Preservation/Restoration of Moton Field

Phase II

THE JAEGER COMPANY

Tuskegee Airmen
National Historic Site
Tuskegee, Alabama

Historic Structure Report
Warehouse/Vehicle Storage Building

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Executive Summary

Tuskegee Institute (now Tuskegee University) was the only institution during World War II that provided primary military flight training for African-American pilot cadets in the United States Army Air Corps. Tuskegee Institute constructed Moton Field in Tuskegee, Macon County, Alabama, from 1941 to 1945 and used it as the principal facility of their contract primary flying school. The airfield was named for the second president of Tuskegee Institute, Robert Russa Moton. Most Tuskegee Airmen received their first military flight training at Moton Field.

The Tuskegee Airmen were the first African-American soldiers to complete their pilot training successfully and enter the Army Air Corps. Military leaders were at first hesitant to use the Tuskegee Airmen in combat. Eventually the airmen saw considerable action in Europe and North Africa. Their accomplishments in the air proved conclusively that African Americans could fly and maintain sophisticated combat aircraft and ultimately paved the way for full integration of the United States military.

The Southeast Regional Office of the National Park Service (NPS) prepared the *Moton Field/Tuskegee Airmen Special Resource Study* in October 1998 to evaluate the potential of adding Moton Field to the National Park System and to define the significance of the site with regard, specifically, to its association with the Tuskegee Airmen during World War II and, in general, to its role in the history of military aviation. The airfield complex at Moton Field was designated as the Tuskegee Airmen National Historic Site in November 1998 and was subsequently programmatically listed in the National Register of Historic Places.

This Historic Structure Report (HSR) has been prepared as part of Phase II of the Moton Field Preservation/Restoration project. Phase II includes the production of a Cultural Landscape Report (CLR) and fifteen Historic Structure Reports for nine extant structures and six non-existing structures. The CLR addresses the Moton Field site as a whole and contains the complete historic context for the site; each HSR contains an abbreviated historic context that focuses on building history. Following is a list of the fifteen structures for which HSRs have been prepared.[1]

EXTANT STRUCTURES

Hangar Number One
Skyway Club
Control Tower
Bath and Locker House
Warehouse/Vehicle Storage Building
Dope Storage Shed
Oil Storage Shed
Fire Protection Shed
Entrance Gate

NON-EXISTING STRUCTURES

Hangar Number Two
Cadet Class and Waiting Room
Army Supply Building
Physical Plant Warehouse
Vehicle Maintenance Shed
Guard Booth

A *Moton Field Structure Nomenclature* table clarifying the name of each structure for purposes of the CLR and HSRs follows the Executive Summary.

To prepare the Historic Structure Reports and the Cultural Landscape Report, research was done at a number of repositories and on site. Research included on-site field inspections; interviews of persons associated with the site before, during, and after the construction of Moton Field; and review of primary and secondary sources related to the social and physical history of Moton Field, including NPS files compiled during the preparation of the *Special Resource Study* and selected transcripts from the ongoing NPS Tuskegee Airmen Oral History Project. A list of repositories visited and the primary materials that were reviewed at each is located in the bibliography of the Cultural Landscape Report.

Major research findings resulting from the research phase of the project included the location of a number of primary sources yielding information about the construction and operation of Moton Field. This primary information included original architectural drawings and site plans for the airfield and its expansions throughout the war years; historic photographs of the airfield complex and the flight training activities that took place there; written histories chronicling the airfield's construction and day-to-day operations; information on the building contractor and landscape architect involved in the complex's design and construction; and the history of the site before and after its war-era use for primary flight training.

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[1] The Phase II scope of work originally included a seventh non-existing structure, the Shed/Pump House, for which an HSR was to be prepared. After the research phase, however, no specific information had been found on the location or design of a shed/pump house on the Moton Field site. Because of this, the building was dropped from the list of non-existing structures.

The period of significance for the interpretation of Moton Field has been established as 1941 to 1945, the period during which Moton Field was constructed and the Tuskegee Airmen were trained by the contract primary flying school. 1945 will be the date of restoration for the field's extant buildings and site features; the date of reconstruction for Hangar Number Two, the only non-existing building at the field that will be re-created; and the date of interpretation for the remaining non-existing buildings and site features. 1945 is the date by which all the buildings and site features at the airfield that were associated with the flying school had been constructed.

Built in 1942-1943, the Warehouse/Vehicle Storage Building was the only concrete block building constructed at Moton Field. It was used during the World War II era as a storage facility for vehicles and supplies. Based on historical research, a thorough investigation of the building and its relationship to the site as a whole, and the building's significance to the site's interpretation, the Ultimate Treatment and Use Recommendation for the Warehouse/ Vehicle Storage Building is **Restoration of the building's exterior and Rehabilitation of the interior**. System requirements for restoration/rehabilitation of the building will include a new HVAC system; a new electrical system; new lighting fixtures; a new wet-pipe sprinkler system and notification fire alarm system; a monitored security system; and a new communications system. The building is an important resource at Moton Field today, and its restoration/rehabilitation will be a significant component in the interpretation of the airfield to the public.

MOTON FIELD STRUCTURE NOMENCLATURE

EXTANT STRUCTURES

***Use Structure Name in Bold Italics*

Original Name[1]	Common/Later Name	NPS Name
Hangar Number One		
Civilian Recreation Bldg.	*Skyway Club*	All Ranks Club
Control Tower		
Bath and Locker House Mechanics' Bath & Locker Bldg.		Administration/Locker Bldg.
Warehouse, Maintenance Bldg., Vehicle Storage		*Warehouse/Vehicle Storage Bldg.*
Dope Storage		*Dope Storage Shed*
Oil House		*Oil Storage Shed*
Fire Protection		*Fire Protection Shed*
Entrance Gate		Entrance Gate

NON-EXISTING STRUCTURES

Original Name	Common/Later Name	NPS Name
Hangar Number Two		
Cadet Class & Waiting Room (Cadet Waiting House)	Flight Command Office	Flight Command Office
Supply Building	Army Supply Building	*Army Supply Building*
Physical Plant Warehouse		Physical Plant Storage
Vehicle & Maintenance Shed		*Vehicle Maintenance Shed*
Guard House		*Guard Booth*

[1] Based on architectural drawings, written histories, or other original documentation.

Administrative Data

Locational Data

Building Name: Warehouse/Vehicle Storage Building
Building Location: Moton Field, Tuskegee Airmen National Historic Site, Chief Anderson Drive, Tuskegee, Macon County, Alabama.

Real Property Information

Acquisition Date: November 1998
Total Improvement/Modification Costs to Date: $810,855 (total construction cost to date for stabilization at Moton Field)

Size Information

Total Floor Area: 1,801 SF
First Floor Area: 1,801 SF
Basement Area: n/a
Roof Area: 2,487 SF
Perimeter Length: 194 feet
Number of Stories: One (1)
Number of Rooms: 3 (based on original plans); 8 (existing)
Number of Bathrooms: 1 (based on original plans); 1 (existing)

Building Code Information

Applicable Codes:
Building /Dwelling Code: 1997 Standard Building Code
Structural Code: 1997 Standard Building Code
Plumbing Code: 1997 Standard Plumbing Code
Mechanical Code: 1997 Standard Mechanical Code
Electrical Code: 1996 National Electric Code
Fire/Life Safety: 1994 Standard Fire Protection Code, 1997 NFPA 101

Seismic Hazard Exposure Group 8- No seismic requirements for architectural, mechanical and electrical systems. There are some minor structural requirements.

Analysis of the Warehouse/Vehicle Storage Building is based on proposed usage as offices.
Building area is approximately 2080 sf.

1997 Standard Building Code
Business Occupancy - Group B
Construction Type VI unprotected
Fire sprinklered

Maximum allowable height is 40'.
Two stories allowed
Maximum building area per floor 27,000 sf

The facility will be able to meet the area and height requirements.

NFPA 101
Assembly Occupancy - Group A

Proposed Treatment

Proposed Treatment for the Warehouse/Vehicle Storage Building: Restoration of the exterior and rehabilitation of the interior

Related Studies

Moton Field/Tuskegee Airmen Special Resource Study, National Park Service, Southeast Regional Office, Atlanta, Georgia, 1998.

Cultural Resource Data

The Warehouse/Vehicle Storage Building is a contributing resource in the Moton Field complex which was programmatically listed in the National Register of Historic Places as a historic site unit of the National Park Service on November 6, 1998 with the approval by President Bill Clinton of Public Law 105-355 which established the Tuskegee Airmen National Historic Site.

The period of significance for Moton Field has been established as 1941 – 1945, the period during which Moton Field was constructed and served as the principal facility of the primary flying school for the training of the Tuskegee Airmen.

Moton Field is nationally significant for its association with the historic contexts of African-American History and Military/Aviation History. In both African-American and Military/Aviation history, the airfield complex is significant for its role as the only primary flight training facility for African-American pilot cadets in the Army Air Corps during the World War II era. The accomplishments of the Tuskegee Airmen in military air combat in both European and North African theaters of operation helped pave the way for the full integration of the United States military and future civil rights advancements.

Recommendations for Documentation, Cataloging, and Storage of HSR Materials

A copy of research materials specifically documenting the Warehouse/Vehicle Storage Building is located within the body or in *Appendix A* of this HSR. A copy of research materials documenting Moton Field as a whole may be found with the Cultural Landscape Report. Pre-stabilization photographs and other photographs taken during and after stabilization work of the Moton Field structures and site will remain with the project architectural firm until the completion of final construction drawings and specifications required for the preservation/restoration work.

Part I – Developmental History

Historical Background & Context

Chronology of Development & Use

Physical Description

Historical Background & Context

Formally approved as Tuskegee Airmen National Historic Site on November 6, 1998, Moton Field is of national importance for its association with the training of the Tuskegee Airmen during World War II. Moton Field, constructed between June 1941 and March 1945, was the only primary military flight training facility for African-American pilot candidates in the United States Army Air Corps during the war. The field, named in honor of Robert Russa Moton, the second president of Tuskegee Institute (now known as Tuskegee University), symbolizes the entrance of African-American pilots into the Army Air Corps under a policy of segregation that was mandated by the military and institutionalized in the South. The buildings that remain at Moton Field have changed little over the years and the historic setting of the 1940s is still discernible.

Context

Opportunities for African-American participation in the United States military were always limited and controversial. Quotas, exclusion, and discrimination based on race reinforced the prevailing attitude in both the military and the general public that African Americans did not possess the intelligence or ability to be successful in the military. This perception carried into the 1940s when military officials still believed that African Americans could not become successful pilots in the Army Air Corps. The Air Corps decided to train a small number of African-American pilot candidates under segregated conditions and in January 1941, chose Tuskegee Institute as a civilian contractor to operate a primary flying school at a location in Tuskegee, Alabama, that would become known as Moton Field. This was the only primary military flight training facility for African-American pilot candidates in the U.S. Army Air

Corps during World War II. The facility symbolizes the entrance of African-American pilots into the Air Corps, although on a segregated basis.

War-Era Construction at Moton Field

Building construction at Moton Field can be divided into three major phases of construction. These construction phases are modern descriptive terms and are not historic nomenclature. The justification for the three phases is based on actual dates of construction as well as the source of funding for each. The primary flying field was not officially known as Moton Field until its dedication in April 1943.

Phase One, beginning in June of 1941 and lasting through December of that same year, consisted of the initial establishment of the airfield (grading and clearing) as well as the construction of Hangar Number One and the Fire Protection Shed. Tuskegee Institute contributed $20,000, but the major funding source was a $130,000 loan from the Julius Rosenwald Fund.

Phase Two began in the summer of 1942 and lasted almost a year. Tuskegee Institute's Board of Trustees initially authorized $15,000 for construction of the Cadet Class and Waiting Room and the Army Supply Building.[2] Hangar Number Two and the Control Tower, the Bath and Locker House, several small sheds for oil and dope storage, and an addition to Hangar Number One were completed with a $150,000 loan from the institute's general funds.[3]

Phase Three began in early spring of 1944 and extended through the summer of the following year. It is believed that Tuskegee Institute funded this third phase of construction as well, but documentation has not been located to support or disprove this. During this phase the Vehicle Maintenance Shed and the Physical Plant Warehouse were constructed and the enlargement of the asphalt parking mat and paving of roadways in the building area were completed. The ground was graded south of Hangar Number One for a civilian recreation building, later known as the Skyway Club, that was not started until 1945.

Phase One Construction (June-December 1941)

Following the final contract negotiations with the Julius Rosenwald Fund, the United States Army, and Samuel Mizel (S.M.) Eich, the owner of the farm land on which the primary flying field would be built, construction of the airfield got underway in the early summer of 1941. "The History of the 66th AAF Flying Training Detachment, Moton Field, Tuskegee Institute, Alabama" states that the contract was signed on June 6, 1941 and construction of the airfield started about the same time.[4] Archie A. Alexander, a prominent African-American contractor from Iowa, was recruited to supervise the initial phase of airfield construction.

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[2] Julius Rosenwald Fund (JRF) Box 359, Folder 5. General Correspondence.
[3] JRF Box 359, Folder 5. General Correspondence.
[4] "The History of the 66th AAF Flying Training Detachment, Moton Field, Tuskegee Institute, Alabama: Section I," p.1.

By the end of 1941 the first phase of construction was complete. Hangar Number One was constructed for $44,134, which was included in the total cost of $148,506.98. The final construction costs were as follows:

Payment in full of contract	$112,900.00
Extra work by contractors	1,389.50
Purchase of land	33,500.00
Cutting trees	500.00
Allowances for crop damages	217.48
	$148,506.98[5]

Phase Two Construction (June 1942-May 1943)

The Tuskegee training program expanded per orders of the Army, and the facilities originally constructed for a smaller number of cadets soon became inadequate. By the end of May 1942 plans were underway to construct one new supply building and one cadet waiting house. Hangar space formerly used for supply was converted to a link trainer room and empty office space was nonexistent at the field.[6] The Tuskegee Institute Board of Trustees authorized special expenditures of $15,000 to finance these improvements, which were completed by late July 1942.

That fall, when it became necessary to expand the facilities at the field again because of another increased quota of students per class, financing once again was an issue. A request to the Julius Rosenwald Fund for an additional loan was rejected. In addition, they offered no leniency for loan repayment should Tuskegee be able to secure a loan from another source. Ultimately, $150,000 was secured through a loan from the general funds of Tuskegee Institute to complete the second phase of construction.

In addition to the expansion work completed by July 1942, the following construction was completed during Phase Two. Hangar Number Two was built with lean-to space for a Cadet Ready Room, five link trainers, and space for parachute maintenance, issue, storage, and drying. The Control Tower, a pump house containing chlorination units, the Dope Storage Shed, the Oil Storage Shed, and Bath and Locker House were also part of this phase.[7] Women began to apprentice as mechanics, due to the manpower shortage during the War that necessitated separate facilities for men and women. Although initial construction had failed to anticipate women workers at the primary flying field, toilet and locker facilities were incorporated into the plans of the Bath and Locker House to remedy the need for women's facilities.[8]

A School Facilities and Civilian Personnel Report dated October 27, 1942 details the status of the construction project with Hangar Number Two including the Control Tower at 7%

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[5] JRF Box 359, Folder 5. General Correspondence.

[6] "The History of the 66th AAF Flying Training Detachment, Moton Field, Tuskegee Institute, Alabama: Section II," p. 4.

[7] Ibid, p. 5.

[8] George L. Washington, *The History of Military and Civilian Pilot Training of Negroes at Tuskegee, Alabama, 1939-1945* (Washington, D.C.: George L. Washington, 1972), pp. 306-307; 310-311.

complete; the Bath and Locker House at 25%; and the Oil Storage Shed at 90% complete. Progress to date on the main field was 20% complete.[9]

During construction it became difficult to obtain some building materials due to the shortage caused by the war. Even with a high priority rating obtained from the Air Force, locating materials often lengthened construction time. This was especially true with regard to the 100-foot span trusses and metal truss ties for Hangar Number Two. Ultimately, David A. Williston, the Landscape Architect at Tuskegee Institute who was responsible for the landscape design at the primary flying field, scoured the campus for suitable trees for cutting and milling the trusses. Construction on the hangar came to a virtual stopping point for two months until truss ties could be located.[10]

On November 10, 1942, 35% progress was reported on the main field. Construction on the Oil Storage Shed was complete and Hangar Number Two had reached 35% completion while the Bath and Locker House was 60% complete.[11] By November 25, the Hangar progressed to 60% completion and the Bath and Locker House to 75% complete.[12]

In December construction began on the Warehouse/Vehicle Storage Building and a Vehicle Maintenance Shed. The shed, which was located at the east extremity of the building complex, housed trucks and ambulances overnight as well as miscellaneous lumber used for maintenance. The warehouse was a concrete block building located east of where the Physical Plant Warehouse was soon completed.[13] The December 10, 1942 report boosted the Hangar to 70% completion, the Bath and Locker House to 80%, and the Warehouse/Vehicle Storage Building was 20% complete. Although the main field had been in use over a year, it was only 45% completed as of this report.[14]

Despite being only 95% complete in March 1943, offices in Hangar Number Two were occupied in order to relieve office congestion in Hangar Number One. May 1943 marked the completion of the second building phase at the airfield. The Bath and Locker House, Warehouse/Vehicle Storage Building, improvements to the landing field and Hangar Number Two were finished. At this time the Intelligence Office was moved from Hangar Number One to Hangar Number Two, which allowed space for the Intelligence Library. As the Cadet Ready Room was also moved to the second hangar, it allowed trainees free access to the reading materials. The Intelligence Office was a military office that provided secure as well as general information about war activities. The office included an Intelligence Library with reading materials such as magazines, newspapers and intelligence summaries, and a War Room with additional reading materials, models of aircraft, ships, and tanks, and maps of various theaters of operations, all of which were kept updated as the war progressed.

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[9] "The History of the 66th AAF Flying Training Detachment, Moton Field, Tuskegee Institute, Alabama: Section II," Appendix III.
[10] Washington, pp. 301-303.
[11] "The History of the 66th AAF Flying Training Detachment, Moton Field, Tuskegee Institute, Alabama: Section II," Appendix IV.
[12] Ibid, Appendix V.
[13] Washington, p. 312.
[14] "The History of the 66th AAF Flying Training Detachment, Moton Field, Tuskegee Institute, Alabama: Section II," Appendix VI.

Aviation cadets were encouraged to spend a few minutes each day in the Library and War Room to keep themselves informed. The Parachute and Link Trainer Departments also moved into larger spaces in Hangar Number Two. This left more space in Hangar Number One for Engineering and Operations.[15]

The airfield was named Moton Field in honor of Tuskegee Institute's second president Robert Russa Moton. In preparation for the official dedication ceremony on April 4, 1943, a brick entrance gate was constructed along the main road to the west of the building complex. The south wall contained a niche that featured a bust of Robert Moton.[16]

In July of 1943, Tuskegee Institute made its final payment on the loan to the Julius Rosenwald Fund. Tuskegee Institute president Dr. Frederick D. Patterson summed up this special partnership with the following words:

> I think it is safe to say that were it not for the wisdom and generosity of the Rosenwald Fund, in its willingness to make an exception to its stated policy, this favorable accomplishment probably would not be a matter of record today. I am sure also that the action of the Rosenwald Fund encouraged our own trustees to take the larger portion of our free funds to make possible the expansion and promotion of this development. We now have a total investment of approximately $350,000, and aviation has been developed to the point where I am sure it will be a permanent feature of the work of Tuskegee Institute. When we consider the importance of aviation as a vocation today and what it will in all probability mean in the post-war world, we can see that a contribution of lasting importance has been made.[17]

Phase Three Construction (Spring 1944-Summer 1945)

During the first half of 1944, Moton Field experienced yet another program expansion. In March a new Physical Plant Warehouse was completed, which provided additional office and storage space used by the primary flying school contractor, Tuskegee Institute, to better oversee activities at the airfield.[18]

A year later construction finally got underway on the civilian recreation building, later known as the Skyway Club. This building was to serve as a recreational facility for employees who worked at Moton Field. Built as a cooperative project, Tuskegee Institute supplied the materials while the employees were expected to contribute most of the labor. "Solo," a locally distributed newsletter at Moton Field, suggested that an appropriate motto for the new building project was, "[t]he harder we work, the sooner we get to play."[19]

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[15] "The History of the 66th AAF Flying Training Detachment, Moton Field, Tuskegee Institute, Alabama: Section III," pp. 1-2; "History of the 2164th AAF Base Unit (CPS.P)(Formerly 66th AAFFTD), Tuskegee Institute, Alabama: Section IV," p. 39; *Solo.* 10 March 1945, p. 9.
[16] Washington, p. 310.
[17] JRF Box 359, Folder 5. General Correspondence.
[18] "The History of the 66th AAF Flying Training Detachment, Moton Field, Tuskegee Institute, Alabama: Section IV," p. 1.
[19] *Solo.* 10 March 1945, p. 9.

The final installment of the History of the 2164th AAF Base Unit, Tuskegee Institute, Alabama covered September through November 1945. This period marked the final phase of primary flying training of African-American personnel at Moton Field. By the end of November all trainees had either graduated, been discharged, or transferred to Tuskegee Army Air Field.[20]

Post War (1946-1998)

The close of the Army Air Corps contract flying school in November 1945 brought a change in the activity at Moton Field. Charles Alfred "Chief" Anderson, who was a flight instructor at the field for the Army Air Corps, continued to offer private flying lessons from Moton Field. Even though primary flight training operations had ceased at the airfield, the Skyway Club continued to operate as a night club open to the general public during this time. According to Bill Childs, who worked as a mechanic at Moton Field, a private business, Tuskegee Aviation Corporation, formed soon after the end of primary flight training. This corporation used the Moton Field facilities to repair and maintain planes and convert military planes for civilian use. In addition, the corporation operated a G. I. flight school through the G. I. College Bill, and Tuskegee Institute offered a degree in Aircraft Mechanics using the corporation and Moton Field for training. The corporation operated for approximately two years after the war ended.[21] According to Mr. Childs, the City of Tuskegee attempted to levy Tuskegee Aviation Corporation for a total of four million dollars in taxes, the amount for which the Moton Field property was insured. Rather than pay the taxes, the corporation decided to shut down. The government's first attempt to tax Tuskegee Institute for the property failed because the school was tax exempt and refused to pay the taxes.[22]

After the corporation dissolved, Macon County used the hangars for storage of surplus food and as a distribution center for welfare recipients.[23] During this time, several of the support buildings were turned into housing for employees of Tuskegee Institute. The bare minimum was spent on upkeep of these "cottages" as they were known, and residents did general repairs on the buildings themselves. Bill Childs remembers the Skyway Club serving as a dormitory for male students shortly after the war. The G. I. Bill increased student enrollment, and, while campus dorms were being renovated, the Skyway Club's original open space was subdivided into smaller sleeping quarters. The building may have been in use as a dormitory until the early 1950s.[24]

All activity, with the exception of housing Tuskegee Institute employees in the cottages, ceased by the mid-1950s, and Tuskegee Institute put little money into the maintenance and upkeep of the buildings and grounds at Moton Field. According to Ed Pryce, landscape architect and superintendent of grounds and maintenance from 1955-1969, the only official

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20 "The History of the 66th AAF Flying Training Detachment, Moton Field, Tuskegee Institute, Alabama: Section XII," p. 2.
21 Telephone Interview with Bill Childs by Debbie Curtis Toole, December 2001.
22 Ibid.
23 Ibid.
24 Ibid.

upkeep at the field was occasional mowing and maintaining the water and sewer lines. No official use was given to the hangars or sheds during this time. With this lack of maintenance, the buildings and landscape deteriorated.

In the 1960s, the Tuskegee Institute School of Veterinary Medicine began to use the airfield for animal research. The area to the east of the field's building complex contained numerous cattle pens. The school renovated Hangar Number Two into a large animal operating and research lab in the early 1970s, which involved subdividing the large hangar space into operating rooms while the original office and classroom areas were converted into laboratories.[25] A fire destroyed the hangar in 1989, and the remaining walls were leveled to the ground. Based on a 1964 floor plan of the Skyway Club, this building may also have been used by the Veterinary School. In the mid-1970s, the school renovated the Warehouse/ Vehicle Storage Building into a Swine Research Center.

In 1972, a tract consisting of 325 acres of the original Moton Field was deeded to the City of Tuskegee for development of a municipal airport. Bids for the contract were opened in April of 1972, and construction began a year later by the Dubose Construction Corporation in March of 1973. The Municipal Airport was constructed to the north of the building complex. The new paved runways occupy the southern portion of cleared land where the original grass runways were located.

Creation of Tuskegee Airmen National Historic Site

President Bill Clinton approved Public Law 105-355 on November 6, 1998, which established the Tuskegee Airmen National Historic Site at Moton Field in Tuskegee, Alabama. The site was created to commemorate and interpret the heroic actions of the Tuskegee Airmen during World War II and was established as a unit of the National Park System. With this approval, Moton Field was also programmatically listed in the National Register of Historic Places. Establishment of the site included the acquisition by the National Park Service from Tuskegee University of approximately forty-four acres known as Moton Field.[26] This forty-four acre tract includes the nine extant historic structures as well as the former sites of the six non-existing structures. In addition, the tract includes an overlook area that might eventually be the site of a proposed interpretative center. NPS land does not include the grass runways, a portion of the historic taxiway, or a portion of the historic tarmac.

Because of its creation as a contract school, Moton Field facilities have not faced the adaptation or conversion typically experienced by other World War II pilot training facilities. Although deterioration has occurred to the historic fabric, the surviving buildings have not undergone significant alterations. When considered in the larger historic setting, the buildings and surviving landscape features express the field's historic function as a flight training facility. Moton Field retains a high level of integrity for interpretation of the training and activities of the Tuskegee Airmen.

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[25] Interview with Booker Conley by The Jaeger Company, September 26, 2001.
[26] Public Law 105-335. 112 Stat. 3254-3258.

For a complete historical overview and developmental history of Moton Field see the Cultural Landscape Report (CLR) for Moton Field, Tuskegee, Alabama.

Chronology of Development & Use

The Warehouse/Vehicle Storage Building was built during Phase Two of the war-era construction at Moton Field. This building was constructed to house both large and small shipments of supplies other than airplane supplies.[27] The concrete block building is located at the east end of the building complex, southeast of the former site of Hangar Number Two. (See *Figure 1.*) Construction was completed by March of 1943.

Because it was not in the original expansion plans, construction on the Warehouse/Vehicle Storage Building started later than construction on other buildings that were part of the second phase of construction. The Warehouse/Vehicle Storage Building did not get underway until December of 1942, while other construction started earlier in the fall.[28] Original architectural drawings for this building have not been located.

The Warehouse/Vehicle Storage Building is the only known concrete block building to be constructed as part of the primary flight training facility. Historic photographs show the building with concrete block walls and a gable roof that runs east-west. The gable end walls were concrete block and the gable ends were frame covered with horizontal wood siding. This siding appears to have been painted white. Large openings in both the east and west end facades allowed vehicles to enter into the storage area that ran the length of the building.

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[27] G. L. Washington, pg. 312-313.
[28] History, Section II, Appendix VI.

These openings were closed with large doors that slid horizontally along the side of the building.[29] (See *Figure 2.*)

A January 1943 plot plan for the field labels the rooms within this building, but does not give the building a name.[30] (See *Figure 3.*) The largest portion of the building was devoted to vehicle storage and service and was a large open area located on the north side and running the length of the building. Along the south wall there was a room for storage and a room labeled sleeping quarters. A centrally located toilet and shower area separated these two larger rooms. According to G. L. Washington, this building was used for storing shipments of supplies that were unrelated to airplane maintenance. A clerk maintained inventory and was responsible for placing orders when the supplies reached a certain minimum.[31]

Historic photographs of the building from a distance reveal that the window openings match that of the existing plot plan.[32] The larger window openings contained two windows that appear to be double hung. Three of this type of window are found on both the north and south facades. Additionally, three small square window openings were located on the south facade.

After World War II and the end of the Army Air Corps contract, the Warehouse/Vehicle Storage Building ceased to be used for any official purpose. According to Ed Pryce, landscape architect and superintendent of grounds and maintenance at Tuskegee Institute from 1955-1969, little funding went into maintenance and upkeep of the buildings and grounds during the 1950s and 1960s.[33]

The School of Veterinary Medicine at Tuskegee Institute (now Tuskegee University) began to use Moton Field as an animal research facility, probably in the late 1960s, and the Warehouse/Vehicle Storage Building was one of the buildings they utilized. An undated photograph taken from a vantage point east of the control tower and looking back towards Hangar Number Two shows the building virtually unchanged prior to the renovation by the veterinary school. (See *Figure 4.*) The photo shows the building with unpainted block walls and three sets of double windows on the north facade. A large sliding door to the vehicle bay and a hood over the pedestrian door can be seen on the east facade.[34] Numerous wooden pens are shown in the foreground for cattle containment.

In 1974, the School of Veterinary Medicine renovated the building for use as a Swine Disease Center. Renovation drawings from Lockwood Greene, Architects-Engineers, dated September 6, 1974, specify that all windows be filled in on the north and south facades, and

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[29] c.1943 Aerial Photograph, Historic Photograph Collection, Howard University. Historic Photograph Collection (cadets getting on bus), AFHRA, Maxwell AFB.
[30] "Plot Plan Primary Flying Field, Tuskegee Institute, Ala. Drawing No. 2." January 20, 1943.
[31] G. L. Washington, pg. 312.
[32] Historic Photograph Collection, Howard University.
[33] Ed Pryce Interview. March 14, 2000. NPS.
[34] Booker Conley's Files, Physical Plant, Tuskegee University.

existing masonry and wood walls on the east and west facades be removed and replaced with plywood siding.[35]

The plans also called for completely refinishing the interior. The interior of the existing concrete block walls were refinished with Portland cement and coated with epoxy. The new interior walls on the east and west facades were finished with epoxy-covered gypsum wallboard. A new concrete floor was poured directly over the existing slab. All interior walls were newly constructed out of concrete block and coated with epoxy.[36]

Booker Conley photographed the Warehouse/Vehicle Storage Building in 1975 shortly after this renovation had been completed. (See *Figure 5*.) He referred to the building as "Old Garage." The original exterior textured concrete block and infilled window and door openings had been painted white by this time.[37]

The building was still being used by the veterinary school in October 2001. The interior of this building is currently used as an office space and a locker room for veterinary school personnel involved in Caprine testing that is taking place at the field. The area to the southwest of the Warehouse/Vehicle Storage Building, to the east of the building complex at Moton Field, and to the north of the Control Tower are fenced off as Caprine testing areas. Both the exterior and the interior of the Warehouse/Vehicle Storage Building have not changed since the renovations in the mid-1970s.

The Warehouse/Vehicle Storage Building is the most altered of any of the extant buildings at Moton Field. Despite this loss of visible integrity, enough of the historic exterior survives that the building should be considered a contributing resource. It was the only concrete block building constructed at the airfield.

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[35] "Swine Disease Center, School of Veterinary Medicine, Tuskegee Institute, Alabama." Lockwood Greene, Architects-Engineers, Atlanta, Spartanburg, Dallas, New York. Sept. 6, 1974.
[36] Ibid.
[37] Booker Conley's Files.

1. Hangar No. 1
2. Bathhouse
3. Hangar No. 2
4. Plant Engineer's Bldg.
5. Warehouse
6. Vehicle & Maintenance Shed
7. Control Tower

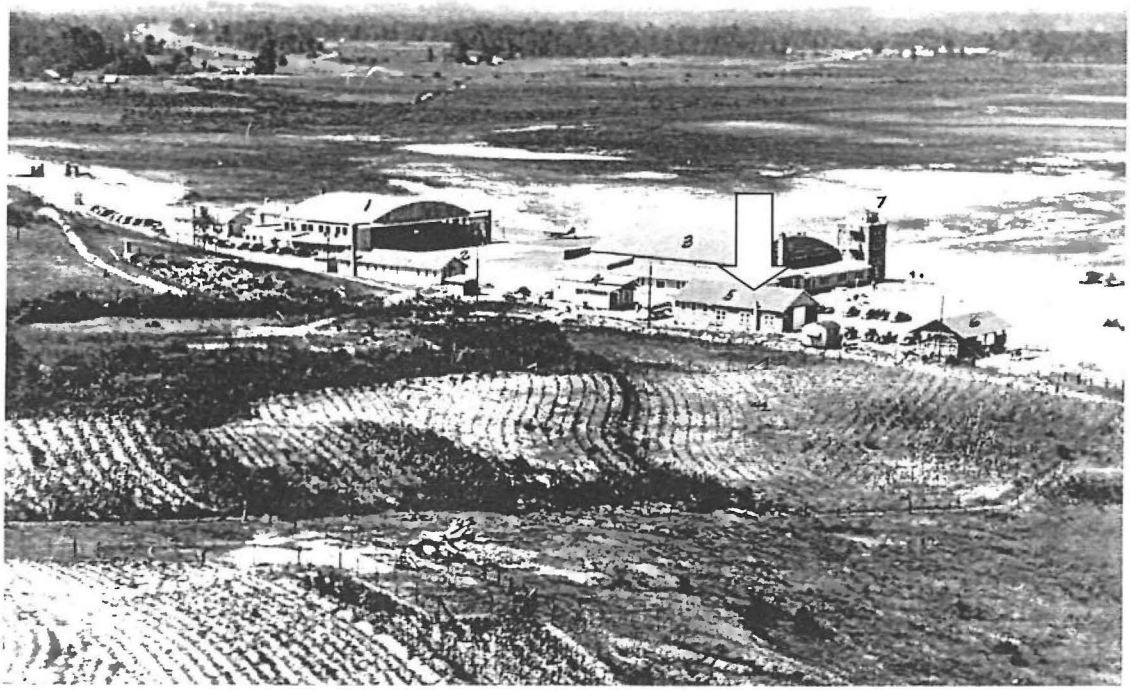

Figure 1: Aerial photograph of Moton Field circa Fall 1944 with the Warehouse/Vehicle Storage Building labeled number 5. Historic Photograph Collection, Howard University.

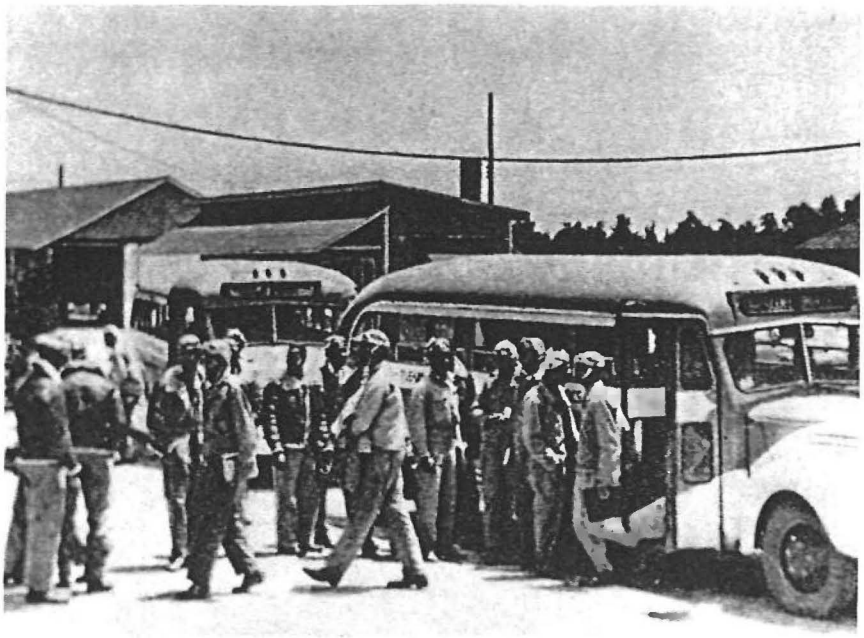

Figure 2: Warehouse/Vehicle Storage Building in the background at the left with a vehicle parked in the storage bay. AFHRA, Maxwell AFB.

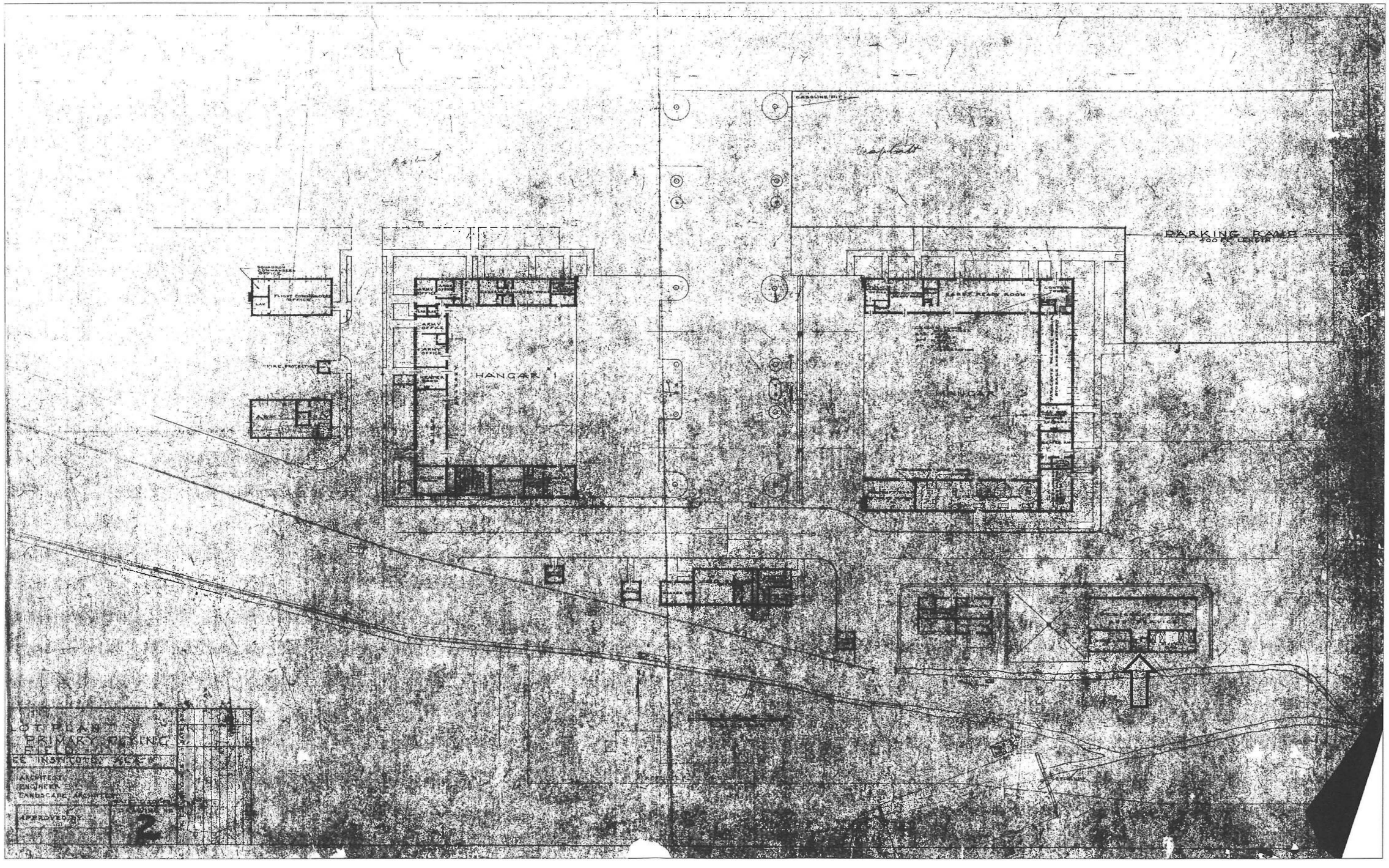

Figure 3: January 1943 site plan that shows the Warehouse/Vehicle Storage Building at the east end of the building complex.
Physical Plant, Tuskegee University.

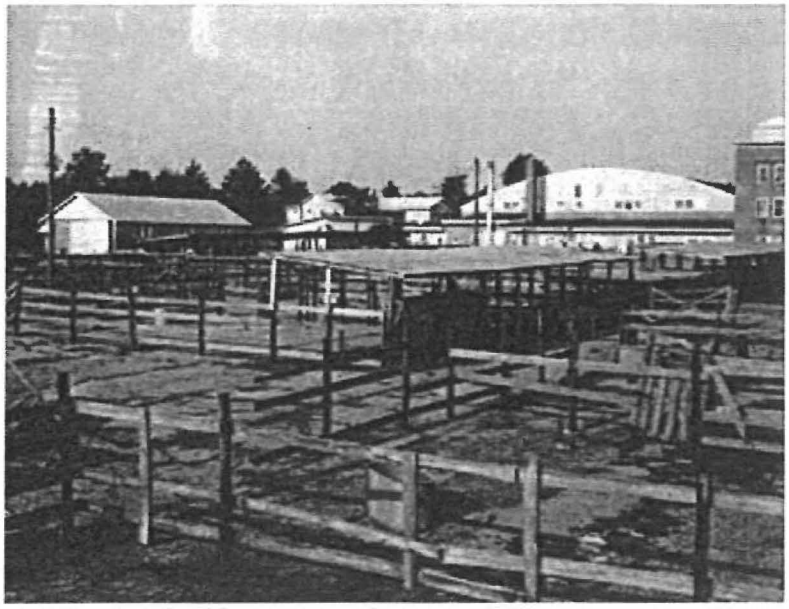

Figure 4: Early 1970s view looking west at the rear of Hangar Number Two. The Warehouse/Vehicle Storage Building, at the left of the photograph, has not yet been renovated by the Veterinary School. Booker Conley's Files, Physical Plant, Tuskegee University.

Figure 5: The Warehouse/Vehicle Storage Building as it looked shortly after the Veterinary School's renovation. Booker Conley's Files, Physical Plant, Tuskegee University.

Figure 6: Looking northwest at the Warehouse/Vehicle Storage Building. Pond & Company.

Figure 7: A door opening on the south façade created during the 1974 renovation. Smooth-faced replacement block matches original courses. The original window lintel remains.

Figure 8: West facade as it looks today. Both the east and west facades were completely replaced as part of the 1974 renovation.

Figure 9: North facade of the Warehouse/Vehicle Storage Building as it looks today. Former window and door openings were infilled with smooth-faced block. Pond & Company.

Figure 10: South interior hallway of the Warehouse/Vehicle Storage Building looking east. The walls, ceiling, and concrete floor were added during the 1974 renovation.

Physical Description

The Warehouse/Vehicle Storage Building is a predominantly concrete block structure that was constructed during the fall and winter of 1942-1943. Major changes to the historic fabric occurred in 1974 when the Tuskegee Institute School of Veterinary Medicine (now Tuskegee University) renovated the building to be used as a Swine Disease Center. The building is located due east of the Bath and Locker House and slightly southeast of the former site of Hangar Number Two.

Following is a detailed description of the features and materials of the Warehouse/Vehicle Storage Building based on field inspection and supported by original site plans, renovation drawings, and historic photographs. A *Conditions Assessment/Features Inventory* detailing the conditions of each of the following features is located in *Appendix C.* A detailed *Paint Analysis* and *Mortar Analysis* are located in *Appendix D.*

Exterior

The exterior of the building is in generally good condition, but the historic character of this building has been compromised by the complete replacement of the walls on the east and west facades and the infill of original window and door openings. (See *Figure 6.*)

Foundation

There has been no excavation or other ground disturbing investigations to determine the foundation materials of the Warehouse/Vehicle Storage Building. 1974 renovation plans specify pouring a second concrete slab over the existing slab. Based on other known building

foundations at the field, the original foundation was most likely concrete footings with a concrete slab on grade.

Cast Concrete Block Walls

The exterior walls on the north side and south side facades consist of coursed rows of cast concrete block that based on the *Paint Analysis* were originally painted gray. Today these walls are painted white, most likely a result of the 1974 renovation. All of the original door and window openings on these facades are still clearly evident despite being infilled with smooth-faced block that stays true to the existing course lines. Original lintels over each former opening remain intact. (See *Figure 7.*)

Wood Frame Walls

The walls on the east rear and west front facades have lost all historic integrity. Originally these walls were made of textured concrete block with a frame wall covered with horizontal wood siding beneath the gable ends. The 1974 renovation removed the block and constructed wood frame walls on both facades. 2x4 studs were set sixteen inches on center and gypsum insulation sheathing was placed on the exterior. Sheets of 5/8" exterior plywood siding in a reverse board and batten pattern were placed over the insulation. One block width of the original cast concrete block from the north and south facades is visible at the corners on both the east and west facades. (See *Figure 8.*)

Windows and Doors

All of the original window openings in the north and south facades of the Warehouse/ Vehicle Storage Building have been infilled with smooth, rather than textured, concrete block. (See *Figure 9.*)

None of the current door openings are original to the building. There is currently only one opening in either of the block walls and that is a door found on the south facade. Originally this door was a window opening. The current existing door is a double door that opens outward. The doors are wooden and each made of five vertical boards painted red that are diagonally braced on the interior. The doors are encased in a metal door frame that is painted tan. The door frame is set into a surround of smooth surface concrete block that has been cut to enclose the remaining portion of the original opening.

The east facade contains two separate door openings that are located beneath a single metal canopy. A single door that leads to the locker room is located closest to the southeast corner. A set of double doors is located three feet to the north of the single door. All three doors are solid core doors with wood veneer that have been painted tan and set in metal frames that have been painted the same tan color as the doors.

Two separate entrances are located on the west facade at either corner. Each is located beneath its own metal canopy. The entrance at the northwest corner is a double door opening with wooden doors. Each door is made of five vertical wood planks that are diagonally braced on the interior. The doors are painted red and set in a metal frame that is painted tan. These doors are identical to those found on the south facade. The southwest

corner entrance is also a double door opening. Solid core doors with wood veneer open outward. Both the doors and the metal door frame are painted tan.

Canopies

Canopies dating from the 1974 renovation exist over all door openings on the east and west facades. On the east facade a single canopy extends over both entrances while on the west facade each entrance has a separate canopy. All three canopies are constructed in a similar fashion. According to 1974 construction plans, 2x6 joists, placed 16 inches on center, extend three feet outward. These are covered with 1x10 fascia on the three exposed sides.[38] Each canopy is supported by 4x4 galvanized posts at the corners. A gutter runs across the front of each canopy and galvanized downspouts are attached to each free-standing 4x4 post.

The canopy at the northwest corner on the west facade is open on all three sides. Both the canopy on the east facade as well as the canopy at the southwest corner of the west facade have enclosed wing walls that are the same reverse board and batten plywood used on the exterior walls.

Poured concrete pads extend three feet beyond each canopy. On the west facade the concrete slopes away from the building beginning at the edge of the canopy. The slope forms a ramp from each entrance to the existing grade. The area in front of the west facade is a pre-existing concrete pad from the war era.

Roof

The roof is a single gable that runs east-west. It has exposed rafter tails on the north and south sides. The structural system of the roof was not visible and could not be accessed for inspection. Renovation plans from 1974 specified that the existing (war-era) roof decking and roofing remain.[39] A note on these plans calls for the spraying of disinfectant on all rafters prior to the start of new ceiling construction.

The gable roof is covered with three tab asphalt shingles, the same type of material that historically covered the roof. The 1974-era canopies have three ply built-up roofs.

Mechanical/Electrical Systems

Mechanical and electrical systems in the Warehouse/Vehicle Storage Building all date from the 1974 renovation. Plans from this renovation called for the removal of a chimney that was located on the south facade between two of the large window openings.

Vent openings are located on the gable ends. On the east facade a rectangular wood louvered vent and square access panel are located off center beneath the gable. The west facade has a small square louvered vent located off center beneath the gable. Both vents are part of the cooling system installing in the 1970s.

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[38] Ibid.

[39] "Swine Disease Center, School of Veterinary Medicine, Tuskegee Institute, Alabama." Sept. 6, 1974.

Interior

When the Tuskegee Institute School of Veterinary Medicine remodeled the building in 1974, the interior was completely gutted and the existing floor plan drastically altered. All materials on the interior of the building date from this renovation and are not historic.

Floors

The floor of the Warehouse/Vehicle Storage Building was originally a poured concrete slab. The veterinary school renovation necessitated floor drains. To accomplish this, a new concrete slab was poured over the existing war-era slab. This new slab is four inches thick and slopes one to three inches at the floor drains. The new slab was to be reinforced with wire mesh.[40]

Floor Plan

The original floor plan of the building is known only from the January 1943 site plan.[41] It consisted of a large vehicle bay on the north side. This bay accounted for two-thirds of the interior space and was open on the east and west ends to allow vehicles to drive into the building. The remaining space along the south wall housed two rectangular rooms used for storage and sleeping quarters according to the plan. A shower and toilet area separated the two rooms.

The current floor plan consists of two corridor hallways that run the length of the building. Access to each corridor from the exterior is gained through sets of double doors on the west facade. In addition, access can be gained to the southern corridor from the outside through double doors on the east facade.

Along the south wall of the building there are rooms for mechanical equipment, storage, toilets, locker rooms, and a laundry facility. Between the two corridors are three ward rooms separated by passageways running east-west between the two corridors. Entrance to the ward rooms is gained via these passageways or from the northern corridor. Each passageway contains a shower stall in the center.

Interior Walls

All of the existing interior walls are concrete block walls that were built during the 1974 renovation; no original interior walls remain. These walls have been painted with an epoxy. (See *Figure 10.*)

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[40] Ibid.

[41] "Plot Plan 66th AAF Primary Flying Field, Tuskegee Institute, Ala." Jan. 1943.

The interior finish of all exterior concrete block walls consists of a one-half inch base coat of Portland cement plaster followed by a smooth trowel finish coat, according to construction plans. Half-inch moisture resistant gypsum wallboard covers the frame walls on the east and west interior walls. All walls were painted with an epoxy sealer.[42]

[42] "Swine Disease Center, School of Veterinary Medicine, Tuskegee Institute, Alabama." Sept. 6, 1974.

Part II - Treatment & Use

Ultimate Treatment & Use

Requirements for Treatment

Alternatives for Treatment

Ultimate Treatment & Use

Three potential treatments based on the standard historic preservation treatments defined in *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* have been considered for the Warehouse/Vehicle Storage Building. These three treatments are (1) Preservation, (2) Rehabilitation, and (3) Restoration. The Ultimate Treatment And Use Recommendation for the Warehouse/Vehicle Storage Building is **Restoration of the exterior and Rehabilitation of the interior**. This recommendation is evaluated based on the Criteria for Determining Treatment. The evaluation is followed by a summary of the steps needed to realize the treatment and a summary recommendation based on the practical feasibility of the treatment, the treatment's impact on historic materials, and its effect on the historic character of Moton Field as a whole.

The **Period of Significance** for interpreting the history of Moton Field is 1941-1945, the period during which the buildings and landscape at Moton Field were constructed and the Tuskegee Airmen were being trained in the primary flying school. 1945 is the **Restoration Date** identified for the restoration of extant buildings. 1945 is the date by which the entire complex at Moton Field associated with the training of the Tuskegee Airmen and the operation of the flying school had been constructed.

ULTIMATE TREATMENT AND USE RECOMMENDATION

The Ultimate Treatment and Use Recommendation for the Warehouse/Vehicle Storage Building is **Restoration of the exterior of the building based on existing materials and**

features, historic photographs, a historic site plan, and renovation drawings and Rehabilitation of the interior of the building for modern use.

The building will only be viewed from the exterior where interpretative signage can explain the building's historic function. Visitors will not need to view the interior of the building to be able to understand its wartime use. As the interior has previously lost all historic integrity, rehabilitating this space for modern use will provide necessary office/ administration areas in a space where doing so would be the least compromising.

Criteria for Determining Treatment

Following are the criteria that have been used in determining the recommendation for the ultimate treatment of the historic structures at Moton Field. An explanation of how the Warehouse/Vehicle Storage Building meets each criterion for the treatment of restoration of the exterior and rehabilitation of the interior is provided.

• Significance and Value to the Site's Interpretation

The Warehouse/Vehicle Storage Building was the only concrete block building constructed at Moton Field during the time the airfield served as a primary training facility for the Tuskegee Airmen. Built as a support building, it still holds interpretative value to the airfield as a whole. Storage for stock supplies and support vehicles was in demand as the training program continued to expand throughout the war era. This building will help visitors understand the day-to-day operations of a military airfield and the supporting roles of many service men and women who were an important part of the Tuskegee Airmen Experience.

• Existing Condition and Material Evidence

The Warehouse/Vehicle Storage Building is in sound structural condition, due in part to its use by the Tuskegee University Veterinary School of Medicine. The original textured concrete block walls on the north and south side facades survived the extensive 1974 renovation. Former door and window openings on these facades are clearly discernable, although presently infilled with smooth-faced concrete block. The majority of the building's historic materials on the east and west facades and all of the historic material on the interior of the building were lost during the veterinary school renovation. For this reason, the recommended ultimate treatment does not include restoration of the interior of the building.

• Archival Documentation

Historic documentation of the Warehouse/Vehicle Storage Building exists in the form of historic photographs and written histories. Architectural drawings of the 1970s renovation document historic war-era conditions to a limited extent, and site plans, both war-era and from the 1970s, show the building in relationship to other buildings at the airfield. The war-era site plan also provides what may have been the original floor plan. Written accounts provide information about building function and initial construction.

The best historic documentation of the building comes from historic photographs of Moton Field. While not plentiful, these photographs, in conjunction with existing building features and renovation plans, provide enough information for an accurate exterior restoration of the Warehouse/Vehicle Storage Building.

Restoration of the Exterior and Rehabilitation of the Interior of the Warehouse/Vehicle Storage Building

Restoration of the exterior of the Warehouse/Vehicle Storage Building will seek to return the building to its historic appearance in 1945. This will conserve the building's remaining historic exterior fabric and allow visitors to view the building as it was constructed and used by the primary flying school.

Restoration of the exterior of the Warehouse/Vehicle Storage Building will include repairing existing materials and features, replacing missing materials, and reconstructing missing features. Rehabilitation of the interior of the building for modern office/administrative use will include alteration of the interior to meet modern needs in a way that does not compromise the historic exterior. Following are items that should be addressed in the restoration/rehabilitation process. Items are not in order of importance or how they should be accomplished. A detailed work plan should be devised to establish an appropriate order for accomplishing the work.

Cast Concrete Block Walls

- Clear all vegetation away from the building.
- Remove infilled concrete block from original door and window openings.
- Repoint joints as needed using a mortar similar in composition to the existing mortar (see Conclusions in the *Mortar Analysis* in *Appendix D* for recommended compatible mortar); tool joints to match existing.
- Remove exterior components of nonhistoric mechanical systems; replace exterior brick chimney stack on south wall.
- Remove entrance on south wall and restore to original window opening.
- Remove nonhistoric paint from the cast concrete block walls and re-paint based on information from the *Paint Analysis* (see Paint Recommendations in the *Paint Analysis* in *Appendix D).*

Wood Frame Walls

- Remove areas of 1970s frame construction; reconstruct cast concrete block and wood frame exterior walls, door openings, and vehicle entrances based on physical evidence, historic photographs, and 1970s architectural drawings.
- Remove canopies from west front and east rear facades; remove concrete ramps leading up to entrances being careful not to disturb historic concrete sidewalk underneath.
- Restore original color scheme to wood members if documentation can be found to authenticate colors.

Roof

- Repair or reconstruct missing or damaged fascia board; if reconstruction is required, use in-kind materials.

- Remove numerous nonhistoric vent stacks that penetrate the roof.
- Repair damaged roofing on eastern edge of roof near the ridge.
- Replicate original three-tab asphalt shingled roof based on photographic evidence.

Windows
- Reconstruct historically accurate sash and frame elements to place in original window openings if documentation can be found to authenticate their design.

Doors
- Remove nonhistoric door openings.
- Reconstruct historically accurate exterior doors and garage doors if documentation can be found to authenticate their design.

Additional Documentation Required for Restoration

Following are items that require additional information in order to accomplish a complete and accurate restoration.
- Window and door specifications
- Original color scheme of east and west side facades

If additional documentation is not found, conjectural design decisions will have to be made regarding these elements.

Interior Space and Use Recommendations

- Rehabilitate interior space for modern use such as facility management, administrative offices, or public restrooms in a manner that does not compromise the historic exterior.

Systems Requirements Based on Use
HVAC Systems
- Air conditioning would be provided using one split system heat pump with supplemental natural gas heat. Cooling capacity of the unit would be approximately 7-1/2 tons. Gas heat capacity would be about 70 MBH total. The outdoor unit could be concealed behind screens or roof mounted to preserve the exterior appearance.

Plumbing/Toilet Facilities
- Restrooms would require a potable water source, hot water heater and sanitary drainage system.

Electrical Power
- A new electrical system will have to be installed to provide the needed electricity to the space. The existing 120/240 volt single phase electrical service needs to be replaced. The new electrical service should be provided from new overhead power poles to match the original locations on the site. New pole mounted transformers will need to be provided to serve the buildings. The existing conduits that are still intact can be re-used. Other new conduits will need to be provided. All new panelboards and disconnect switches will need to be provided to serve the building loads. A new 120/240 volt,

single phase, 2-pole, service entrance rated panelboard will need to be provided. A new ground rod will need to be provided for service entrance ground. All new grounded branch circuits will need to be provided to each of the buildings devices. New wiring installed should be THHN/THWN copper conductors. New receptacles, light switches, outlet and switch coverplates should be installed.

Lighting

- New modern lighting fixtures should be installed. Battery back-up exit lights should be provided in all areas as required by NFPA 101 for exit marking. Emergency egress lighting should be served by battery back-up power for the fixtures in the egress pathway.

Fire Protection

- A wet-pipe sprinkler system will be provided to protect the building. A fire alarm system should be provided to notify fire department/park personnel of a fire condition in the building. The fire alarm system should be a complete system consisting of manual pull stations at all exit doors, tamper and flow switches at the new sprinkler riser, notification devices (horns and strobes) that comply with NFPA 72 and ADA requirements and duct mounted smoke detectors in large air handling equipment as required by NFPA 90A.

Security System

- A monitored security system should be installed to provide notification of an intruder during closed hours. The security system should consist of motion detectors to be placed as inconspicuously as possible in each space. Provide battery back-up power for the security system.

Communications

- A telephone outlet should be provided in a location to be used by park personnel. A new telephone outlet should be a typical category 3, RJ11 outlet with category 3 wiring and should be installed in a non-publicly viewable space. The telephone wiring should be routed to the new telephone service in Hangar Number Two. New communication wiring should also be installed for security devices and monitoring circuits.

ADAAG Accessibility

- The building will not be open to the public. No accessibility considerations will be provided.

Summary Recommendation

The Warehouse/Vehicle Storage Building has experienced a great loss of historic fabric through remodeling. Enough historic building material and documentation exists to facilitate an exterior restoration. Without restoration, the building detracts from the historic character of Moton Field. The current state of the interior of the building presents the best opportunity to house modern office space or facilities within the historic airfield complex without compromising the historic interior of the building. For these reasons, restoration of the exterior and rehabilitation of the interior is the Recommended Ultimate Treatment.

Requirements for Treatment

Legal mandates and policy directives restrict treatment of the Warehouse/Vehicle Storage Building. The NPS's Cultural Resources Management Guideline (DO-28) requires planning for the protection of cultural resources "whether or not they relate to the specific authorizing legislation or interpretive programs of the parks in which they lie."

Section 106 of the National Historic Preservation Act (NHPA) mandates that federal agencies, including the NPS, take into account the effects of their actions on properties listed or eligible for listing in the National Register and give the Advisory Council on Historic Preservation a reasonable opportunity to comment.

To help guide compliance with the statutes and regulations noted above, the Secretary of the Interior's *Standards for the Treatment of Historic Properties* have been issued along with guidelines for applying those standards.

Issues of human safety, fire protection, and handicap accessibility are addressed in the Administrative Data and Ultimate Treatment and Use sections. Proper abatement of any hazardous materials will be addressed in the construction phase of the project.

Alternatives for Treatment

Two alternatives for treatment have been considered and are presented here. They are (1) **Reconstruction of the interior** and (2) **Preservation of the building in its current state**. These alternatives are evaluated based on the Criteria for Determining Treatment. This evaluation is followed by a summary of the steps needed to realize the treatment and a summary recommendation based on the practical feasibility of the alternative, the alternative treatment's impact on historic materials, and its effect on the historic character of Moton Field as a whole.

The **Period of Significance** for interpreting the history of Moton Field is 1941-1945, the period during which the buildings and landscape at Moton Field were constructed and the Tuskegee Airmen were being trained in the primary flying school. 1945 is the date identified during the period of significance by which time the entire complex at Moton Field associated with the training of the Tuskegee Airmen and the operation of the flying school had been constructed.

ALTERNATIVE FOR TREATMENT: RECONSTRUCTION OF THE INTERIOR

One alternative for treatment of the Warehouse/Vehicle Storage Building is **Reconstruction of the interior of the building** in addition to an exterior restoration. This treatment would seek to recreate the original floor plan and interior finishes that existed during the period of significance. Visitor access to the interior would help to illustrate the war-era function of this building.

Criteria for Determining Treatment

Following are the criteria used in determining the alternatives for treatment of the historic structures at Moton Field. An explanation of how the Warehouse/Vehicle Storage Building meets each criterion for the treatment of reconstruction of the interior is provided.

• Significance and Value to the Site's Interpretation

The Warehouse/Vehicle Storage Building served as the primary storage facility for non-airplane related supplies during the time Moton Field served as a primary training facility for the Tuskegee Airmen. Reconstruction of the interior would allow the building to serve as a museum exhibit that would illustrate this function to the public.

• Existing Condition and Material Evidence

The only known historic material remaining on the interior are the roof trusses and the original concrete floor which is located beneath the current concrete floor. All other material and finishes were added during the 1970s renovation and would have to be removed in order to carry out this treatment.

• Archival Documentation

A significant amount of additional research is needed to accurately reconstruct the interior of the building. The only known documentation is a site plan that shows an interior floor plan and labels room functions. Renovation drawings from the 1970s show changes that were made but do not focus on original materials that were removed.

Interior Reconstruction of the Warehouse/Vehicle Storage Building

Reconstruction of the interior of the building would seek to return the building's interior to its original configuration as it existed in 1945. This would allow visitors to view and experience the building as it was constructed.

Interior Reconstruction would involve removing nonhistoric building materials and re-creating the original floor plan and interior finishes. Following are items that should be addressed in the interior reconstruction.

- Remove all interior walls, wall finishes, and ceiling finishes that were added in the 1974 renovation; refer to the "Swine Disease Center, School of Veterinary Medicine, Tuskegee Institute, Alabama" renovation plans by Lockwood Greene, Architects-Engineers for guidance.
- Remove the nonhistoric floor slab in a manner that does not damage the historic concrete floor underneath.
- Reconstruct walls based on original floor plan using evidence from historic site plans and physical evidence found on original slab; use modern materials to emphasize that the interior is a re-creation rather than historic.

- Re-create original interior finishes and furnishings to the extent that documentation allows.

Additional Documentation Required for Interior Reconstruction

Documentation that would substantiate a complete and accurate interior reconstruction of the Warehouse/Vehicle Storage Building has not yet been located. The extent of physical evidence that could be uncovered with the removal of nonhistoric material is conjectural at this time. Information gathered from historic site plans provides only minimal information. Photographic documentation of interior finishes is lacking.

Interpretation and Use Recommendations

Reconstruction of the interior space of the Warehouse/Vehicle Storage Building would allow the space to be used as an interpretative exhibit area that would provide visitors with information to better understand the building's function during the war era.

Interpretation and Use of the Building

- The large vehicle bay area that runs the length of the building should remain open and undivided. This area could house informational exhibits; partition walls that do not fully extend to the ceiling should be used for exhibit displays.
- The rooms along the south facade originally used for storage and sleeping quarters could be furnished with period items. Another alternative would be for these smaller rooms to house modern restrooms, offices, or storage space.

Systems Requirements Based on Use

HVAC System

- A modern HVAC system should be installed to provide climate-controlled spaces for exhibits. If it is determined that exhibits are not climate sensitive, then air conditioning would not be necessary.

Plumbing/Toilet Facilities

- Plumbing fixtures used for interpretative purposes should be of a period design and would not have to function. If modern facilities are provided for visitors in this building, they should be located in the rooms along the south facade rather than subdividing the large vehicle bay.

Lighting/Electrical

- A modern electrical system as required to provide lighting and electricity to exhibits and facilities should be installed.

Summary Recommendation

Because of the extensive loss of historic fabric as well as the lack of documentation about the original interior, an interior reconstruction of the Warehouse/Vehicle Storage Building would be difficult to accomplish. Furthermore, reconstructing the interior is not "essential

to public understanding of the cultural associations of (the) park," as interpretive displays could adequately explain the former function of the building. The current state of the interior of the Warehouse/Vehicle Storage Building presents the best opportunity to house modern offices or facilities within the historic airfield complex without compromising a historic interior. For these reasons, interior reconstruction is not the Recommended Ultimate Treatment.

ALTERNATIVE TREATMENT: PRESERVATION

Another alternative for treatment of the Warehouse/Vehicle Storage Building is **Preservation** of the building in its current condition. Preservation would seek only to repair existing material and maintain the current character of the building. Repairs and alterations would be made to prevent further deterioration of the building and to eliminate possible life safety threats. The interior of the building would not be accessible to the general public in this treatment. Interpretative signage that includes historic photographs and illustrations would convey to visitors the building's original function.

Criteria for Determining Treatment

Following are the criteria used in determining the alternatives for treatment of the historic structures at Moton Field. An explanation of how the Warehouse/Vehicle Storage Building meets each criterion for the treatment of preservation is provided.

• Significance and Value to the Site's Interpretation

The Warehouse/Vehicle Storage Building served as the primary storage facility for non-airplane related supplies during the time Moton Field served as a primary training facility. As a utilitarian building, it is important in the overall interpretation of the site setting and day-to-day operations at the flying field. Preservation of the existing building would retain and protect the building in its current state.

• Existing Condition and Material Evidence

The existing condition of the building differs drastically from its original condition. For this reason, preservation is the least preferred treatment. With the original window openings filled in with block and front and rear facades that have been radically changed, the building currently detracts from the historic context of the primary flying training facility.

• Archival Documentation

Historic documentation in the form of historic photographs and site plans should be used to determine original features and materials of the Warehouse/Vehicle Storage Building. Stabilization/preservation work should be clearly differentiated from the historic fabric of the building.

Preservation of the Warehouse/Vehicle Storage Building

Preservation of the Warehouse/Vehicle Storage Building would involve repairing existing materials and features to make the building safe for visitors and to prevent further deterioration of remaining historic fabric.

- Remove vegetation from around building.
- Repair or reconstruct missing or damaged fascia board; if reconstruction is required, use in-kind materials.
- Repair damaged roofing on eastern edge of roof near the ridge.

Interpretation and Use Recommendations

- Interpretative signage that includes historic photographs and site plans as well as text could explain the building's construction and how the building fit into the overall complex.
- The interior would not be open to the public.

Summary Recommendation

According to *The Secretary of the Interior's Standards for the Treatment of Historic Properties*, Preservation as a treatment should be chosen "when the property's distinctive materials, features, and spaces are essentially intact and thus convey the historic significance without extensive repair or replacement."[43] Because of the extensive changes that have occurred to the exterior of the Warehouse/Vehicle Storage Building, most of the "distinctive materials and features" have been replaced, especially on the east and west facades. For this reason, preservation is not the Recommended Ultimate Treatment.

[43] Weeks, Kay D and Anne E. Grimmer. *The Secretary of the Interior's Standards for the Treatment of Historic Properties*. Washington D.C.: U.S. Department of the Interior, National Park Service, 1995, p. 21.

Appendices

Appendix A

**Appendix A is located in a separate notebook that contains the supplemental archival documents, photographs, and architectural drawings for all Historic Structure Reports and the Cultural Landscape Report.

- Archival Documents
- Photographs
- Architectural Drawings

Appendix B

- Bibliography

Bibliography

Conley, Booker. Physical Plant Files, Tuskegee University, Tuskegee, Alabama.

Historic Photograph Collection, Air Force Historical Research Agency, Maxwell Air Force Base, Montgomery, Alabama.

Historic Photograph Collection, Moorland-Spingarn Research Center, Howard University, Washington, D.C.

"History of 66th AAF Flying Training Detachment, Moton Field, Tuskegee Institute, Alabama, Section II – 7 December 1941 to 31 December 1942 Inclusive." 234.821, Moton Field Collection, Air Force Historical Research Agency, Maxwell Air Force Base, Montgomery, Alabama.

"Plot Plan, 66th AAF Primary Flying Field, Tuskegee Institute, Alabama," Edward C. Miller, Architect; G. L. Washington, Engineer; Louis A. Scipio, Draftsman, Approved by G.L.W., January 20, 1943. Tuskegee University Physical Plant, Tuskegee, Alabama.

Pryce, Ed. Interviews by Christine Trebellas, 13-14 March, 2000. Tuskegee Airmen Oral History Project, National Park Service, SERO, Atlanta, Georgia.

"Swine Disease Center, School of Veterinary Medicine, Tuskegee Institute, Alabama," Lockwood Greene, Architects-Engineers, Atlanta, Spartanburg, Dallas, New York, Sept. 6, 1974. Tuskegee University Physical Plant, Tuskegee, Alabama.

Washington, G. L. *The History of Military and Civilian Pilot Training of Negroes at Tuskegee, Alabama 1939-45*. Tuskegee University Archives, Tuskegee, Alabama.

World War II-era Aerial Photograph of Moton Field, c.1945. Historic Photograph Collection, NPS Curatorial Storage Facility, Tuskegee Institute NHS, Tuskegee, Alabama.

Appendix C

- Conditions Assessment/ Features Inventory

FEATURE INVENTORY: EXTERIOR ENVELOPE

Warehouse / Vehicle Storage

Historic Rating Designations

U - Undetermined	(The historic significance of the feature has not been determined)
H - Historic	(The feature has historic significance)
T - Treat as Historic	(The feature should be treated as if it has historic significance)
N - Not Historic	(The feature does not have historic significance)

All Estimable Items

Materials: $33,014.00 **Labor:** $28,017.00 **Total =** $61,031.00

EXTERIOR | **4110** | **Exterior Wall Surface/ Cover** | **Wood**

Feature Description: Wood Siding

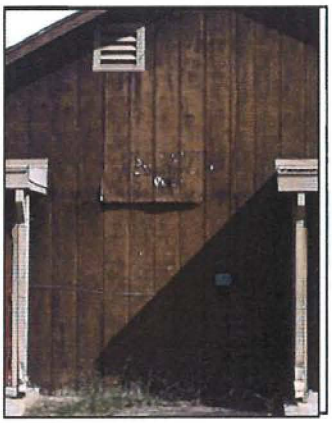
Feature Notes: Generally good condition

Feature Condition: Fair **Total Inventory:** 574 S.F.

Historic Rating: N **Priority:** Historic

Deficiency: Some splitting and separating of siding. Added in reuse of building.

Recommendation: Remove later infill end panels and reconstruct as vehicle entrances.



Materials: $221.00 **Labor:** $11,119.00 **Quantity:** **Total =** $11,340.00

EXTERIOR	4111	Exterior Wall Structure	Wood

Feature Description: Wood stud wall system

Feature Notes: Generally good condition

Feature Condition: Fair **Total Inventory:** 790 S.F.

Historic Rating: N **Priority:** Historic

Deficiency: Added in reuse of building.

Recommendation: Remove later infill end panels and reconstruct as vehicle entrances.

Materials: **Labor:** **Quantity:** **Total =**

(Refer to 4110 - Exterior Wall Surface/ Cover)

EXTERIOR	4111	Exterior Wall Structure	Masonry

Feature Description: Masonry exterior units

Feature Notes: Generally good condition. Some infill of original openings.

Feature Condition: Fair **Total Inventory:** 354 S.F.

Historic Rating: H **Priority:** Minor

Deficiency: Infill of original openings with block units.

Recommendation: Remove infill concrete blocks from original window and door openings. Replicate original windows and doors and install.

Materials: $28,088.00 **Labor:** $10,904.00 **Quantity:** **Total =** $38,992.00

EXTERIOR	4113	Exterior Wall Trim	Wood

Feature Description: Fascia boards

Feature Notes:

Feature Condition: Poor **Total Inventory:** 10 L.F.

Historic Rating: H **Priority:** Serious

Deficiency: Damage to fascia on east elev.

Recommendation: Replace fascia to match original construction.

Materials: $545.00 **Labor:** $1,634.00 **Quantity:** **Total =** $2,179.00

EXTERIOR	4115	Exterior Column/ Post	Steel

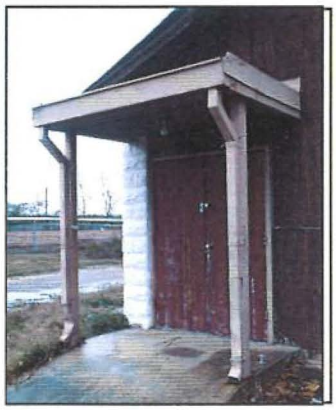
Feature Description: Steel column and beam entry covering at exterior doors

Feature Notes:

Feature Condition: Fair **Total Inventory:** 6

Historic Rating: N **Priority:** Historic

Deficiency: Added in reuse of building for veterinary school building.



Recommendation: Remove canopies.

Materials: **Labor:** **Quantity:** **Total =**

(Refer to 4110 - Exterior Wall Surface/ Cover)

EXTERIOR	4117	Exterior Eave/ Soffit	Wood

Feature Description: Wood exterior roof eave

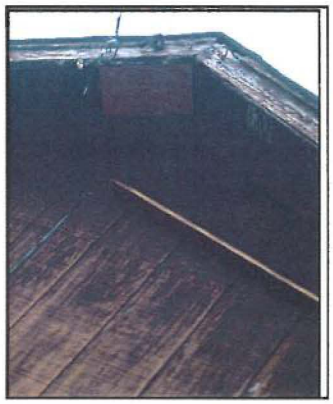
Feature Notes:

Feature Condition: Fair **Total Inventory:** 240 S.F.

Historic Rating: H **Priority:** Serious

Deficiency: Some repair and paint chipping.

Recommendation: Repair eave per original construction.



Materials: $1,060.00 **Labor:** $3,180.00 **Quantity:** **Total =** $4,240.00

EXTERIOR	4150	Exterior Door Unit	Wood

Feature Description: Wood exterior doors

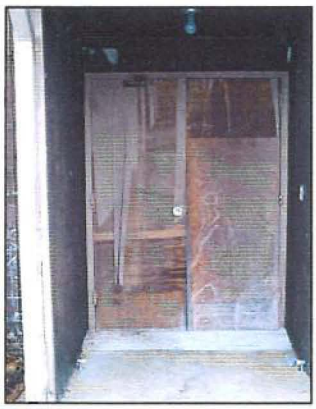
Feature Notes: Utilize residential grade doors and hardware with hollow metal frames.

Feature Condition: Poor **Total Inventory:** 2 Pr.

Historic Rating: N **Priority:** Historic

Deficiency: In generally poor condition. Added in reuse of building.

Recommendation: Remove entrances and restore to original vehicle entrance configuration.



Materials: **Labor:** **Quantity:** **Total =**

(Refer to 4110 - Exterior Wall Surface/ Cover)

EXTERIOR | 4150 | Exterior Door Unit | Metal

Feature Description: Metal clad exterior doors

Feature Note: Utilize residential grade doors and hardware with hollow metal frames.

Feature Condition: Fair **Total Inventory:** 1 single, 2 double

Historic Rating: N **Priority:** Historic

Deficiency: In generally poor condition. Added in reuse of building.

Recommendation: Remove entrances and restore to original vehicle entrance configuration.

Materials: **Labor:** **Quantity:** **Total =**

(Refer to 4110 - Exterior Wall Surface/ Cover)

EXTERIOR | 4310 | Roof Surface | Asphalt

Feature Description: Asphalt shingle roof

Feature Notes: North side of hip is covered with dark charcol color shingles. South side is covered with lighter white color shingles.

Feature Condition: Poor **Total Inventory:** 100 S.F.

Historic Rating: H **Priority:** Serious

Deficiency: Some damage near eastern edge near roof peak.

Recommendation: Remove roof, repair damged area, and replace with 3 tab asphalt shingles to match original construction.

Materials: $3,100.00 **Labor:** $1,180.00 **Quantity:** **Total =** $4,280.00

FEATURE INVENTORY: MECHANICAL SYSTEMS

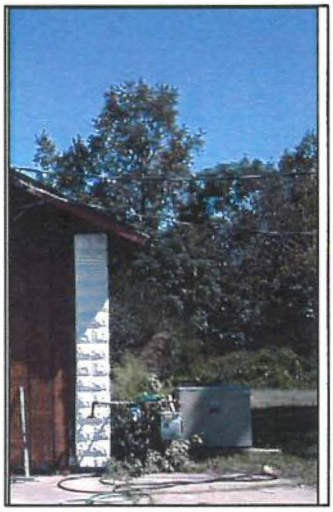
MECHANICAL | **5864** | **Water Chiller**

Feature Description: Air cooled water chiller

Feature Notes: Chiller is in fair condition, but nearing the end of its useful life.

Feature Condition: Fair **Total Inventory:** 1

Historic Rating: N **Priority:** Minor



Deficiency: None

Recommendation: Remove unit and associated connections.

Materials: **Labor:** **Quantity:** **Total =**

(Refer to HVAC allowance in Estimate)

EXTERIOR | **4330** | **Chimney**

Feature Description: Chimney

Feature Notes: Generally good condition. Not original construction.

Feature Condition: Fair **Total Inventory:** 1

Historic Rating: N **Priority:** Minor

Deficiency:

Recommendation: Remove with removal of HVAC unit.

Materials: **Labor:** **Quantity:** **Total =**

(Refer to 5864 - above)

Appendix D

- Materials Analysis
  - Paint Analysis
  - Mortar Analysis

PAINT ANALYSIS
OF
WAREHOUSE/VEHICLE STORAGE
BUILDING
MOTON FIELD
TUSKEGEE, ALABAMA

PREPARED
FOR
THE JAEGER COMPANY

BY
MARYELLEN HIGGINBOTHAM
PRESERVATION/DESIGN CONSULTANT
September 2002

TABLE OF CONTENTS

INTRODUCTION

In the summer of 1941, Tuskegee Institute began the development of Moton Field in Tuskegee, Alabama. The extant historic buildings/structures at Moton Field are unique examples of facilities needed for basic flight training during the 1940s. The African-American pilots who trained here made a considerable contribution to the United States flight operations during World War II. After the war, the civilian uses of these buildings/ structures included civilian aviation, recreation, and housing in addition to Tuskegee Institute programs. Most of the buildings were vacant and deteriorated by the 1980s.

According to research conducted by the National Park Service and The Jaeger Company, construction of the main buildings/structures at Moton Field began in spring of 1941, with Hangar Number One, and concluded in the summer/fall of 1945, with the Skyway Club. These buildings/structures were constructed in Three Phases and all within five years. The nine extant historic buildings/structures are Hangar Number One, Entrance Gate, Control Tower, Bath and Locker House, Warehouse/Vehicle Storage Building, Dope Storage Shed, Oil Storage Shed, Fire Protection Shed, and Skyway Club.

SCOPE OF WORK

Paint analysis of the paint histories of the nine extant historic buildings/structures at Moton Field has been conducted in two phases. The project began at the request of Amy Kissane, Senior Preservation Planner at The Jaeger Company and is a part of The Jaeger Company's Moton Field Project for the National Park Service. The objective of the first phase of the paint analysis was a survey of the exterior/interior paint history for each of the nine buildings/structures to aid in the development of a restoration and interpretation plan for the site.

Phase One began with a site visit and a review of Moton Field maps, architectural drawings and photographs provided by The Jaeger Company. The site visits were coordinated with Debbie Toole, Architectural Historian for The Jaeger Company. Three days were spent on site at Moton Field. Multiple paint samples were taken from the main architectural elements on the exterior and interior rooms of the buildings or structures. An initial microscopic study of selected paint samples was conducted on site. During the study, more than 200 paint samples were examined under a lighted, 40X stereo microscope. Construction materials and finishes were also considered as tools in understanding the buildings'/structures' paint histories. Pigment analysis and spectrophotometric color matching were not included in this survey.

The objective of Phase Two was to determine, where possible, the paint schemes for the nine extant historic buildings/structures during the designated period of significance "1945". Nineteen paint samples from six buildings/structures were sent to Frank S. Welsh, an Architectural Coating Specialist, for specific color matching to Sherwin Williams Color Swatches. These samples were taken from buildings built just before and during World War II, a period when building materials were expensive and in short supply. Because it was felt that emphasis was on building and not repainting, Mr. Welsh was requested to color match to the original colors on each paint sample. Findings of Mr. Welsh and of the paint survey have been used to recommend, where possible, the color schemes for the nine extant historic buildings/structures at Moton Field.

This written presentation of the paint analysis of the extant buildings/structures at Moton Field includes a brief introduction, scope of work, general summary; paint histories material and color samples; and Mr. Welsh's report. Chromo-chronologies, paint layer sequencing, of each building/structure are presented when possible.

GENERAL SUMMARY

The paint histories of the extant buildings/structures at Moton Field are incomplete puzzles of paint, color, and materials. Time and the elements have not been kind to the original materials remaining in these buildings. In many cases, original materials are missing or so altered as to be unreadable. Paint was often applied thinly and inconsistently within rooms making some paint histories difficult to determine. No paint schedules were located to confirm paint colors. However, colors and paint mediums do provide a general paint history in each building/structure.

Construction materials contributed greatly to the exterior and interior decorative schemes of the buildings/structures. Colors used during the war years reflect the scarcity and cost of paint materials. Although Moton Field was not officially a military facility, the original paint colors found on the site's buildings/structures resemble the gray colors of military facilities of the era. Wooden buildings at Moton Field were painted varying shades of gray with gray to white trim. Building interiors were also painted grays but they became more colorful as the building uses changed over time.

Each building/structure will be discussed chronologically by period of construction and the rooms will be presented according to the POND Architectural Plans. When possible, original paint colors for main architectural elements on buildings and in rooms will be given.

PAINT ANALYSIS
WAREHOUSE/VEHICLE STORAGE BUILDING

The Warehouse/Vehicle Storage Building was completed in March 1943. The exterior wall surface is cast concrete blocks.

EXTERIOR

The exterior surface of the Warehouse/Vehicle Storage Building has been painted at least five times. The original color is gray, followed by another gray and three whites. The original gray color appears to be close to Sherwin Williams #1001. Original exterior woodwork has been replaced.

INTERIOR

The original interior of the Warehouse/Vehicle Storage Building has been changed.

CHROMO-CHRONOLOGIES

Chromo-chronologies are presented for those exterior surfaces where there is sufficient substrate and/or paint evidence to determine a paint sequence for that surface.

The original paint layer in the chromo-chronology charts of the Warehouse/Vehicle Storage Building relates to the building construction date of 1943.

WAREHOUSE/VEHICLE STORAGE BUILDING

Paint Colors	Exterior Walls
Original	gray
Paint 2	gray
Paint 3	white
Paint 4	white
Paint 5	white

PAINT RECOMMENDATIONS
WAREHOUSE/VEHICLE STORAGE BUILDING

By 1945, the period of significance for Moton Field interpretation, the Warehouse/ Vehicle Storage Building would have been approximately two years old. During those two years the mission at Moton Field was building and training: not repainting. Thus, due to the site expansion and the scarcity and cost of paint materials during those two years of WWII it is unlikely that the Warehouse/Vehicle Storage Building would have been painted more than once.

The Warehouse/Vehicle Storage Building was completed at about the same time as the Bath and Locker House and two of the Sheds and would have been painted in a similar manner.

Architectural evidence, paint evidence and the above considerations indicate that for the Warehouse/Vehicle Storage Building during the 1945 period of significance, the appropriate color for the exterior would be gray, Sherwin Williams #1001.

The colors would be applied in the following manner:

Exterior

Cast concrete	Sherwin Williams #1001
Trim	Sherwin Williams #1001

APPENDIX

PRELIMINARY LABORATORY DATA

PROJECT	DATE OF ANALYSIS
MOTON FIELD TUSKEGEE, ALABAMA	7/22/02
SPACES	**ANALYST**
EXTERIORS	Frank S. Welsh

EQUIPMENT

- Bausch & Lomb stereomicroscope (10 - 105x)
- Nikon SKE polarized light microscope
- Schott halogen fiber-optic illuminator (3200K)

DESCRIPTION OF PRESENTATION OF LABORATORY DATA FROM THE ANALYSIS

- The following pages contain all of the requisite information found on each sample gathered during the preliminary laboratory analysis of the historically significant coatings.
- The information on these pages is the data upon which additional research and analyses can be based.
- Illustrations diagramming the locations from which the samples were taken are included in the Field Note - Sample Location sheets.

KEY TO THE ABBREVIATIONS USED IN THE LABORATORY DATA SHEETS

For Layer/Coat:

- P = prime or sealer coating
- I = intermediate or second prime
- Gr = ground or base coating for marbling or graining
- F = finish for final coating

For Color Name:

- W = white
- YW = yellowish white
- YG = yellowish gray
- GY = grayish yellow
- MRB = moderate reddish brown
- MOY = moderate orange yellow
- POY = pale orange yellow
- LT = light
- MED = medium

For Type of coating:

- O = oil
- D = distemper or calcimine
- Wsh = whitewash
- Vrn = varnish
- Stn = stain
- Pb = lead content

For Age:

- orig = original
- er = early
- md = middle
- lt = late
- c = century

PRELIMINARY LABORATORY DATA SHEETS

Sample Number	Location/ Description	Layers and Comments
1	Hangar One, Hangar side of metal door into Room 1A.	There is only one layer of old paint on this sample. It is a dark gray, close to Sherwin Williams color# 2117. Above the gray are only 3 layers of new (1st and/late 20th) paints.
2.	Hangar One, Plaster from interior north wall - Room 1A.	Sample taken at a patch - relatively new.
3.	Hangar One, Plaster from window, north wall, Room 1B.	This plaster is very degraded. It does not appear to be very old. It is grayish white and has only one layer of faded + degraded green oil paint on its surface. The color of the green is close to S.W. Color# 1197
4	Hangar One, Paint from South door frame - Room 3 (wood)	The paint evidence is extremely degraded on this sample and almost impossible to evaluate w/ any accuracy. The first finish appears to be white, close to SW Color# 1004. The second layer is an aqua color. On another sample in the same envelope there is a second layer that is a Medium Blue-Green.
5	Hangar One Paint from wood door frame - hangar side into Room 17	The paint evidence on this sample is very degraded. There appears to be two layers of white oil paint - color close to SW #1004 followed by a Medium Blue Green.

PRELIMINARY LABORATORY DATA SHEETS

Sample Number	Location/ Description	Layers and Comments
6	Dope Storage Shed. Paint from exterior door & frame	No old paint evidence is on this sample. There are only several layers of newer white paint.
7	Entrance gate. Concrete from niche	Very little substrate. There are only 2 or 3 layers of new white paint on this sample.
8.	Tower; Concrete interior wall	There are no paints on this sample.
9	Bath & Locker building, paint from exterior siding.	There are approximately 5 finish coats of light gray oil paint on this sample. The first is a lead-based oil paint whose color is very close to S.W. # 1001.

Sample Number	Location/ Description	Layers and Comments
10	Bath & Locker building - exterior trim.	There are 5 layers of paint on this sample. They are: Lt Gray, Dark Gray, Lt Gray & White. The original light gray is the same as on #9.: SW Color # 1001.
11	Bath & Locker building, plaster north wall Men's Locker Room.	All but one plaster sample in the envelope have a medium gray oil paint as the first finish: It is close to SW Color # 2120
		One piece of plaster has a lighter gray as the first finish. Its color is close to SW # 2121
		Above these first finish coats on all samples are several newer whites + tans.
12	Bath & Locker building - window frame - Women's Locker Room.	There are no old paints on this sample There are only several new layers of white + Tan.

PRELIMINARY LABORATORY DATA SHEETS

Sample Number	Location/ Description	Layers and Comments
13.	Skyway club exterior siding.	There are 5-to-6 finish coats of medium-to-Light Grey oil paint on this sample of siding The first finish is close to S.W. Color # 1232
14	Skyway Club Exterior trim	There are 5-to-6 layers of degraded white paint on this sample. The first finish coat is close to SW Color # 1004
15	Skyway Club Room 108- North wall	- Newer gypsum board
16	Skyway Club Base board Rm 108	No paint is on this tiny sample.
17	Skyway Club Room 108- Ceiling	Fiber board.- a grayish white surface with a lot of mica.

Sample Number	Location/ Description	Layers and Comments
18	Skyway Club. Rm 121 gypsum board on North wall.	There are 4 layers of paint on this sample. The first is buff and close to SW # 1358 The next 3 are light and medium greens.
19.	Skyway Club Fiber board north wall - Rm 124	The first finish paint on this sample is a buff, close to SW Color # 1625. There are 4 layers above it. A grayish white, light gray and 2 greens.

LAW
RESOURCES CREATING SOLUTIONS

March 28, 2002

Ms. Debbie Toole
The Jaeger Company
119 Washington Street
Gainesville, GA 30501

Subject: **Moton Field Mortar Evaluation, Revision**
Moton Field Stabilization, Tuskegee Airmen National Historic Site
Tuskegee, Alabama
LAW Project No. 50157-1-4754-01-602

Dear Ms. Toole:

Law Engineering and Environmental Services, Inc. (LAW) has completed the mortar evaluation as authorized by your company on September 4, 2001. The purpose of this evaluation was to obtain samples of mortar from approximately nine buildings/structures, perform analysis of the mortar to determine its composition and to describe the aggregates. A visual condition survey of the buildings was not a part of the scope of work. This report is a revision of the report submitted on November 1, and the report submitted November 19, 2001. This report has been revised to reflect changes regarding the names of buildings and description of specimens.

Background Information

LAW understands there are a total of nine historical buildings/structures that were built as part of a World War II training facility (1941-1945) and are in the process of being restored. They include Hangar No. 1, Control Tower, Bath and Locker House, Warehouse/Vehicle Storage, Skyway Club, Dope Storage Shed, Oil Storage Shed, Fire Protection Shed and the Entrance Gate. We understand The Jaeger Company is assisting Pond & Company with renovation/restoration design of the facility.

Evaluation Procedures and Results

Site Work

LAW representatives, Mr. Mark Leeman and Ms. Marian Strukel, met with Jaeger Company's Ms. Debbie Toole at the subject site on September 28, 2001. The buildings/structures were observed and samples were taken. Selective sampling of existing masonry mortar and wall plaster materials were taken above-grade and at heights able to be accessed from standing on the ground; no ladders or manlifts were used. Samples were taken from interior and exterior walls. Five buildings/structures were sampled (a total of 10 samples were taken). Two samples of raw sand were taken, one from the road east of the Dope Storage Shed and one from the vicinity of Hangar No. 2. Sand was sampled for comparison purposes. We wanted to compare the sand sampled, both chemically and with respect to gradation, to the sand observed in the mortar.

Mortar samples were not taken from each building at the site. The mortar was observed to be fairly consistent throughout the site. A determination was made in the field that if the mortar was hard and competent then a sample may not have been taken for a particular building if the mortar was consistent with other buildings at the site. This was the case for the mortar at the Entrance Gate, the Skyway Club and the Warehouse/Vehicle Storage buildings. The mortar was judged to be hard and competent; therefore was not sampled for proportions.

Samples were taken at the following locations:

Sample	Construction	Location
1	Brick Mortar	Control Tower - exterior
2	Block Mortar	Control Tower - exterior
3	Brick Mortar	Dope Storage Shed - interior
4	Parge Coat	Hangar No.1 - interior
5	Brick Mortar	Hangar No. 1 - interior
6	Brick Mortar	Hangar No. 1 - exterior
7	Brick Mortar	Fire Protection Shed - interior
8	Brick Mortar	Fire Protection Shed - exterior
9	Plaster	Bath and Locker - interior
10	Gypsum Board and Paper	Bath and Locker - interior

Photographs of the buildings/structures and the samples taken at each location can be found attached to this report.

The masonry units of the structures observed were similar in appearance and were in satisfactory condition. We observed both clay brick masonry and concrete masonry. Deterioration in the form of cracks was not observed. Significant efflorescence staining was not observed on the masonry units. Areas of re-pointing were observed on the Control Tower. We understand this was a part of recent stabilization work.

The mortar observed was intact, competent and not easily scratched with a metal chisel. The mortar joints were well tooled and concave in shape. Several mortar joint surfaces had undergone weathering which resulted in sand particles being exposed on the surface. The mortar was well bonded to the masonry units. The mortar was strong and required significant effort to break out samples from the constructed masonry. In general, our selective sampling indicated the mortar was strong, but occasionally areas of softer mortar were observed. Since softer mortar was encountered infrequently, we did not consider it a representative condition and did not intentionally sample it.

A visual survey of the Skyway Club was performed, but samples were not taken. The mortar observed at this structure was similar to the others and competent. Ms. Toole informed LAW that the block used for the Skyway Club was made with local materials and called "Tuskegee Block". The parge coat mortar taken from Hangar No. 1 was intact, but could be broken easily. The sand particles on the surface of the parge coat were exposed and poorly bonded (Photo 11).

Softer mortar was observed in isolated areas of Hangar No. 1. The mortar appeared to have a higher lime content at some places than the other mortars observed. This determination was made by observation of the mortar color and the hardness of the mortar. The mortar inside Hangar No. 1 ranged from soft (easily scratched with a metal chisel) around the structural clay tile to medium hard around the brick. A section of the exterior south face of this building was re-constructed the summer of 2001. The white colored mortar with a brown surface smear coat was observed (Photo 12). The brown smear coat was applied for aesthetic reasons to match the new mortar to the existing one.

Laboratory Evaluation

Evaluation of the mortars was conducted in accordance with ASTM C1324 "Standard Test Method for Examination and Analysis of Hardened Masonry Mortar". Chemical evaluations and petrographic examinations were made of the mortars. No thermal analysis or x-ray diffraction was performed on the mortars.

Chemical evaluation results can be found in Table 1. The chemical results and petrographic evaluations indicated the mortars were similar in composition. The percentage of insoluble residue, soluble calcium oxide and soluble silica contents were similar in the samples analyzed.

Determination of the mortar composition was performed in accordance with the calculations of ASTM C1324, assuming a portland cement, lime, siliceous sand mixture. Chunks of lime were observed in several samples of the existing mortar, indicating this assumption is reasonable. However, if information becomes available to indicate the mortar was made using masonry cement, the proportion calculations can be adjusted. A package of masonry cement was observed at the project near the new brick construction. This indicates this mortar was made with masonry cement.

This is supported by the chemical evaluations; the proportions calculated are presented in Table 2. The use of non-masonry cement versus masonry cement are two means of achieving the same mortar after construction. The primary difference occurs with material selection and the amount of work performed by the on-site masons during construction. Chemical analysis indicated the mortars ranged from Type M to Type O using ASTM C270 Proportion Specifications. The mortars were generally Types S and N, but an occasional Type M and O were observed. In general, the mortars were hard and the classifications based on the chemical evaluations were in general agreement with our field observations.

The petrographic evaluations indicated the mortars were made with a natural sand. The sand particles were mostly quartz and other hard siliceous minerals. The particles ranged in size from ½ to 1½ millimeters (mm) and were subangular in shape. The sand particles were mostly clear to opaque, tan to smokey gray in color with less than approximately 10 percent of the particles dark in color. No significant component of calcareous aggregate was observed in the sand. The minerology of the sand indicated it was a local material. The mortars had an estimated air content of 10 to 20 percent. A lower air content of 5 to 10 percent was observed in the newer mortar located on the exterior wall of Hangar No. 1. The air voids observed in the samples were spherical in shape and evenly distributed in the mortar. The mortar color ranged from light gray to medium gray, except for the new mortar observed outside Hangar No. 1 which was white. This mortar was made with white portland cement. The mortars were hard to medium hard when scratched with a sharp metal instrument. Isolated particles of unhydrated lime were observed in the sample taken from the Fire Protection Shed (exterior, south face).

Freeze-thaw damage was not observed in the samples. Carbonation was observed in the samples taken from the Tower Building (mortar from block), Dope Storage Shed (interior), Hangar 1 (parge coat and interior) and the Fire Protection Shed (interior). The presence of carbonation was not unusual considering the age and exposure conditions of the structures.

The plaster sample analyzed from the Bath and Locker House was a gypsum-based material (Photos 20 and 21). This is typical plaster material. The gypsum board sample was analyzed similar to the mortars. There was an indication that gypsum was present, but it was not quantified.

The gypsum board was analyzed chemically and was determined to be a lime and sand mixture, with a binder to sand ratio of approximately 1 to 0.7.

Conclusions

The masonry units of the structures observed were similar in appearance and were in good condition. Deterioration in the form of cracks was not observed. Significant efflorescence staining was not observed on the masonry units.

The mortars observed were competent and did not crumble or break easily. The mortar was difficult to excavate at most locations. The mortar was intact in most locations and was not easily scratched with a metal chisel. The mortar observed was light gray to medium gray in color. The sand observed was a natural sand composed of quartz and other hard siliceous minerals. The mortar joints were well tooled and concave in shape. Freeze-thaw damage was not observed.

New mortar was observed on the exterior wall of Hangar No. 1. The mortar was white in color and had a brown smear coat applied to the surface. The brown coating provided a means of matching it to the existing mortar. LAW understands this area was re-constructed in the summer of 2001. The new masonry work appeared to be in good condition.

Petrographic evaluations and field observations indicated the mortars were similar in composition. Chemical analysis indicated the mortars ranged from a Type M to Type O based on ASTM C270 Proportion Specifications. The mortars were generally Types S and N, but an occasional Type M and O were observed. If re-pointing of the existing masonry is performed in the future, it is LAW's opinion that a reasonably strong mortar can be used without damaging the units. Softer mortars may result in increased watertightness in the mortar and better bond to the masonry units. A Type N mortar would be appropriate for most pointing purposes at the site.

The plaster sample analyzed from the Bath and Locker House was a gypsum-based material. This is typical plaster material. The gypsum board sample was analyzed similar to the mortars. There

was an indication that gypsum was present, but it was not quantified. The gypsum board was determined to be a lime and sand mixture, with a binder to sand ratio of approximately 1 to 0.7.

LAW appreciates the opportunity to have worked with you on this project. If you have any questions about this report, please do not hesitate to contact the undersigned.

Sincerely,

LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

Marian D. Strukel by MES w/permission
Project Engineer

Mark E. Leeman, P.E. (Georgia)
Principal Engineer

Attachments: Photographs
Moton Field Layout
Table 1 – ASTM C1324 Chemical Evaluation Results
Table 2 – Calculated Mortar Proportions

File: g:/lab/mstrukel/moton

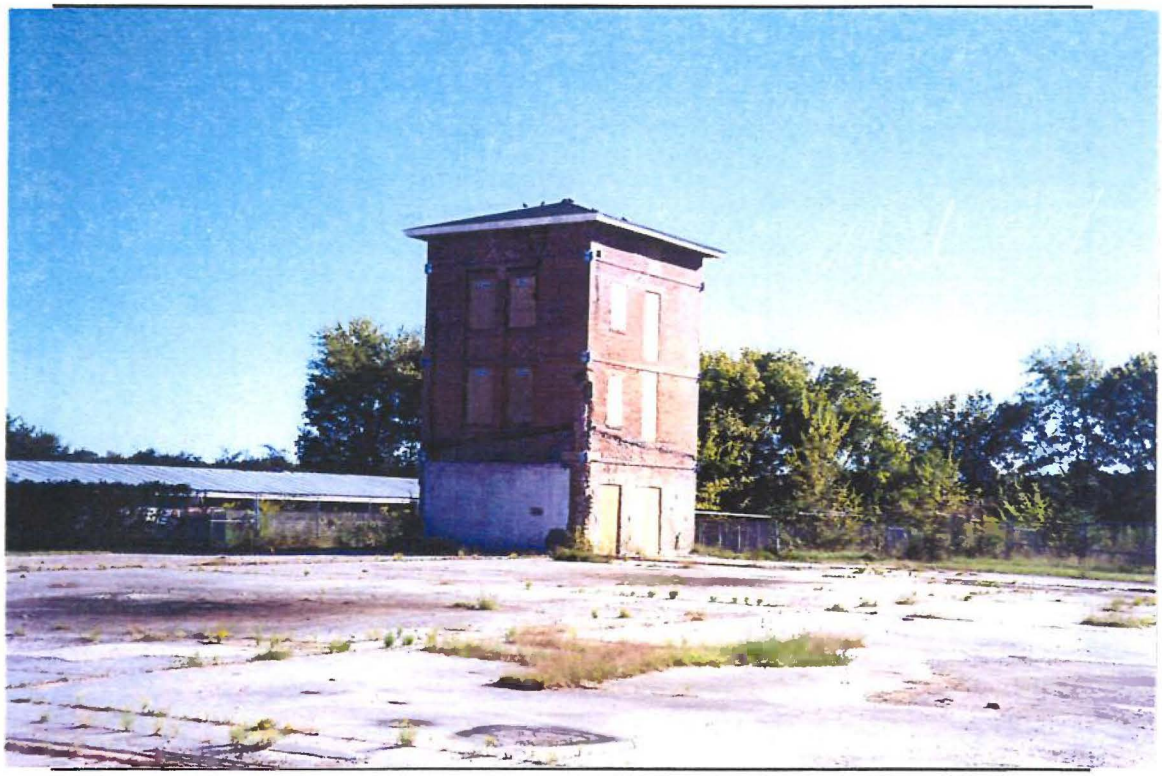


Photo 1. Control Tower Building

Photo 2. Control Tower Building – West Face

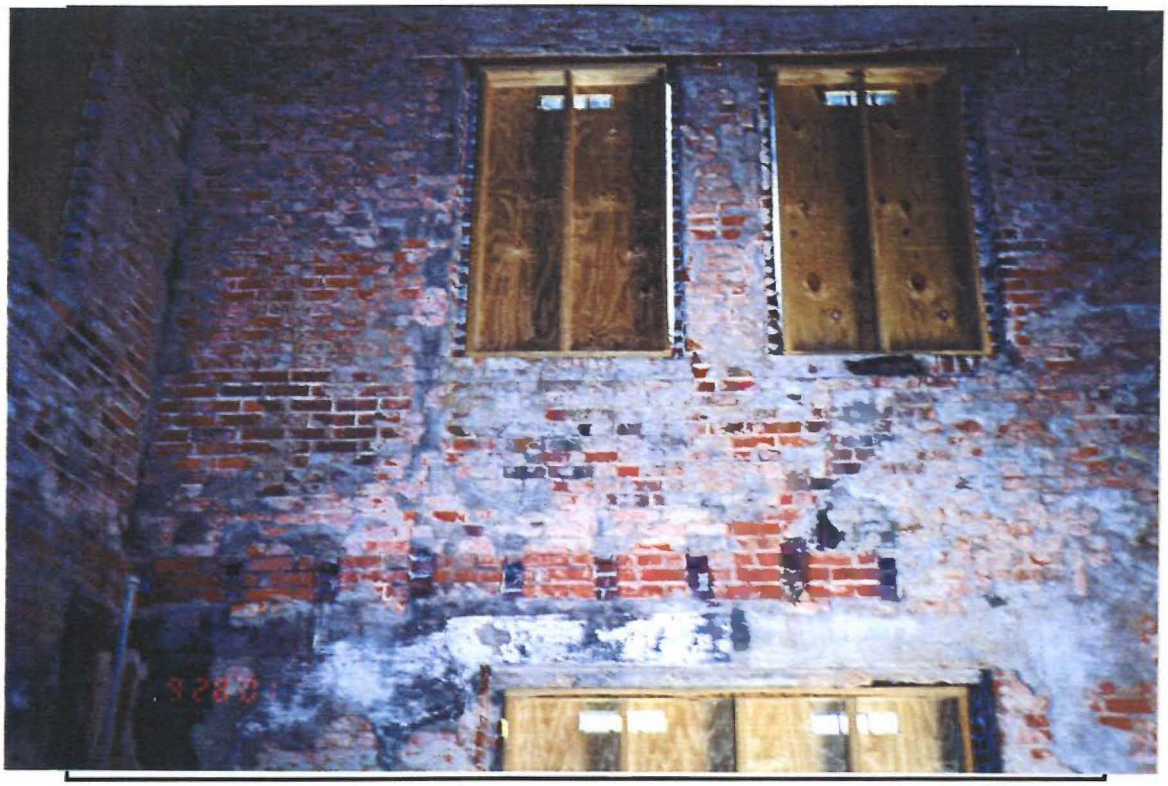


Photo 3. Control Tower Building – Interior North Face

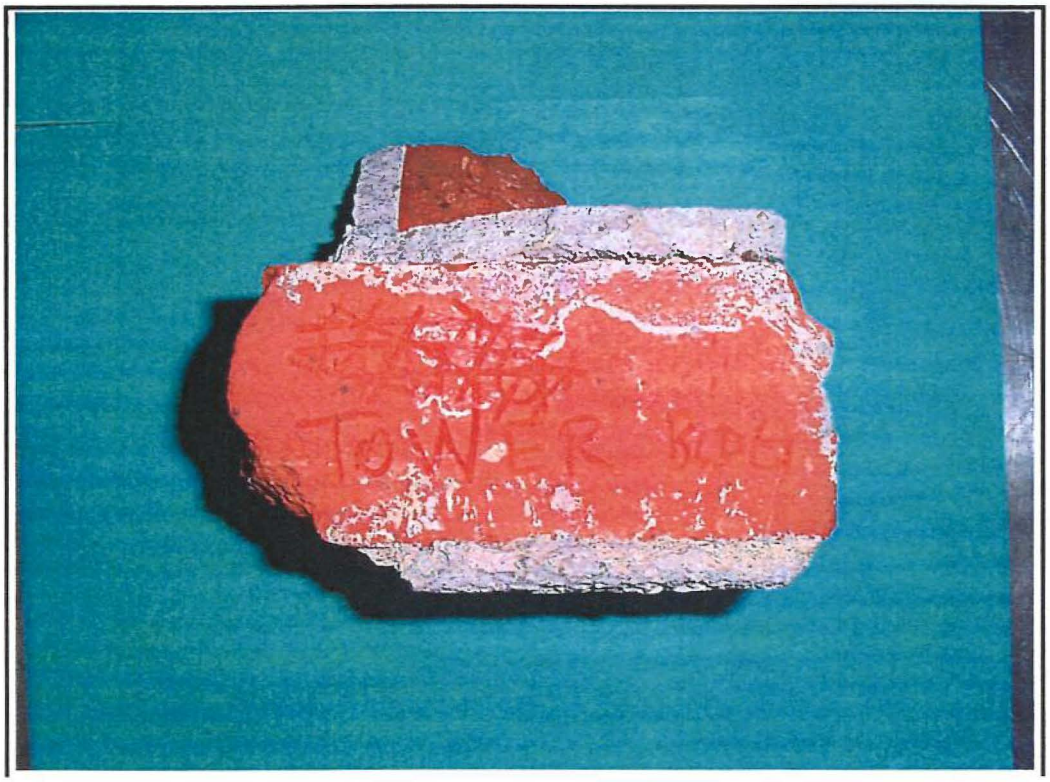


Photo 4. Brick/Mortar sample taken from exterior of Control Tower Building

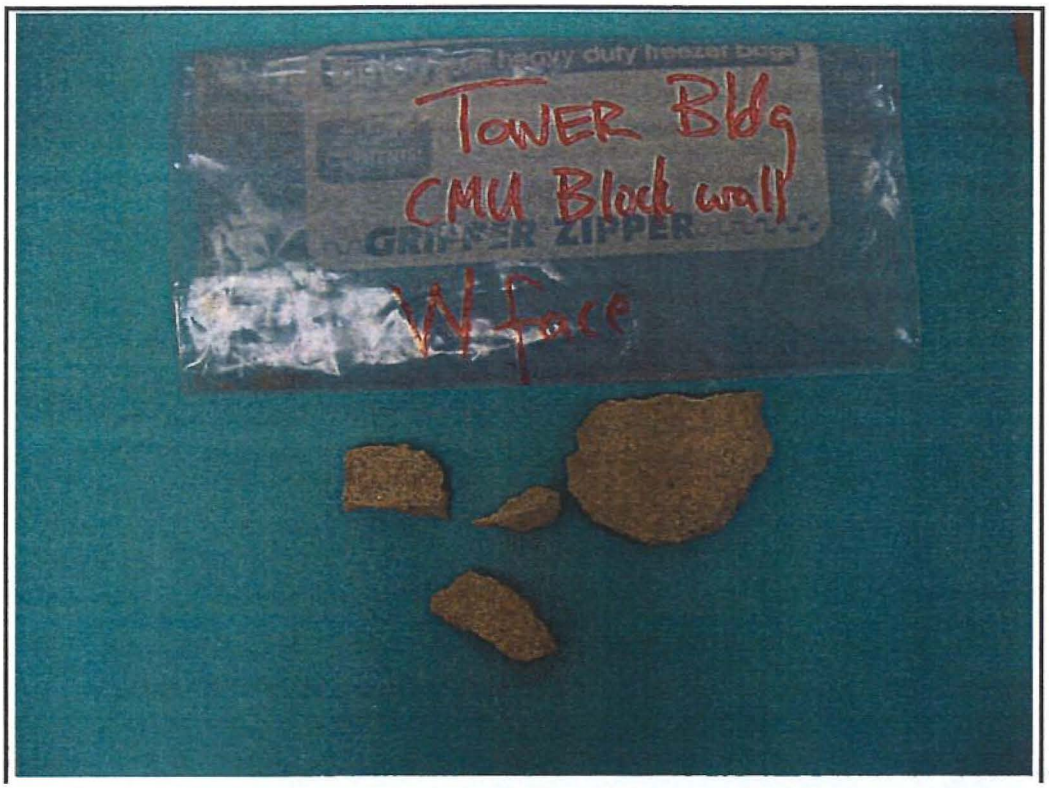


Photo 5. Mortar samples from Control Tower – exterior west face of building

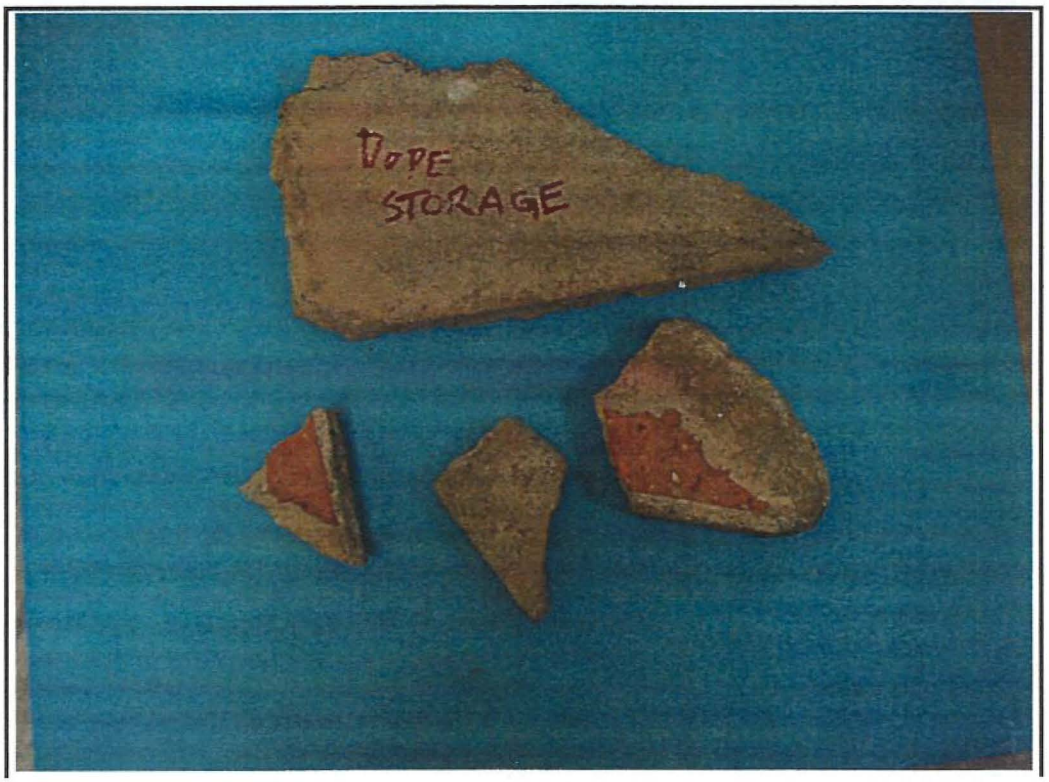


Photo 6. Mortar/Brick samples taken from interior of Dope Storage Shed

Photo 7. Hangar No. 1 – East Face

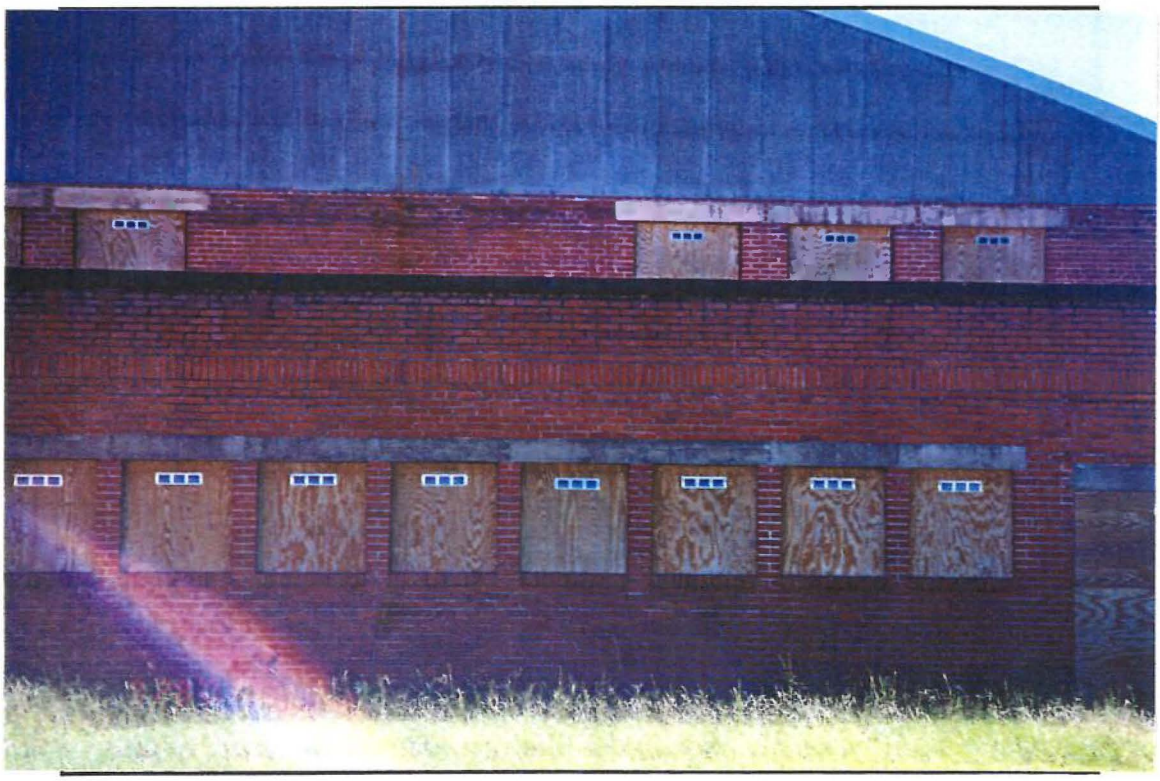


Photo 8. Hangar No. 1 – West Face

Photo 9. Hangar No. 1 – South Face

Photo 10. Hangar No. 1, Interior – Parge coat mortar observed on structural clay tile and masonry surfaces.

Photo 11. Hangar No. 1, Interior – Parge coat mortar observed. Note sand particles on surface poorly bonded to mortar.

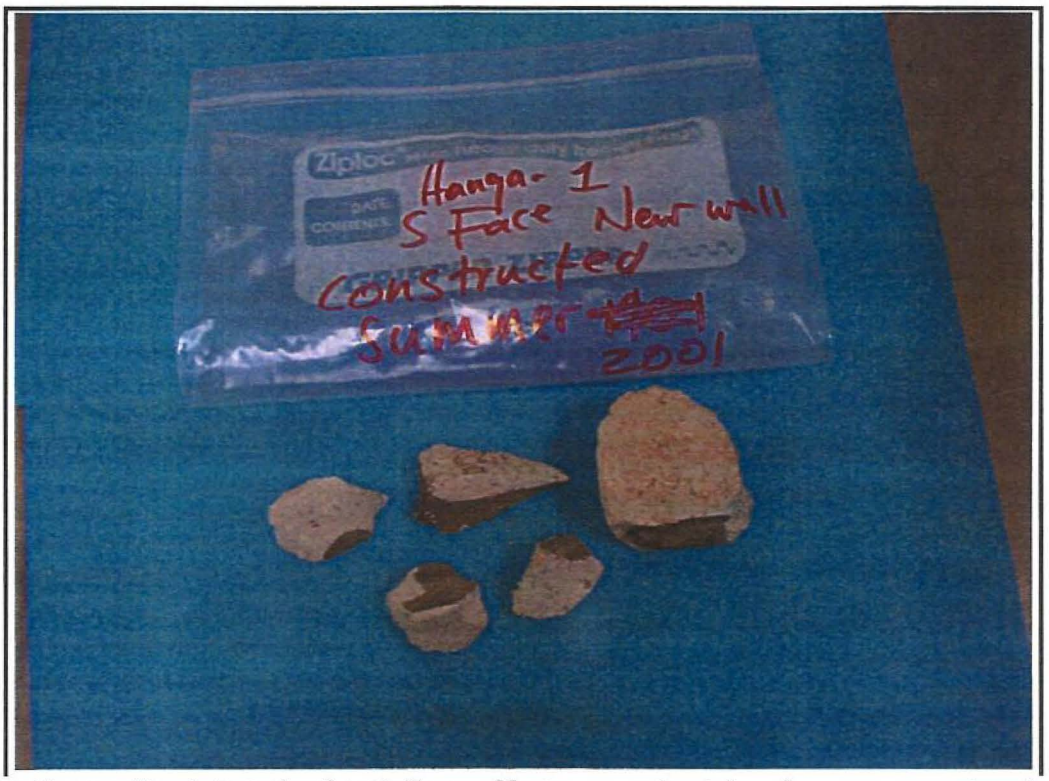


Photo 12. Hangar No. 1, Exterior South Face – Mortar samples taken from new construction. Note white mortar color (A) and brown smear coat (B) on tooled joint surface.

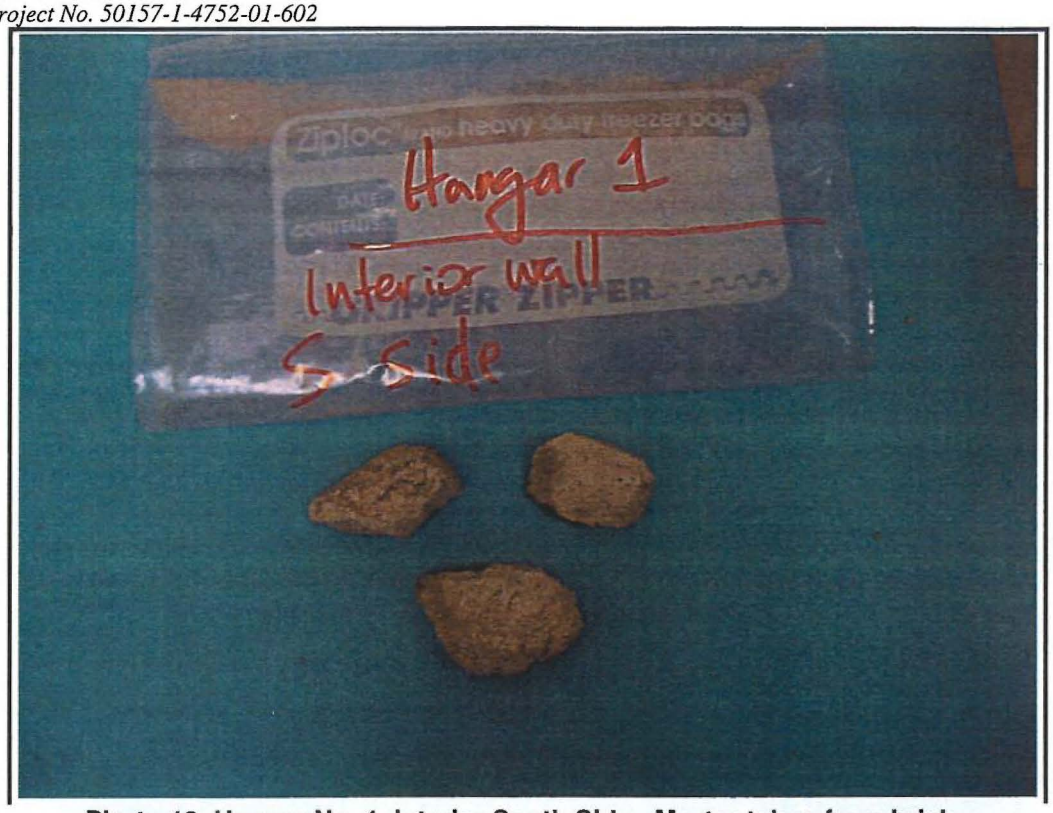


Photo 13. Hangar No. 1, Interior South Side– Mortar taken from brick

Photo 14. Fire Protection Shed – East Face

Photo 15. Fire Protection Shed – Interior face beside door. Note cracked mortar.

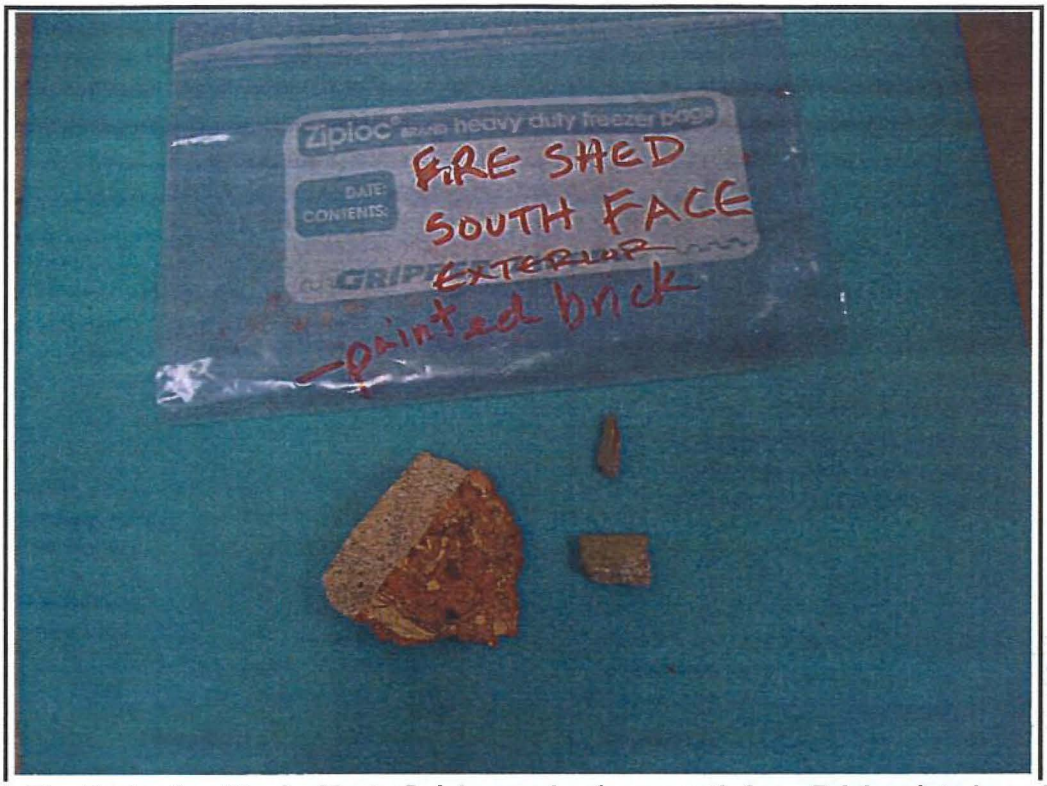


Photo 16. Fire Protection Shed – Mortar/brick samples from south face. Brick painted on side not shown.

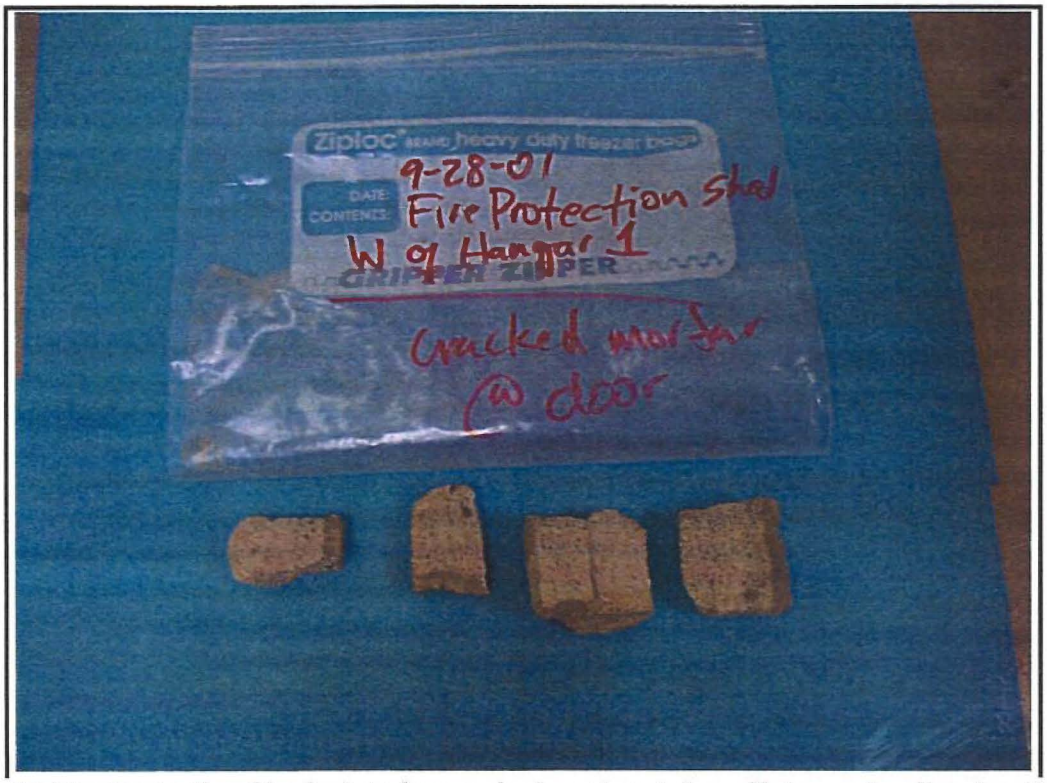


Photo 17. Fire Protection Shed – Interior cracked mortar at door. Note mortar discoloration at surface (extending approximately ¼ inch from surface).

Photo 18. Bath and Locker House – East Face

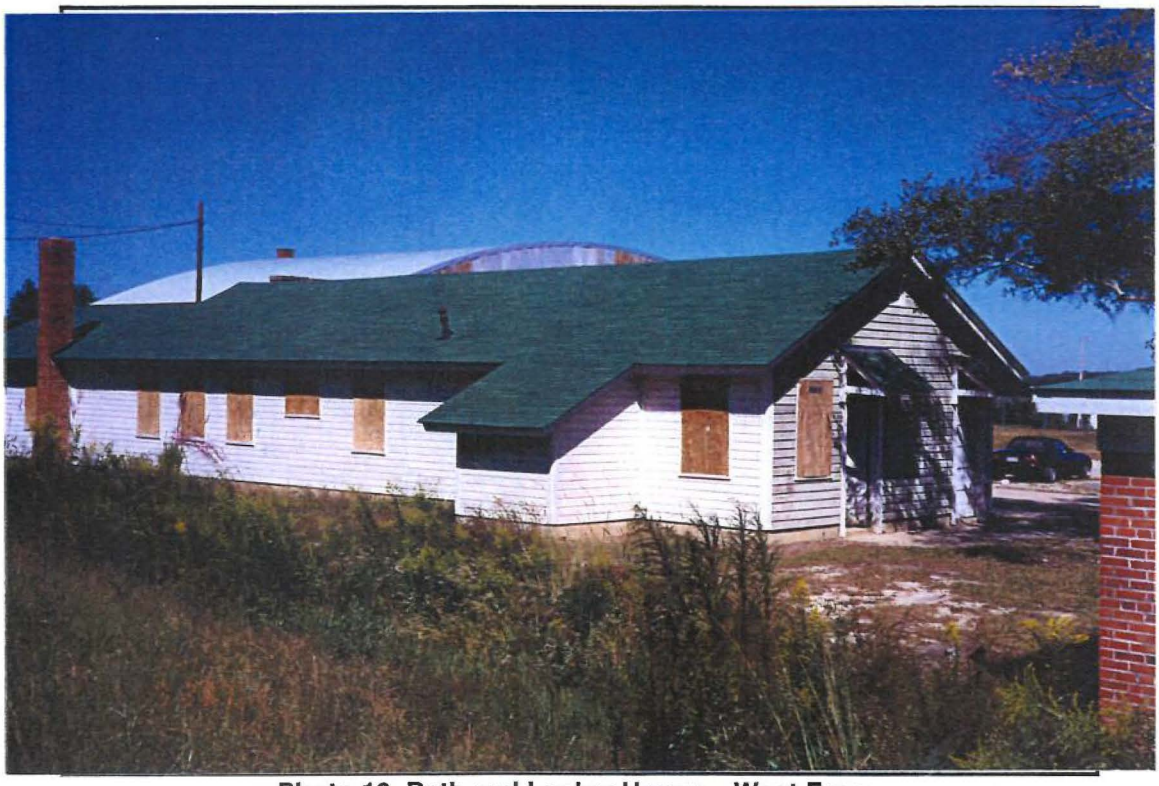


Photo 19. Bath and Locker House – West Face

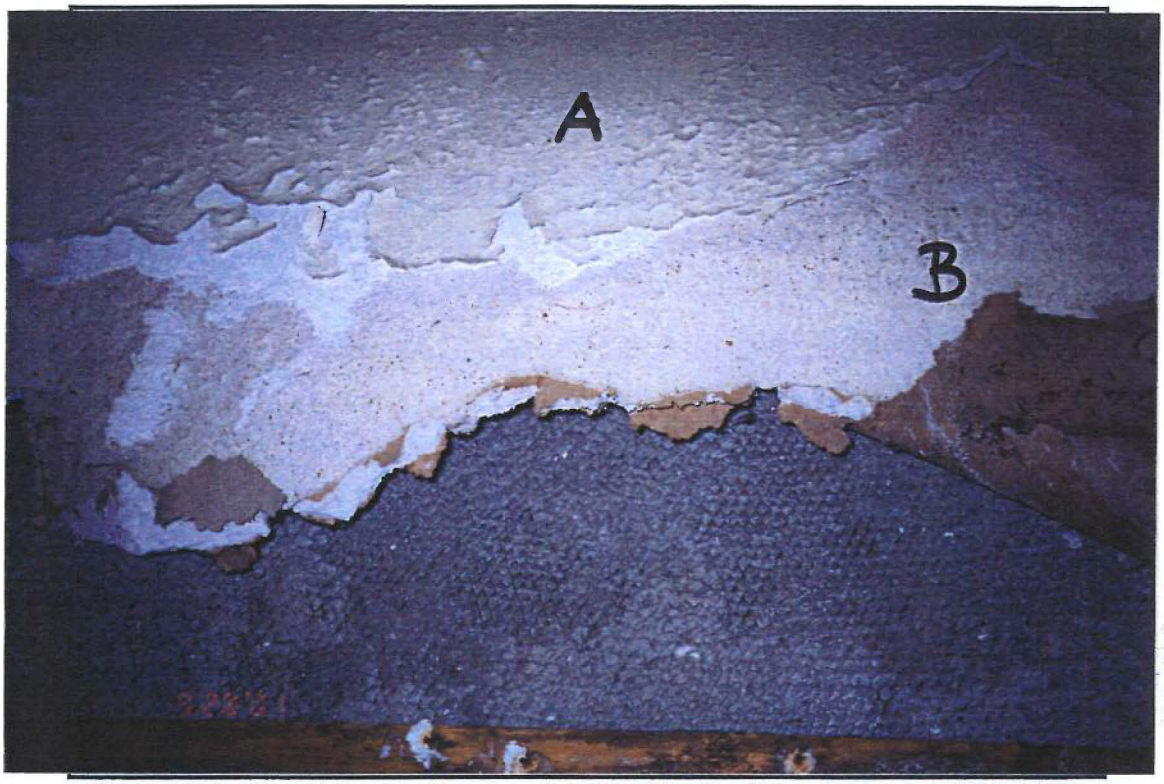


Photo 20. Bath and Locker House – Interior, Plaster (A) and gypsum board (B)

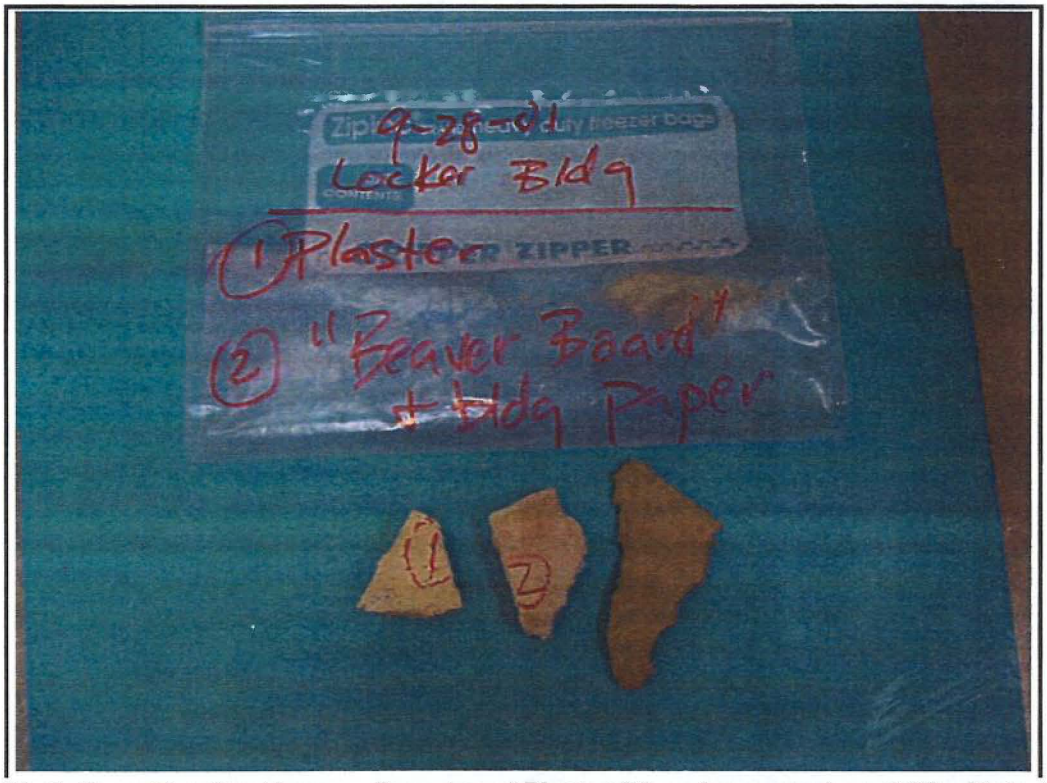
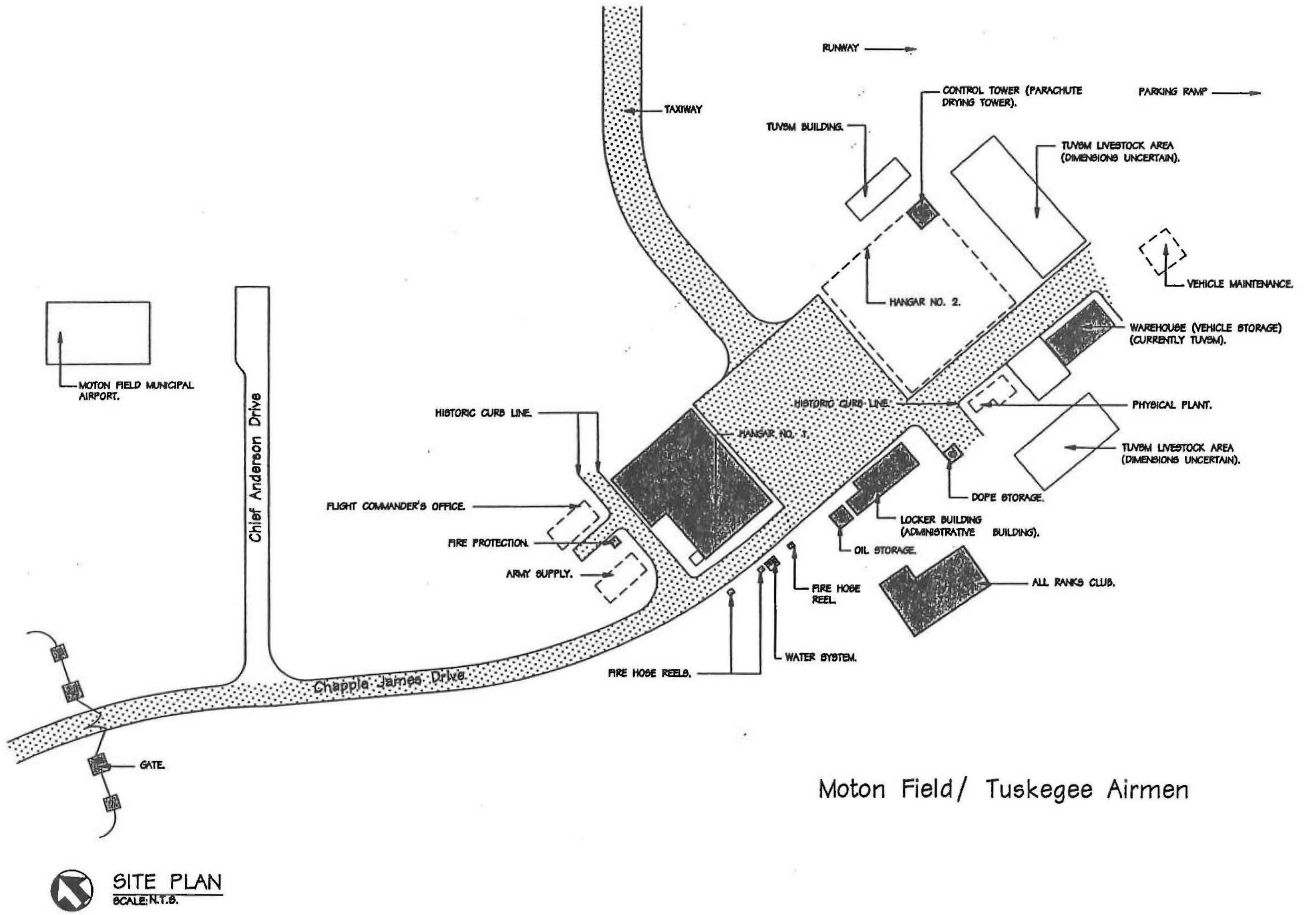


Photo 21. Bath and Locker House – Samples of Plaster (1) and gypsum board (2) with building paper (3)

Photo 22. Skyway Club – East Face

Drawing location: M:\DWG\NATPARKS\20071\DWG\A00.dwg Date Plotted:05-APR-2001 4:24:05 PM



Moton Field/ Tuskegee Airmen

SITE PLAN
SCALE: N.T.S.

GENERAL NOTES

1. REMOVE VINES FROM ALL HISTORIC STRU... AND ALL TREES, SHR... OVERGROWTH WITHIN 5'-... L HISTORIC STRU...
2. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS INCLUDING, BUT NOT LIMITED TO, MATERIALS, SIZES, AND EXISTING CONFIGURATIONS. NOTIFY THE CONTRACTING OFFICER OF MAJOR DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.
3. ALL NEW AND EXISTING WOOD SHALL BE TREATED WITH A BORATE SPRAY.

LEGEND

- EXTANT HISTORIC RESOURCE
- NON-EXTANT HISTORIC RESOURCE
- EXTANT NON-HISTORIC RESOURCE
- EXTANT HISTORIC LANDSCAPE FEATURE
- NON-EXTANT HISTORIC LANDSCAPE FEATURE
- EXTANT NON-HISTORIC LANDSCAPE FEATURE

SEAL

BOND Company
Architects & Engineers

DESIGNED:	DRD
CADD:	DRD
TECH. REVIEW:	RAS
DATE:	03/15/00

SUB SHEET NO. C1

TITLE OF SHEET
SITE PLAN

MOTON FIELD STABILIZATION
TUSKEGEE AIRMEN NAT'L HISTORIC SITE
TUSKEGEE, ALABAMA

DRAWING NO. 459 / 80,016

PKG. NO. —

SHEET 2 OF 52

Table 1: ASTM C1324 Chemical Evaluation Results

Chemical Analysis (%)	Dope Strg Int. Wall	Hangar 1 New Const	Hangar 1 S. Int.wall	Locker Blg Beaver Brd	Locker Blg Plaster	Fire Shed W.of Hang 1	Fire Shed S. Exterior	Tower Blg Ext. W.Face
Soluble SiO2	3.36	4.28	4.99	0.26	0.84	3.87	2.85	3.83
Soluble CaO	18.32	22.15	15.6	26.15	15.82	14.36	13.62	15.24
Soluble MgO	1.02	0.66	0.74	1.65	2.92	0.45	0.8	2.49
Insoluble	62.25	63.73	65.95	46.61	64.75	67.01	68.72	65.2
Total Solids	84.95	90.82	87.28	74.67	84.33	85.69	85.99	86.76
LOI 110C (free water)	0.87	3.24	0.89	2.01	1.75	0.86	0.7	1.02
LOI 550C (combined water)	2.63	3.65	2.27	19.29	7.23	2.53	4.11	4.28
LOI 950C (carbonates)	10.23	4.79	8.6	2.01	3.82	7.95	8.54	6.57
Total	98.68	102.5	99.04	97.98	97.13	97.03	99.34	98.63
ASTM C1218M Water Soluble Sulfate (SO4)					11.79			

Table 2: Calculated Mortar Proportions

Constituent	Volume by Parts							
	Dope Strg Int. Wall	Hangar 1 New Const	Hangar 1 S. Int.wall	Locker Blg Beaver Brd	Locker Blg Plaster	Fire Shed W.of Hang1	Fire Shed S. Exterior	Tower Blg Ext. W.Face
portland cement	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
lime	1.6	1.4	0.1	63.6	10.3	0.4	1.1	0.6
sand	4.6	3.7	3.3	44.2	19.0	4.3	5.9	4.2
total cemetitious	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
sand	1.8	1.5	3.1	0.7	1.7	3.0	2.8	2.6
ASTM C270 Type	O	S*	M			S	N	N

* Based on masonry cement