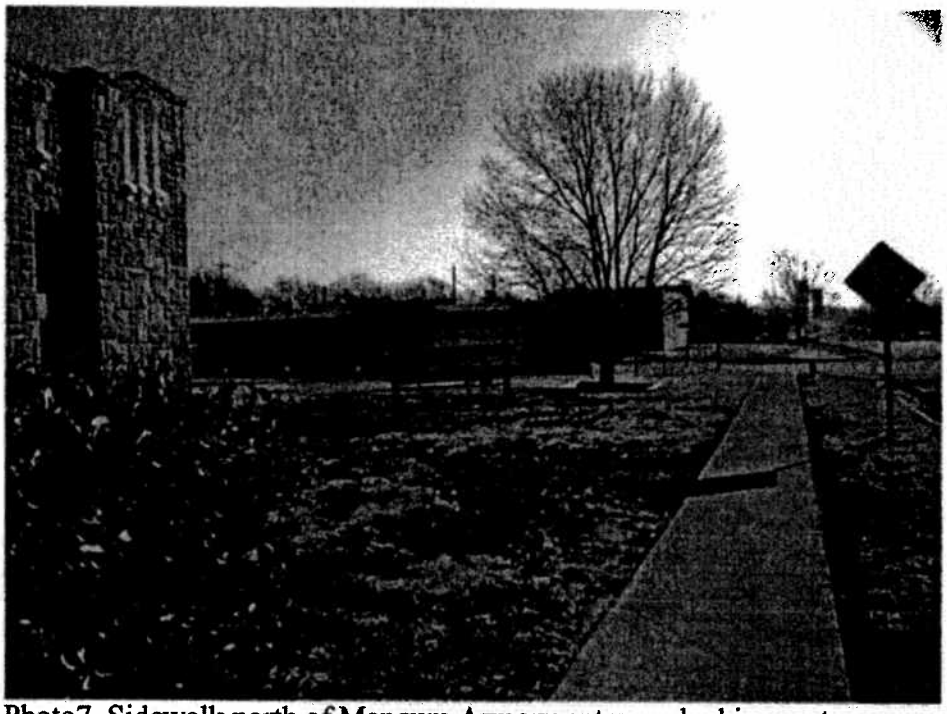


Photo7. Sidewalk north of Mangum Armory entrance looking east.

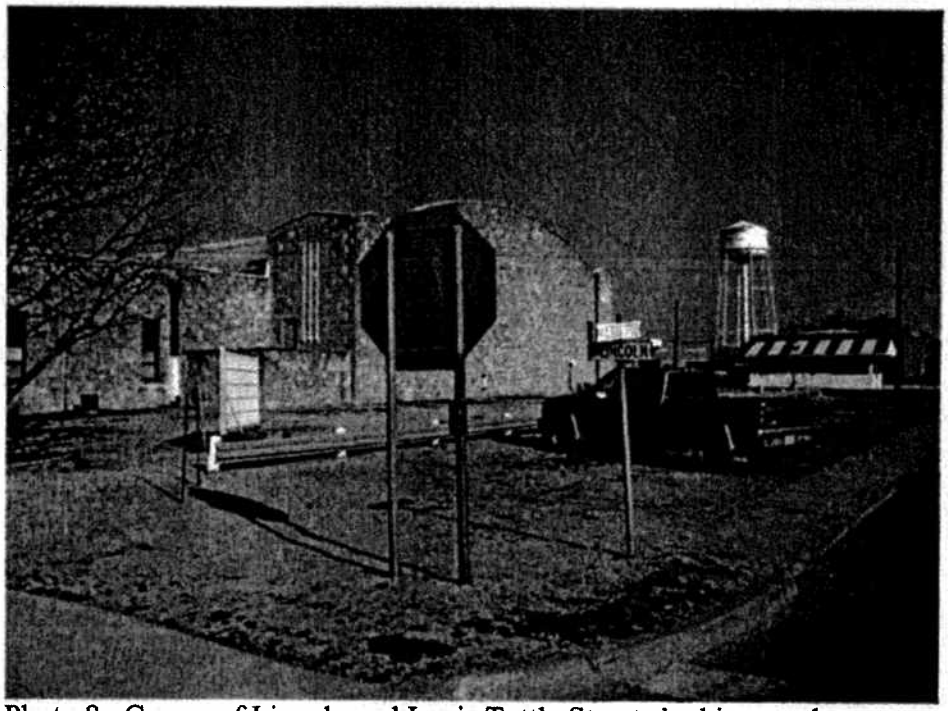


Photo 8. Corner of Lincoln and Louis Tuttle Streets looking northwest.

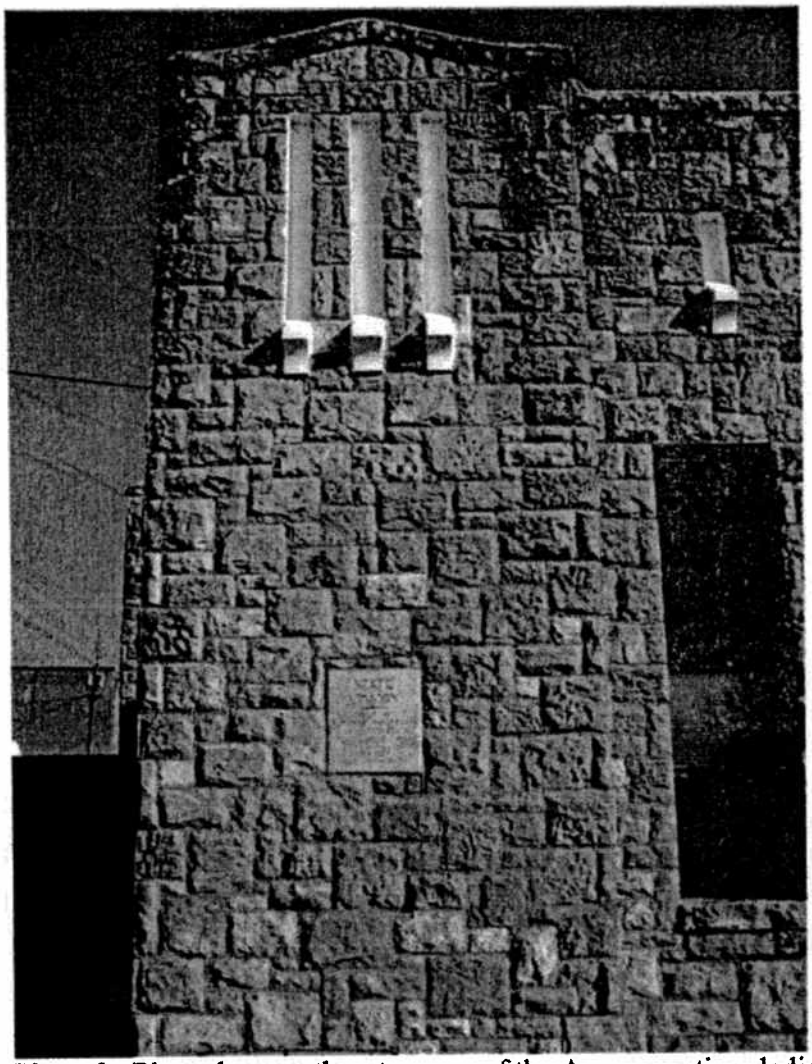


Photo 9. Placard on southeast corner of the Armory noting dedication in 1936.

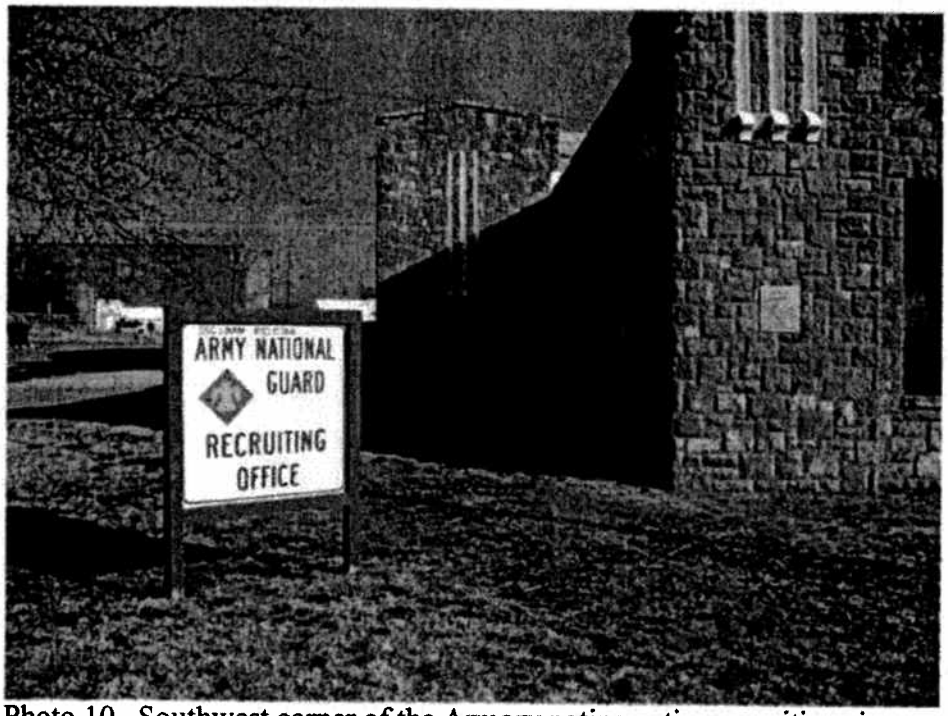


Photo 10. Southwest corner of the Armory noting active recruiting sign.

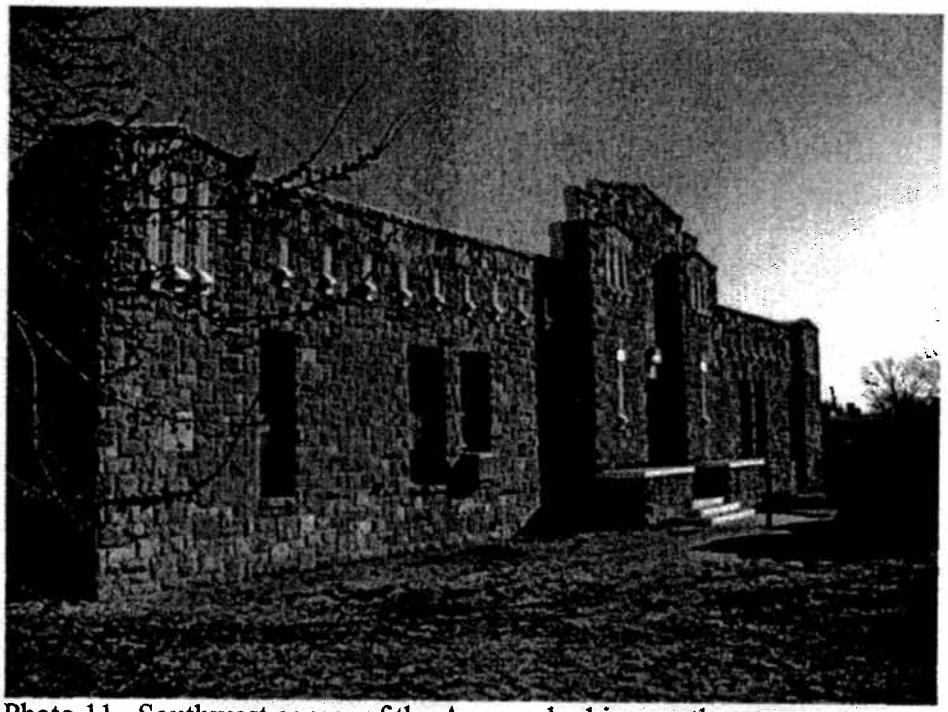


Photo 11. Southwest corner of the Armory looking northeast.

Photo 12. Corner of Lincoln and Janeway Streets looking east noting water line and hydrant.

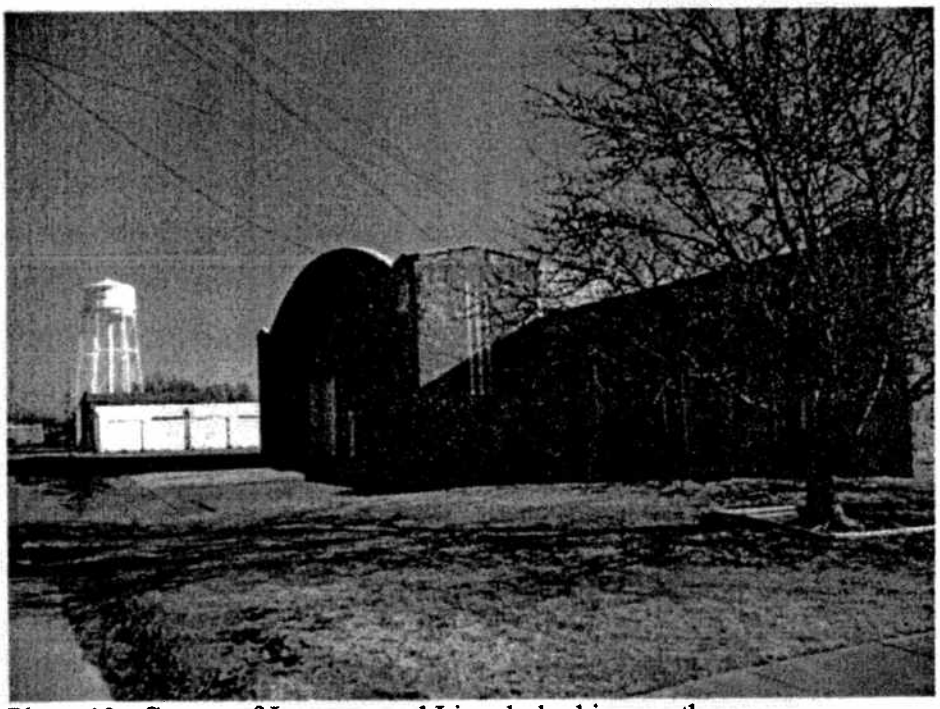


Photo 13. Corner of Janeway and Lincoln looking north.

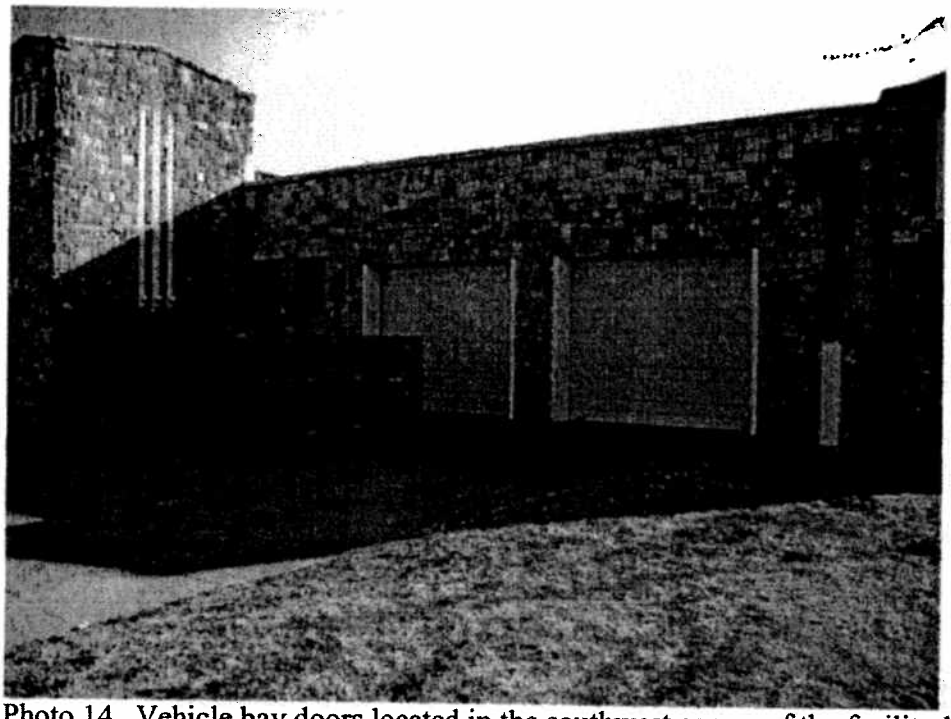


Photo 14. Vehicle bay doors located in the southwest corner of the facility looking northeast.

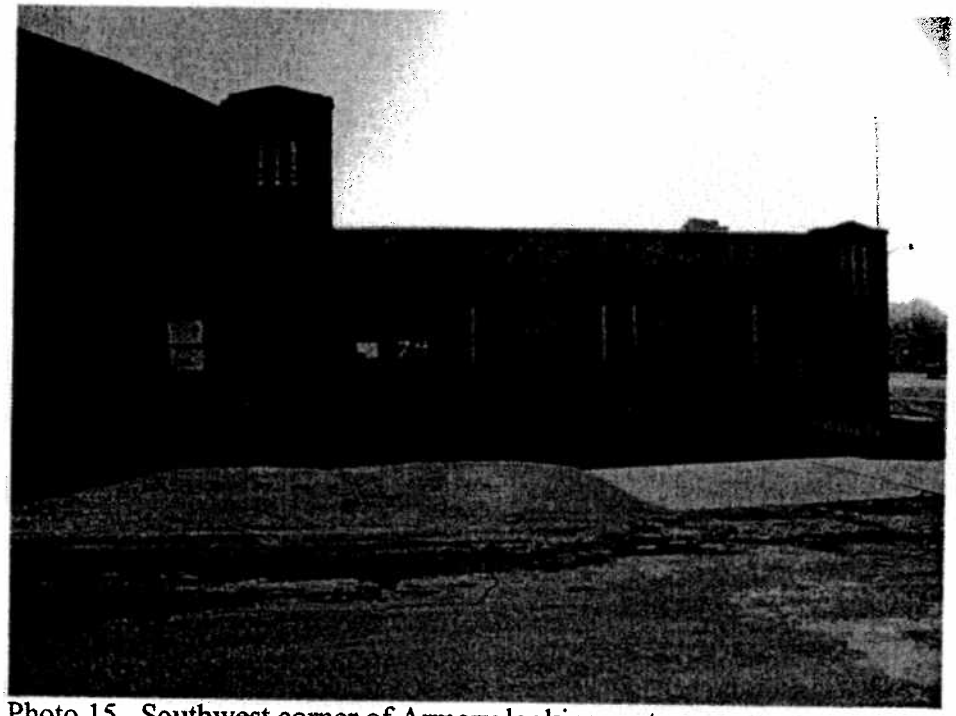


Photo 15. Southwest corner of Armory looking east.

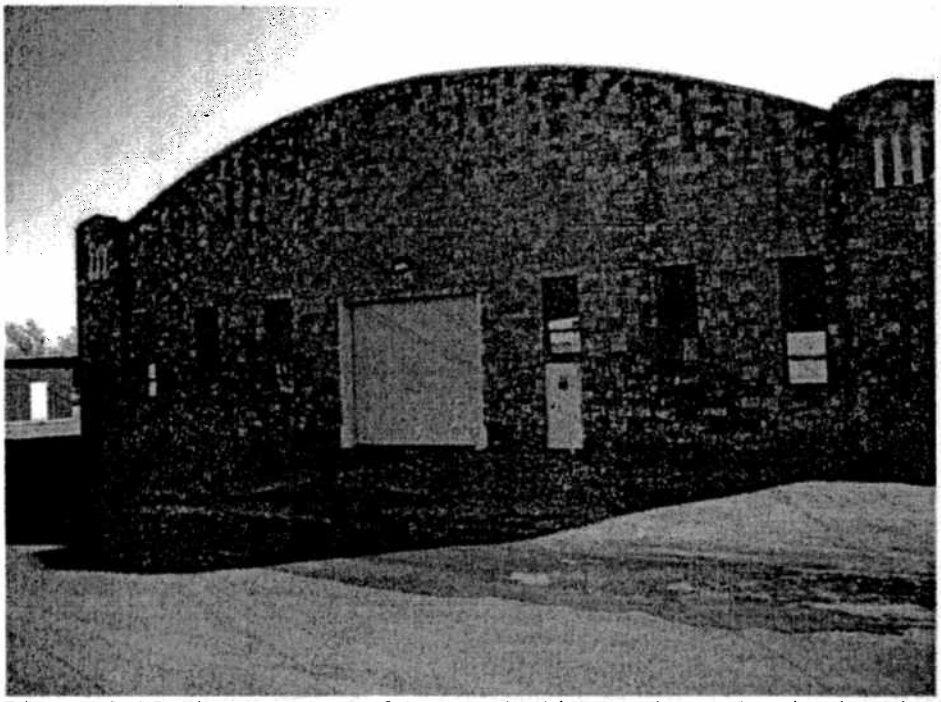


Photo 16. Northwest corner of Armory looking northeast showing bay door entrance to the drill floor.

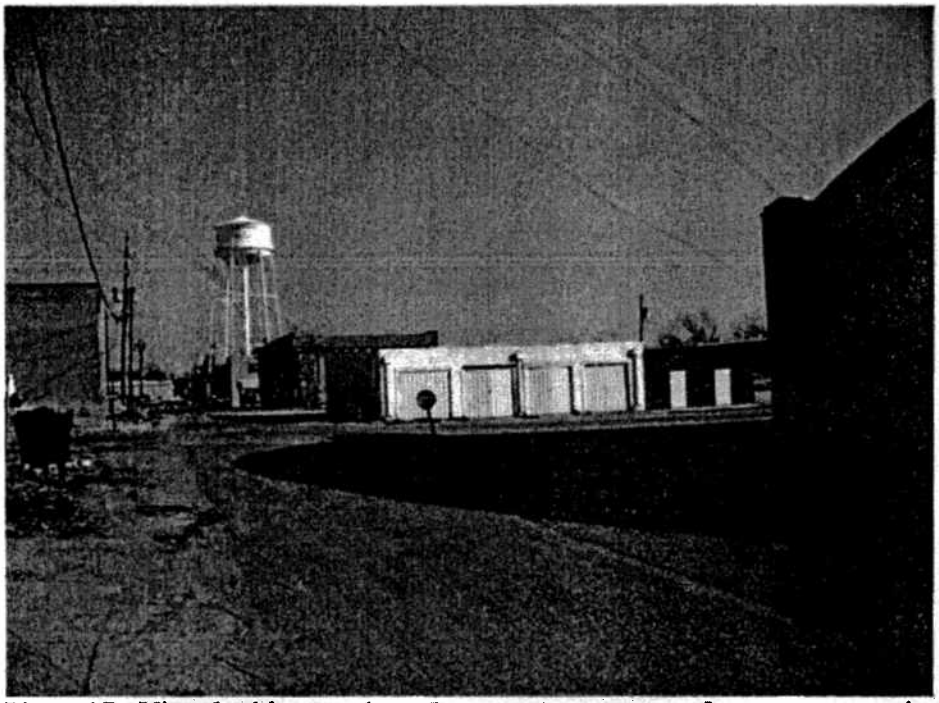


Photo 17. View looking north on Janeway street across from armory noting storage units across Court Street.

Photo 18. Corner of Janeway and Court Streets looking southeast.

Photo 19. Corner of Janeway and Court Streets looking east down Court Street.

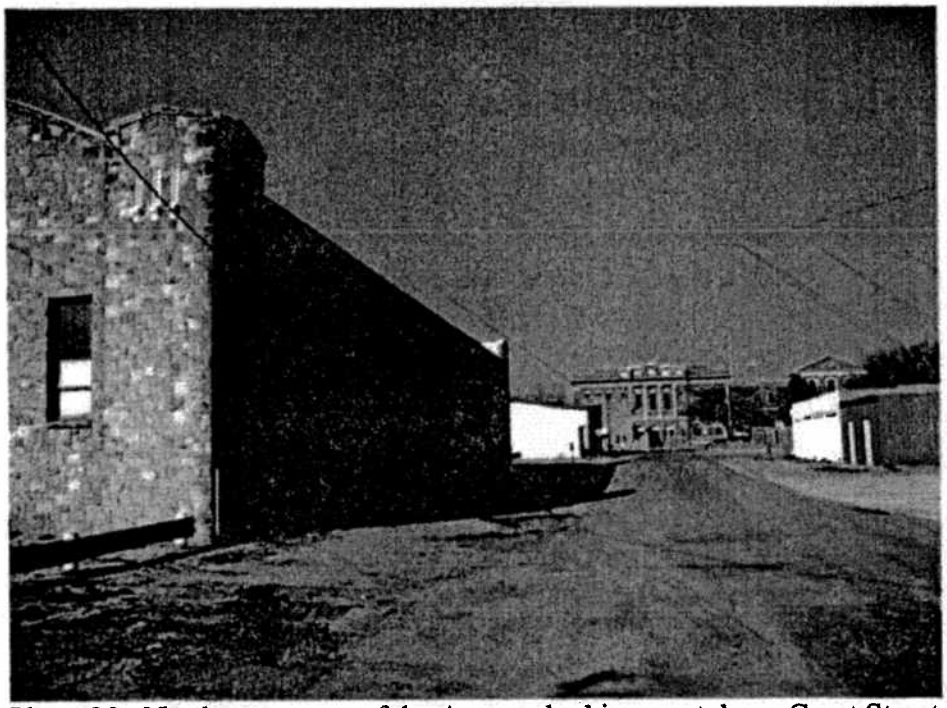


Photo 20. Northeast corner of the Armory looking west down Court Street.

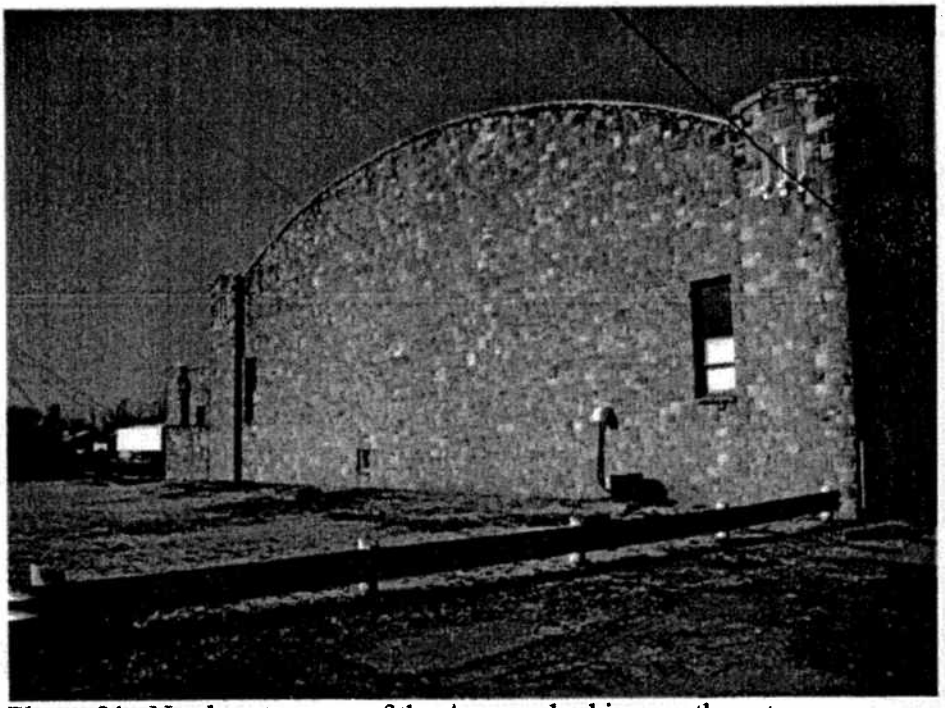


Photo 21. Northeast corner of the Armory looking southwest.

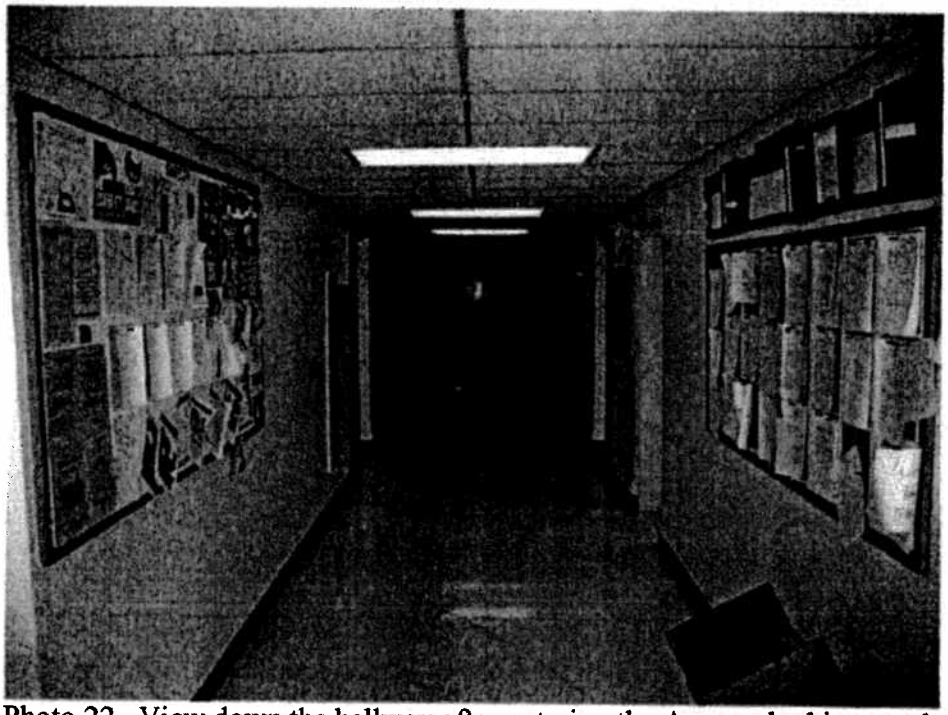


Photo 22. View down the hallway after entering the Armory looking north.

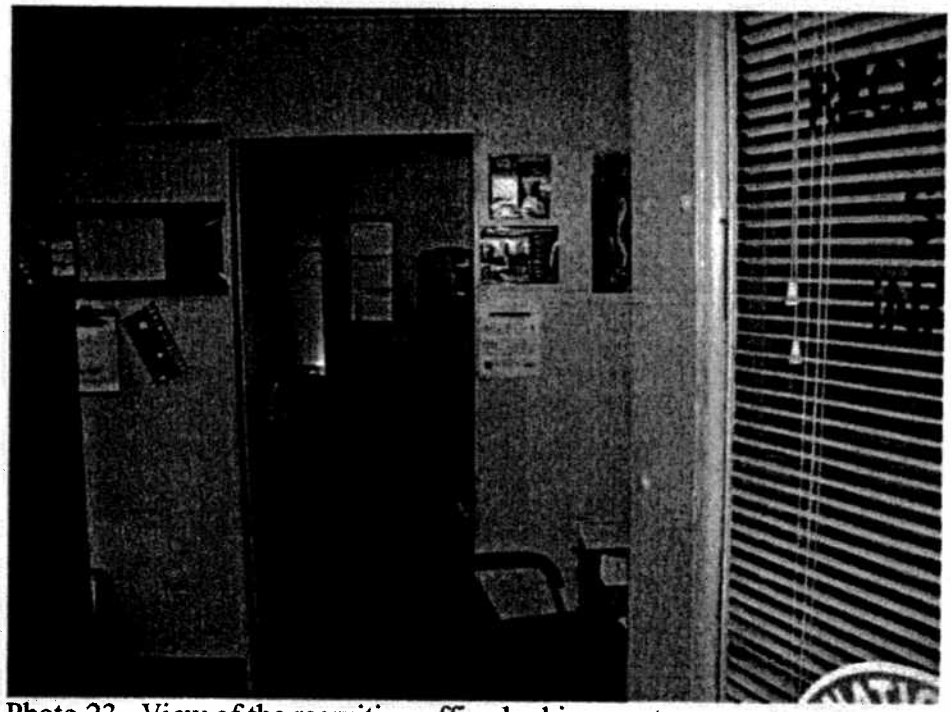


Photo 23. View of the recruiting office looking west.

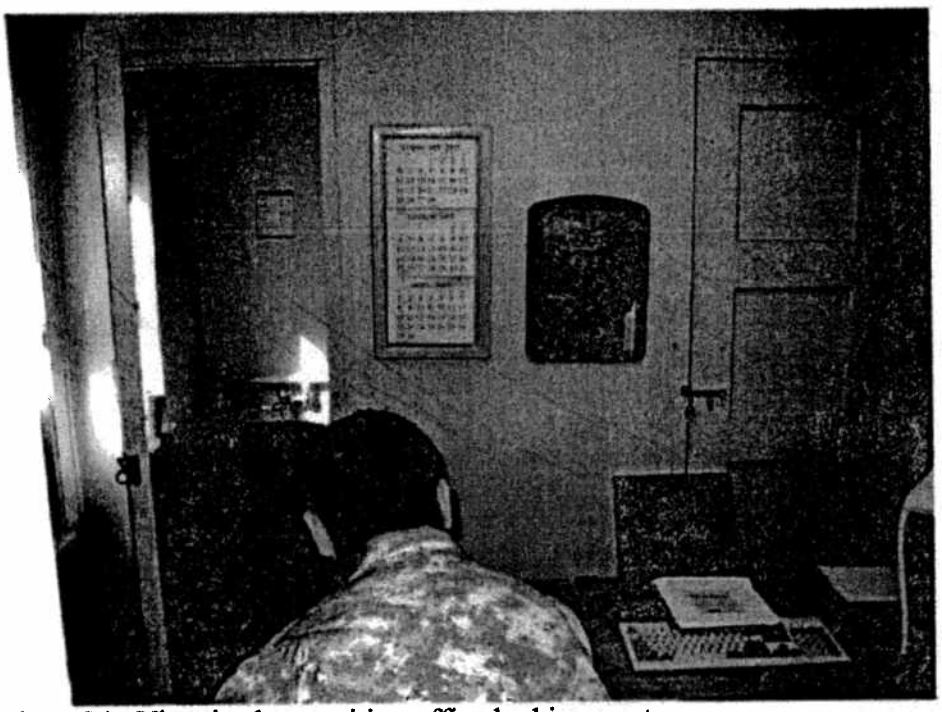


Photo 24. View insde recruiting office looking west.

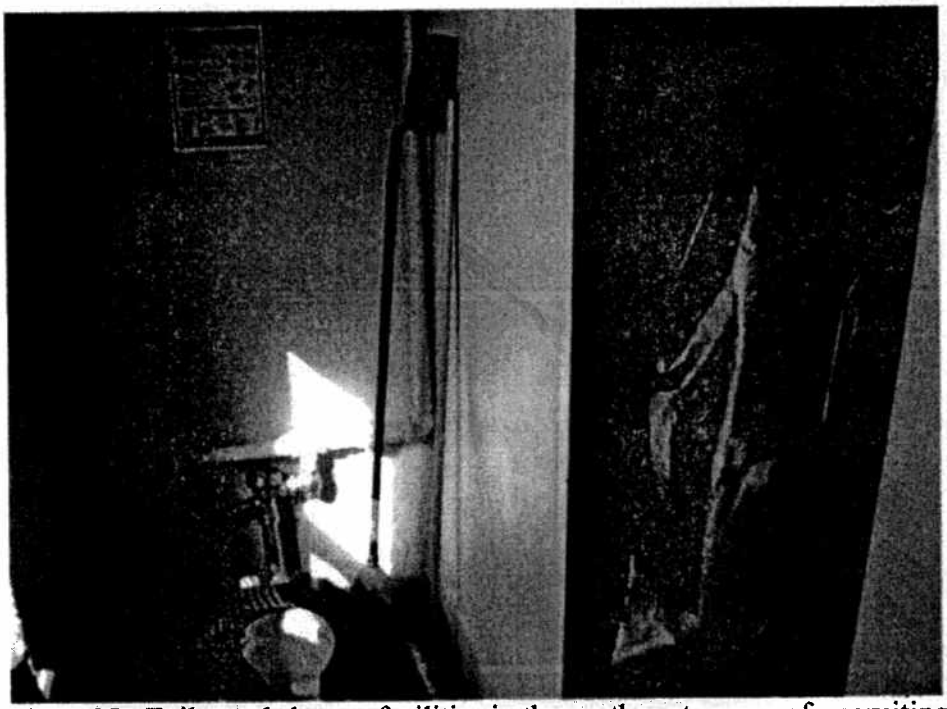


Photo 25. Toilet and shower facilities in the southwest corner of recruiting office looking west.

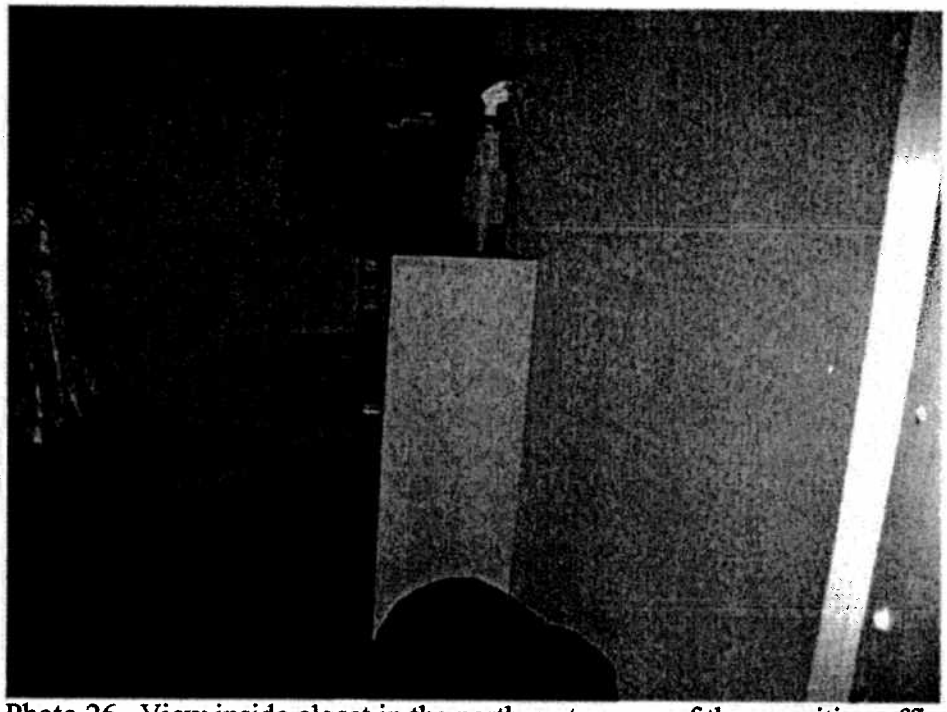


Photo 26. View inside closet in the northwest corner of the recruiting office looking west.

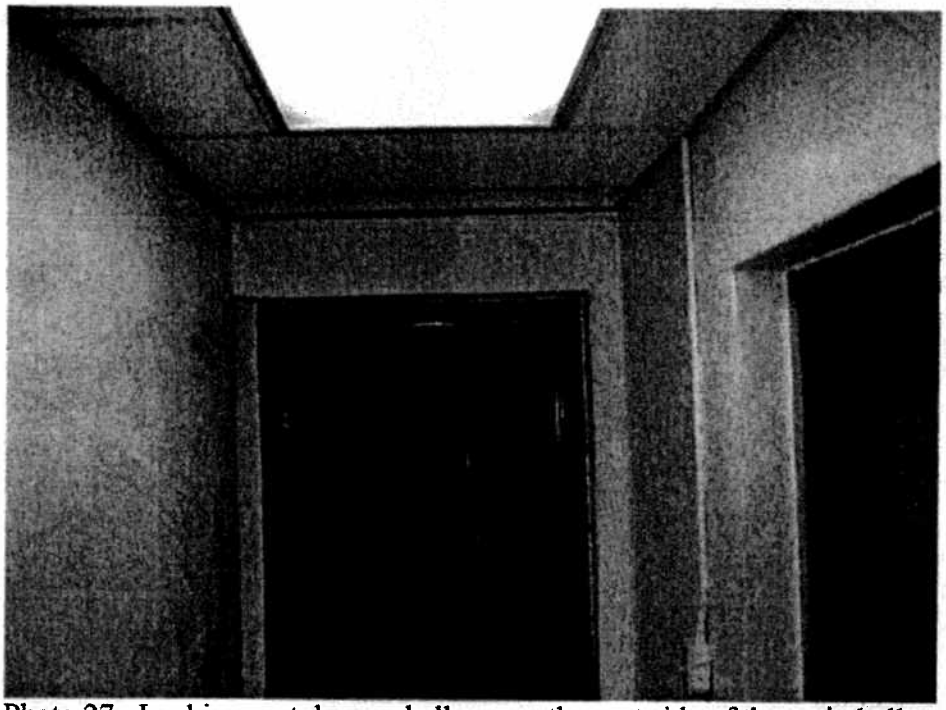


Photo 27. Looking east down a hallway on the east side of the main hallway.

Photo 28. Toilet and shower facilities located south off the hallway seen in photo 27.

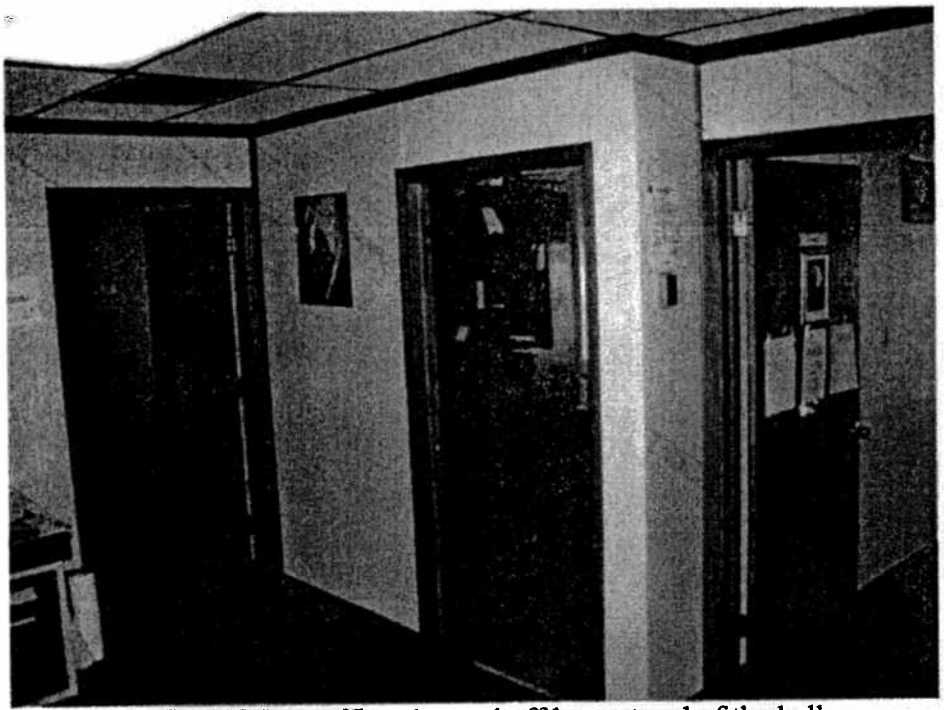


Photo 29. View of three offices located offthe east end of the hallway seen in photo 27.

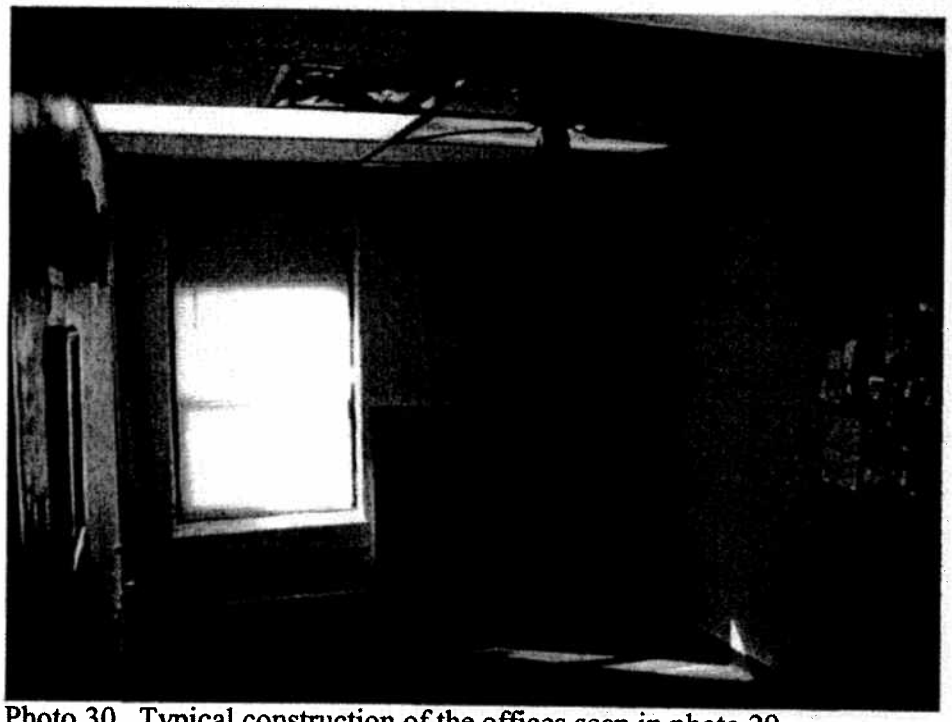


Photo 30. Typical construction of the offices seen in photo 29.

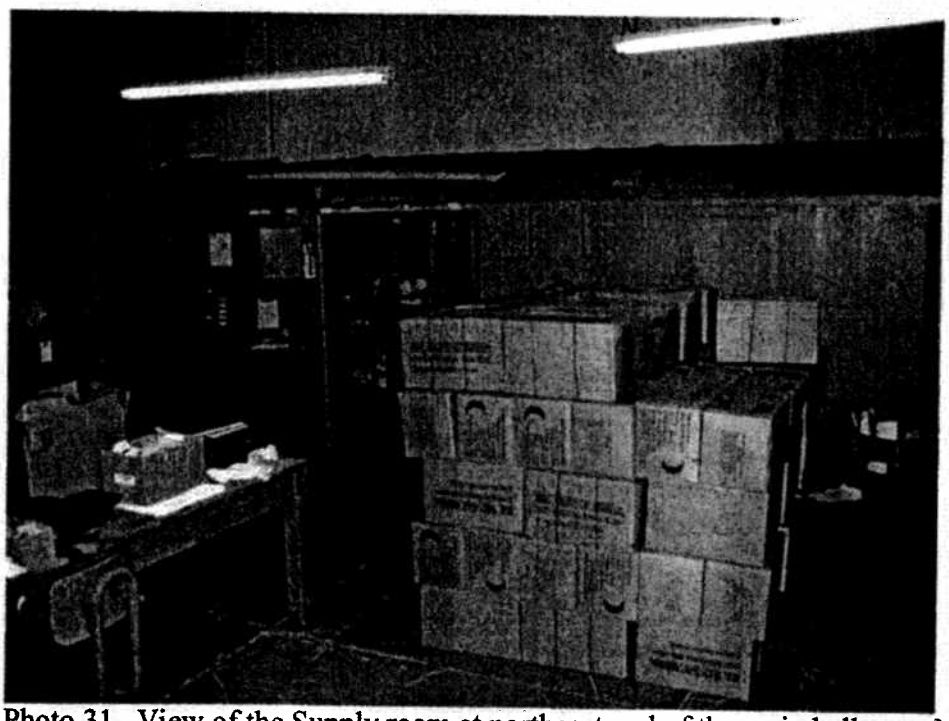


Photo 31. View of the Supply room at northeast end of the main hallway. Note boxes of military supplies currently being stored.

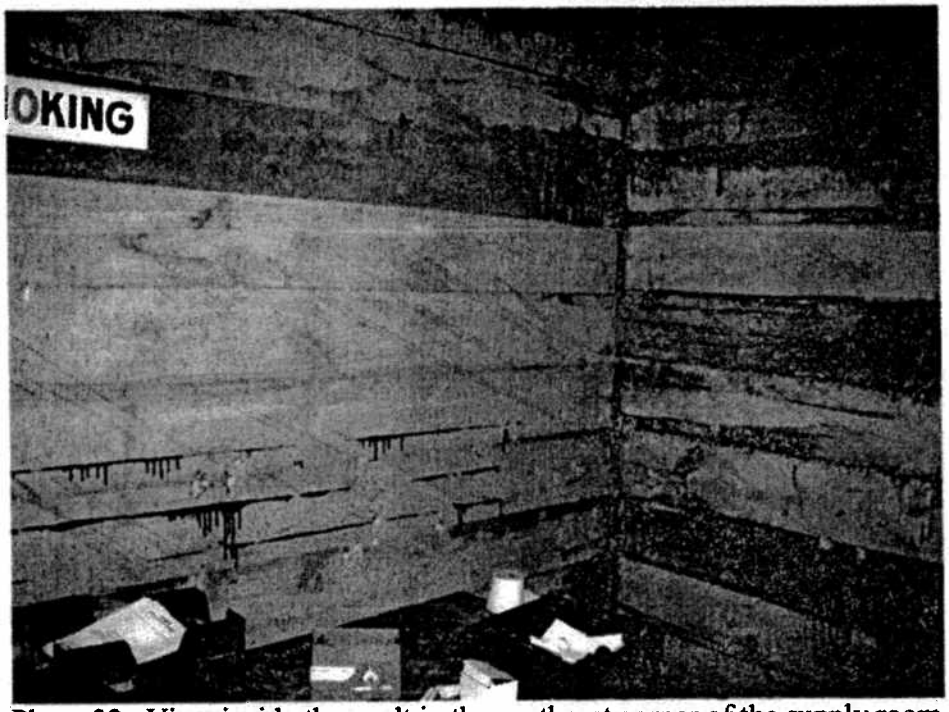


Photo 32. View inside the vault in the southeast corner of the supply room.

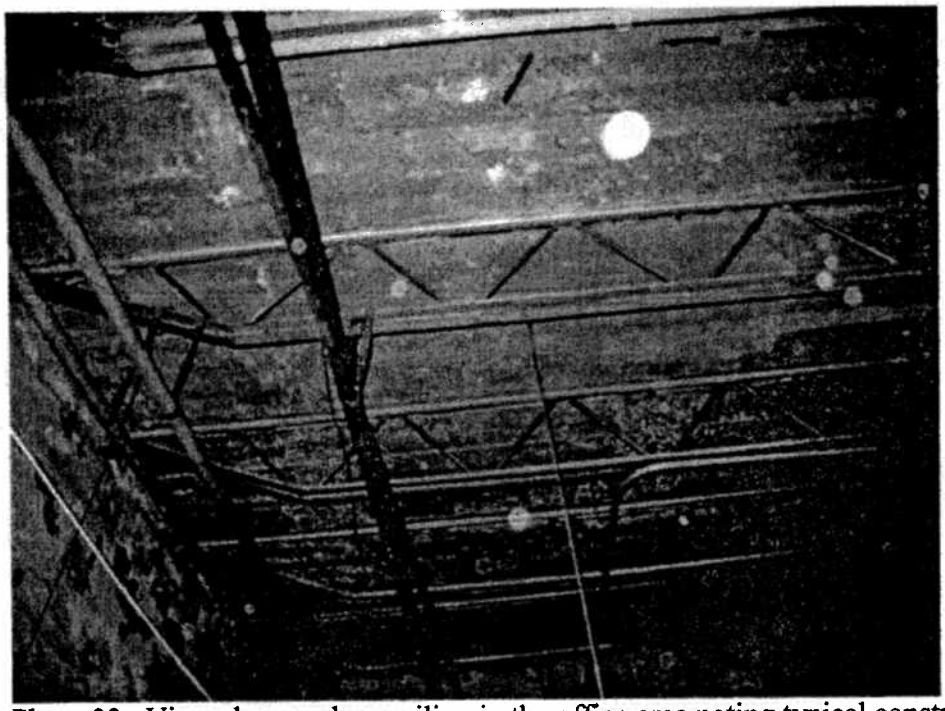


Photo 33. View above a drop ceiling in the office area noting typical construction and materials used in the Armory.

Photo 34. View of kitchen area looking south.

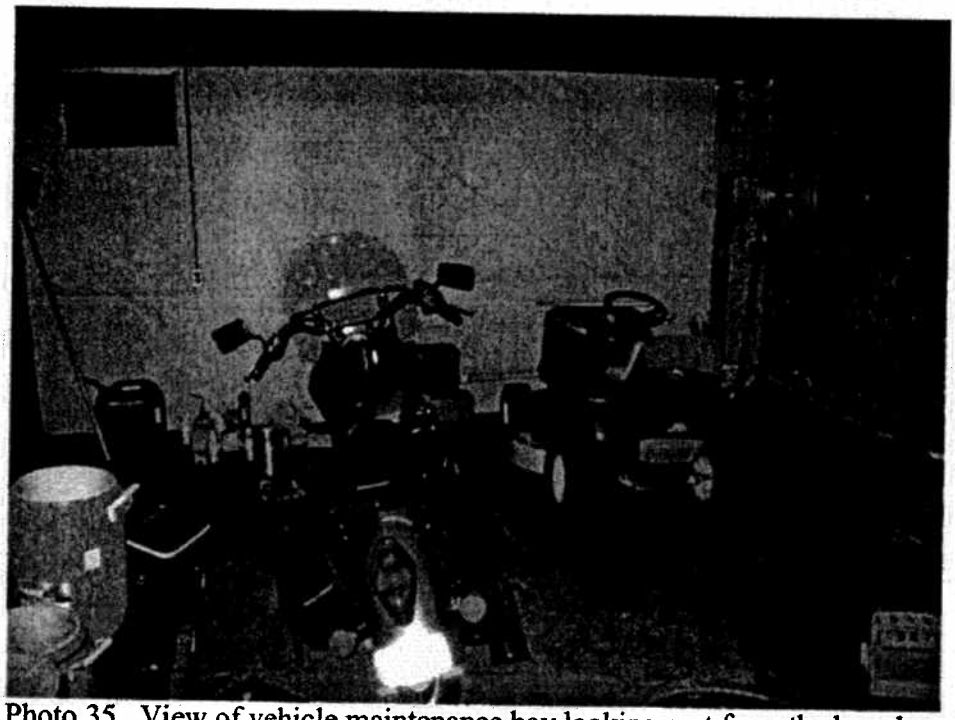


Photo 35. View of vehicle maintenance bay looking east from the bay door.

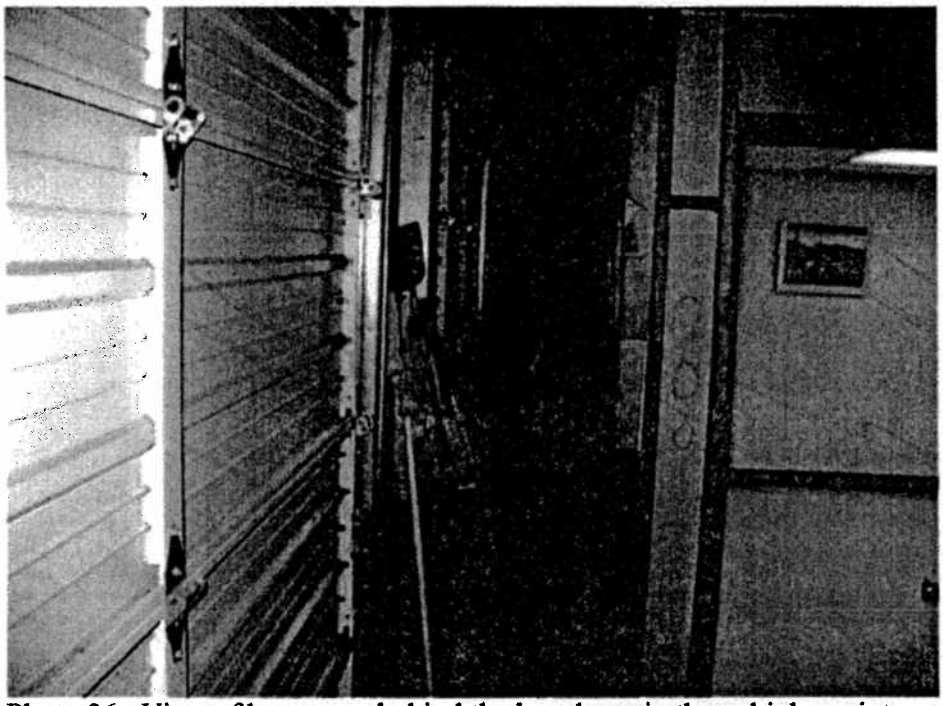


Photo 36. View of bay space behind the bay doors in the vehicle maintenance bay looking north. Note the back side of the in dining/classroom area walls adjacent to kitchen.

Photo. 37. View of storage area adjacent to the kitchen.

Photo 38. View of the storage room at the northeast end of the main hallway.

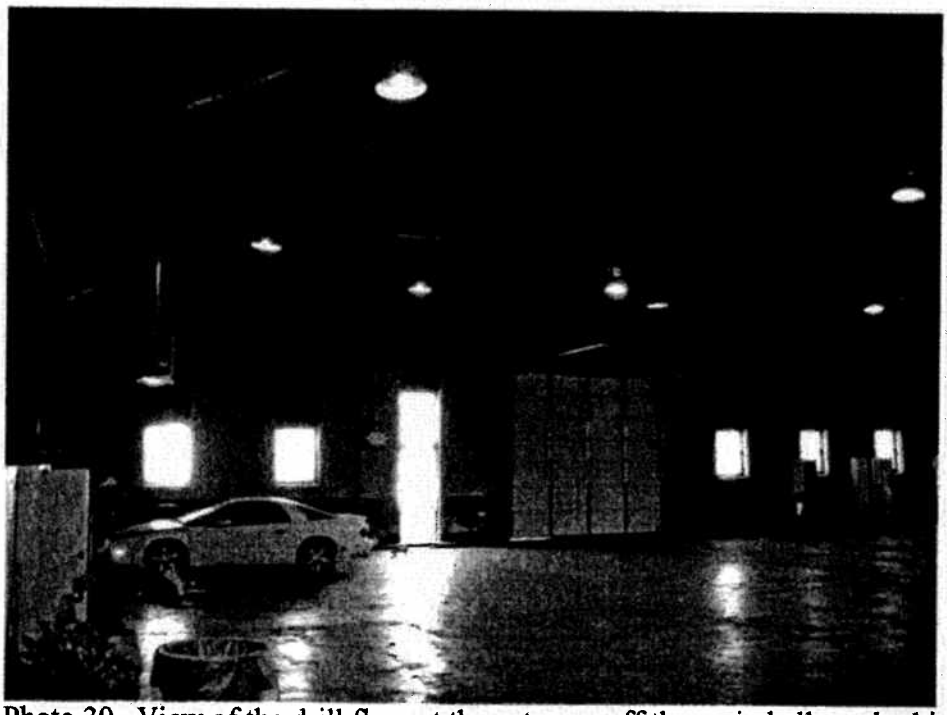


Photo 39. View of the drill floor at the entrance off the main hallway looking northwest.

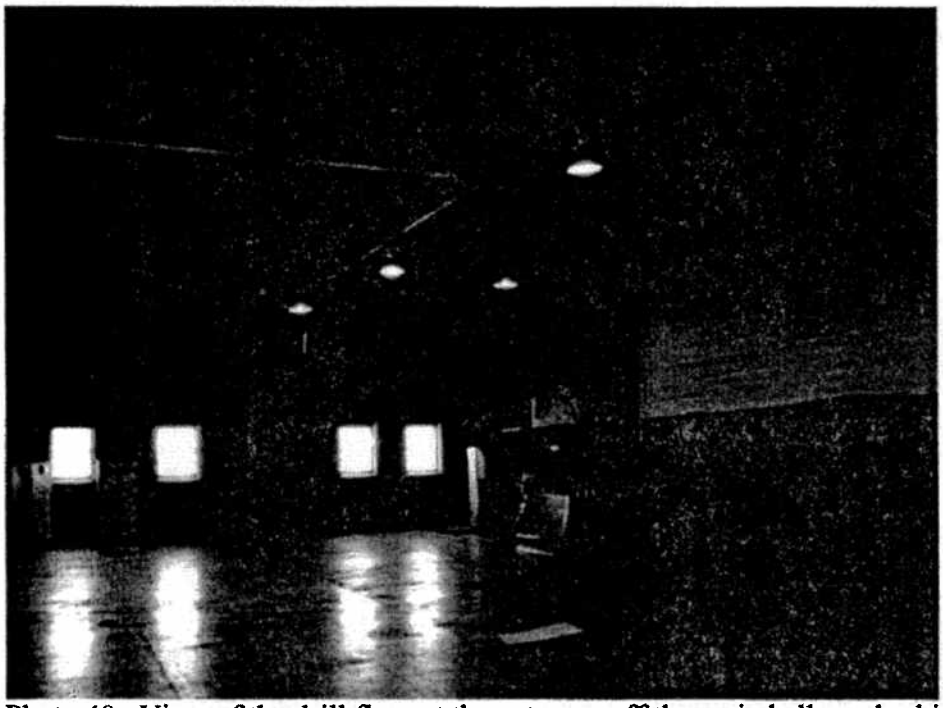


Photo 40. View of the drill floor at the entrance off the main hallway looking north.

Photo 41. Chemical storage locker located on the south wall of the drill floor near the main hallway entrance. Note silicon spray lubricants, soaps, and oil.

Photo 42. Storage area off the southwest end of the drill floor.

Photo 43. Storage lockers on the east wall of storage room seen in photo 42.

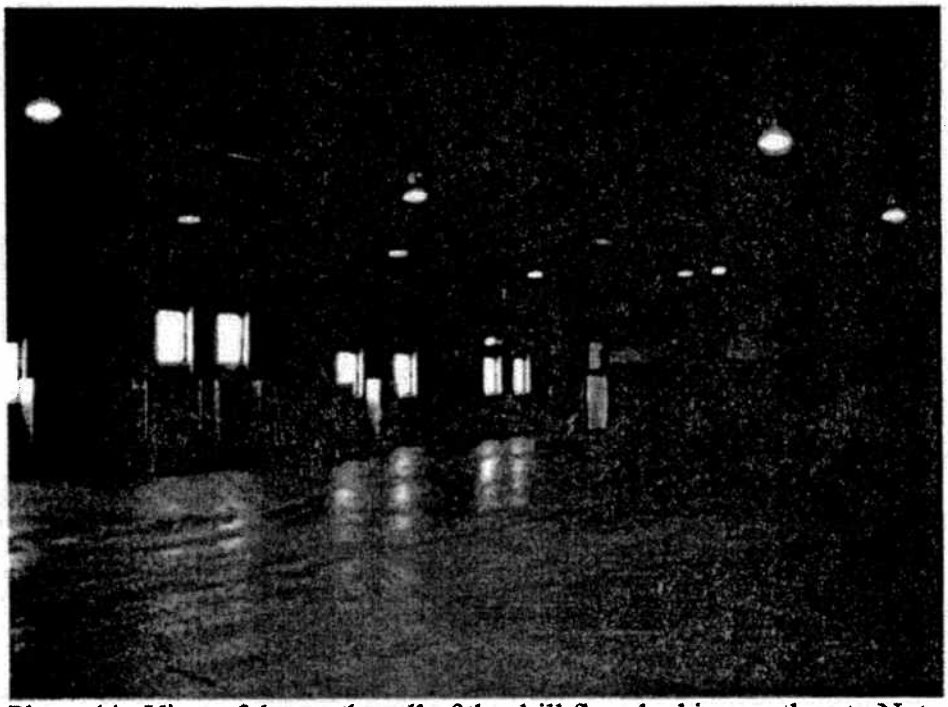


Photo 44. View of the north wall of the drill floor looking northeast. Note empty personnel lockers on north wall and chain link storage locker on the east wall.

Photo 45. Miscellaneous equipment stored near west bay door of the drill floor. Note staining on the floor.

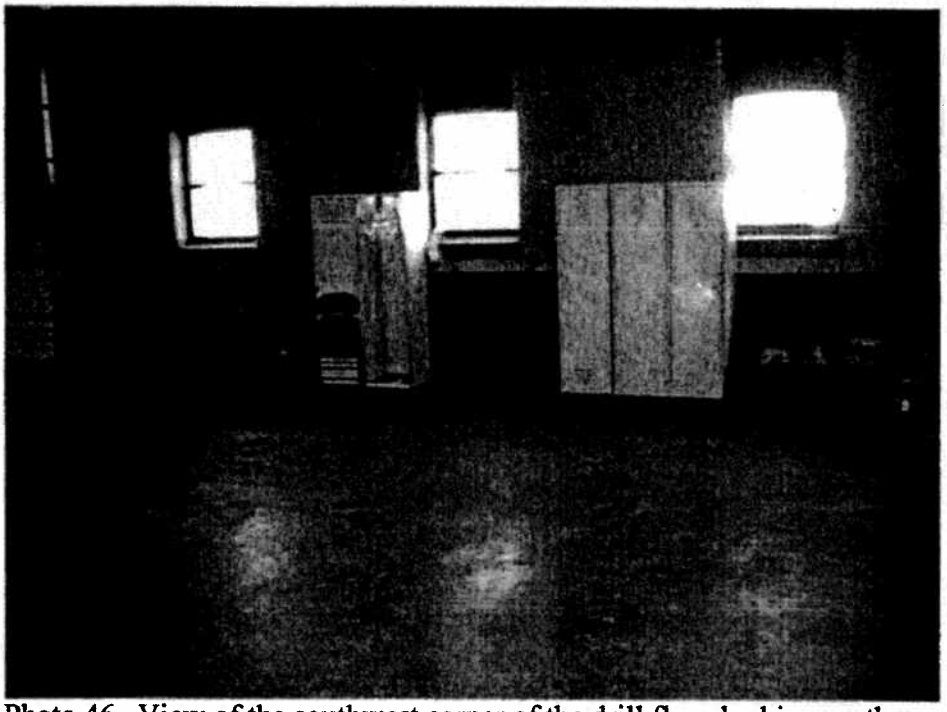


Photo 46. View of the southwest corner of the drill floor looking south.

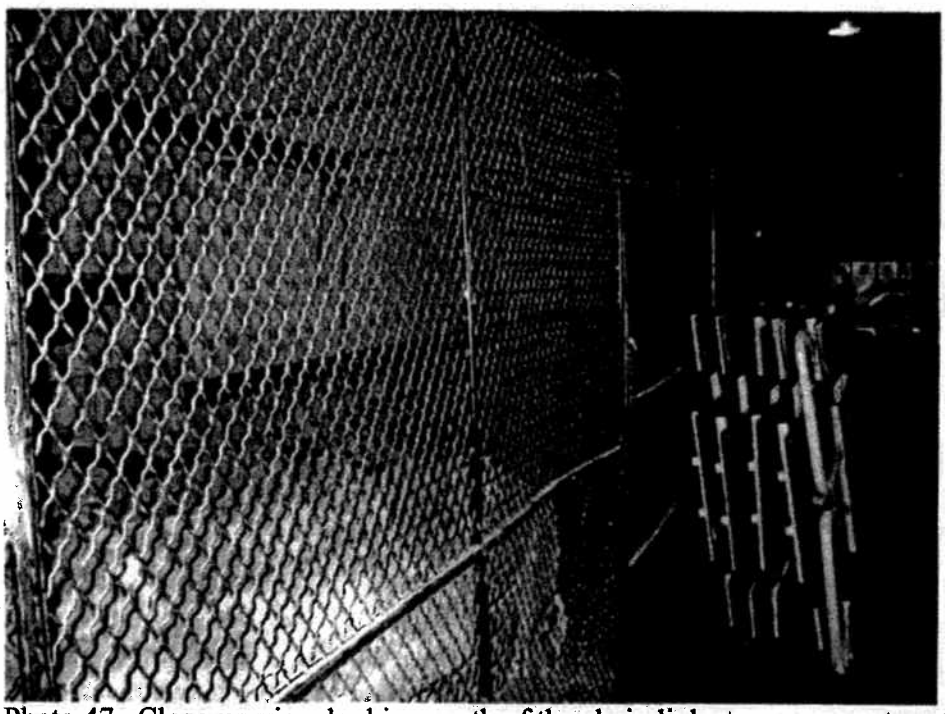


Photo 47. Close-up view looking south of the chain link storage area at east end of the drill floor.

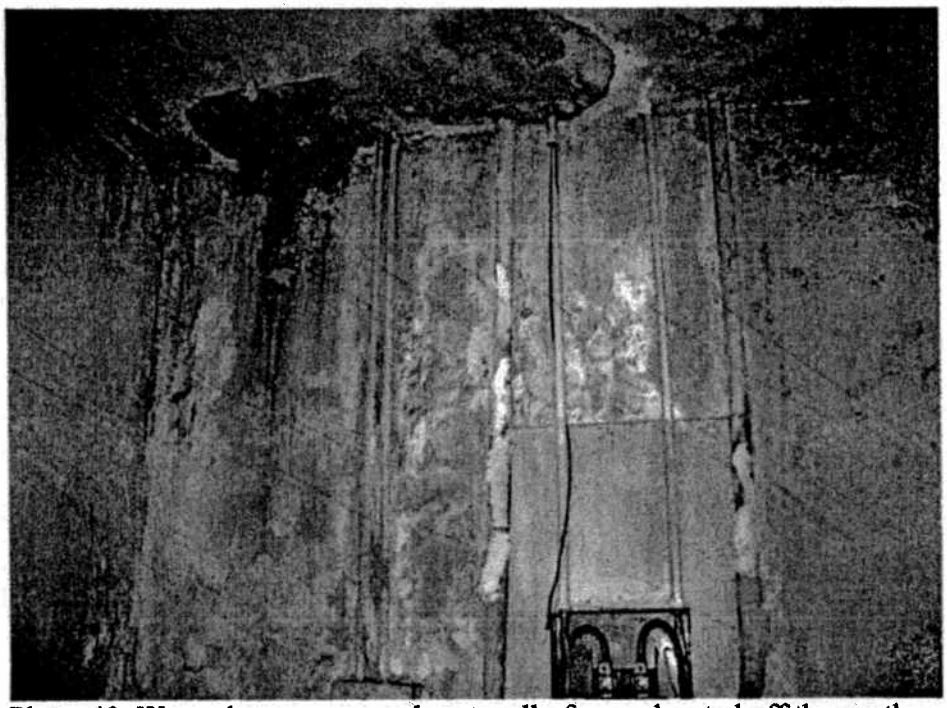


Photo 48. Water damage on southeast wall of room located off the southeast corner of the drill floor.

Photo 49. Mezzanine area located south of the room seen in photo 48.

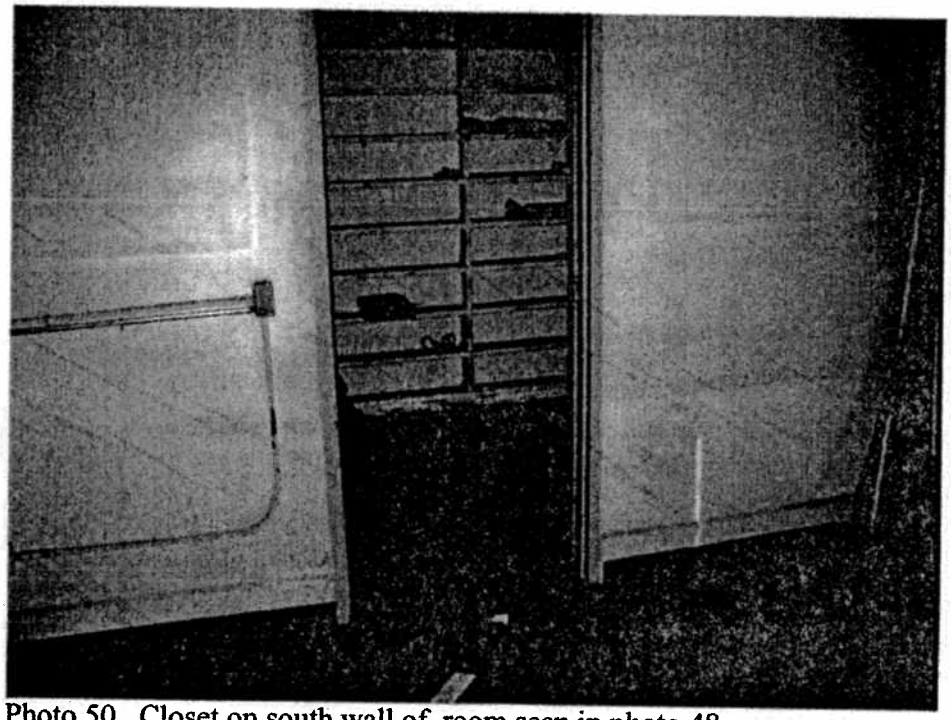


Photo 50. Closet on south wall of room seen in photo 48.

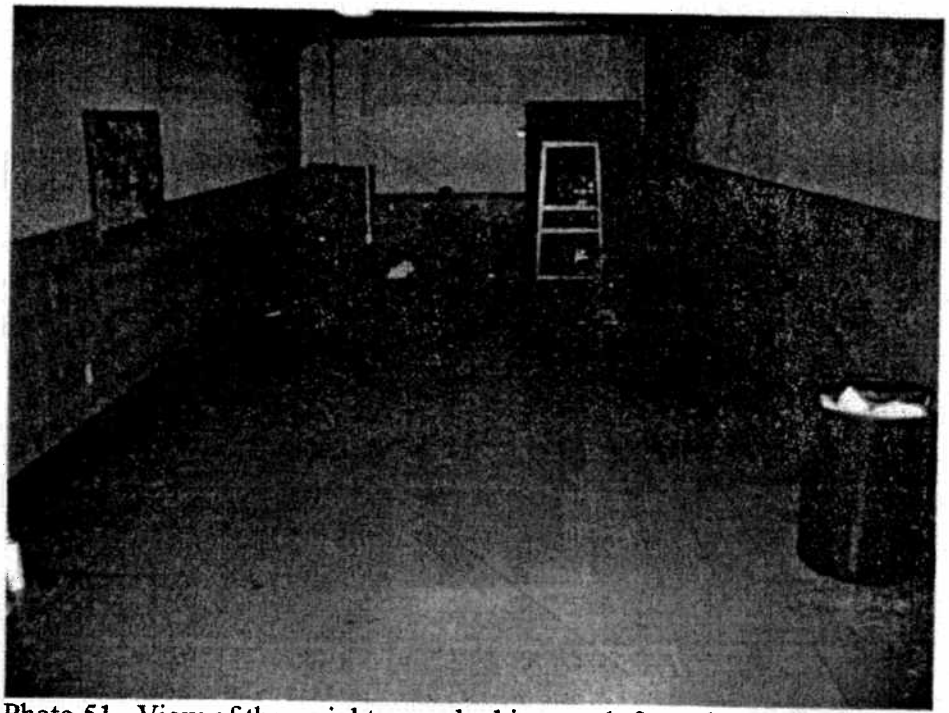


Photo 51. View of the weight room looking north from the entrance near the east central area of the drill floor. Note 9"x9" tiles on the floor.

Photo 52. Closet on the south end of the weight room looking south.

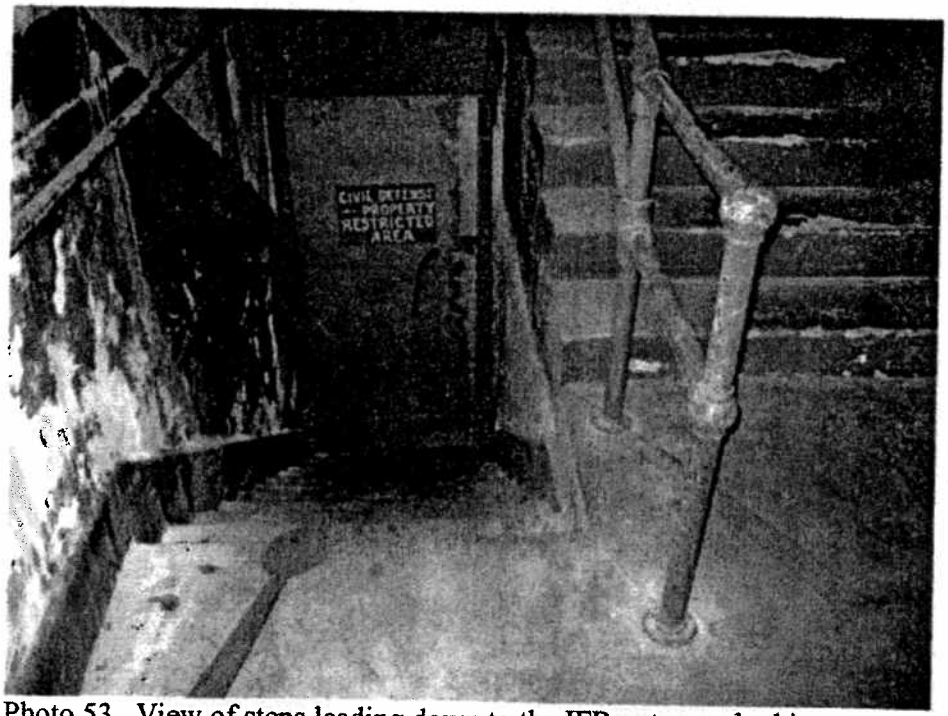


Photo 53. View of steps leading down to the IFR entrance looking east.

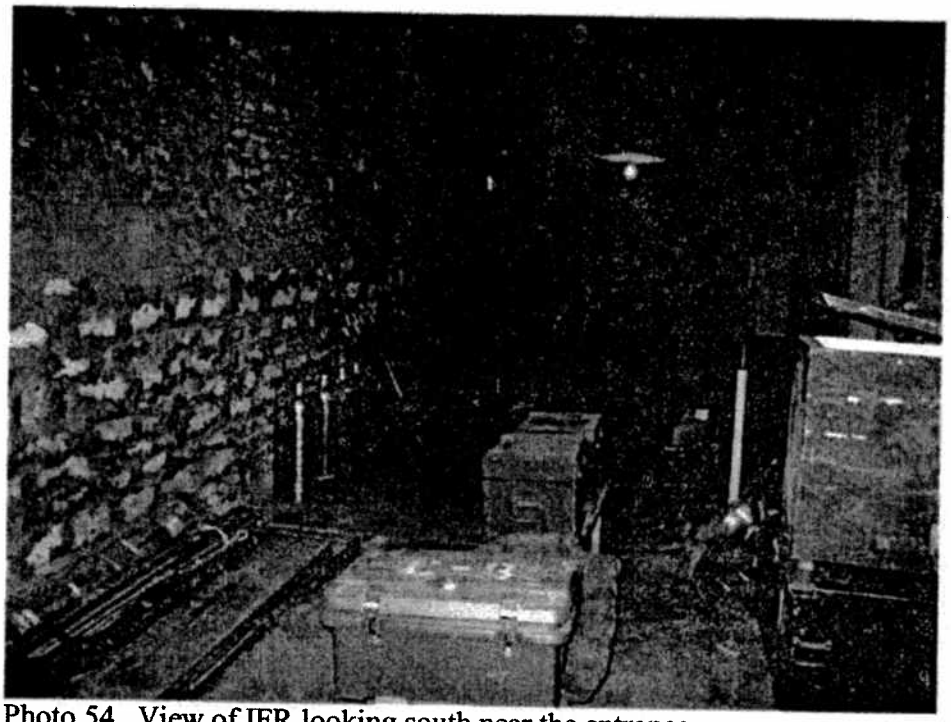


Photo 54. View of IFR looking south near the entrance.

Photo 55. Equipment being stored on the east wall of the IFR near the entrance.

Photo 56. Boxes of "Chemical agent detector stored in shelving on the west-central area of the IFR wall

Photo 57. Equipment stored on the west wall of the IFR.

Photo 58. IFR vent fan located on the east-central IFR wall near the ceiling. Note the vent is not currently sealed to the outside.

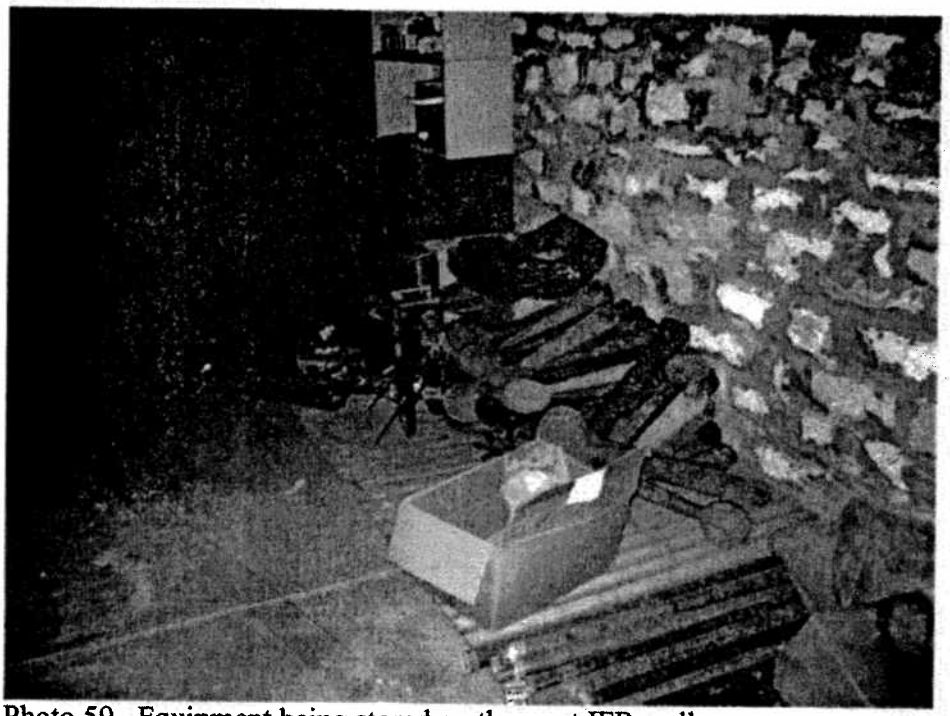


Photo 59. Equipment being stored on the west IFR wall.

Photo 60. IFR floor drain located just south of the center of the IFR.

Photo 61. IFR sump pump located on the west wall south of the center of the IFR.

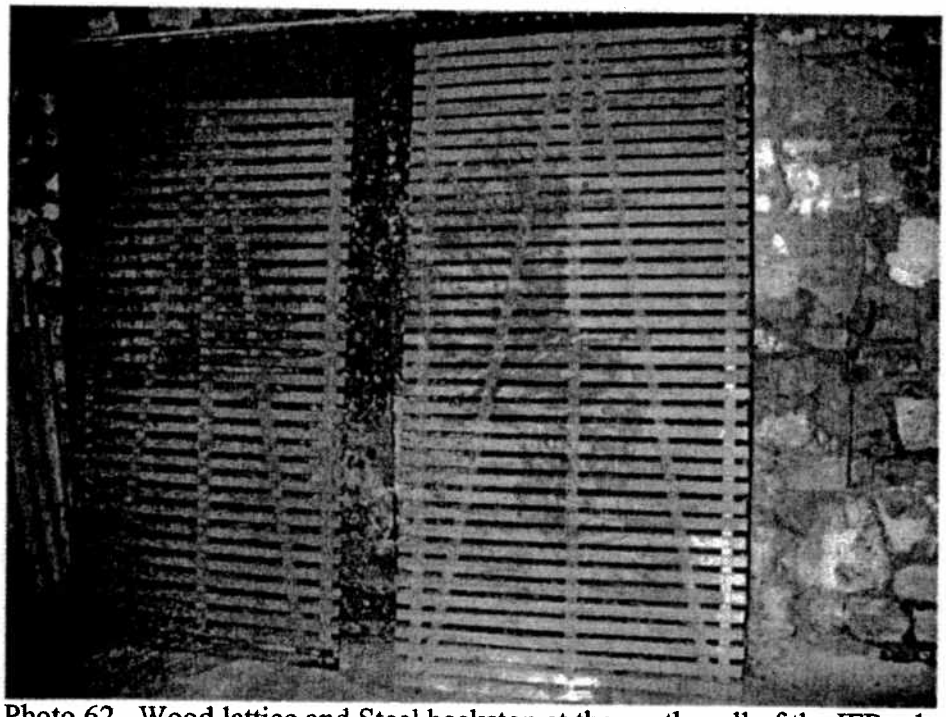


Photo 62. Wood lattice and Steel backstop at the south wall of the IFR where the sand trap was formerly located.

Photo 63. View behind a steel backstop at the south end of the IFR where the sand trap was formerly located.

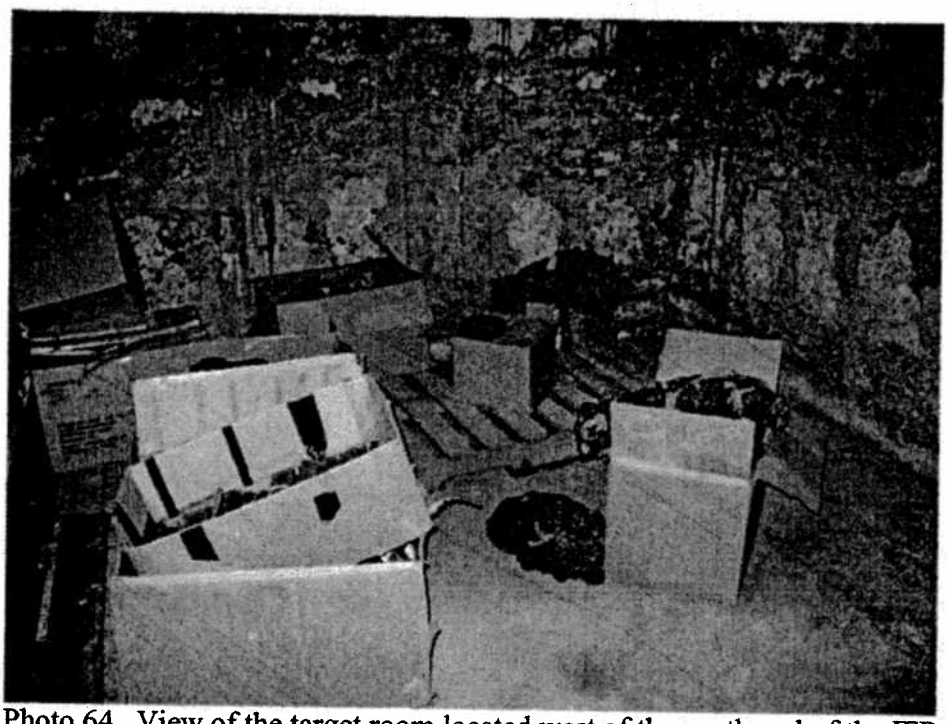


Photo 64. View of the target room located west of the south end of the IFR. Note miscellaneous military equipment.

Appendix C - Historical Research Documentations
Aerial Photographs
Topographical Map

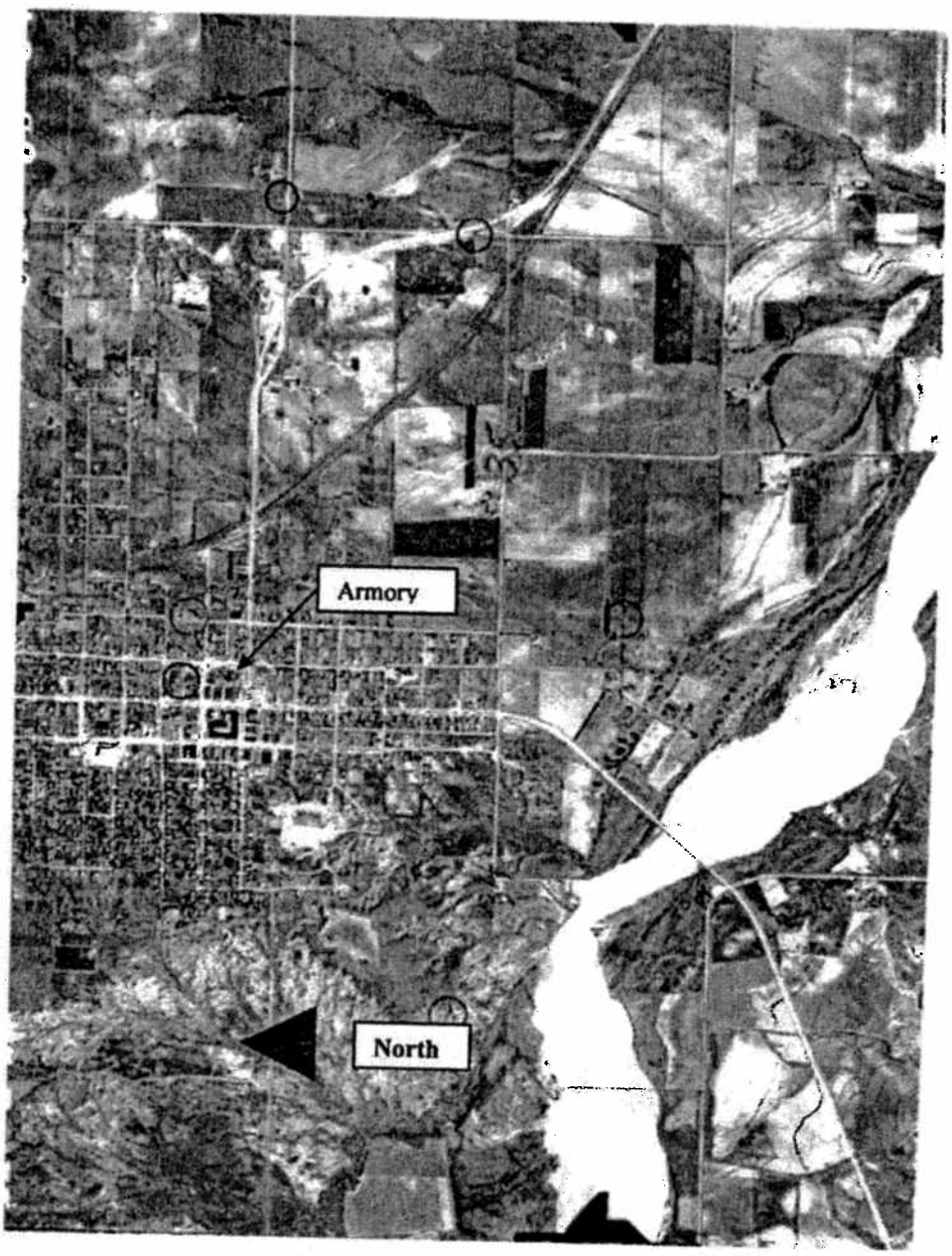


Figure 1. 1941 Mangum Oklahoma aerial photograph

Figure 2. 1995 Mangum Oklahoma aerial photograph

Figure 3. 2005 Mangum Oklahoma aerial photograph

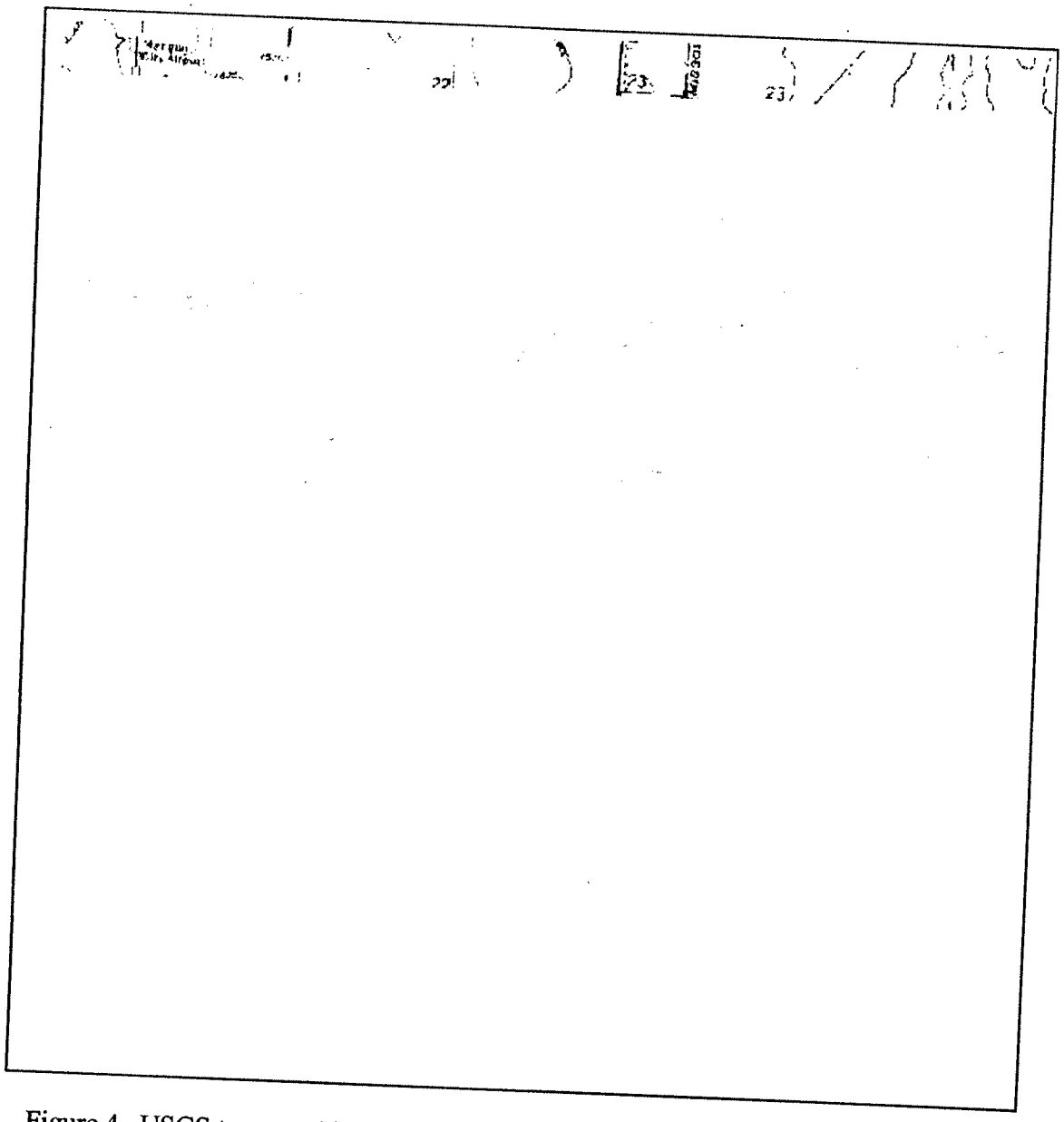


Figure 4. USGS topographic map of Mangum Oklahoma

Figure 1. 1941 Mangum Oklahoma aerial photograph

Figure 2. 1995 Mangum Oklahoma aerial photograph

Figure 3. 2005 Mangum Oklahoma aerial photograph

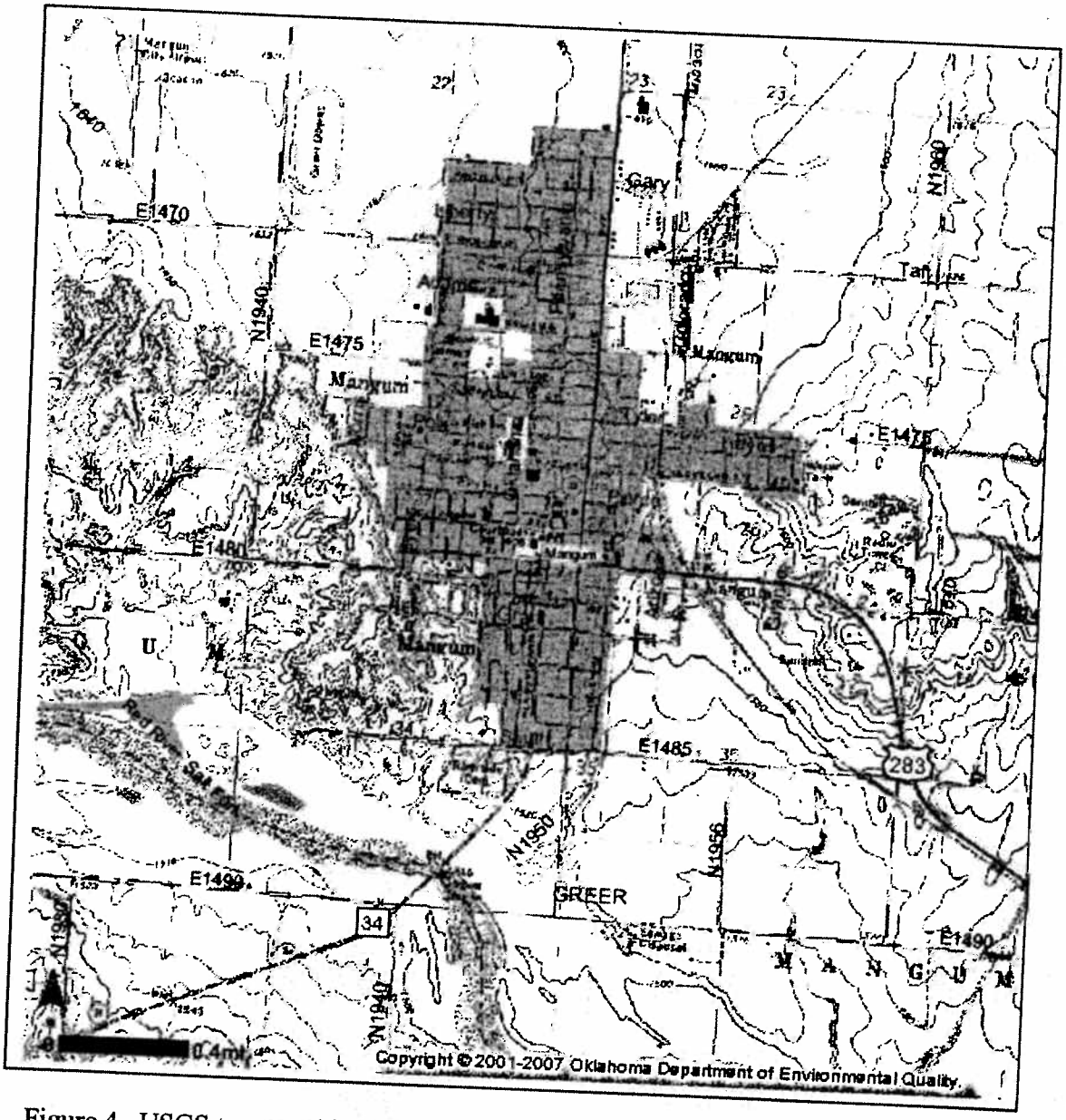


Figure 4. USGS topographic map of Mangum Oklahoma

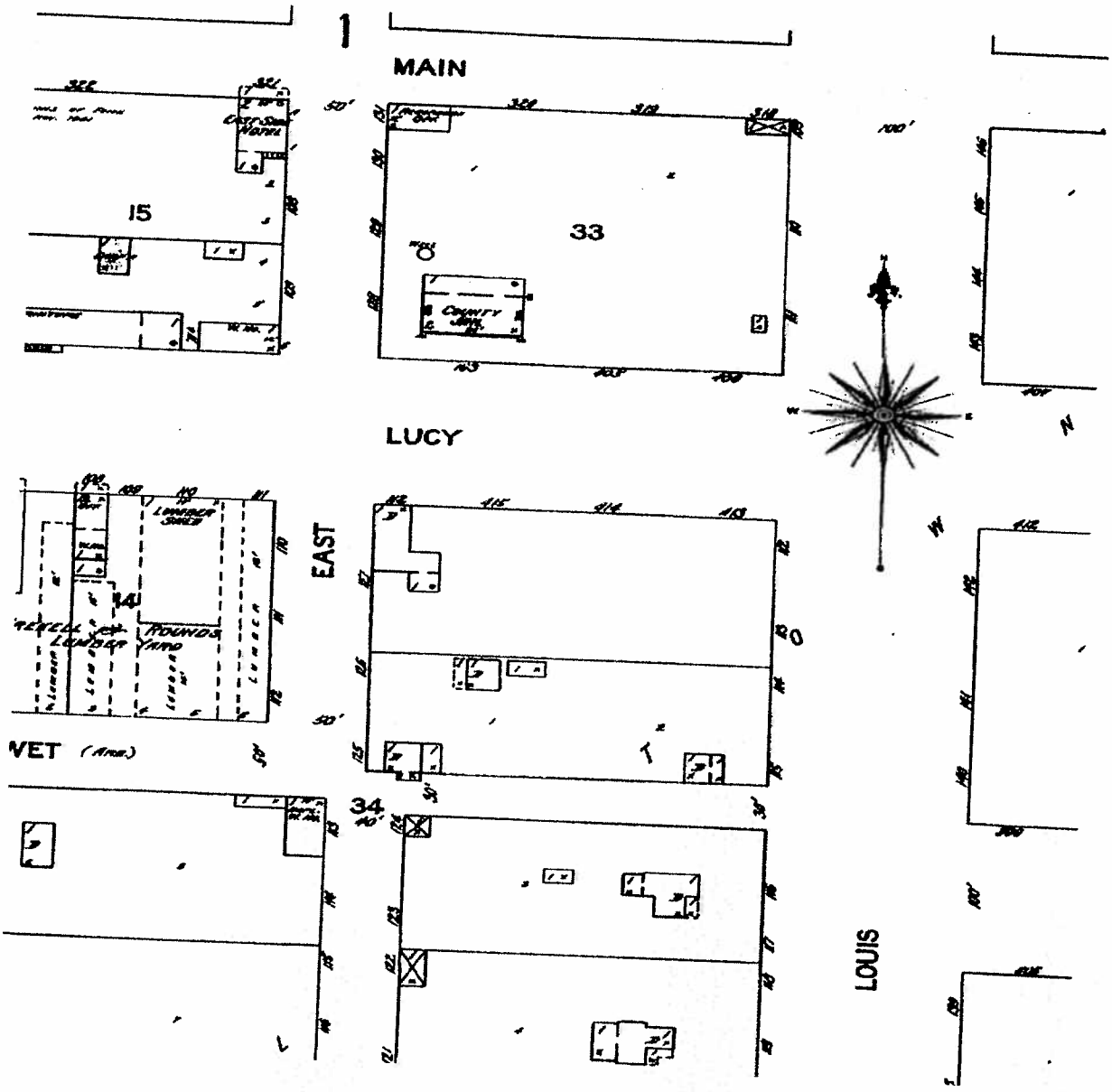


Figure 5. Sanborn Map : Mangum OK March 1902 Block 33 structures Identified as" County Jail and Courthouse

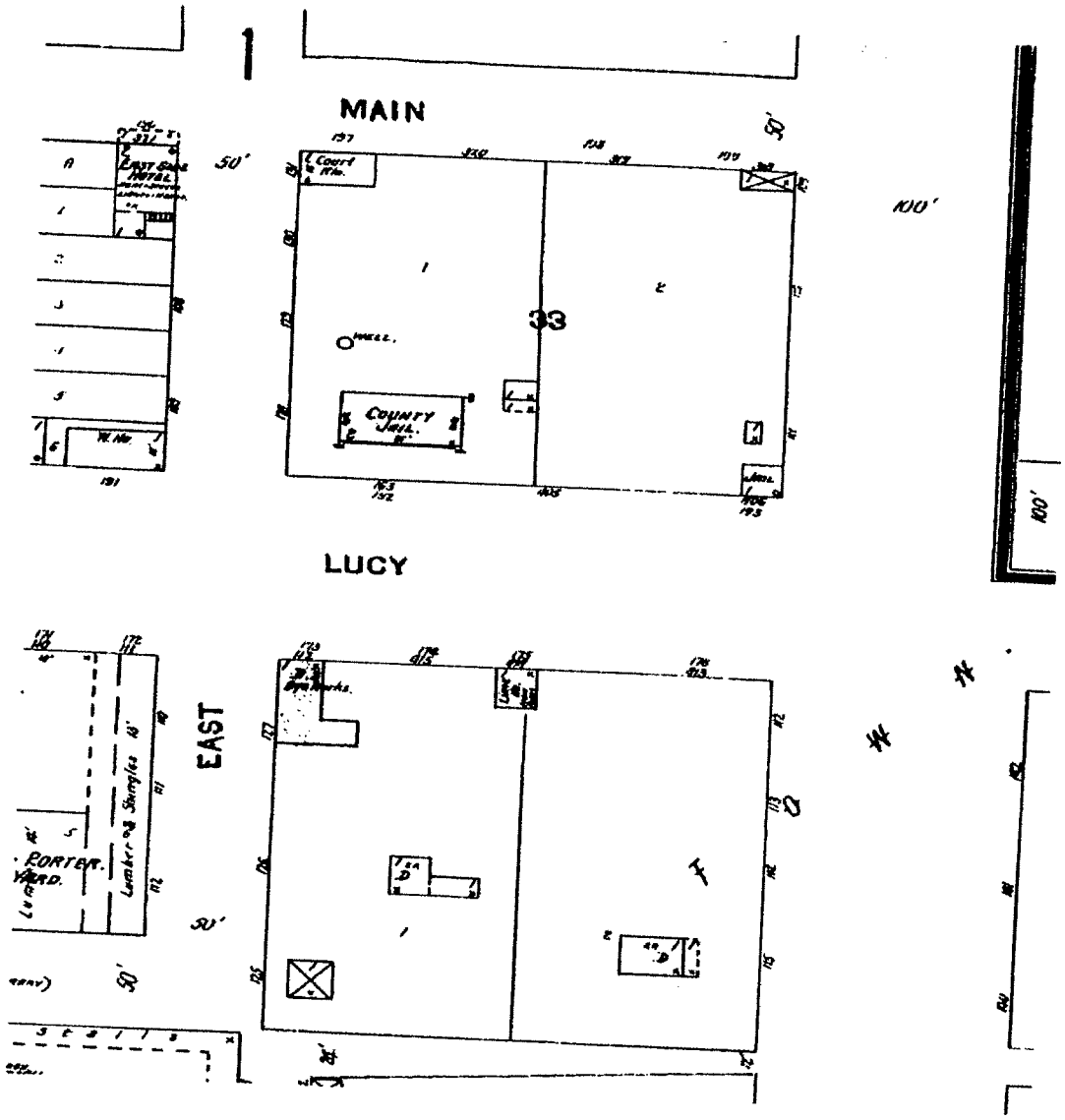


Figure 6. Sanborn Map: Mangum OK March 1904 Note Block 33 now subdivided into two lots.

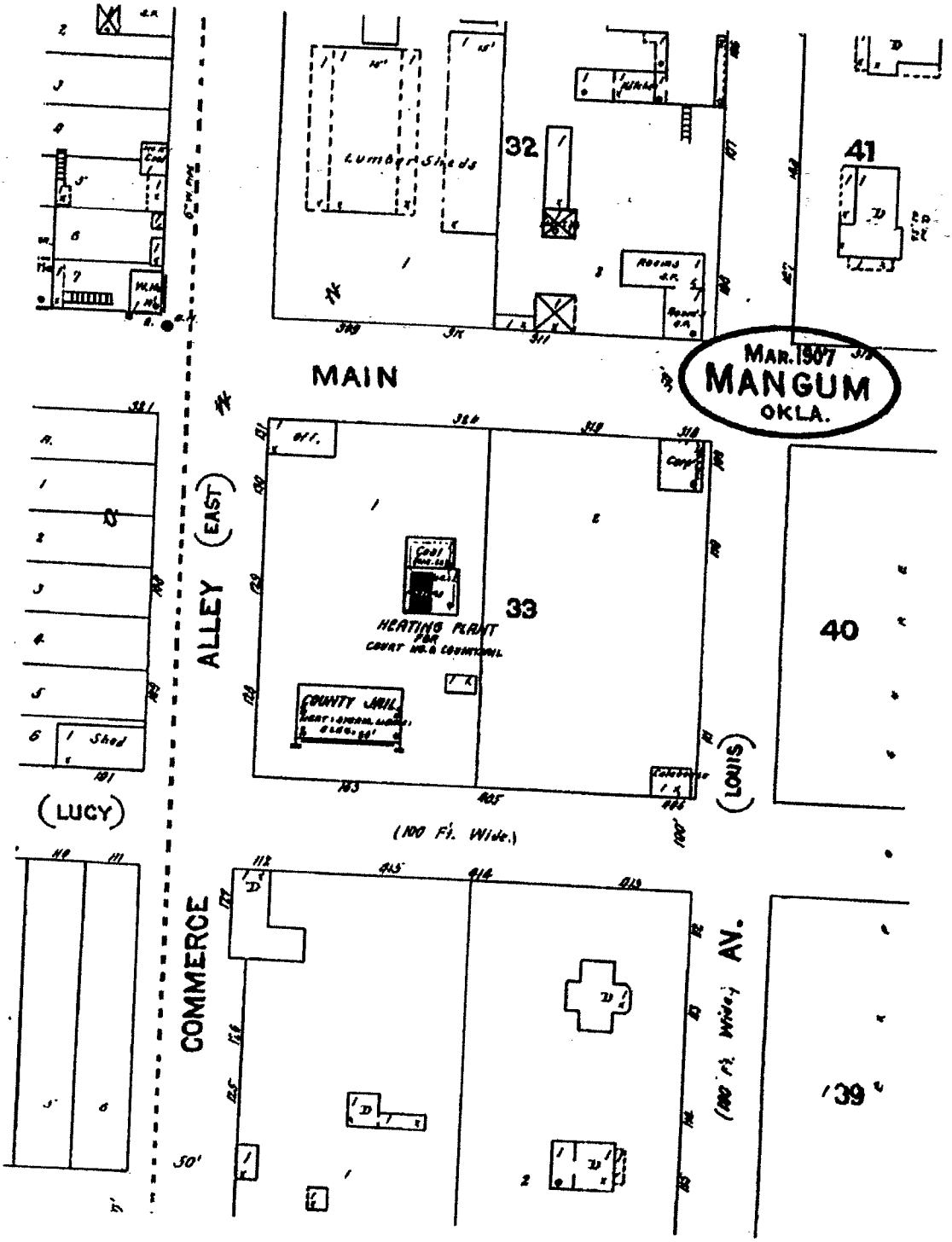


Figure 7 Sanborn Map: March 1907 Note SW corner Block 33 labeled "Calaboose" (and old term used for "Jail".

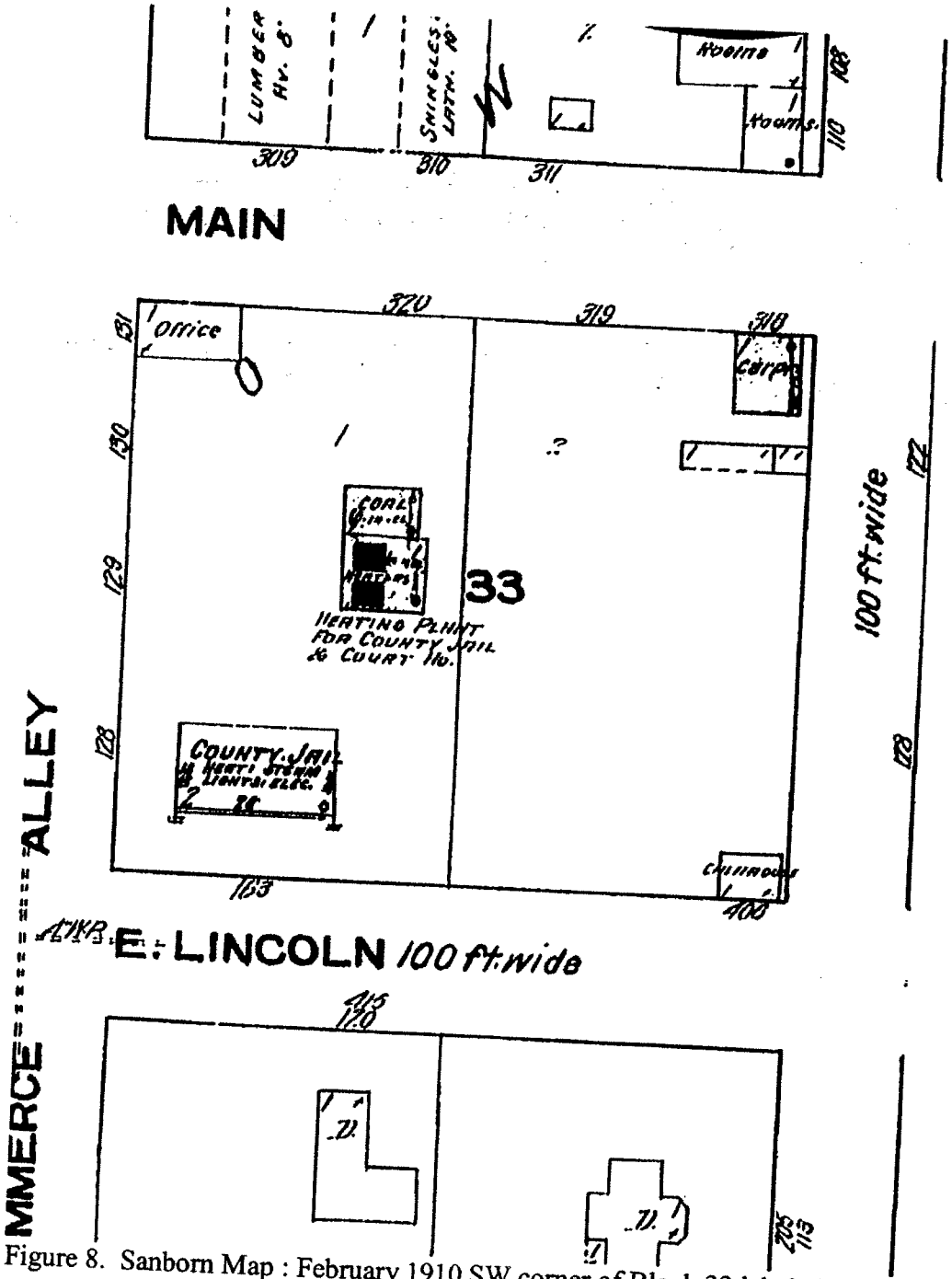


Figure 8. Sanborn Map : February 1910 SW corner of Block 33 labeled "calaboose".

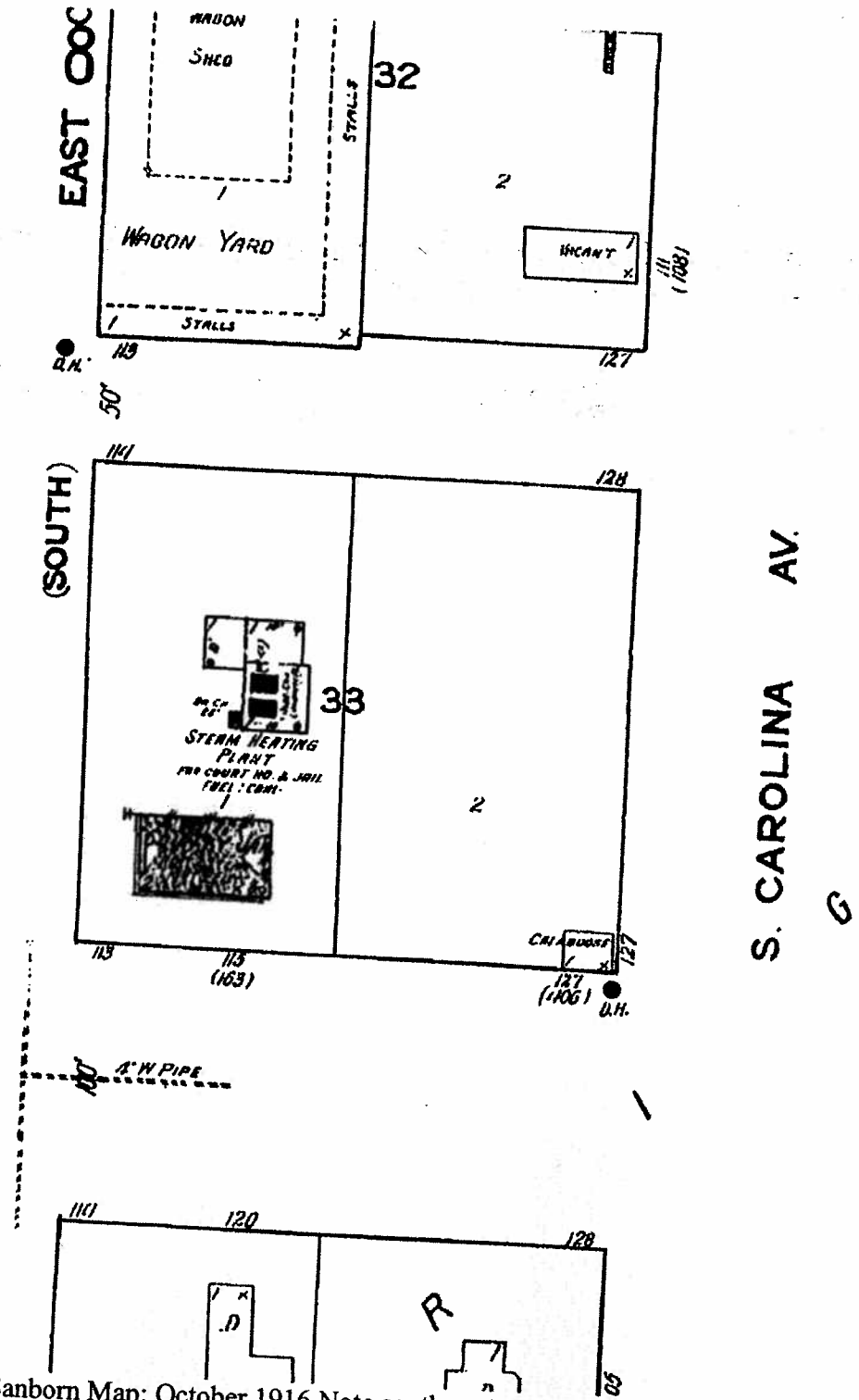


Figure 9. Sanborn Map: October 1916 Note southwest corner of lot 33 labeled "calaboose"

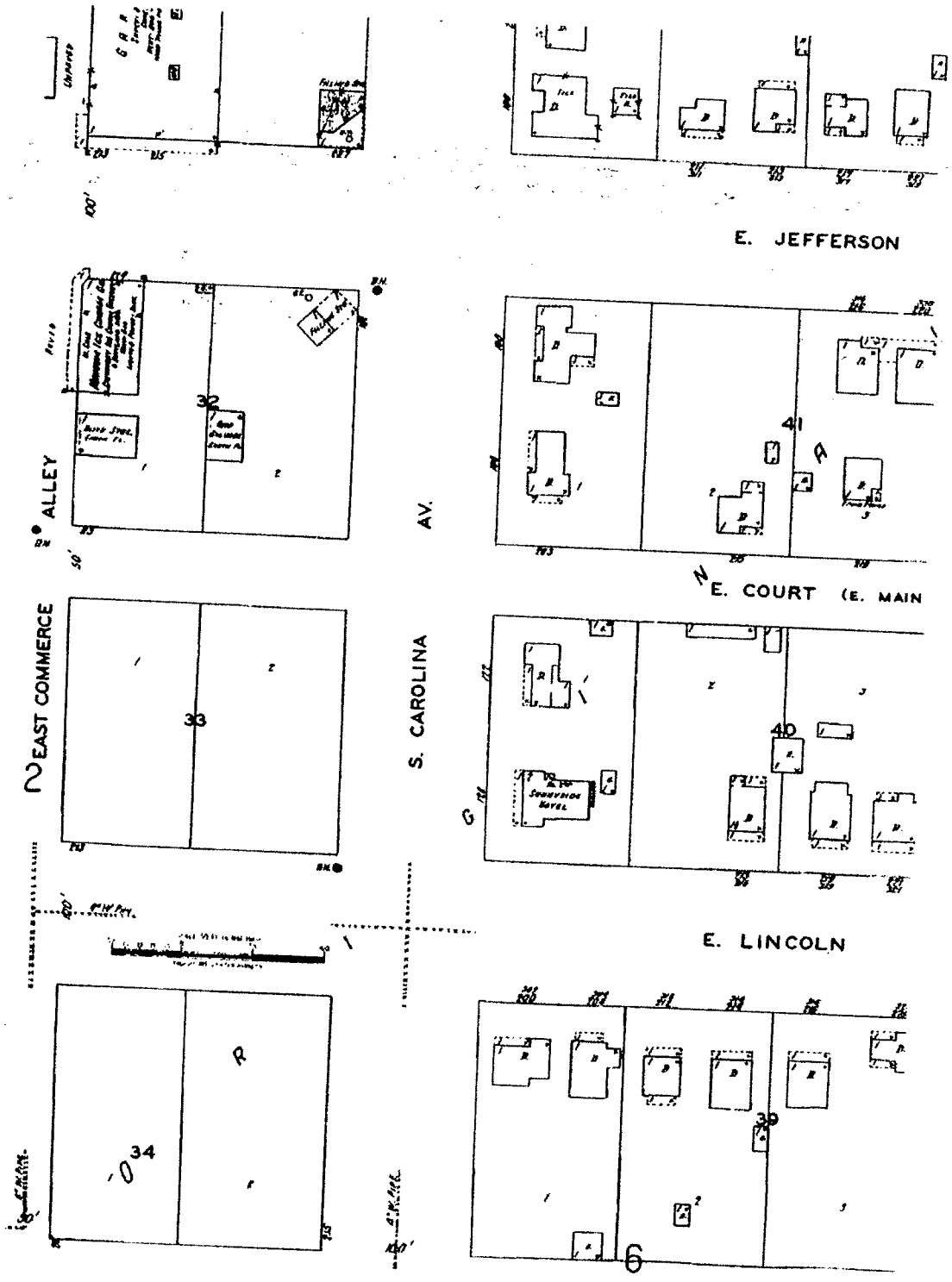


Figure 10. Sanborn Map: March 1930 Note no structures identified on Block 33

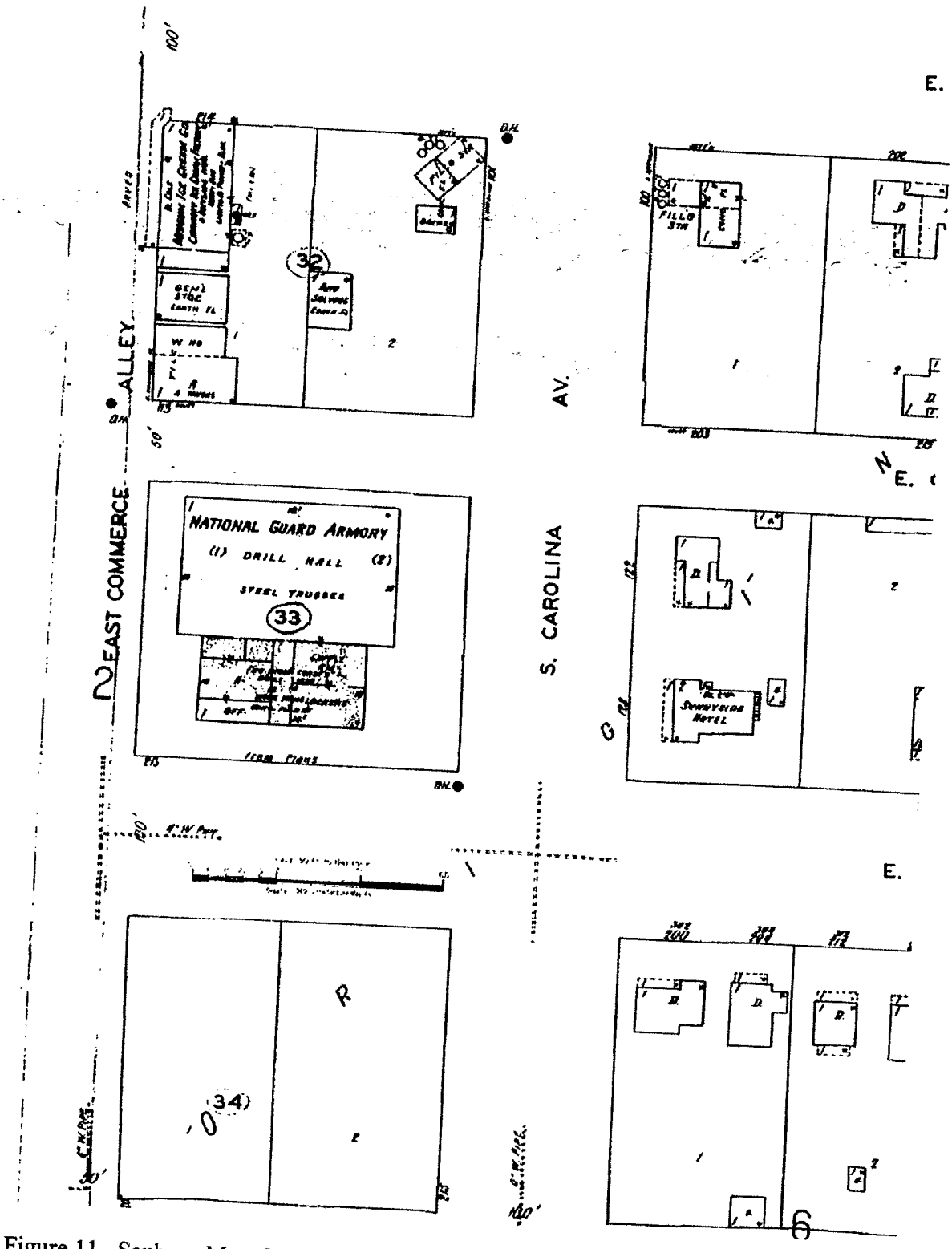


Figure 11. Sanborn Map: March 1930-February 1941 Note National Guard Armory now identified on Block 33. Note "fire proof" construction describing the Armory.

AltFacilityII	LocName	LocStr	City	State	ZIP	AltTankID	TankStatus	AST	ClosureStatusDesc
2800141	KERR MC	1720 N LC	Mangum	OK	73554	A	Permanent	FALSE	Not Listed
2800141	KERR MC	1720 N LC	Mangum	OK	73554	B	Permanent	FALSE	Not Listed
2800141	KERR MC	1720 N LC	Mangum	OK	73554	C	Permanent	FALSE	Not Listed
2801816	JEWETT S	HWY 9 TE	Mangum	OK	73554		Currently in	TRUE	
2801816	JEWETT S	HWY 9 TE	Mangum	OK	73554	1	Permanent	FALSE	Tank removed from ground
2801816	JEWETT S	HWY 9 TE	Mangum	OK	73554	2	Permanent	FALSE	Tank removed from ground
2801816	JEWETT S	HWY 9 TE	Mangum	OK	73554	3	Permanent	FALSE	Tank removed from ground
2801835	BOB'S RA	220 E LIN(	Mangum	OK	73554	1	Permanent	FALSE	Tank removed from ground
2801835	BOB'S RA	220 E LIN(	Mangum	OK	73554	2	Permanent	FALSE	Tank removed from ground
2801835	BOB'S RA	220 E LIN(	Mangum	OK	73554	3	Permanent	FALSE	Tank removed from ground
2801835	BOB'S RA	220 E LIN(	Mangum	OK	73554	4	Permanent	FALSE	Tank removed from ground
2803184	LOVE'S CI	301 N LOL	Mangum	OK	73554	5	Permanent	FALSE	Tank removed from ground
2803184	LOVE'S CI	301 N LOL	Mangum	OK	73554	1	Permanent	FALSE	Tank removed from ground
2803184	LOVE'S CI	301 N LOL	Mangum	OK	73554	2	Permanent	FALSE	Tank removed from ground
2803184	LOVE'S CI	301 N LOL	Mangum	OK	73554	3	Permanent	FALSE	Tank removed from ground
2803184	LOVE'S CI	301 N LOL	Mangum	OK	73554	4	Currently in	FALSE	
2803252	L E CAFFE	230 N LOL	Mangum	OK	73554	5	Currently in	FALSE	
2803252	L E CAFFE	230 N LOL	Mangum	OK	73554	1	Permanent	FALSE	Tank removed from ground
2803252	L E CAFFE	230 N LOL	Mangum	OK	73554	2	Permanent	FALSE	Tank removed from ground
2803252	L E CAFFE	230 N LOL	Mangum	OK	73554	3	Permanent	FALSE	Tank removed from ground
2803252	L E CAFFE	230 N LOL	Mangum	OK	73554	4	Permanent	FALSE	Tank removed from ground
2803253	L E CAFFE	101 E TAF	Mangum	OK	73554	5	Temporaril	FALSE	
2803253	L E CAFFE	101 E TAF	Mangum	OK	73554	1	Permanent	FALSE	Not Listed
2803254	PLANTER	1229 N OK	Mangum	OK	73554	2	Permanent	FALSE	Not Listed
2803254	PLANTER	1229 N OK	Mangum	OK	73554		Temporaril	TRUE	
2803254	PLANTER	1229 N OK	Mangum	OK	73554	1	Permanent	FALSE	Tank closed in place
2803254	PLANTER	1229 N OK	Mangum	OK	73554	2	Permanent	FALSE	Tank removed from ground
2803254	PLANTER	1229 N OK	Mangum	OK	73554	3	Currently in	TRUE	
2803254	PLANTER	1229 N OK	Mangum	OK	73554	4	Currently in	TRUE	
2804033	OKLA DEF	1.4 MI N O	Mangum	OK	73554	5	Currently in	TRUE	
2804033	OKLA DEF	1.4 MI N O	Mangum	OK	73554	1	Permanent	FALSE	Tank removed from ground
2804033	OKLA DEF	1.4 MI N O	Mangum	OK	73554	2	Permanent	FALSE	Tank removed from ground
2804033	OKLA DEF	1.4 MI N O	Mangum	OK	73554	3	Permanent	FALSE	Tank removed from ground
2804033	OKLA DEF	1.4 MI N O	Mangum	OK	73554	4	Currently in	FALSE	
2804146	SHAMROC	N LOUIS T	Mangum	OK	73554	5	Currently in	FALSE	
2804146	SHAMROC	N LOUIS T	Mangum	OK	73554	1	Permanent	FALSE	Tank removed from ground
2804390	MANGUM	400 N PEN	Mangum	OK	73554	2	Permanent	FALSE	Tank removed from ground
2805775	OKLAHOM	115 E LIN(	Mangum	OK	73554	1	Permanent	FALSE	Tank removed from ground
2805851	AT&T-C RI	2.5 MI W C	Mangum	OK	73554	1	Permanent	FALSE	Tank closed in place
2806250	MANGUM	411 E TAF	Mangum	OK	73554	1	Permanent	FALSE	Tank removed from ground
2806250	MANGUM	411 E TAF	Mangum	OK	73554		Permanent	FALSE	Tank removed from ground
2806250	MANGUM	411 E TAF	Mangum	OK	73554	1	Currently in	TRUE	
2806250	MANGUM	411 E TAF	Mangum	OK	73554	2	Permanent	FALSE	Tank removed from ground
2806250	MANGUM	411 E TAF	Mangum	OK	73554	3	Permanent	FALSE	Tank removed from ground
2806250	MANGUM	411 E TAF	Mangum	OK	73554	4	Permanent	FALSE	Tank removed from ground
2806251	MANGUM	1306 N LC	Mangum	OK	73554	5	Permanent	FALSE	Tank removed from ground
2806251	MANGUM	1306 N LC	Mangum	OK	73554	1	Permanent	FALSE	Tank removed from ground
2806251	MANGUM	1306 N LC	Mangum	OK	73554	2	Currently in	FALSE	
2806263	O L . ROU	903 N LOL	Mangum	OK	73554	3	Currently in	FALSE	
2806263	O L . ROU	903 N LOL	Mangum	OK	73554	1	Currently in	FALSE	
2806263	O L . ROU	903 N LOL	Mangum	OK	73554	2	Permanent	FALSE	Tank closed in place
2806263	O L . ROU	903 N LOL	Mangum	OK	73554	3	Permanent	FALSE	Tank closed in place
2806263	O L . ROU	903 N LOL	Mangum	OK	73554	4	Permanent	FALSE	Tank closed in place
2807902	REGAL OA	200 N LOL	Mangum	OK	73554	5	Permanent	FALSE	Tank closed in place
2807902	REGAL OA	200 N LOL	Mangum	OK	73554	1	Permanent	FALSE	Tank removed from ground
2808469	TAB'S CO	130 S PEN	Mangum	OK	73554	2	Permanent	FALSE	Tank removed from ground
2808469	TAB'S CO	130 S PEN	Mangum	OK	73554	1	Permanent	FALSE	Tank removed from ground
2808469	TAB'S CO	130 S PEN	Mangum	OK	73654	2	Permanent	FALSE	Tank removed from ground
2808469	TAB'S CO	130 S PEN	Mangum	OK	73554	3	Permanent	FALSE	Tank removed from ground
2808719	GREER CI	WEST MA	Mangum	OK	73554	4	Permanent	FALSE	Tank removed from ground
2808719	GREER CI	WEST MA	Mangum	OK	73554	1	Permanent	FALSE	Tank removed from ground
2809297	SHEWARI	219 S PEN	Mangum	OK	73554	2	Permanent	FALSE	Tank removed from ground
2809297	SHEWARI	219 S PEN	Mangum	OK	73554	1	Permanent	FALSE	Tank removed from ground
2809297	SHEWARI	219 S PEN	Mangum	OK	73554	2	Permanent	FALSE	Tank removed from ground
2809297	SHEWARI	219 S PEN	Mangum	OK	73554	3	Permanent	FALSE	Not Listed
2811238	SPEEDYS	720 LOUIS	Mangum	OK	73554	4	Permanent	FALSE	Tank removed from ground
2811238	SPEEDYS	720 LOUIS	Mangum	OK	73554	1	Temporaril	FALSE	
2811238	SPEEDYS	720 LOUIS	Mangum	OK	73554	2	Temporaril	FALSE	
2811634	GREER CI	403 N ELM	Mangum	OK	73554	3	Temporaril	FALSE	
2811634	GREER CI	403 N ELM	Mangum	OK	73554		Currently in	TRUE	
2811634	GREER CI	403 N ELM	Mangum	OK	73554	1	Permanent	FALSE	Tank removed from ground
2811635	GREER CI	COUNTY I	Mangum	OK	73554	2	Permanent	FALSE	Tank removed from ground
2814431	PERCY'S I	RT 3 BOX	Mangum	OK	73554	1	Permanent	FALSE	Tank removed from ground
2814431	PERCY'S I	RT 3 BOX	Mangum	OK	73554	1	Temporaril	TRUE	
2814744	JOHN BAF	RT 3 BOX	Mangum	OK	73554	2	Temporaril	TRUE	
2814867	SWBT - RI	315 W PIE	Mangum	OK	73554	1	Permanent	TRUE	Change in service
2816082	AIRPORT	1 MI WES	Mangum	OK	73554	1	Currently in	TRUE	
2820692	GREER CI	2716 N LC	Mangum	OK	73554		Currently in	TRUE	
2821259	THE CHUI	127 E JEF	Mangum	OK	73554		Currently in	TRUE	
2890068	ALLEN SE	RT 1 REEI	Mangum	OK	73554		Permanent	FALSE	Tank removed from ground
2890068	ALLEN SE	RT 1 REEI	Mangum	OK	73554	1	Permanent	TRUE	Not Listed
					73554	2	Permanent	TRUE	Not Listed

Historical Use Information on Adjoining Properties

SANBORN

Site Reconnaissance

Methodology and Limiting Conditions: The method used to observe the property and limitations imposed by physical obstructions or limiting weather conditions.

PEDESTRIAN WALK THRU

General Site conditions:

External observations

N Stained soil or pavement N Stressed vegetation N Solid waste

Other:

Internal observations

N Odors N Pools of liquids ___ Drums SOME STORED 5 GAL BUCKETS BY DOOR

___ Stains or Corrosion on floors, walls, or ceilings STAINS ON FLOOR FROM PARKED VEHICLES

Other:

General notes:

SEE FILE FOR FIELD NOTES

SAMPLES COLLECTED OUTSIDE (FRONT WINDOW)

Current Use of the Property

Descriptions of Structures, Roads, Other Improvements on the Site

STONE, CONCRETE, STEEL CONSTRUCTION BUILDINGS
VEHICLE ENTRANCE W

Description of adjacent properties

SEE PREVIOUS

Owner, Property Manager, and Occupant Information

OK MILITARY DEPT. OK ANG RECREATION OFFICE

Additional Environmental Record Sources

City Records: e.g. Material Safety Data Sheets for chemicals used at industrial or commercial facilities Land Use Restrictions

NO MSDS

CITY RECORDS BURNED IN 1901 FIRE

Physical Setting Sources COUNTY CLERKS OFFICE, USGS, USDA

Historical Use Information on the Property

SANBORN - COUNTY JAIL 1900'S - 1930'S

1936 - OK ANG
to
PRESENT

Onsite information

NSB + LEAD
___Air Emissions ___Wastewater Discharge

Industrial activities

___Monitoring wells *Location:*

___Stained soils *Location:*

___Seeps *Location:*

___Chemical spills *Location:* SMALL SCALE FROM PARKED VEHICLES

___Oil and Gas Exploration *Describe:*

___Known Groundwater or Surface Water contamination

Describe:

___Farm Wastes

___Known Pesticide Misapplication

___Discharges and Runoff from Adjacent Property Affecting the Site

___Transformers/PCB Equipment *Location:*

Describe:

Other known or Suspected Environmental Concerns On the Site

N

Historical Recognized Environmental Conditions On the Site

ACM, UST, LEAD

Military Department Property

N Boiler present? N Radiator present? # of radiators _____

Rooms radiator(s) present in: _____

_____Old lighting ballasts present?

Rooms old lighting ballasts present in: _____

_____

	Type of property	Amount	Room Located In
1.	MISC. RANDOM		
2.	EQUIPMENT STORED		
3.	IN ALL ROOMS		
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Utilities

✓ City water ___Well ✓ City sewer ___Septic tank

✓ Natural gas ___Propane

Underground features

✓ USTs removed N Vent pipes present No USTs not removed

Above ground features

No Cisterns present N ASTs N Impoundments

Structures on adjoining property

Residential, commercial structures, churches, schools etc

W - COMMERCIAL - (RESTAURANT, AUTO DEALER

N - COMMERCIAL - (STORAGE - RESTAURANT, OPTICIST)

S - COMMERCIAL + RES (HARDWARE - AUTO REPAIR, PRINTER)

E - COMMERCIAL + RES (DR OFFICE)

AAI Site Visit

Facility name: MANGUM ARMORY

Facility address: 115 EAST LINCOLN

Date of visit: 3-8-07

DEQ staff in attendance: JARRETT KECK

People interviewed/affiliation with site: CANDI RICHARDSON - CITY MGR
GREG BULL - DOC CAPTIAN
DAVID MITHOC - DOC CASE MGR
SSG CARLOS RAMIREZ - OMNC RECRUITER

Note: Take a copy of the facility map with you to mark where drains, utilities, and sampling locations are located

Asbestos

Note: If Marshall Environmental has already surveyed for asbestos then we can get this information from their report.

Suspect asbestos containing materials (ACM):

	Location of ACM	Material	Notes
1.	~~9x9 TILE~~		
2.	WEIGHT ROOM	9x9 TILE	NON FRIABLE, GOOD COND
3.	OFFICES		
4.		DROP CEILING	SUSPECT ACM
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			

Appendix D - Interview Documentation

GREER COUNTY #1086

2007 AUG 14 AM 10:32

VOL 189 PAGE 278

QUITCLAIM DEED

KNOW ALL MEN BY THESE PRESENTS:

BY Lenora Fite DEPUTY

COUNTY CLERK OF GREER CO. OKLA. SEAL

THAT THE STATE OF OKLAHOMA, ACTING THROUGH THE OKLAHOMA MILITARY DEPARTMENT, by its Adjutant General, Major General Harry M. Wyatt, III, hereinafter referred to as the "Grantor," and in consideration of the sum of Ten and No/100 Dollars ($10.00) and other valuable consideration in hand paid, the receipt of which is hereby acknowledged, does hereby Quitclaim, Grant, Bargain, Sell and Convey unto the **OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY,** hereinafter referred to as the "Grantee," the following described Real Property, together with any and all improvements thereon and appurtenances thereunto belonging.

All of Block 33, Original Addition, City of Mangum, Greer County, Oklahoma, being a parcel of land 175 feet wide running north and south, 200 feet in length, running east and west,, boarded on the east by Carolina Avenue and boarded on the south by Lincoln Street, located in the City of Mangum, County of Greer, State of Oklahoma.

Grantee to hold said land for the purposes of environmental characterization and remediation thereof as determined to be necessary by the Oklahoma Department of Environmental Quality, and upon the filing of a recordable Notice of Remediation in the land records of Greer County, the described real property shall transfer to the City of Mangum, together with any and all improvements thereon and appurtenances thereunto belonging.

TO HAVE AND TO HOLD the Real Property unto the Grantee, free, clear and discharged of and from all former grants, charges and other encumbrances of whatsoever nature except for the interest specifically granted to the City of Mangum herein and any easements of record.

EXECUTED AND DELIVERED this 19th day of April, 2007.

STATE OF OKLAHOMA

By: _____

Major General Harry M. Wyatt, III,
Adjutant General of the State of Oklahoma

This Transaction Is Exempt From Document Stamps, 68 O.S. § 3202(11).

STATE OF OKLAHOMA)
) SS:
COUNTY OF OKLAHOMA)

STATE OF OKLAHOMA }
GREER COUNTY } SS

I hereby certify that the within is a true and correct copy of an instrument filed in my office at 10:32 o'clock A M., the 14th day of Aug. 2007

Anja Wallace County Clerk

By Lenora Fite Deputy

This instrument was acknowledged before me this 19 day of April, 2007, by Major General Harry M. Wyatt, III, as Adjutant General of the State of Oklahoma, on behalf of the State of Oklahoma.

(SEAL)

Notary Public

Commission No. 04000085

My Commission Expires: 1/23/08

NOTARY PUBLIC STATE OF OKLAHOMA

COUNTY CLERK OF GREER CO. OKLA. SEAL

Appendix E - Qualifications of Environmental Professionals

Appendix E – Qualifications of Environmental Professionals

Jarrett Keck holds a Bachelors of Science Degree in Environmental Engineering Technology from California State University Long Beach. He is an Environmental Programs Specialist for the Land Protection Division of the Oklahoma Department of Environmental Quality. His duties include providing technical and regulatory oversight in the Voluntary Cleanup and Brownfield programs. Mr. Keck has over five years of experience in the environmental field performing Phase I/ II Environmental Site Assessment activities, various site remediation technologies, and providing regulatory oversight for state and local government.

Rita R. Kottke, Ph.D., Rita R. Kottke, Ph.D., is the Brownfield Program Manager and Superfund Removal Coordinator for the Land Protection Division of the Oklahoma Department of Environmental Quality (DEQ). She is the agency's technical and policy expert in cross-jurisdictional redevelopment of contaminated property. She was heavily involved in the formulation of DEQ's Brownfield Program, the development of the Brownfield Cleanup Revolving Loan Fund, and the negotiation of the State's Brownfield Memorandum of Agreement with EPA. She has been with the agency for 14 years, working in the Superfund and Brownfields Programs. She holds a Doctorate in Environmental Sciences from Oklahoma State University.

Angela Brunsman holds a Bachelors Degree in Environmental Science and a Masters Degree in Construction Science from the University of Oklahoma. Ms. Brunsman has 12 years experience working for the state of Oklahoma in the environmental remediation field. Duties have included managing Superfund sites, coordinating with local, state, and federal agencies, and currently managing the state Site Cleanup Assistance Program.

Appendix F

Analytical Results of Indoor Firing Range

October 2005
March 2007

Asbestos Inspection Report

March 2007

32.0 MANGUM ARMORY

C.H. Guernsey & Company (GUERNSEY) surveyed the indoor firing range (IFR) at the Mangum Armory on February 9, 2005 (Photographs 32-1 through 32-32). The IFR is approximately 100 feet long, approximately 20 feet wide, and the ceiling is approximately 15 feet high. The ventilation in the IFR consists of a fan vent in the exterior wall that discharges directly outside. The IFR is situated subgrade. The IFR was flooded whenever GUERNSEY performed the site visit.

Based upon information supplied to GUERNSEY, Oklahoma Military Department (OMD) personnel collected wipe samples from the IFR on April 28, 2004. Concentrations within the IFR ranged from 30,170 µg/ft² near the former bullet trap and 153 µg/ft² near the entry to the IFR. A window sill was sample indicated a concentration of 54 µg/ft². However, the drill floor sample indicated a lead concentration of 22.25 µg/ft². This would indicate remedial measures outside the confines of the IFR are not warranted. Table 32-1 summarizes the laboratory results for the wipe samples.

Table 32-1
Laboratory Analysis

Sample ID #	Sample Date	Result (µg/sq. ft.)	Lab Report ID #
206	4/28/2004	30,170.0	Quantem 111870
207	4/28/2004	153.80	Quantem 111870
208	4/28/2004	54.85	Quantem 111870
209	4/28/2004	22.25	Quantem 111870

No equipment was identified for cleaning by OMD and armory personnel:

Table 32-2 provides a preliminary cost estimate to clean the equipment and/or remediate the lead contamination in the IFR. Figure 32-1 shows the approximate locations of the OMD samples.

32.1 OTHER ENVIRONMENTAL CONSIDERATIONS

Beyond the issues related to the IFR, the following environmental related issues potentially exist at the Armory:

- Asbestos containing material (ACM) is material that contains 1% or more asbestos fibers. Because of the Armory's age, there is a potential for ACM in building materials (roofing materials, floor tiles, mastic, ceiling tiles, window putty, natural gas-fired heating systems, etc);
- Lead has been used as a color carrier in paints for hundreds of years. In 1978, its use in residential paints was restricted in the United States. Because of its age, there is a potential for lead containing paints at the Armory;
- Polychlorinated biphenyls (PCB) are oils that were used in electrical equipment until their regulation in 1977. There is a potential for PCB in fluorescent lighting ballasts, capacitors, transformers and other dielectric fluid filled electrical equipment at the Armory;

- The potential for mold exists within the Armory due to a compromise of the building envelope and the presence of standing water and visible water damage;
- Chlorofluorocarbons (CFCs) are compounds used in heating, ventilation, and cooling (HVAC) systems and in fire suppression (i.e., halon) systems. The use, release and recycling of these compounds are regulated by EPA. There is a potential for CFCs to be present in the HVAC equipment and fire suppression system of the Armory;
- Mercury is a heavy metal used in thermostats, pressure gauges, and other building and process related equipment. There is a potential for mercury containing thermostats at the Armory;
- Lead, nickel, and cadmium are heavy metals used in batteries. There is a potential for heavy metal containing batteries in the emergency lighting and exit signage at the Armory; and
- Other issues may be present that were not visually evident to GUERNSEY.

Table 32-2
Preliminary Cost Estimate

Equipment Cleaning Costs (a)

Item Description	Number	Unit	Cost Per Unit	Total Cost
Total				**$0**

Remediation Costs (b)

Item Description	Number	Unit	Cost Per Unit	Total Cost
Mob/DeMob	1	Each	$1,500	$1,500
Stage/Clean Equipment/Components for Disposal	1	Each	$2,500	$2,500
Cleaning of Army Equipment (a)	N/A	N/A	N/A	$0
Clean/Seal Firing Range surfaces	7600	ft^2	$5	$34,200
Clean Drill Floor	0	ft^2	$0.10	$0
Solidify/Stabilize Material in Bullet Trap	500	ft^3	$15	$7,500
Waste Disposal (non-hazardous)	2	Ton	$1,000	$2,000
Total (+/- 25%)				**$47,700**

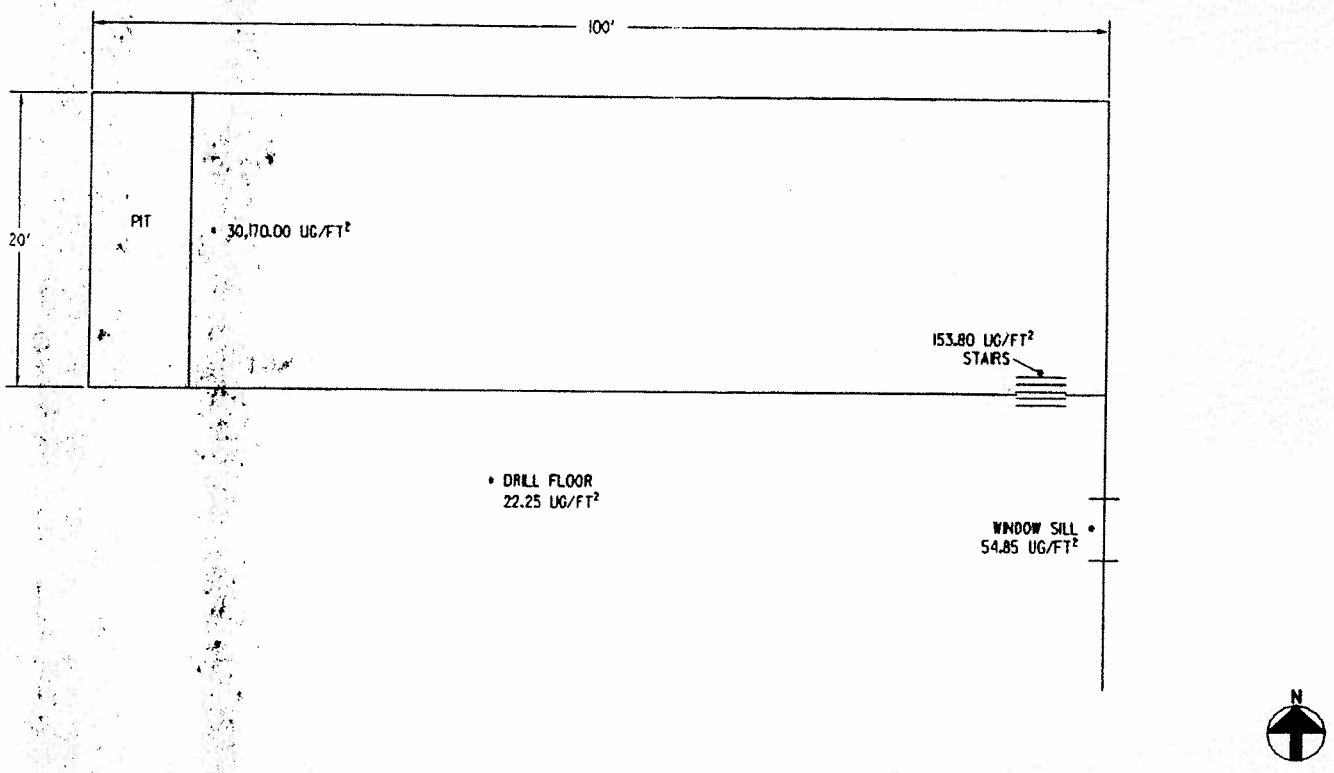
Notes:
(a) Includes the cleaning of equipment identified by OMD personnel during site visit. Please reference photographs for each item.
(b) Includes cleaning of firing range space, drill floor, and other surfaces to <40 ug/ft^2.

MANGUM FIRING RANGE NOTES:
1. ALL MEASUREMENTS ARE APPROX.
2. SAMPLE LOCATIONS ARE APPROX. & IDENTIFIED BY "•"
3. SAMPLE CONCENTRATIONS ARE IN MICROGRAMS PER SQUARE FOOT (UG/FT^2)
4. SAMPLES COLLECTED BY OMD PERSONNEL 28-APR-04
5. SEE PHOTOGRAPHS FOR REFERENCE
6. SEE INVENTORY LIST FOR DESCRIPTION OF EQUIPMENT TO BE CLEANED

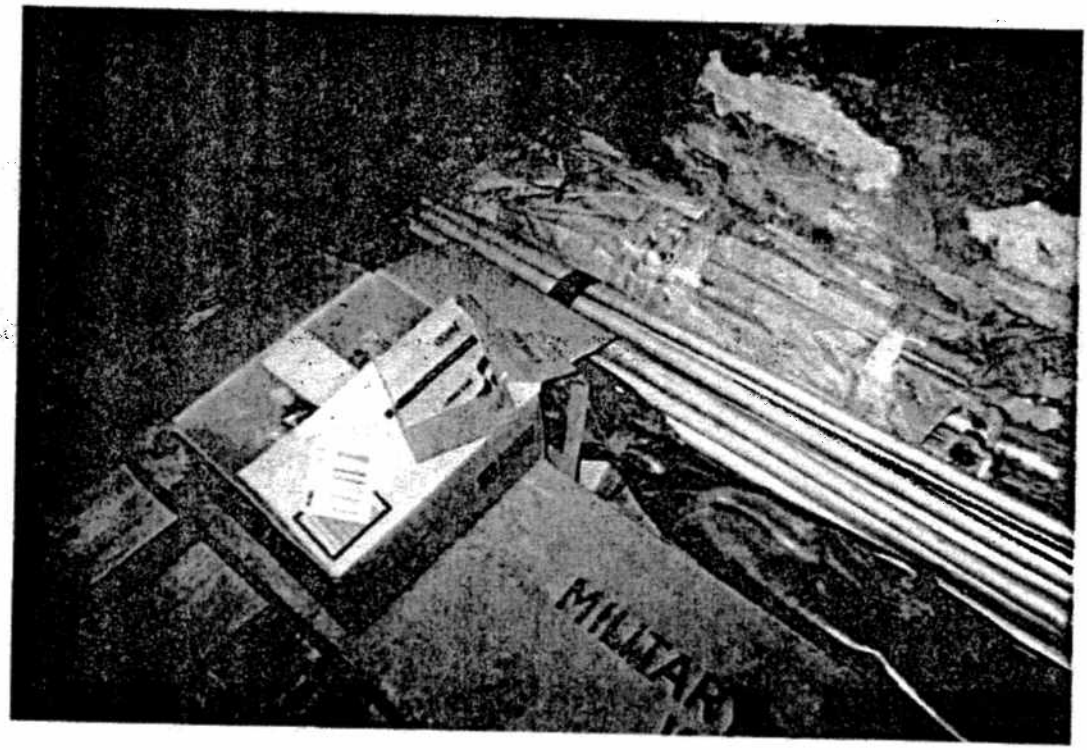
STATE OF OKLAHOMA
Department of Central Services
Construction and Properties Division

Approvals:

Consultant:



MANGUM ARMORY – PHOTOGRAPH LOG



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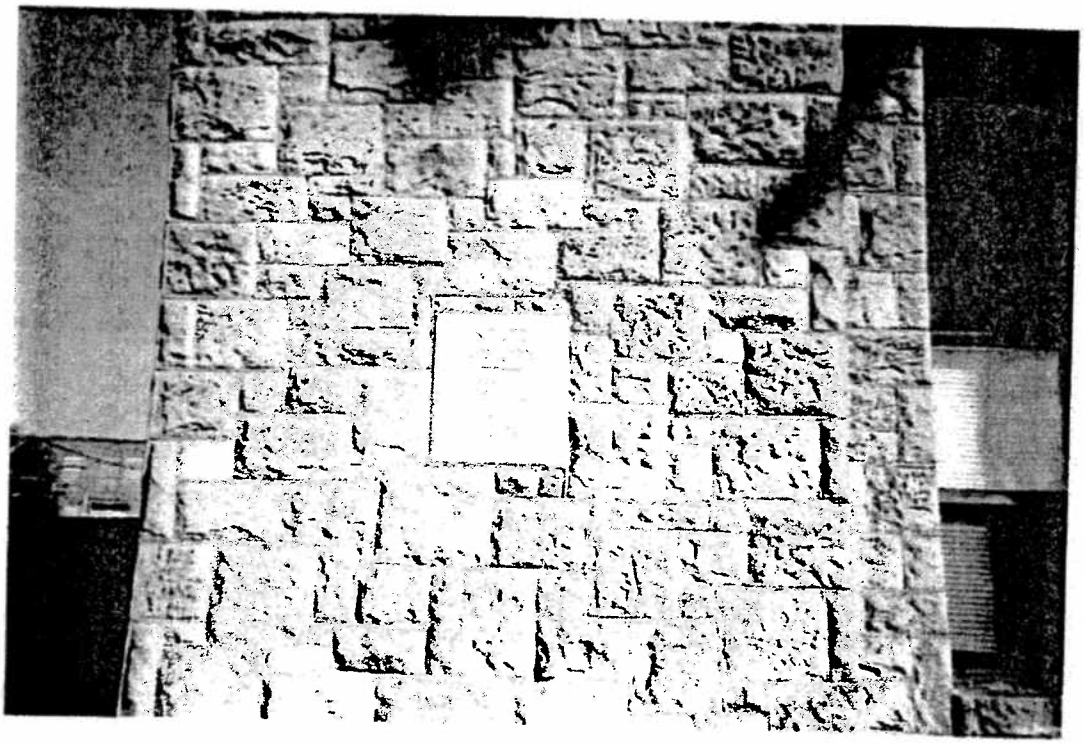

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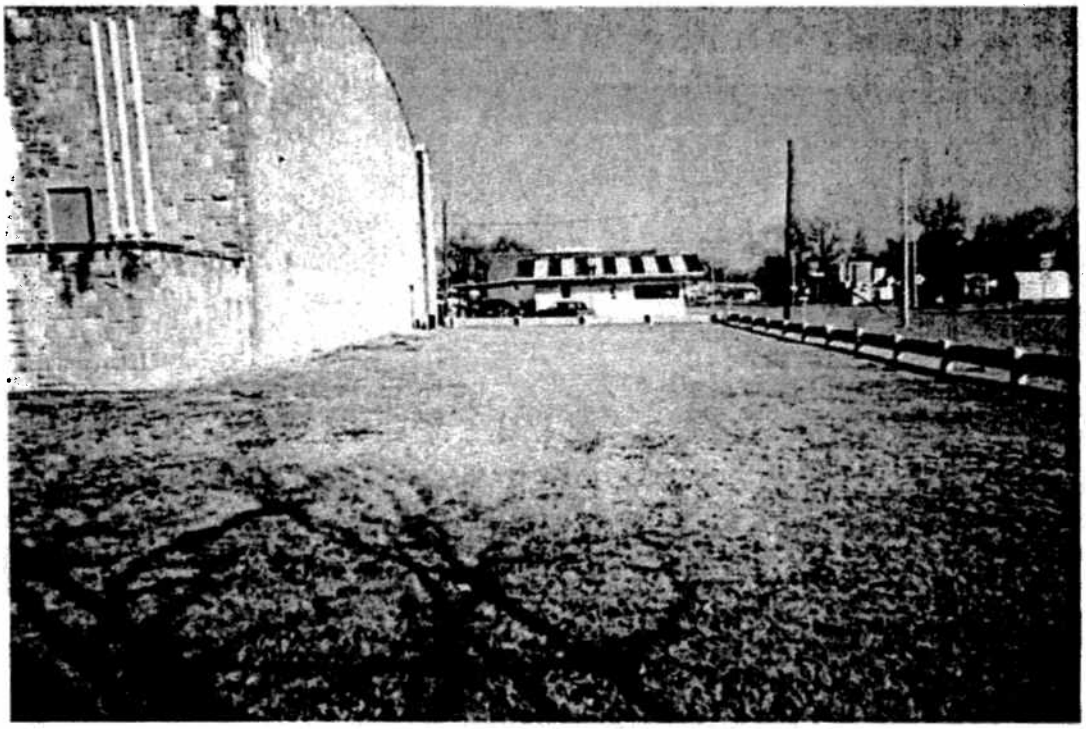

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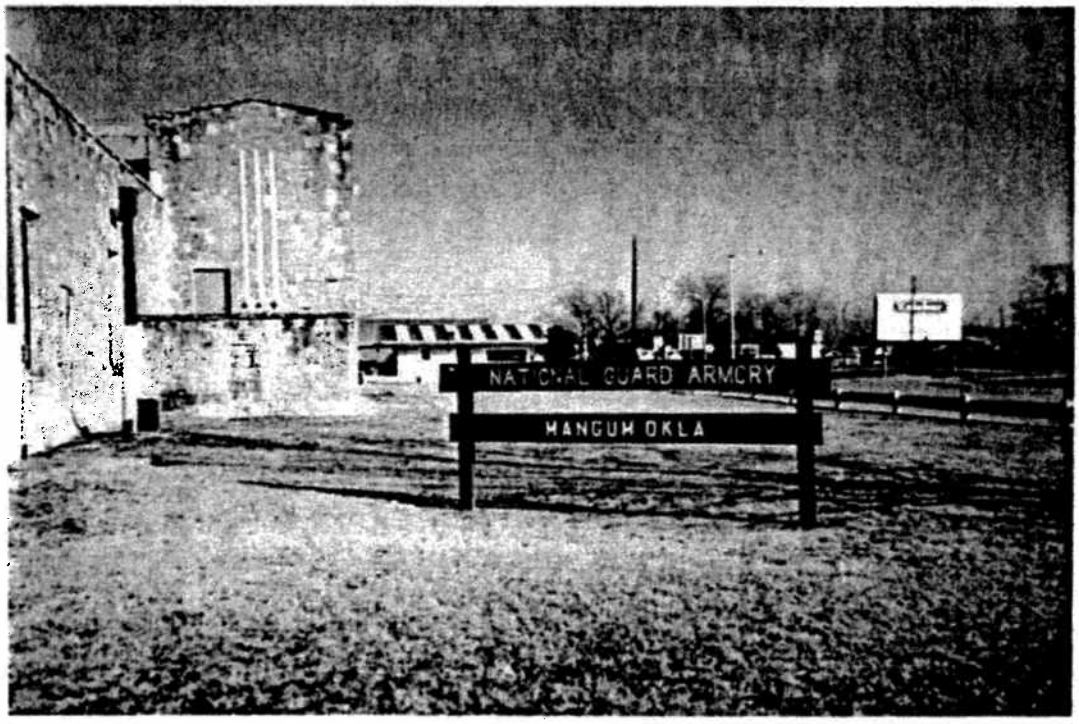

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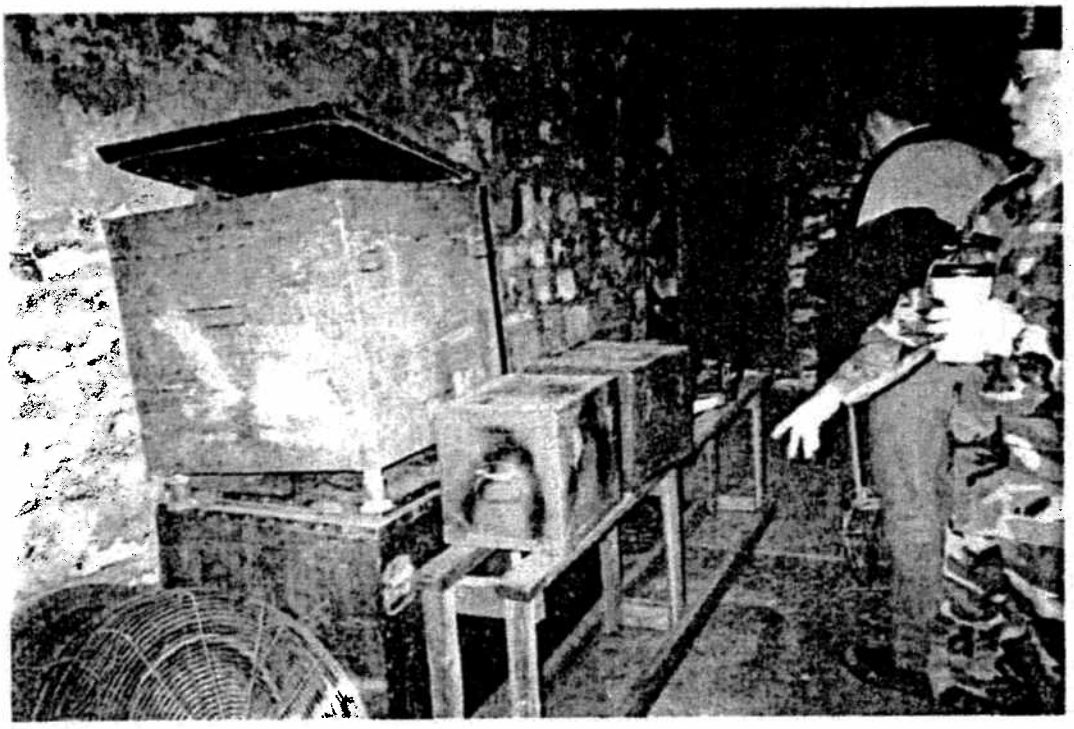
Photograph #32-5



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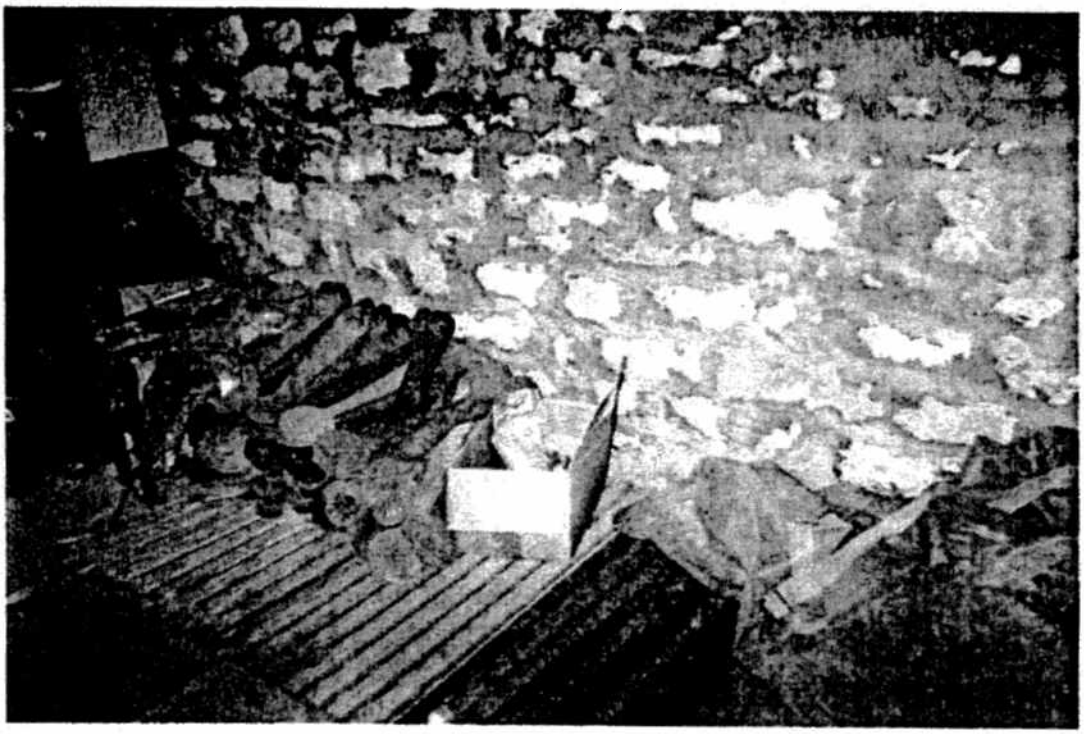

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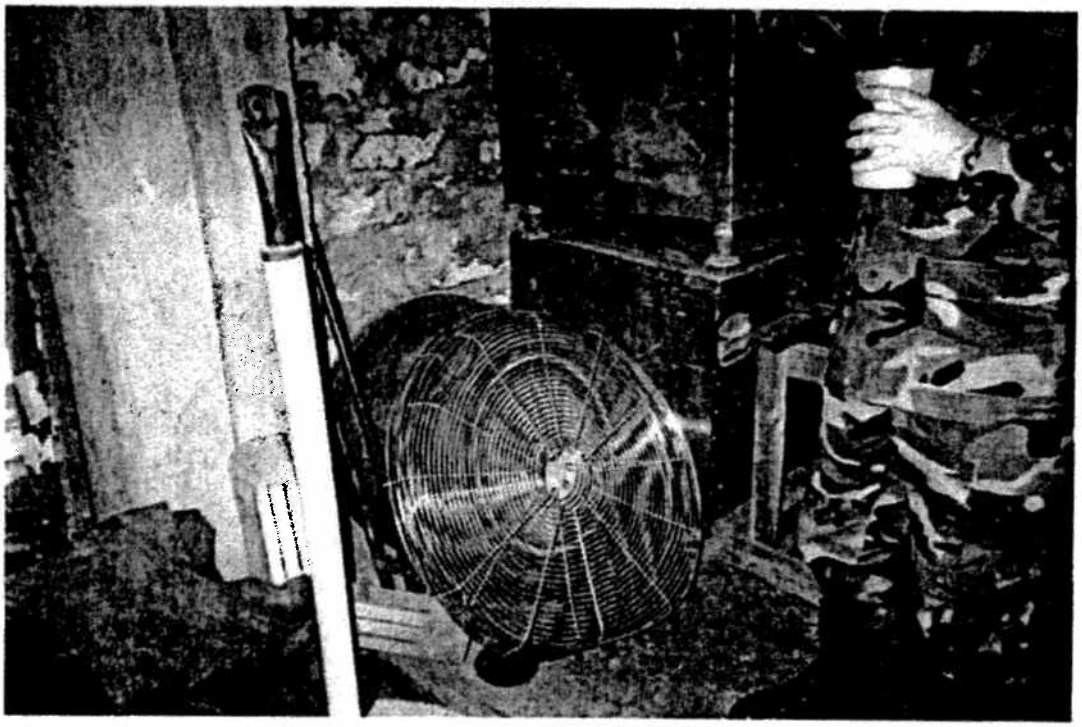

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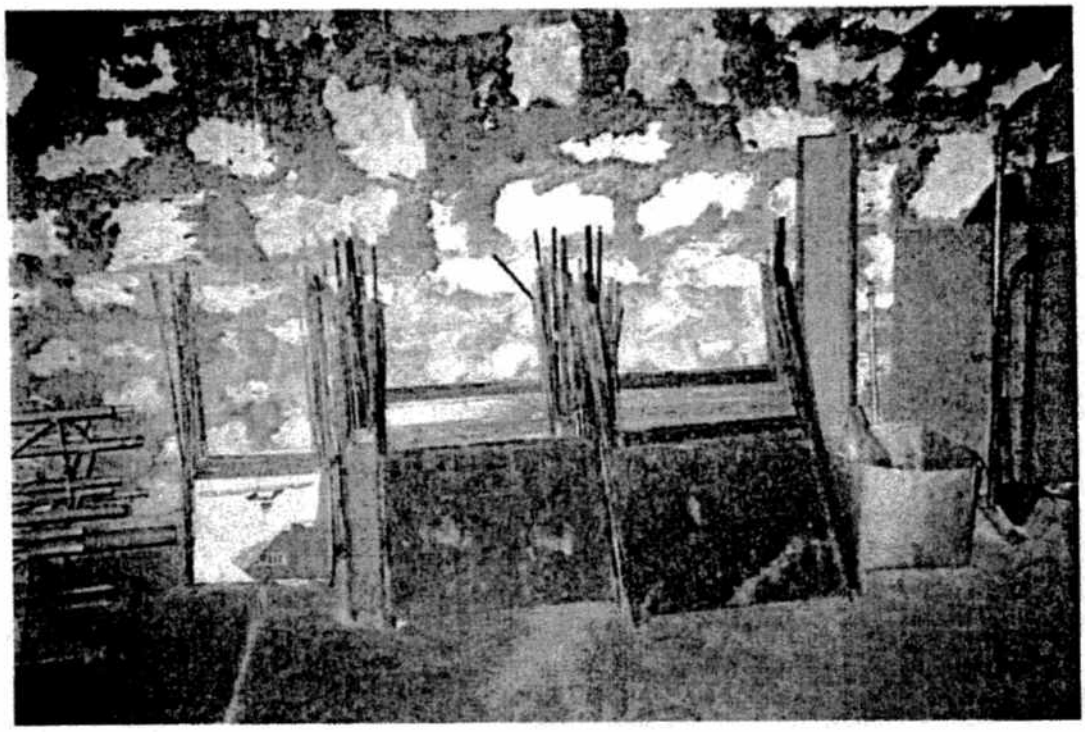

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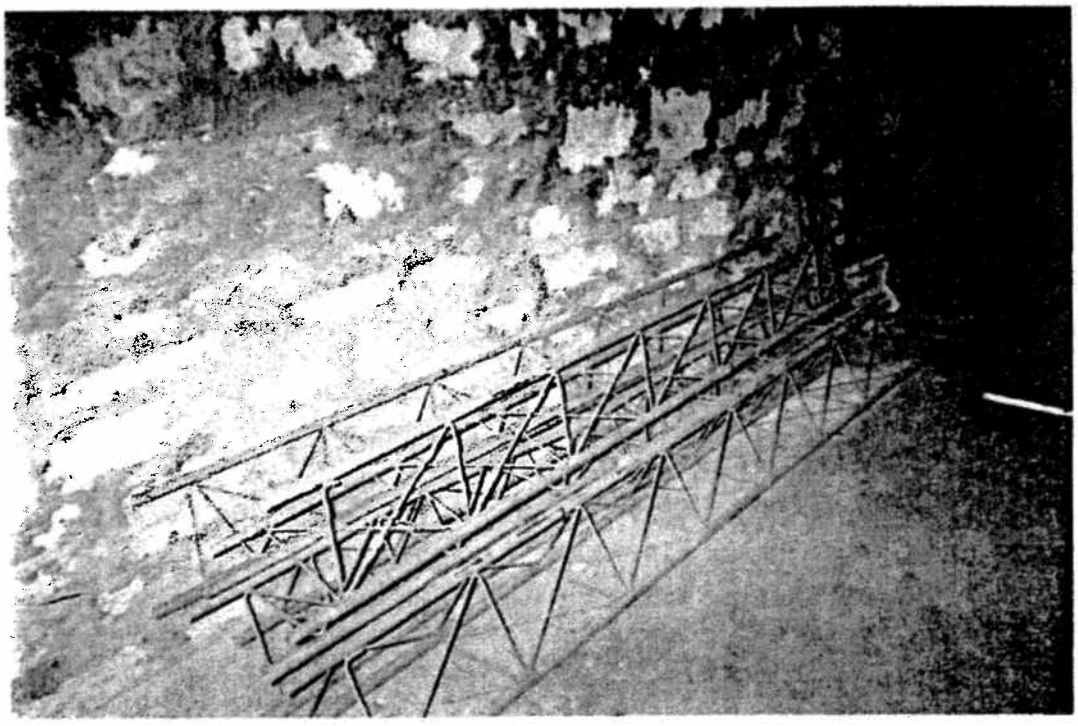

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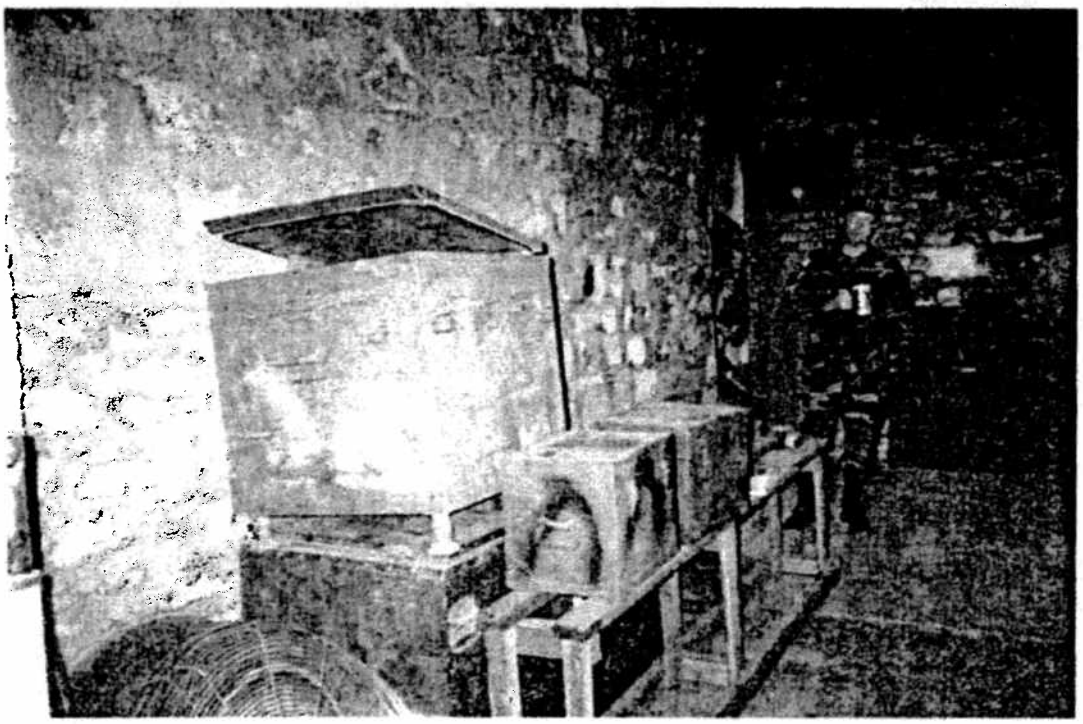
Photograph #32-11

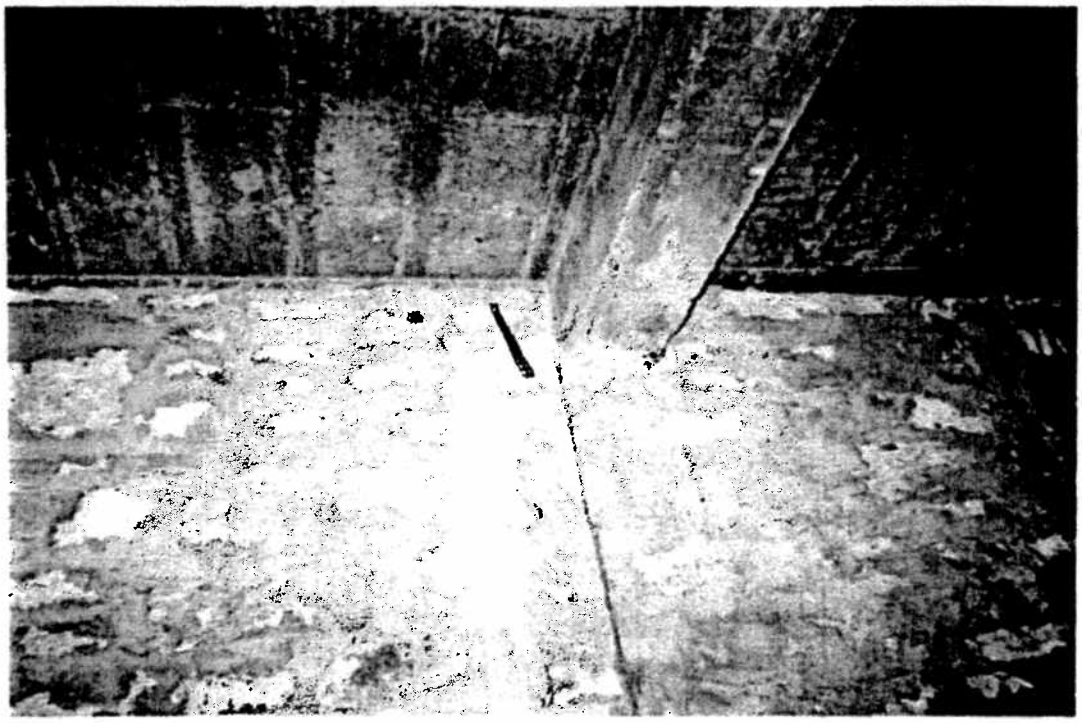


Photograph #32-12

Photograph #32-13

Photograph #32-14

Photograph #32-15



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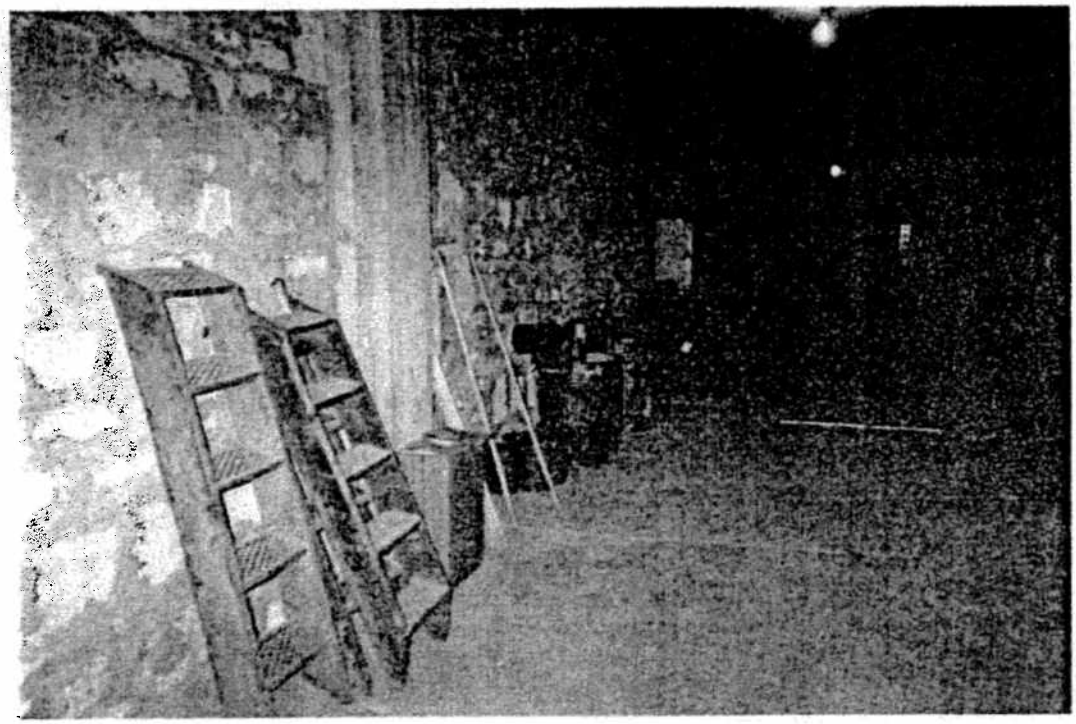

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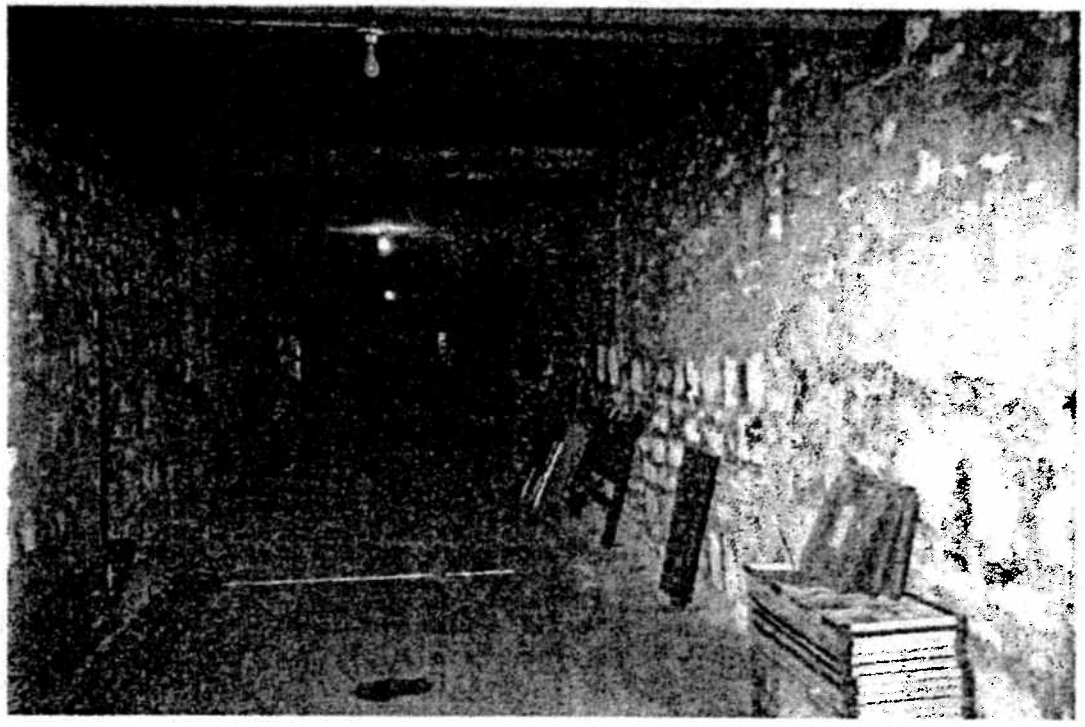

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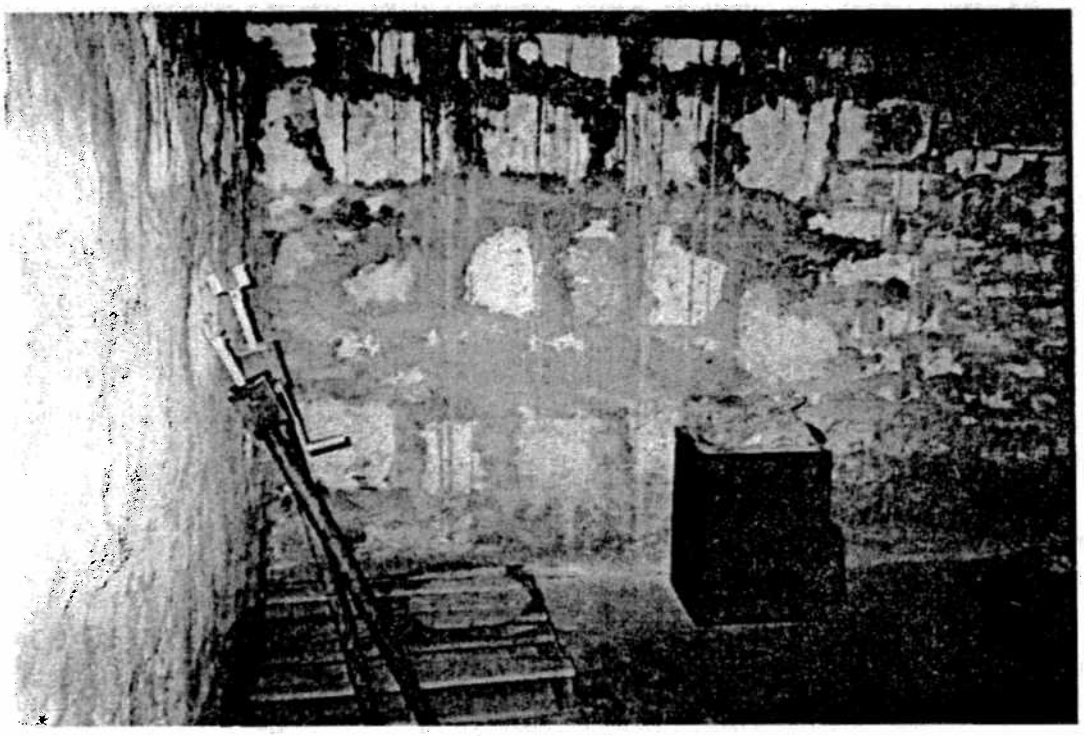

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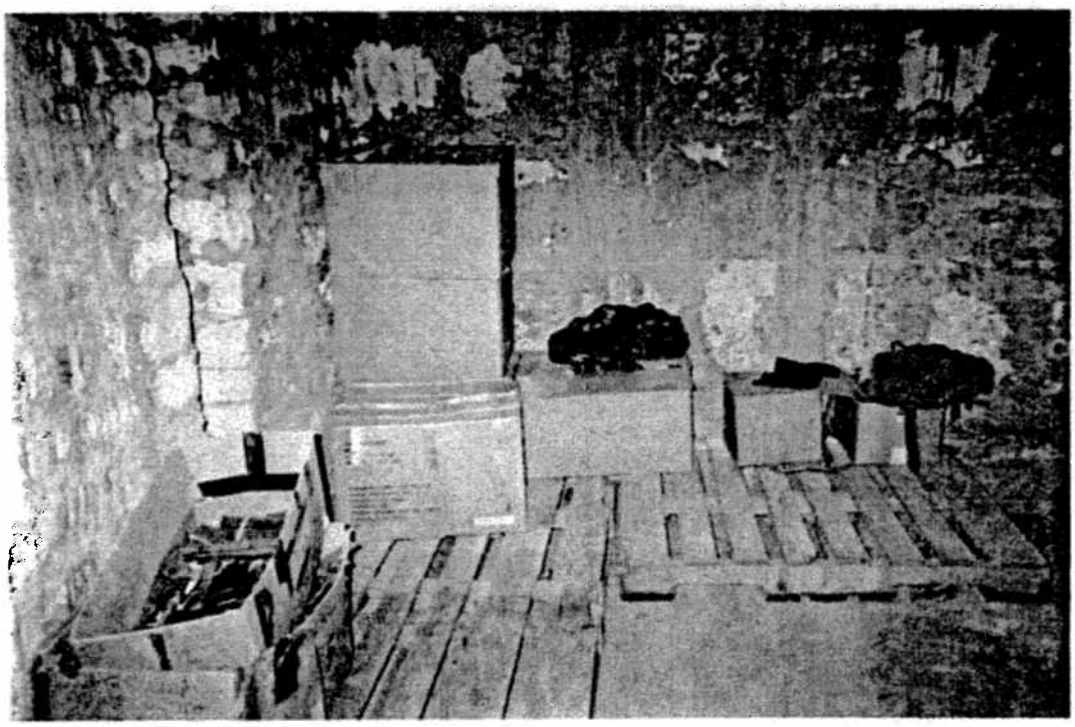

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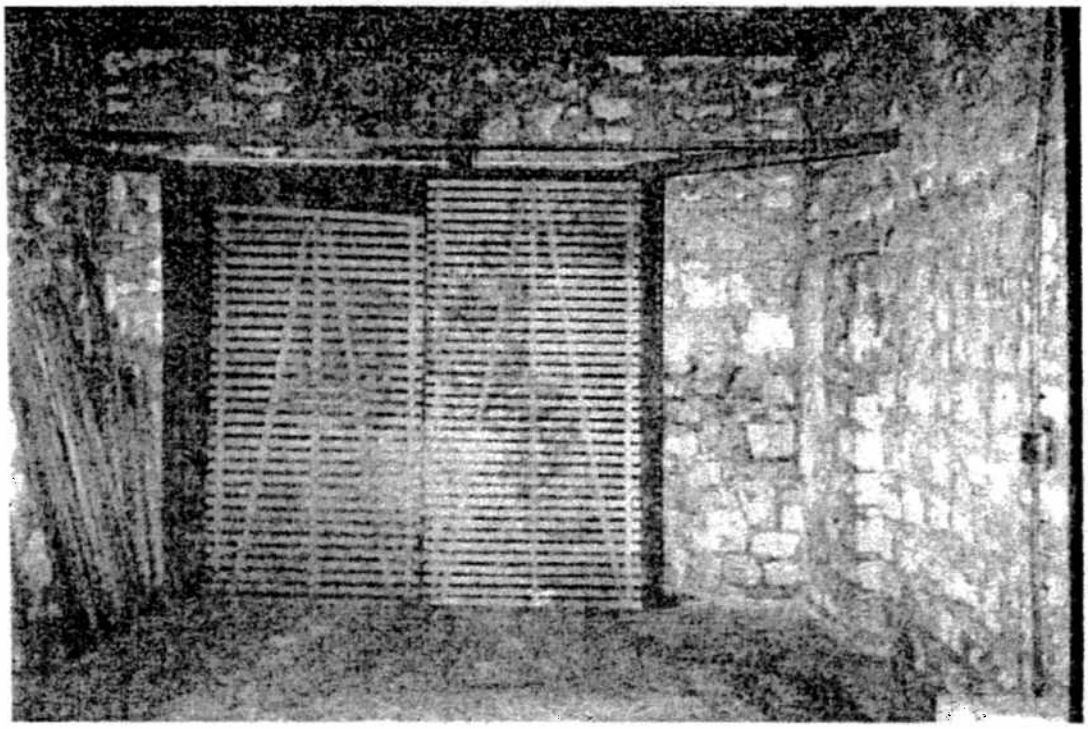

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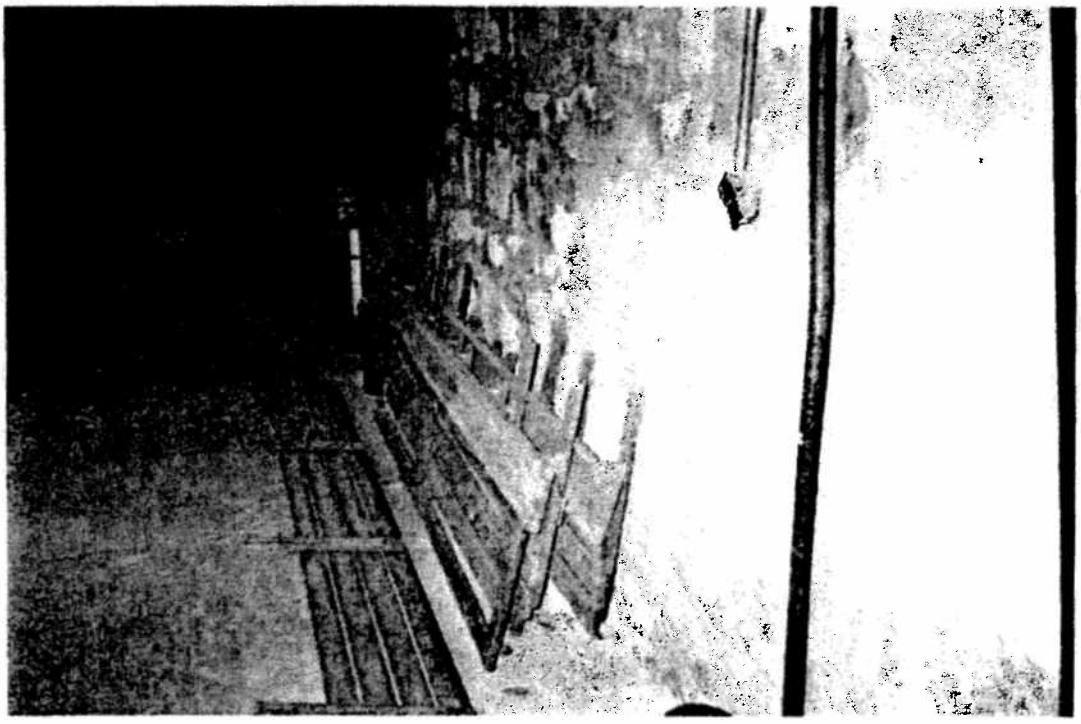

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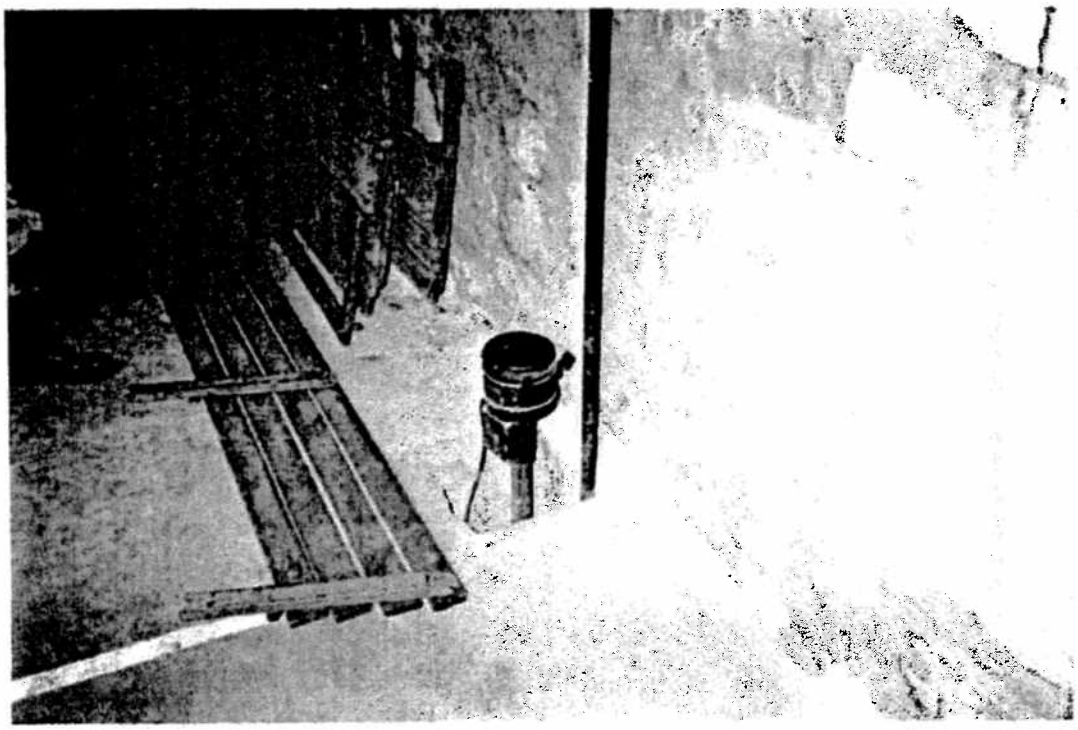

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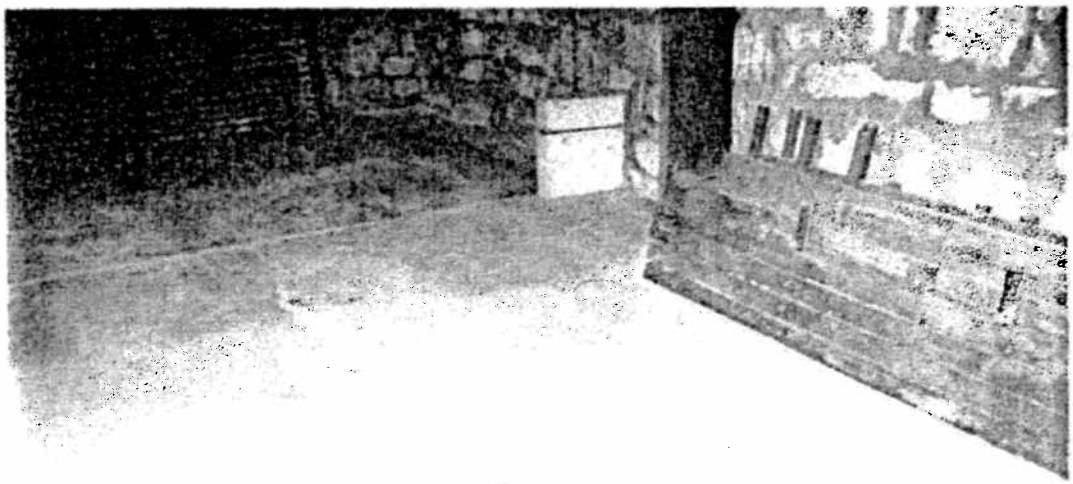

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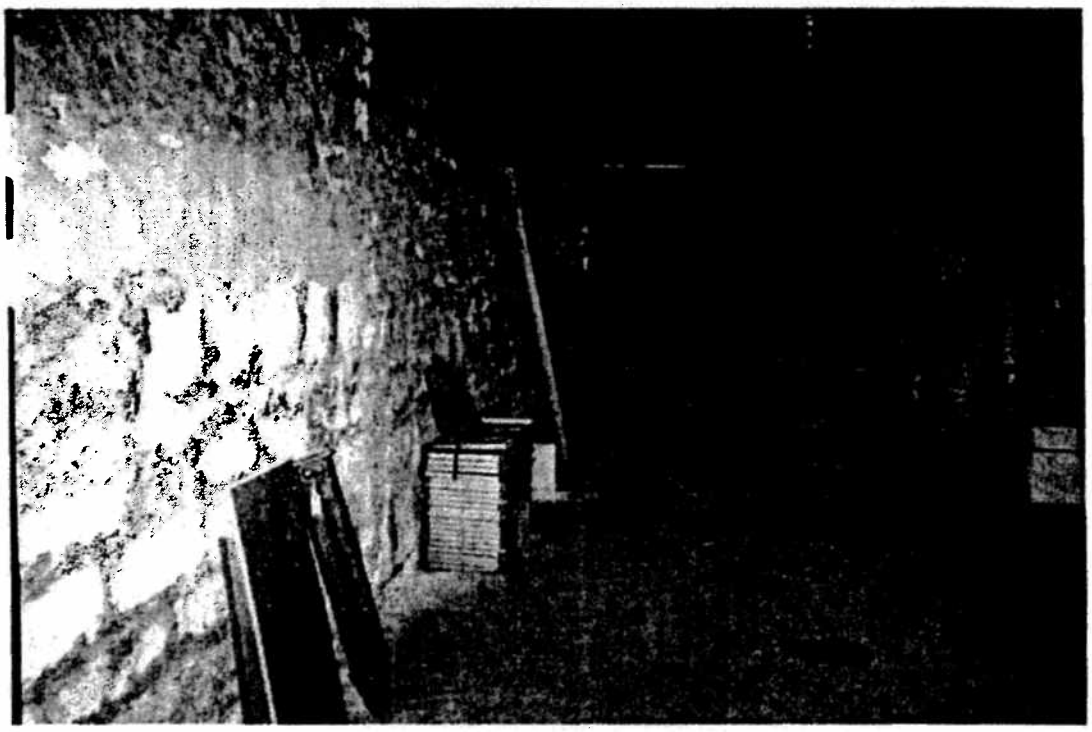

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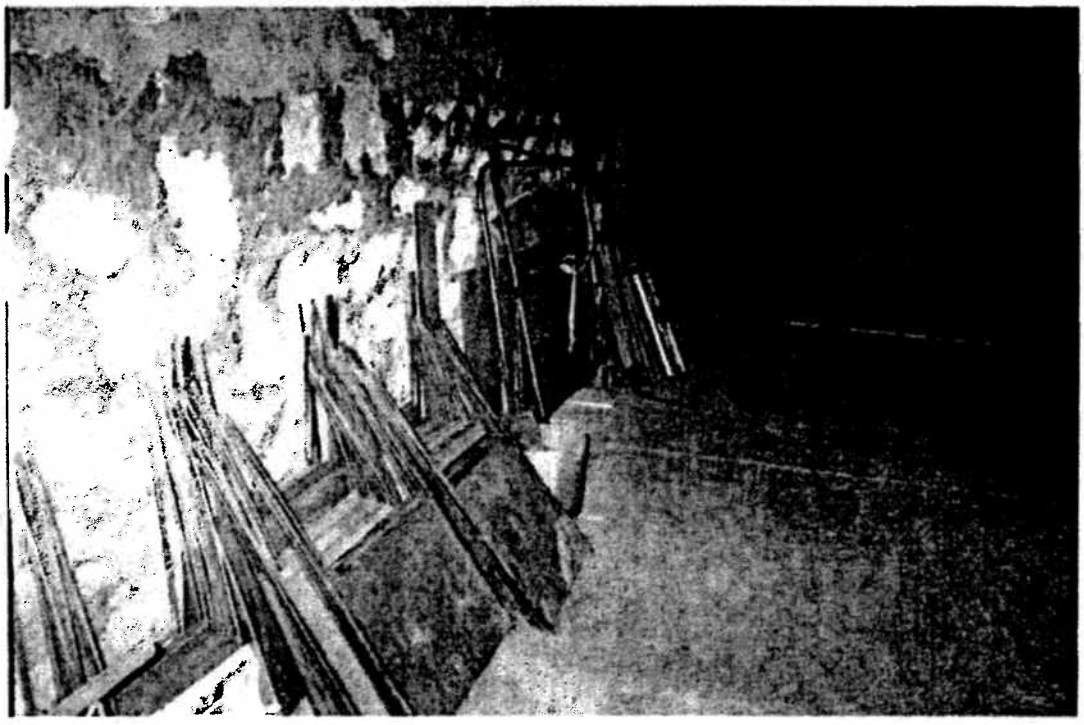

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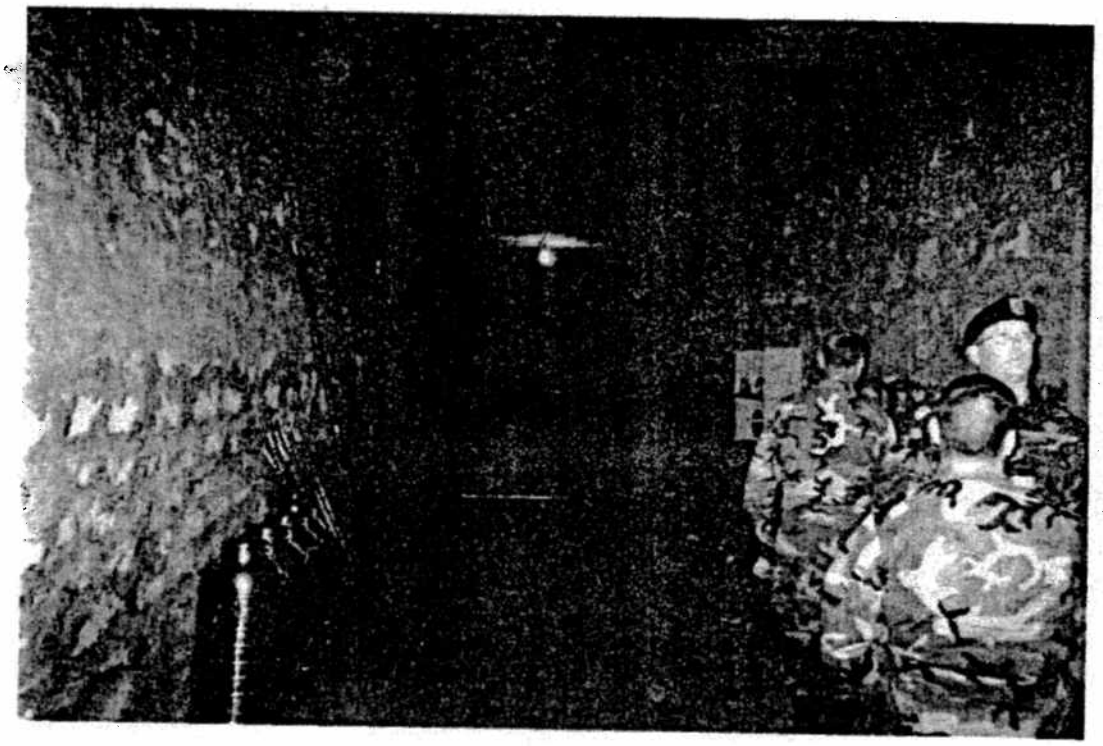

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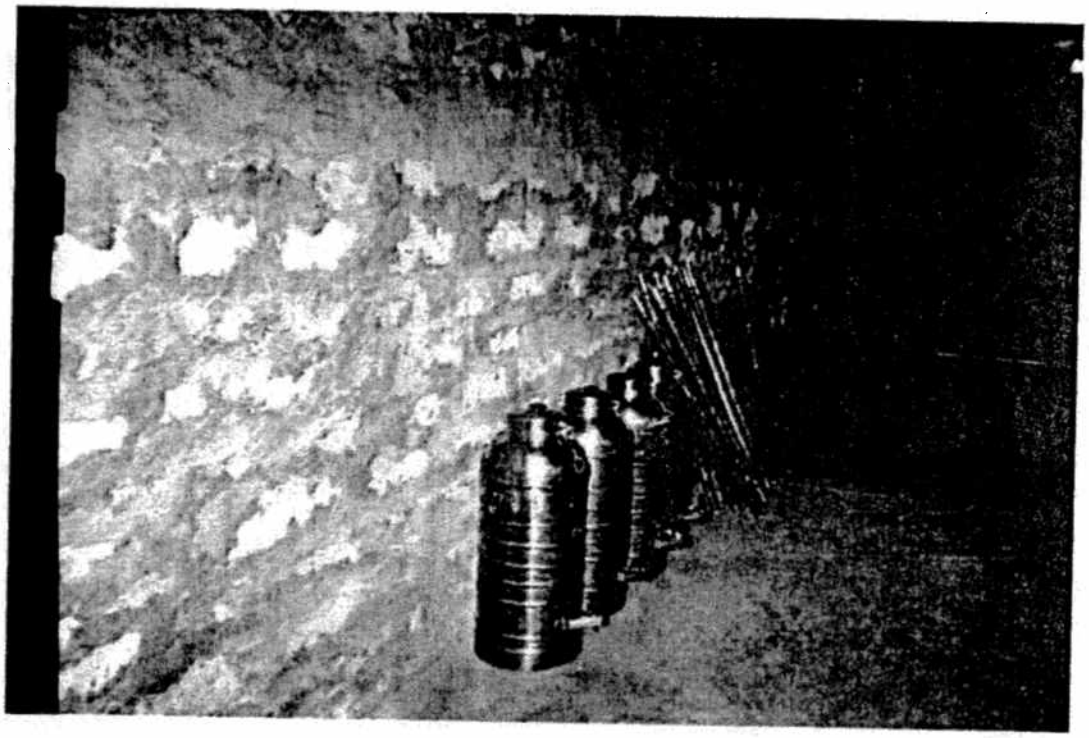

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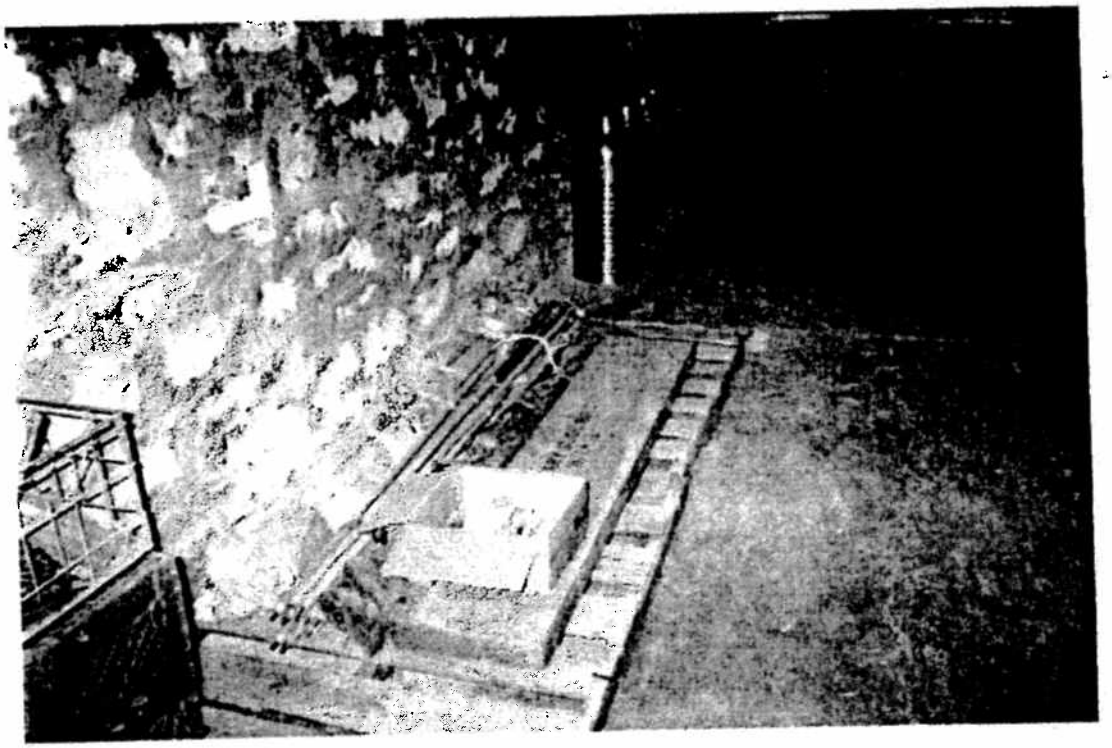
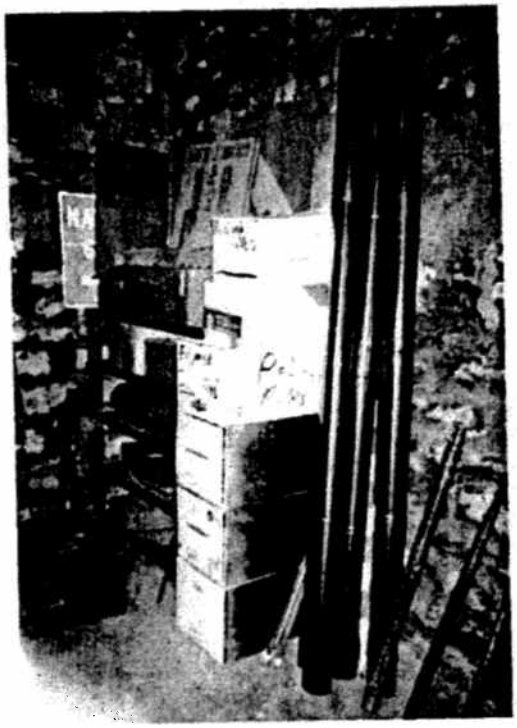


Photograph #32-31



Photograph #32-32

Marshall Environmental Management, Inc.

Charles L. Marshall, Ph.D., C.I.H.
President

Established 1987

- Certified Industrial Hygiene
- Environmental Science
- Occupational Health & Safety
- Asbestos Management
- Toxic & Hazardous Waste
- Medical Hazards Management
- Research & Consultation

March 21, 2007

Ms. Angela Brunsman
Land Protection Division
Oklahoma Department of Environmental Quality
707 N. Robinson
Oklahoma City, OK 73102

RE: Mangum Armory Surface Wipe Sampling for Lead in Dust.

Dear Angela:

As part of the Inspection at the Mangum, Oklahoma Armory on March 7, 2007, Marshall Environmental Management, Inc. was requested to collect surface wipe samples for lead in dust at various locations in the Armory. Attachments to this correspondence include the Certified Lab Analysis for the surface wipe samples conducted by the EPA Accredited Environmental Lead Lab and the associated Chain of Custody form.

The results of the testing for floor wipes identified one (1) out of the twenty-three samples taken on the floor of the Armory as exceeding the Army National Guard (ARNG) and Air National Guard (ANG) action level of 200 micrograms/ft^2 for floor surfaces. These samples were collected in the Ammo Section (530.75 ug/ft^2). However the Firing Range was not tested. The QC Blank was below detection limits.

The ARNG and ARG Guidelines for Converting Indoor Firing Ranges to Other Use advise that floor surfaces exceeding 200 micrograms/ft^2 be cleaned, so that post cleaning lead wipe testing is below this action level or that, at least, a 75% reduction is obtained between the pre-and post-cleanup levels. Appendix C of the guidelines provides recommendations for interpretation of these results.

If we can be of further assistance in this regard, please don't hesitate to give us a call.

Sincerely,
Marshall Environmental Management, Inc.

Charles L. Marshall, CIH
President

Attachments

1145 S.W. 74th Street, Bldg. E, Suite 300 Oklahoma City, OK 73139 (405) 616-0401 Fax (405) 972-0525

ASBESTOS INSPECTION REPORT

MANGUM ARMORY

115 East Lincoln Street

Mangum, Oklahoma 73554

March 7, 2007

Services Provided For:
Oklahoma Department of Environmental Quality
Land Protection Division
707 North Robinson
Oklahoma City, OK 73102

Asbestos Inspection Services Provided By:
Marshall Environmental Management, Inc.
1145 SW 74th Street, Building E, Suite 300
Oklahoma City, Ok 73139
(405) 616-0401

III. EXECUTIVE SUMMARY

The Oklahoma Department of Environmental Quality (DEQ) Land Protection Division (LPD) requested that the Oklahoma Department of Central Services (DCS) provide a Licensed Asbestos Inspection Firm to evaluate the locations and conditions of Asbestos Containing Materials (ACM) in the Mangum Armory located at 115 East Lincoln in Mangum Oklahoma.

Marshall Environmental Management, Inc. (MEM) was contracted by DCS to conduct an Asbestos Inspection for the ODEQ at the Mangum Armory. The Asbestos Inspection was conducted on March 7, 2007. A total of twenty-three (23) asbestos samples were analyzed in accordance with the EPA authorized Method 600 49 CFR Part 61 Subpart M, Asbestos NESHAPS Rules.

The Asbestos Inspection did not identify the presence of asbestos in the Armory's plumbing system's Thermal System Insulation (TSI). It did identify asbestos in surfacing material and miscellaneous materials such as older 9 inch by 9 inch floor tiles and the black asphalt mastics associated with the floor tiles in the Armory Building.

The principal recommendations of the Asbestos Inspection Report consist of developing plans for a response action to remove the asbestos containing surfacing material, floor tile, and their associated black asphalt asbestos containing mastics located in the room on the stage area and maintenance office.