



MESS HALL BUILDING #58 FORT HANCOCK, NEW JERSEY

Sandy Hook Unit
Gateway National Recreation Area



Historic Structure Report

March 2011

Prepared by

JOHN MILNER ASSOCIATES, INC.

**GATEWAY NATIONAL RECREATION AREA
SANDY HOOK UNIT – FORT HANCOCK
MESS HALL BUILDING #58
MONMOUTH COUNTY, NEW JERSEY**

PMIS: GATE#147756

PEPC: #25440

**HISTORIC STRUCTURE REPORT
DOCUMENT 646 / 101,379**

March 2011



Prepared for
NATIONAL PARK SERVICE
DENVER SERVICE CENTER

Prepared by
JOHN MILNER ASSOCIATES, INC
PHILADELPHIA, PENNSYLVANIA

Gateway National Recreation Area

Sandy Hook Unit - Fort Hancock

Building #58

Historic Structure Report

March 2011

Approved by:

Superintendent, Gateway National Recreation Area

Date

Recommended by:

Chief, Cultural Resource Division, Northeast Region

Date

Recommended by:

Chief, Cultural Resources, Gateway National Recreation Area

Date

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INTRODUCTION

EXECUTIVE SUMMARY

Description

Mess Hall Building #58 is one of four originally identical, 140-man mess halls designed and constructed as part of the second phase of building at Fort Hancock during 1904-1905. Fort Hancock is located at the northern end of Sandy Hook, a sandy, narrow peninsula at the northeastern tip of New Jersey. Fort Hancock is part of the Sandy Hook unit within the Gateway National Recreation Area managed by the National Park Service (NPS). The historic core of Fort Hancock, centered on a half-round shaped parade ground, is oriented towards the western side of the peninsula. The enlisted men's barracks and associated mess halls are paired along the curving western edge of the main parade ground. The mess halls are sited to the rear of each complementary two-story barracks building (#22 through #25). Mess Hall Building #58 sits to the rear of Barracks Building #25 and is the northernmost of the mess hall buildings.

Mess Hall Building #58 is a one-and-a-half story, rectangular building with a partially exposed basement level. The building has a hipped roof with large, gable-end dormers to the north and south. The building is symmetrical with seven bays on the east and west elevations and four bays on the north and south elevations. Building #58 has a large, five-bay wide porch on the west with a low slope, hipped roof. On the east, there is a small, two-bay wide porch with a low-slope roof.

The interior of Mess Hall Building #58 was rehabilitated in 2001 to accommodate modern office space. The main first floor retains the original floor plan with a large open central mess hall space flanked by two large rooms to the north and a corridor and small offices to the south. The central mess hall space has been divided into office and reception areas through the use of partial height partitions. To the north, the historic kitchen and pantry areas are now common kitchen, modern bathrooms, and meeting space. On the south, the historic corridor, bathroom, and three office rooms have been preserved. The formerly unfinished basement floor was renovated for modern office use. The attic remains unfinished and is used for storage.

Significance

The Sandy Hook peninsula has been a strategic location for the defense of the New York harbor since the American Revolution. Fort Hancock was established after the Civil War as part of the federal improvement of coastal defenses. The first stage of construction at Fort Hancock occurred in 1896 and included the Officer's Quarters and Enlisted Men's Barracks that ringed the semi-circular Parade Ground. Originally, each barracks contained mess hall functions. Soon, the need for additional bunk space was met by building separate mess halls for each of the Enlisted Men's Barracks in 1904-1905. Building #58 was one of the four identical mess halls built in 1904 to support four existing barracks buildings. Specifically, Building #58 served Barracks Building #25. Mess Hall Building #58 was in active use for seven decades, serving Women's Army Corps (WAC) personnel during World War II. Fort Hancock was deactivated in 1974 and management of the site was handed over to the Department of the Interior.

Building #58 is significant as a component of the early twentieth century development of Fort Hancock in its role as part of the network of military posts established and enlarged to protect New York. Although its role was not critical to the operations of the fort, it, along with the associated barracks, played a significant secondary role in servicing the needs of enlisted personnel. Its historic interest is heightened by its World War II era role as the mess hall that served the contingent of WAC personnel stationed at the facility. The building contributes to the significance of the Fort Hancock and Sandy Hook Proving Ground National Historic Landmark.

Integrity

Building #58 is the only one of the four mess halls built in 1904 that is currently occupied. Some interior alterations, most of which are reversible, have been made as part of the building's conversion from its original use to its current use as office space for NPS personnel. Partial height partitions have been installed to form offices within the central mess hall space. The northern kitchen/pantry area has been altered by the construction of restrooms. The original unfinished basement has been partitioned to accommodate several

offices. Despite these interior changes, significant portions of the historic interior fabric remain intact. Among notable elements are the pressed metal ceilings, door and window trim and door transoms, and the overall retention of the historic floor plan, including the central open mess hall area.

The exterior also retains the overall historic form and fenestration pattern. A substantial portion of historic fabric remains including doors and door surrounds, the attic and basement window sashes, the corbelled brick chimneys, and the central sheet metal ventilator. The main west and east porches have been restored and retain important character defining features, such as the porch columns, pilasters, and railings. However, some historic materials and elements have been replaced, including modern roofing materials, replacement windows, and new porch floors.

Building #58 retains a high degree of integrity. It retains integrity of setting and location as the building remains on its original site within the Fort Hancock complex, which is remarkably intact though many buildings are seriously deteriorated. The building retains significant elements of its historic fabric. Interior changes have not altered character defining features. Therefore, it retains integrity of design. The building retains much of its original exterior and interior fabric with the exception of its roof covering. Therefore, it retains integrity of materials. Evidence of workmanship remains in many surviving historic elements, and due to its lack of major alterations, it retains integrity of feeling. The building still conveys associations with its original use, and these associations are conveyed to the visitor by interpretive signage.

Methodology

The Historic Structure Report for Mess Hall Building #58 was undertaken by a team of historians, architects, and architectural conservators from John Milner Associates, Inc. (JMA) with assistance from structural engineers at Keast and Hood, Inc. The report was prepared through archival research, on-site surveys, material analysis, examination of repair options, and compilation of historical documentation. Findings were compiled into a series of three drafts. Each draft was reviewed by the designated NPS review team and comments were incorporated into the subsequent draft. The final formatted draft was printed following approval by NPS.

Archival research began with several CDs containing photographs, maps, plans, and drawings from the Gateway National Recreation Area (GATE) archives. Research also involved inspection of building history cards, typically maintained in files in the Real Estate or Engineering office of an Army facility. These cards had been transferred to the National Park Service. Primary research was conducted at several repositories, including the Still Pictures Branch of the National Archives in College Park, Maryland; the Aberdeen Proving Ground Historian's Office in Maryland; the Textual Reference Branch of the National Archives in College Park, Maryland; and online resources including *The New York Times* archives. Previous studies were consulted for information on Building #58, including Edwin Bearss's "Historic Resource Study, Fort Hancock, 1895-1948" and Thomas Hoffman's 2007 book in Arcadia's *Images of America* series. Additional contextual information on mess hall life was provided by two Fort Hancock newspapers, *The Foghorn* and *On Guard*, provided to JMA by GATE in digital form, and by Quartermaster Corps publications on mess hall regulations and procedures.

The on-site survey was conducted over a series of site visits in October and December 2009, with a follow up survey in August 2010. The scope of the survey included the assessment of the building site, exterior envelope, and interior spaces. The survey was conducted from the ground and from all accessible spaces. The survey did not include direct access to the roof. The team also observed the other existing mess hall buildings at Fort Hancock in order to understand the remaining historic fabric and alterations undertaken at Building #58.

Conditions were noted in field notes, sketches, and annotated drawings. Measurements were taken to produce schematic level measured drawings of both elevations and floor plans. Digital photographs were taken to detail specific conditions. Archival quality photographs were taken of the site, exterior, and interior spaces to document overall conditions. Material samples of both mortar and paint were taken for laboratory analysis.

Further research was undertaken by JMA to complete the Historic Structure Report. Laboratory analyses were conducted on the mortar and paint samples. Current building code requirements were consulted to address the conditions and requirements for Building #58.

Major Issues

Mess Hall Building #58 was renovated in 2001, has been well maintained, and remains in good condition. The major concerns discovered during the Historic Structure Report work are as follows:

- Life safety concerns were identified including the storage of combustible materials in the attic and basement boiler room spaces, and the lack of fire rated enclosures for heating and electrical utility spaces.
- Roof trusses that support the main roof require reinforcement to address minor deterioration.
- Cracks at the north and southwest foundation, while not of immediate concern, require monitoring to assess their activity.
- Original attic level windows are deteriorated requiring significant repairs and repainting.
- Building #58 is currently not universally accessible. The exterior of Building #58 requires upgrades to address the need for ADA compliant parking, pathways, and entry to the first floor. The interior requires alterations to provide ADA compliant conditions including a lift between the first and basement floors, new signage, and a drinking fountain. In addition, the partial height passage created in the historic mess hall space is not ADA compliant.
- The interior of Building #58 requires upgrades to meet current fire safety building code.
- The exterior of Building #58 has minimal signage and site lighting. The lack of signage makes it difficult for visitors to find the main west entrance.
- Building #58 does not meet current security requirements for GATE.

Recommendations

The recommended treatment for Mess Hall Building #58 is rehabilitation. In the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (1992), rehabilitation is defined as the "act or process of making a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values." The required work at Building #58 can be accommodated within the rehabilitation guidelines. Repairs are recommended to preserve remaining historic fabric. Life safety, signage, and security upgrades are all allowed provided that they are minimally invasive and appropriately installed. The universally accessible entrance will require the greatest amount of compromise and careful detailing to ensure that the exterior of Building #58 is not negatively impacted.

ADMINISTRATIVE DATA

Building #58, originally constructed as a mess hall, is located within Fort Hancock, which was an active fort during 1895-1974. Building #58 sits at the northern end of Magruder Road, near the Sandy Hook Lighthouse. Fort Hancock is strategically located at the northern end of Sandy Hook, a narrow peninsula in northeastern New Jersey. Fort Hancock is part of the Sandy Hook Unit of the Gateway National Recreation Area, comprised of sites in New York and New Jersey that surround the entrance to the New York harbor.

NPS Identification

Historic Building Name: Mess Hall #58

Current Building Name: Building #58

LCS ID Number: 008479

Park Structure Number: SH-058

UTM: E584562.159 N4479379.194 18N

FMSS Location Number: 21431

Proposed Treatment

List of Classified Structures (LCS): In 2005, the LCS listed Building #58 as being in good condition and indicated as “must be preserved and maintained.” It is a contributing structure within the Fort Hancock and Sandy Hook Proving Ground National Historic Landmark.

General Management Plan (GMP) of 1979 and Amendment of 1990: call for the preservation of Building #58 and the relocation of the primary Sandy Hook visitor center to Fort Hancock.

PMIS 147756: For this proposed project, both Barracks Building #25 and Mess Hall Building #58 would be rehabilitated for visitor services.

List of Related Studies

1976

Richard E. Greenwood, National Register of Historic Places nomination, “Fort Hancock and the Sandy Hook Proving Ground Historic District,” June 28, 1976.

1979

“General Management Plan: Gateway National Recreation Area, New York/New Jersey” (NPS, August 1979).

1981

Edwin C. Bearss, “Historic Resource Study, Fort Hancock, 1895-1948, Gateway National Recreation Area, New York/New Jersey” (Denver: U.S. Department of the Interior, National Park Service, May 1981).

1982

Fort Hancock National Historic Landmark nomination.

1986

Douglas S. Walter, Barry Sulam, Susan Simpson, and John B. Marsh, “Historic Structures Report Architectural Data Section (Volume II): Fort Hancock Quartermaster Structures, 1900-1918, Sandy Hook Unit, Gateway National Recreation Area, New Jersey” (NPS, 1988).

1990

“General Management Plan Amendment: Development Concept Plan and Interpretive Prospectus: Sandy Hook Unit, Gateway National Recreation Area, New York/New Jersey” (NPS, January 1990).

“Historic Structure Assessment Report, Fort Hancock–Building 58, Mess Hall, Gateway National Recreation Area, Sandy Hook Unit” (Douglasville, GA: Architectural Conservation Center, 1989-1990).

1997

Context Study of the United States Quartermaster General Standardized Plans, 1866-1942 (U.S. Army Corps of Engineers, Seattle District, 1997).

1999

Chandler McCoy, “Fort Hancock Rehabilitation Guidelines” (San Francisco, CA: NPS Presidio Planning Office, 1999).

2002

Naomi D. Kroll and Sharon K. Ofenstein, “Building 25 Enlisted Men’s Barracks, Fort Hancock, Historic Structure Report, Sandy Hook Unit, Gateway National Recreation Area” (Lowell, Massachusetts: Building Conservation Branch, Northeast Region, National Park Service, February 2002).

2006

Lisa Nowak and H. Eliot Foulds, “Cultural Landscape Report for Fort Hancock: Treatment Plan” (Boston, Massachusetts: National Park Service Olmsted Center for Landscape Preservation, 2006).

Cultural Resource Data

National Register: listed April 24, 1980, Building #58 is listed as a contributing structure within the historic district

National Historic Landmark: designated December 17, 1982

National Historic Landmark Period of Significance: 1895-1974

National Historic Landmark Significance: Fort Hancock and Sandy Hook Proving Ground Historic District reflects the history of a vital defense installation guarding New York City and its harbor from 1895 to 1974. This Landmark played a key role in the development of advanced weaponry and radar and is also significant as the site of the Spermaceti Cove No. 2 Life-Saving Station, one of the earliest Federally-sponsored efforts to save life and property from coastal shipwrecks. Building #58 is one of 110 significant historic buildings that reflect the history of the Fort Hancock U.S. Military Reservation.

Archive Recommendations

A digital version of the final historic structure report should be made accessible on the NPS Park Histories website.

Digital copies of relevant historic documentation will be provided on a CD to Gateway National Recreation Area. Hard copies of historic documentation will be reproduced in appendices, with the exception of relevant books. Historical books will only be provided in digital version on CD.

Copies of the final report along with the historic documentation CD should be kept at Fort Wadsworth in the official Park archives. Copies should also be kept at Fort Hancock in curatorial storage, with facility staff and the Sandy Hook Unit historian. A copy should also be kept at the Gateway National Recreation Area headquarters.

Printed copies of the HSR should also be made available to local historical societies and libraries, such as the Monmouth County Library and the Monmouth County Historical Association.

PART 1: DEVELOPMENTAL HISTORY

HISTORICAL BACKGROUND AND CONTEXT

METHODOLOGY

Research for this Historic Structure Report initially focused on the history and evolution of Building #58. A major source of information was building history cards, typically maintained in files in the Real Estate or Engineering office of an Army facility. These cards had been transferred to the National Park Service. Those for Building #58 and the other adjacent mess halls were provided and were important sources for the building chronology. The form for Building #58 is reproduced in the Appendix G.

Other graphic materials such as historic photographs and building construction and alteration drawings are particularly helpful in determining the original appearance of the building and the chronology and character of subsequent alterations. Unfortunately, few such materials appear to survive for Building #58. The Gateway National Recreation Area (GATE) archives retain some historical photos which were provided to JMA. Historical photos were also sought without success at the Still Pictures Branch of the National Archives in College Park, Maryland, and at the Aberdeen Proving Ground Historian's Office in Maryland. A few sketch architectural drawings for the building survive. Some are in the GATE files, while several are appended to original building construction cards in the Textual Reference Branch of the National Archives in College Park. No further architectural drawings were located either in GATE files or in National Archives record groups.

With the assistance of archivists at the New York Branch of the National Archives and the Textual Records Branch of the National Archives in College Park, records groups specifically relating to Fort Hancock were reviewed. Few contained any specific references to Building #58. Those references that were located were reproduced and appear in the appendices to this report.

The most useful previous research was Edwin Bearss's "Historic Resource Study, Fort Hancock, 1895-1948." Fort Hancock Historian Thomas Hoffman's 2007 book in Arcadia's *Images of America* series was a useful resource, both for its concise accurate text and its photographs. Other information about the planning and early history of Fort Hancock was located in a series of articles published in *The New York Times*.

At the suggestion of Mr. Hoffman, additional research was undertaken to gather information on the function of the mess hall. This information was gathered by consulting on-line periodical and newspaper indices, by reviewing surviving issues of two Fort Hancock newspapers (*The Foghorn* and *On Guard* provided to JMA by GATE in digital form), and by reviewing Quartermaster Corps publications on mess hall regulations and procedures.

SANDY HOOK & FORT HANCOCK

Sandy Hook, a peninsula extending north into the New York Harbor entrance at the extreme northern end of the New Jersey coast, was long considered an excellent point of defense for the harbor. From initial European settlement of the area to the 1900s, all large ships that entered or left the harbor had to travel a narrow curving channel around the tip of the peninsula. The first documented fortifications of Sandy Hook were established there during the American Revolution, and new fortifications were erected during the War of 1812 and the Civil War.

The United States Army developed a temporary proving ground at Sandy Hook in 1874, where new weapons were tested. The site boasted flat, open land with good water and rail connections, while at the same time being sufficiently removed from population centers to reduce the possibility of injury. The first test firing took place in October 1874.¹ The permanent concrete proof battery that remains is slightly later and dates to 1900.

A consensus emerged among United States defense planners about the inadequacy of the defense of the country's coast. Most areas, if defended at all, were defended with Civil War-era muzzle loading guns including many smoothbores modified by the addition of rifled liners. Despite opposition from some members of Congress representing inland districts, members of the 49th Congress succeeding in obtaining the first appropriation for post-war coastal defense and the appointment of a board to study the issue. The board

appointed by President Grover Cleveland was headed by Secretary of War William Crowninshield Endicott, and was known as the Endicott Board.

In its report of January 16, 1886, the Endicott Board recommended the construction or improvement of seacoast batteries throughout the United States with an expenditure of nearly \$100 million. The defense of New York alone would cost \$23 million. The report concluded with the necessity for construction:

It is no advantage to conceal the fact that the ports along our coasts...invite naval attack, nor that our richest ports, from their great depth of water and capacity to admit the largest and most formidable ships, are, of all, the most defenseless. The property, at stake, exposed to easy capture and destruction, would amount to billions of dollars, and the contributions which could be levied by a hostile fleet upon our seaports should be reckoned at hundreds of millions.²

The Board recommended appropriations of \$9 million per year to implement this work, but the United States Congress implemented this program with annual appropriations beginning with \$1,221,000 in 1890.³

A *New York Times* article indicated the poor state of the New York harbor defense prior to the late nineteenth century appropriations:

There was a time, and it was not very long ago, when a hostile fleet of war vessels from almost any foreign nation could have silenced the forts in and around the Harbor of New York and either bombarded the city or exacted a ransom of many millions of dollars without firing a shot into the city. This might have been done a few years ago when the upper part of Sandy Hook was a wilderness covered with scrub pines and only used as a lighthouse station, and when the only defenses, as far as the entrance to the harbor from the sea was concerned, consisted of a few smooth-bore cannon mounted in the casements at Fort Hamilton and Wadsworth.⁴

Defense improvements included gun emplacements at Sandy Hook and the two mentioned forts. Improvements at Sandy Hook were described in a *New York Times* article:

Fort Hancock, at Sandy Hook, is the strongest defense work on the coast. The fort is completely hidden from view from vessels passing in and out of the channels leading to the bay. Here the largest and finest guns ever made in this country, or anywhere else have been mounted, and are so placed that they not only command the channels at the entrance to the lower bay, but by their great range of fire, could keep a ship off the coast where the projectiles fired from her guns would do no damage.⁵

Guns mounted at Fort Hancock were eight, ten and twelve inch, breech-loading, rapid fire weapons, many of which were mounted on disappearing carriages (see photo 1).

In 1895, U.S. Secretary of War Daniel S. Lamont issued an order naming the fortification in honor of the late General Winfield Scott Hancock, a Civil War hero. The following year, the Secretary announced the appropriation of \$100,000 for commencement of the construction of barracks for a permanent artillery garrison at Fort Hancock.⁶

The artillerymen to man the guns of Fort Hancock were to be transferred from the batteries at Fort Slocum, on Davids Island, near New Rochelle, New York; Fort Hamilton in Brooklyn; and Fort Wadsworth on Staten Island.⁷ However, before the troops could be relocated to Fort Hancock, the construction of quarters and related facilities was necessary.

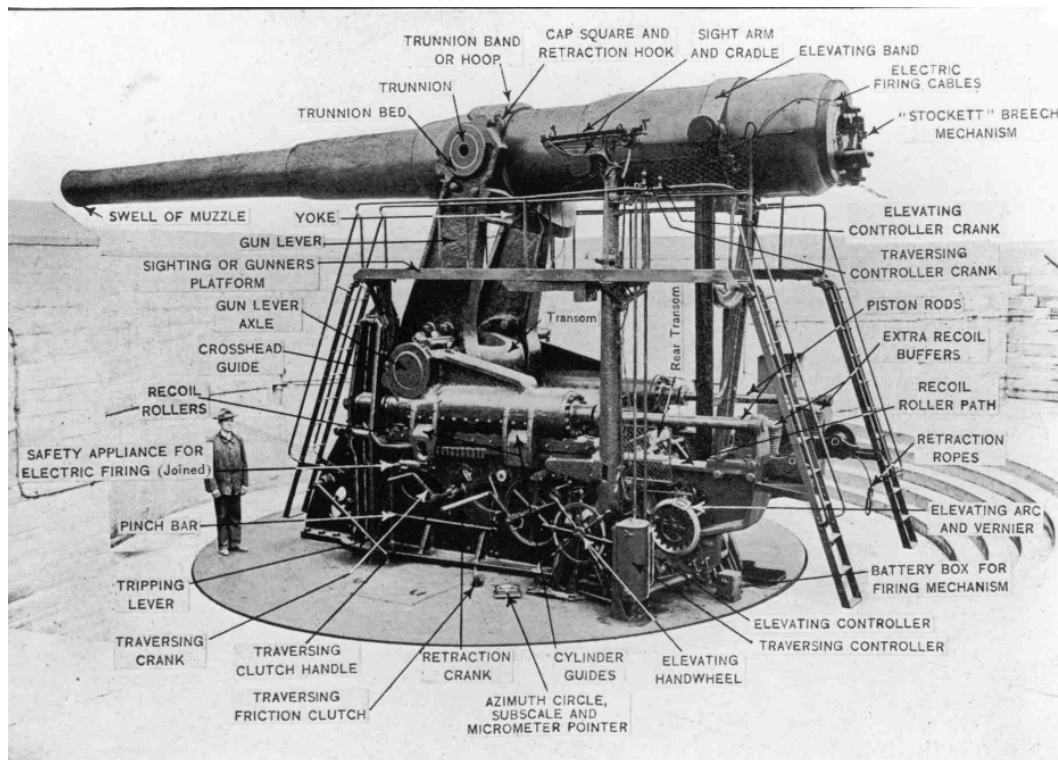


Photo 1. Annotated photograph of the disappearing gun at Battery Potter (#7789, Gateway National Recreation Area Museum archives)

INITIAL PLANNING, FINANCING, AND CONSTRUCTION OF THE FORT

The first task in the development of a permanent garrison was to identify the locations of the various elements of the military post. Most of the ground of the peninsula north and west of a line extending from the West Beacon to the steam-powered lift gun battery, Battery Potter, was occupied by buildings and structures belonging to or used by the U.S. Army Corps of Engineers, the U.S. Lifesaving Service, and the Western Union Telegraph Company, while the eastern part of the area was part of the beach range of the proving ground. To separate the facilities, the post would have to be constructed to the south.

The enlisted men's barracks were to be constructed on high ground southwest of the mortar battery. Additional barracks for personnel manning the planned additional batteries could be erected to the south as the need arose.

The master plan for the proposed post was assigned by Chief Quartermaster Charles G. Sawtelle to Captain Arthur Murray, who had commanded Battery L, 1st U.S. Artillery at Fort Wadsworth from November 1891 to August 1896.⁸

Murray indicated that the selection of a suitable barracks plan be governed by utility, comfort, "beauty of architecture," and cost of construction. To make the barracks as comfortable as possible, Murray recommended that they be planned to accommodate a single company rather than two companies, and be provided with front and rear porches.

Following preparation of drawings for the first groups of buildings, Murray had the designs critiqued by John M. Carrere and Thomas Hastings, distinguished New York architects, later designers of the central branch of the New York Public Library, among other buildings. In evaluating the barracks drawings, they indicated the elevations did not present any expensive features, although they were not absolutely plain. They urged that the arched openings and the lower stories of the piazza be constructed of masonry rather than wood and estimated that each building could be built for about \$30,000.

On August 3, 1896, Acting Quartermaster General George H. Weeks recommended that Secretary of War Daniel S. Lamont authorize the amount of \$339,600 for the construction of the necessary buildings for a four-battery military post. Preliminary plans called for the construction of an administration building, a guardhouse, a quartermaster's storehouse, a fuel storehouse, a shop, a bakery, a stable, a wagon shed, two double sets of noncommissioned officers' quarters, four barracks, one commanding officer's quarters, six captains' quarters, and 11 lieutenants' quarters.

In September 1896, Secretary Lamont approved plans for the requested buildings including the barracks. The initial plan of Fort Hancock is shown in a c. 1900 water and sewerage plan (see figure 1). The bid advertisement for construction was published on October 31, 1896. Specifications called for the use of buff Ridgeway brick, or its equivalent as face brick. The initial construction contracts were awarded on December 10, 1896. Low bids included Thomas J. Regan of Newark's \$287,115 proposal for construction of 32 buildings, using buff brick with limestone trim; Leonard & Stratton of Columbus, Ohio's \$14,243 for installation of plumbing and \$1,327 proposal for installation of gas pipes; and A.W. Rutherford & Company's \$22,066 proposal for steam. The prime contractor, Regan, eventually abandoned the contract and was eventually replaced by Krueger, Mullin and Burne of Baltimore, Maryland (see photo 2).⁹

CONSTRUCTION OF THE MESS HALLS

Inspector Peter D. Vroom of the Department of the East spent three days at Fort Hancock in December 1899. When he inspected the barracks he found that the space per occupant would not be adequate for the batteries if they were at their authorized strength of 113 men. Initially, the first story south wing of the barracks contained a kitchen room, pantry, cook's room, mess hall, and rooms for the company's barber and tailor (see figure 2). In 1900, the Army concluded that, if the Fort's garrison were expanded, new barracks space would be needed. To create more bunk space, it was decided to convert the kitchen and mess hall into dormitory space. In the winter of 1903-1904, Quartermaster General Humphrey authorized construction of detached kitchens/mess halls for the four barracks. In mid-March 1904, Secretary of War Taft authorized an allotment for the construction of seven buildings at Fort Hancock: four detached kitchen/mess halls, one fire apparatus house, one double set of noncommissioned officers' quarters, and one wood-framed ordnance storehouse.¹⁰ This work would include the construction of Mess Hall #58.



Photo 2. View of west façade of Enlisted Men's Barracks (#2804, Gateway National Recreation Area Museum archives)

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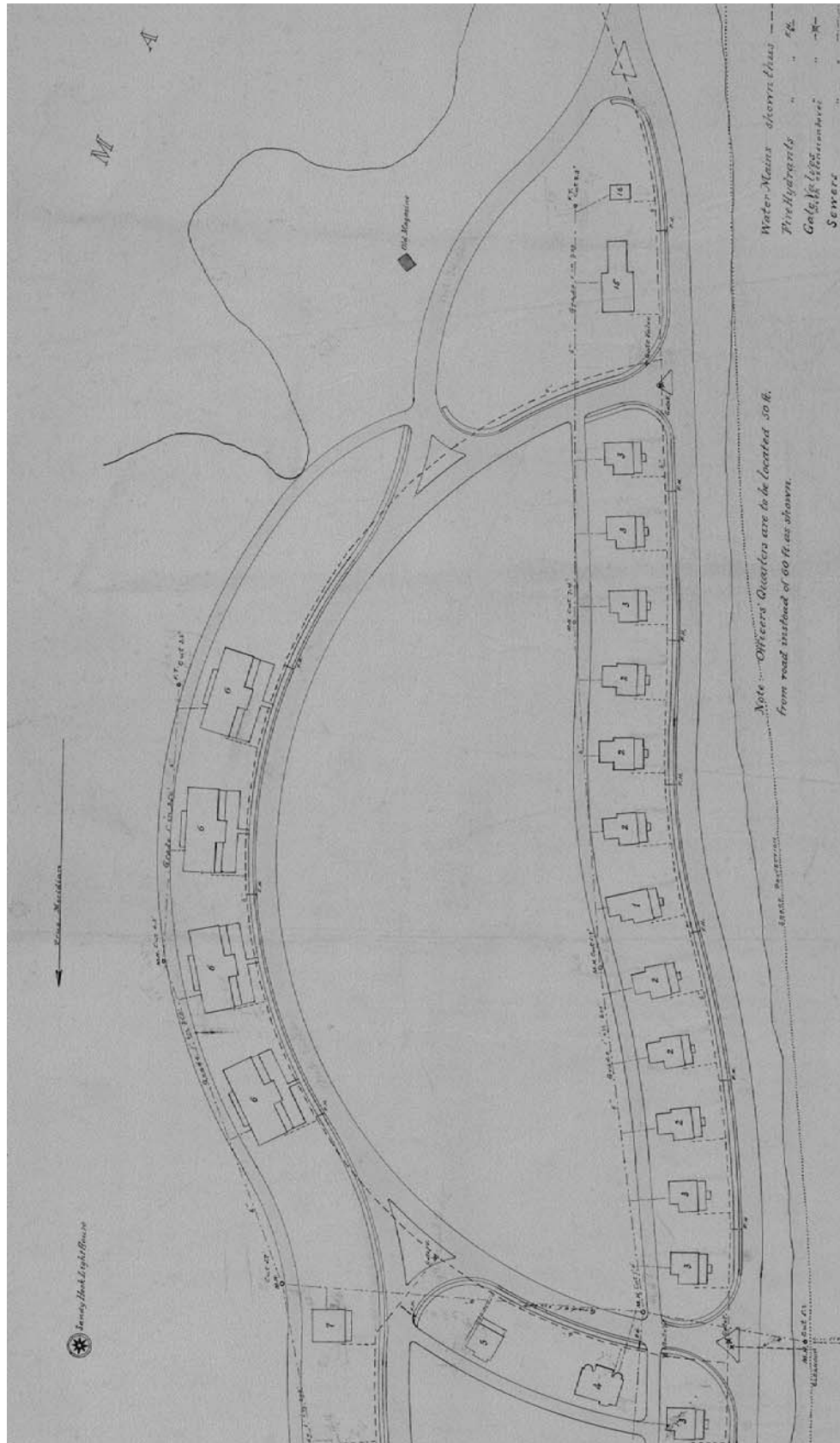


Figure 1. Detail of parade ground area c. 1900. Fort Hancock Water Supply Plan, c. 1900, showing the fort prior to the construction of the mess halls. Gateway National Recreational Area Archives.

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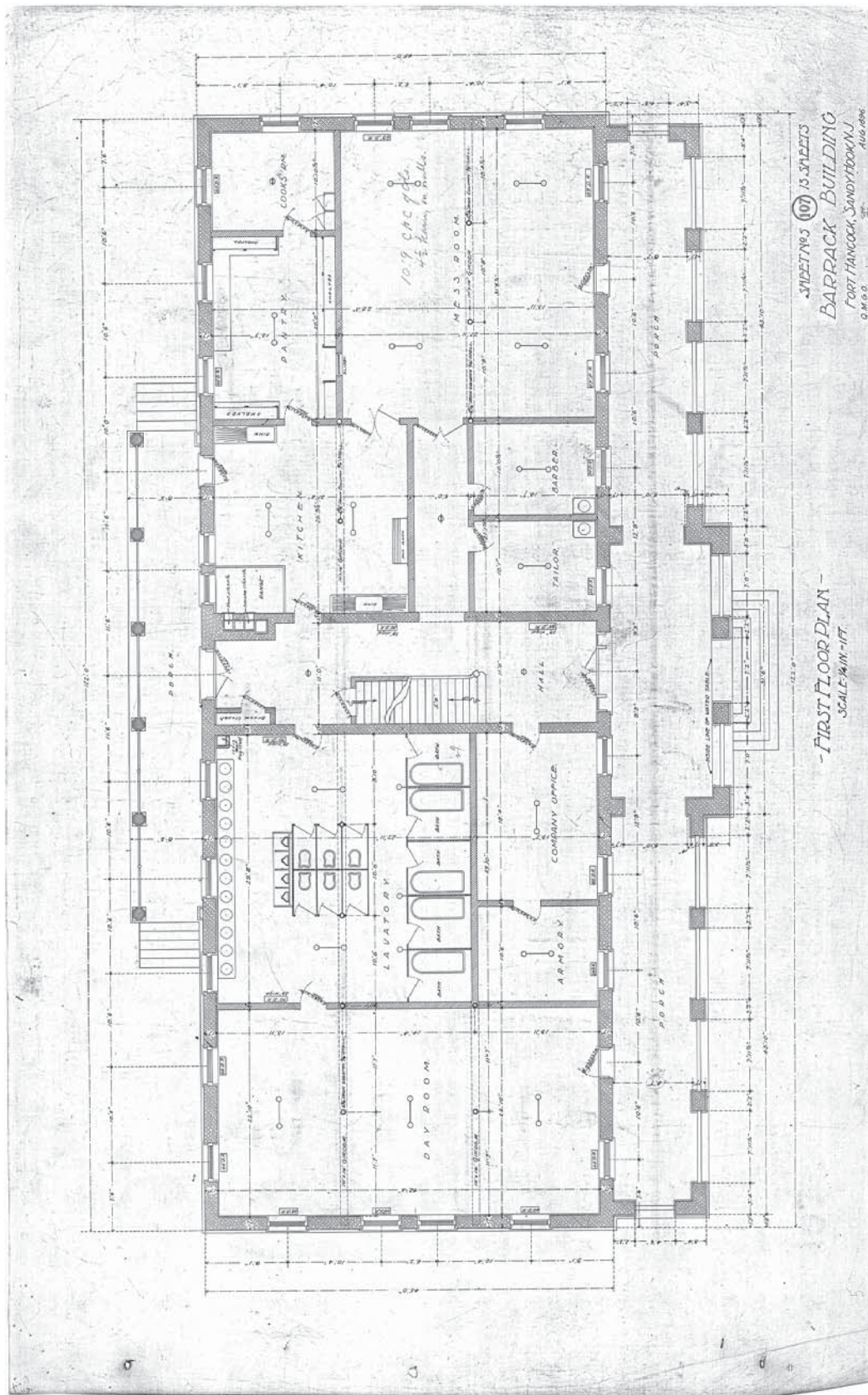


Figure 2. Barrack Building, Fort Hancock, Sandy Hook, NJ. First Floor Plan, August 1896. Note the mess hall facilities located on the right hand side of the floor plan. Plan 107, "Barrack Building, Original construction drawing, first floor plan (sheet no. 5), drawn under the direction of the Quartermaster General's Office and dated August 1896." Record Group 77, National Archives.

In April 1904, the Constructing Quartermaster advertised for bids to construct all of the buildings except for the ordnance storehouse. When bids were opened on April 30, 1904, the lowest responsible bid had been submitted by John Milnes Company of Port Richmond, New York, with a cost of \$55,976 for erecting the four kitchen/mess halls. The lowest responsible bidder for light fixtures was Joseph M. Rowan and Company with a bid of \$497.¹¹

On November 25, 1904, a change order was issued for the mess halls. The following additional tasks specified were:

Furnish each structure with 72 additional ¼" by 2" wrought iron straps

Bolt the straps to each joist, instead of to every third joist, as shown on sheet four of the plans

Increase the size of the 6 inch by 10 inch posts (enclosed in the partitions and supporting the trusses) by bolting a 4" by 10" to each

Case these same posts, where exposed, with longleaf pine.

The contract was amended and John Milnes was paid \$300 for the additional work.

Two additional change orders were authorized. On January 3, 1905, a change order called for increasing the width of a door from 3 to 4 feet in each basement transverse partition at a cost of \$20. A third change order, agreed to on May 11th, was the elimination of the oiling of the brick walls at a savings of \$60 to the government. Oiling of bricks was the application of linseed oil to porous bricks. This work was typically undertaken by a painter. Oiling bricks was one of many waterproofing treatments for masonry that were used at that time.¹²

The structures were completed, inspected, and accepted by the post commander in June 1905. Each hall was large enough to provide seating for 109 men, and each included a kitchen, pantry, cook's room, tailor shop, barber shop, latrine, basement, and an unfinished attic.¹³

Description

As shown on a 1905 plan of Fort Hancock, the four mess halls were constructed behind each of their corresponding Barracks #22-25 across a pre-existing curved vehicular road (see figure 3). Mess Hall #58 was located just east of Barracks #25 at the junction of the curving vehicular road running north-south, and an east-west road that ran from the Battery on the east, skirted the north side of the parade ground, and ended at the Officer's Quarters to the west. Two small vehicular drives ran from the east-west road towards the north side of Mess Hall #58. The curving vehicular road that ran between the barracks and their associated mess halls was converted into a pedestrian walkway at some point between 1905-1920, after the construction of Magruder Road and the expansion of the fort to the east.

Mess Hall Building #58 was constructed with concrete footings, a diabase stone foundation, and buff brick walls set with limestone trim (see figure 4). Windows were double-hung, nine-over-nine or three-over-three wood sash. Doors were raised wood panel doors with glazed, multi-light transoms. The roof of the mess hall was gray Granville slate with a built-in box gutter system set within a formed, metal cornice. Roof features included a galvanized iron ridge, a central, galvanized iron ventilator, and end chimneys with corbelled caps. The roof was drained with round downspouts with elbows at the ends that drained to grade. The west and east porches had a wood framed porch floor and a standing seam, tin metal roof, and were supported on wood columns with cast iron bases and plinths.

First Floor

The central space in the mess hall was the mess room, which measured 30 feet wide and 42 feet 10 inches deep and extended the entire width of the building (see figures 5 and 6). Two-leaf doors provided entry from the west porch (see photo 3). Double doors to the north provided access to the kitchen from the mess room, while a single door provided access to a six foot-wide hall south of the mess room. The north end of the building contained two spaces. The larger space, in the northeast corner was the 28 foot 5-inch by 20 foot 3-inch kitchen. The kitchen featured an exterior door in its east wall providing access to the porch, while a

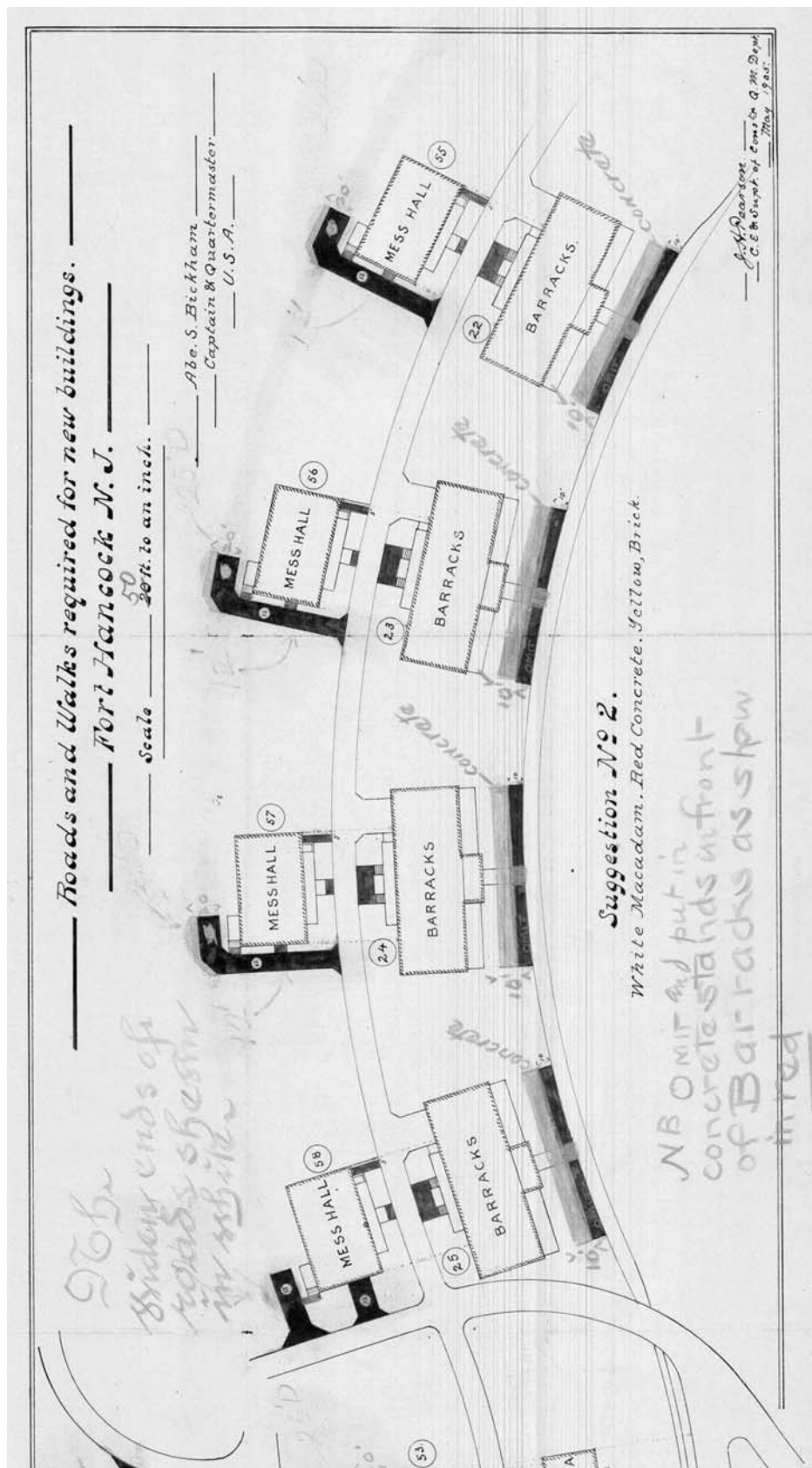


Figure 3. Fort Hancock showing newly built mess halls, c. 1905. Gateway National Recreational Area Archives.

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f. Drawings

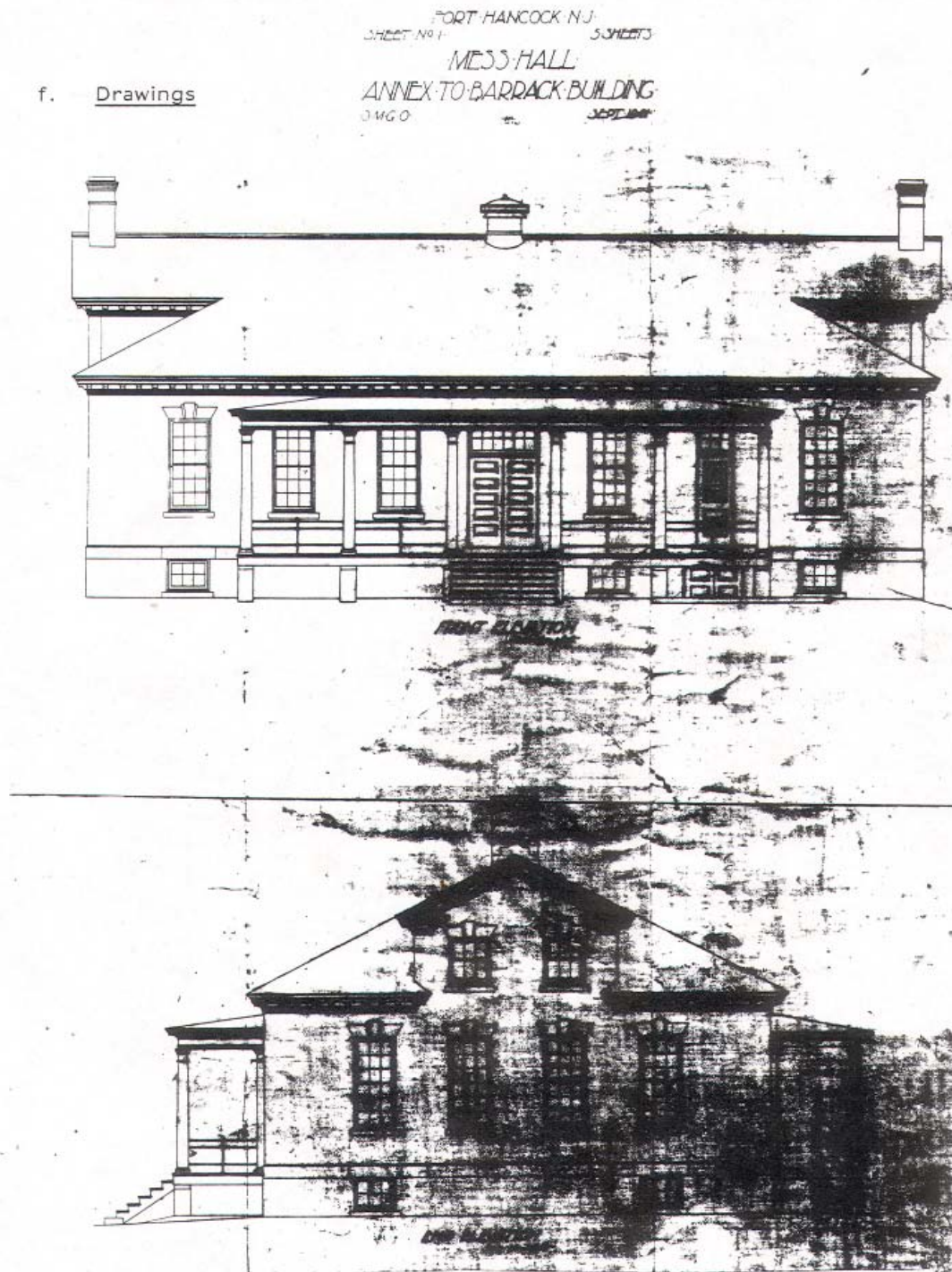


Figure 39. Typical Front (east) and End Elevation, Structures Nos. 55, 56, 57, and 58. U.S. Army Drawings, 1901.

Figure 4. Mess Hall. Annex to Barrack Building, Fort Hancock. Typical Front and East End. Office of the Quartermaster General. September 1901. Copied from U.S. Army Drawings in Douglas S. Walter, et al., Historic Structures Report Architectural Data Section (Volume II): Fort Hancock Quartermaster Structures, 1900-1918, Sandy Hook Unit, Gateway National Recreation Area, New Jersey (Washington, DC: U.S. Department of the Interior/National Park Service, 1986): 75.

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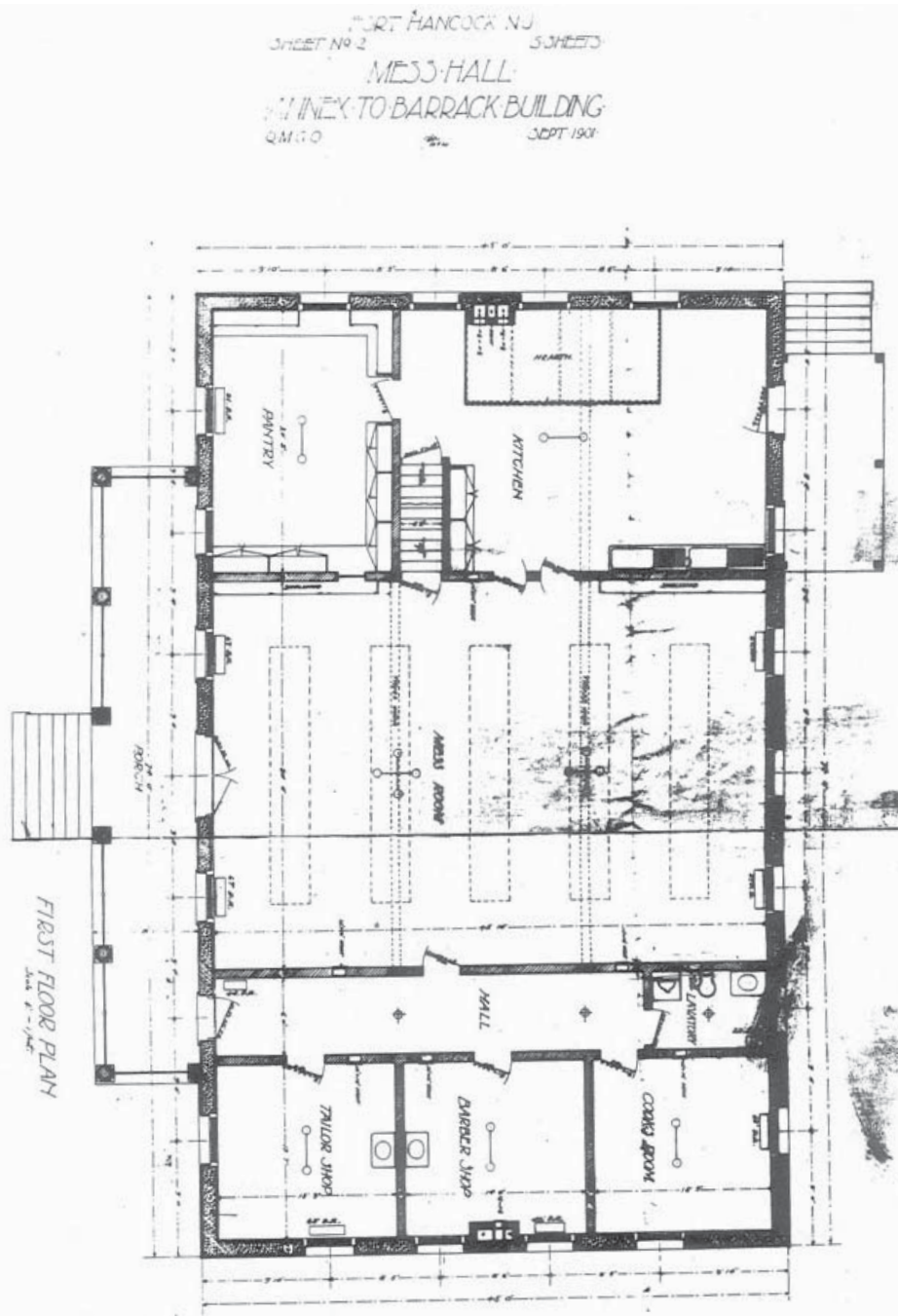


Figure 41. Typical First Floor Plan, Structures Nos. 55, 56, 57, and 58.
 U.S. Army Drawing, 1901.

77

Figure 5. Mess Hall. Annex to Barrack Building, Fort Hancock. First floor. Office of the Quartermaster General. September 1901. Copied from U.S. Army Drawings in Douglas S. Walter, et al., Historic Structures Report Architectural Data Section (Volume II): Fort Hancock Quartermaster Structures, 1900-1918, Sandy Hook Unit, Gateway National Recreation Area, New Jersey (Washington, DC: U.S. Department of the Interior/National Park Service, 1986): 77.

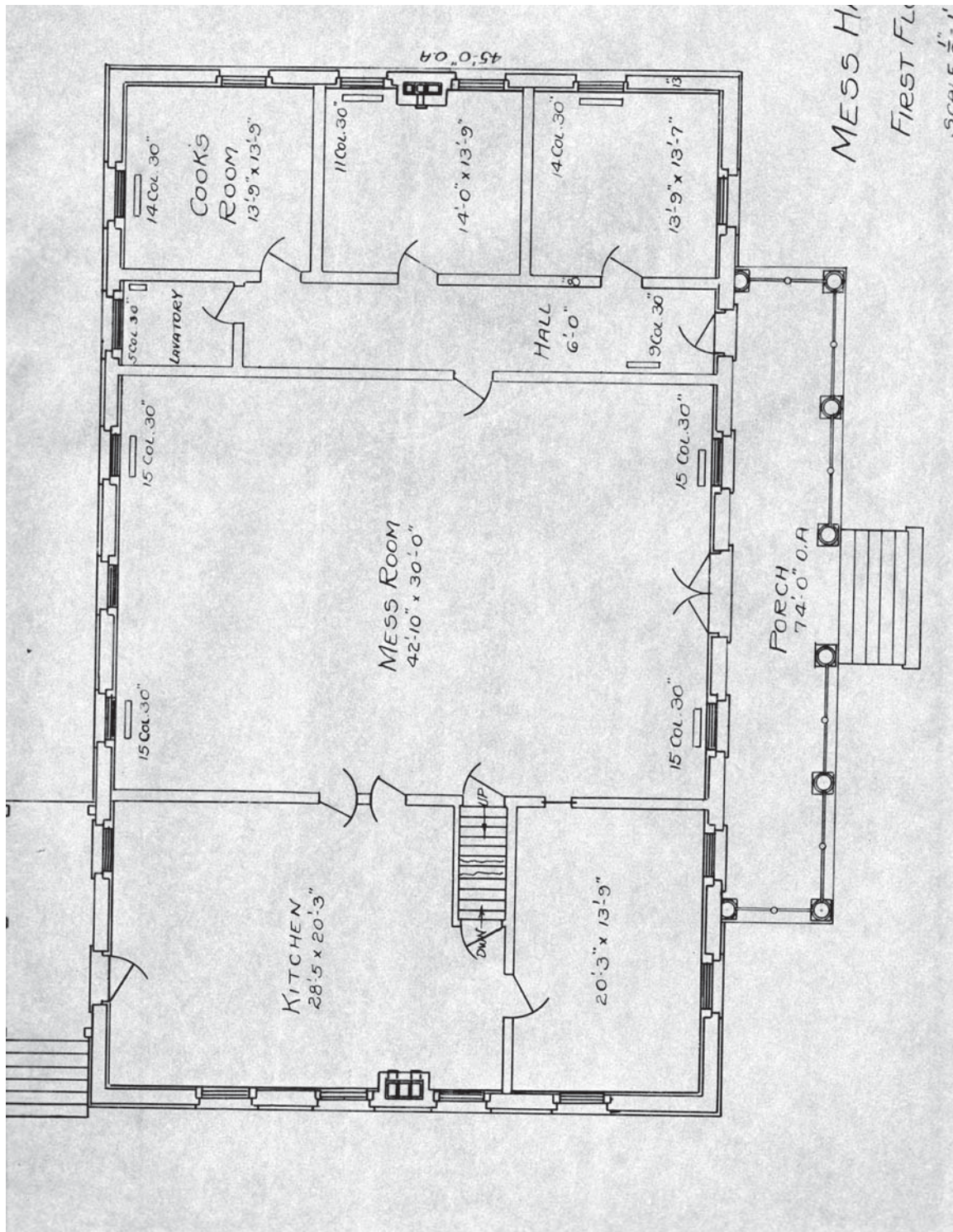


Figure 6. Building #58. First floor plan. From RG 92, National Archives.



Photo 3. Interior view of typical mess hall room looking west towards double door entrance at west porch (#13718, Gateway National Recreation Area Museum archives)

second interior door provided access to the smaller pantry to the northwest. A closed stairway extended along the west wall of the kitchen and provided access to the basement.

As mentioned, south of the mess room was a six-foot wide hall. This hall could also be reached by a door at the south end of the west porch. A single door on the north wall of the hall led to the mess hall, while three doors to the south led to separate spaces. A door at the east end of the hall provided access to a lavatory. The three similar sized rooms located along the south wall of the building included a 13 foot 9-inch square cook's room to the east, a central 14 foot by 13 foot 9 inch barber's shop, and a 13 foot 9 inch by 13 foot 7 inch tailor's shop to the west.

Basement

The basement could be accessed by an interior stair located in the southwest corner of the kitchen (see figures 7 and 8). Exterior access to the basement was provided by stairs located under the south end of the west porch. Entry to the basement was provided by two-leaf doors. The basement was marked by a grid of concrete piers, 17 inches in cross-section. The south end of the basement consisted of a large space measuring 42 feet by 40 feet 7 inches used for storage. The northeast room, also indicated as devoted to storage, originally contained a boiler and a water heater. It was accessed by double doors off the interior stair. A store room, located in the northwest corner of the building, measured 30 feet 5 inches by 13 feet 9 inches. Near the center of the north wall and accessible from an exterior chute, was a coal bin.

Attic

The attic space was accessed through a door in the northwest corner of the main mess hall and up a long run of wood steps. The attic of the mess hall was one large open room with two trusses running north-south (see figure 9). The trusses supported the roof and also carried the ceiling across the wide span of the mess hall below.

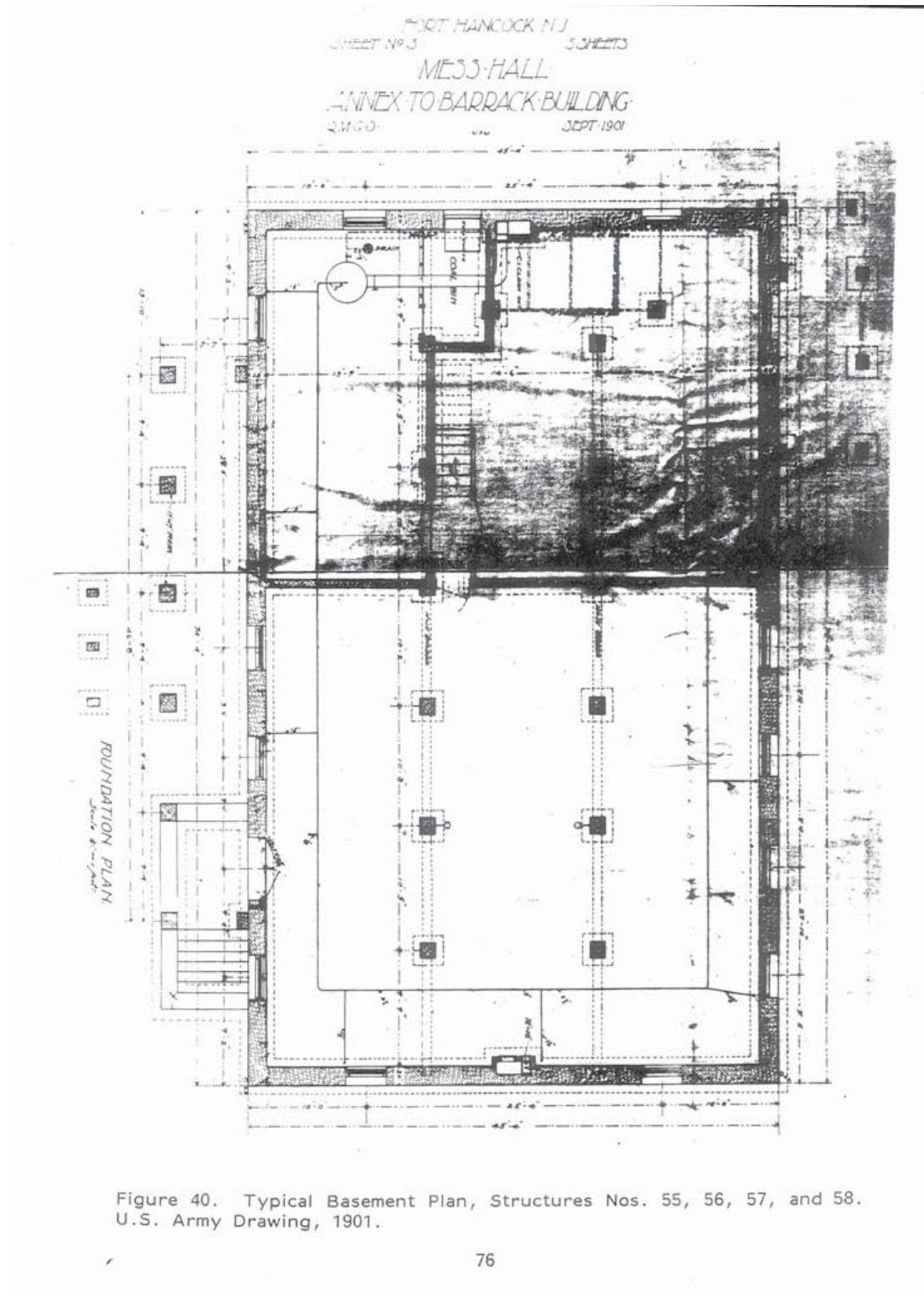


Figure 7. Mess Hall. Annex to Barrack Building, Fort Hancock. Foundation plan. Office of the Quartermaster General. September 1901. Copied from U.S. Army Drawings in Douglas S. Walter, et al., Historic Structures Report Architectural Data Section (Volume II): Fort Hancock Quartermaster Structures, 1900-1918, Sandy Hook Unit, Gateway National Recreation Area, New Jersey (Washington, DC: U.S. Department of the Interior/National Park Service, 1986): 76.

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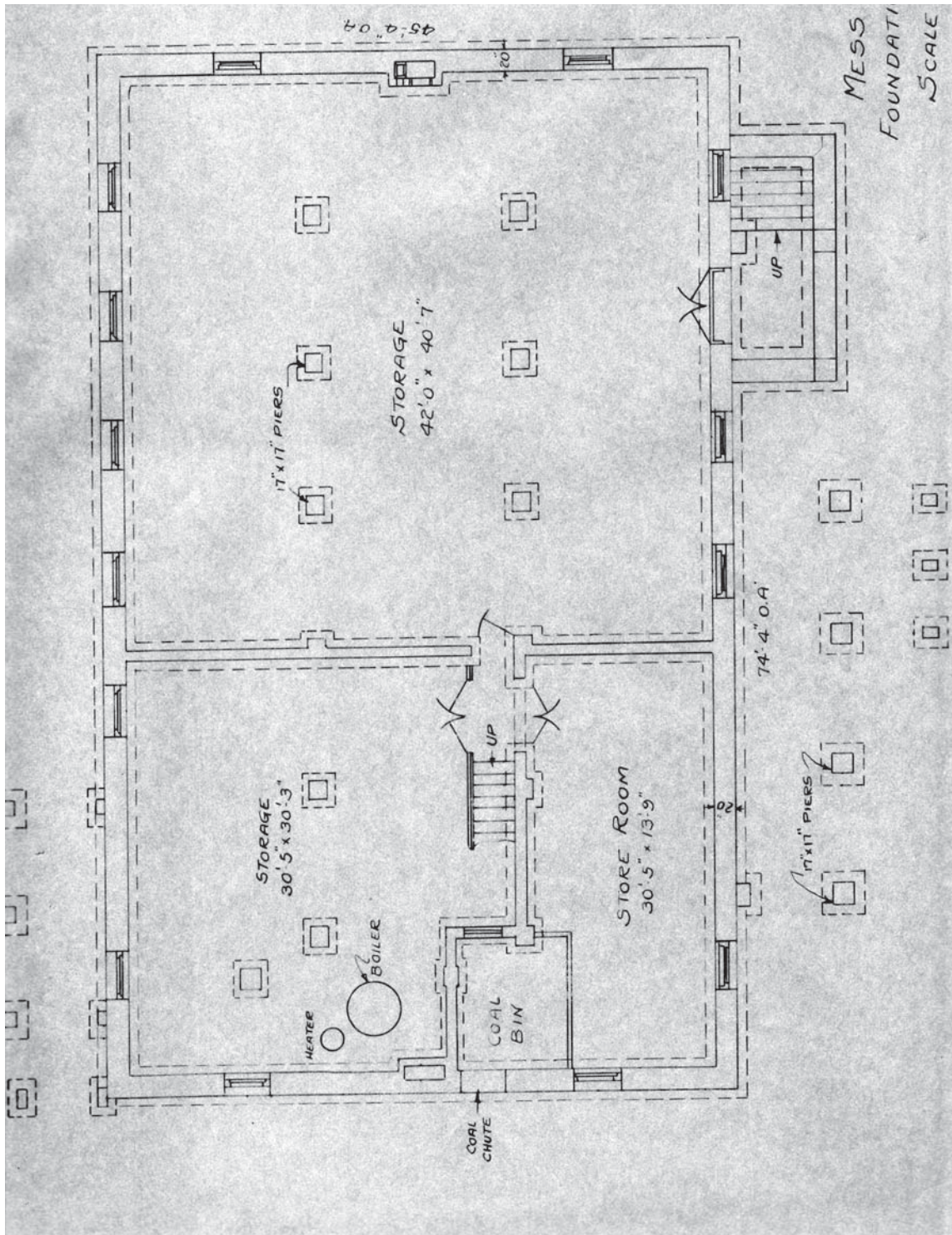


Figure 8. Building #58. Foundation plan. From RG 92, National Archives.

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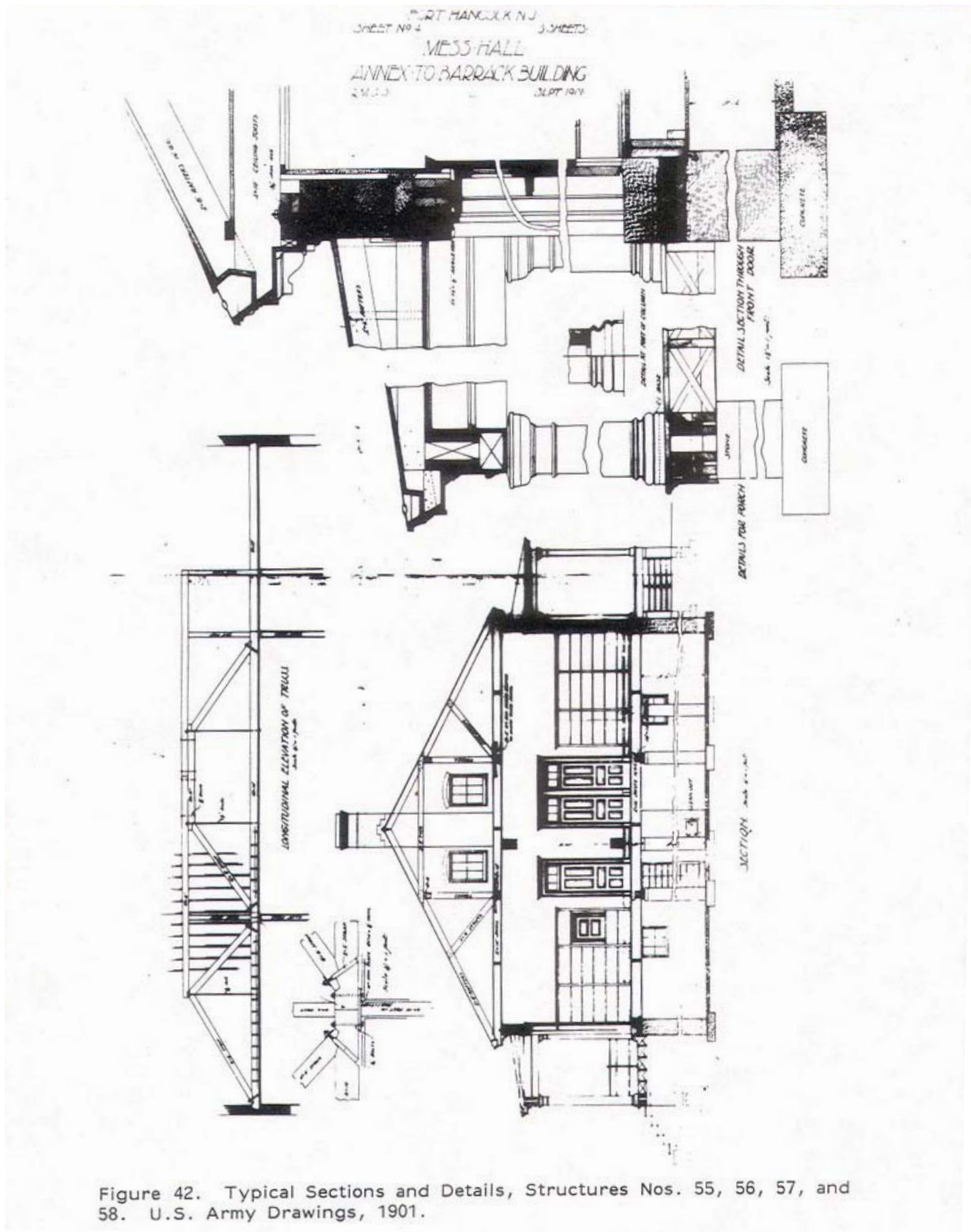


Figure 9. Mess Hall. Annex to Barrack Building, Fort Hancock. Sections. Office of the Quartermaster General. September 1901. Copied from U.S. Army Drawings in Douglas S. Walter, et al., Historic Structures Report Architectural Data Section (Volume II): Fort Hancock Quartermaster Structures, 1900-1918, Sandy Hook Unit, Gateway National Recreation Area, New Jersey (Washington, DC: U.S. Department of the Interior/National Park Service, 1986): 78.

CONTEXT OF THE MESS HALL

In the first years after the end of the Civil War, mess halls and kitchens for enlisted men were contained within the barracks. In two-story barracks, the mess hall was typically on the first floor. Food distribution was organized by company, with each company living and eating together.

When the Army consolidated troops in larger, permanent posts during the latter part of the nineteenth century, the Quartermaster Department began to provide a single mess hall for all enlisted personnel in one building. After a short period, the Army largely abandoned consolidated messes and returned to the practice of including kitchen and mess rooms for each company within barracks.

Most mess halls were constructed near barracks complexes and shared the same construction materials and architectural character as the adjacent barracks (see photos 4 and 5). Buildings were usually one story in height, although they often had high ceilings that gave them the exterior appearance of a two-story building.¹⁴

Life in the Mess Hall

A newspaper article in a 1941 issue of the *Afro-American* described the character of wartime mess halls:

Food is placed on the table prior to the opening of the mess hall doors and the kitchen police scurry to safety—sometimes from the mob rushing in when the whistle is blown and sometimes from the comments of the eaters. They return later to range the length of the table and refill empty platters.

The meal begins with sharp, to-the-point requests for the various platters of food. The food goes straight to the first requester. Any so-and-so helping himself as the plate whisks by is disgracefully branded a “short stopper” and is lucky if he isn’t tossed out of the mess hall.

Hungry men, to avoid shortstopping, must be the first to shout “butt” on whatever food they wish. If someone else gets a “butts” in first, one may retaliate with a “butts on the butts.”

As the platters become empty, the man taking the next to the last serving “cinches” the plate. Cinching is done by hoisting the platter above the head until one of the waiters whisks it away. The last helping is never removed so that the waiter may know what he is going after...

One never reaches. If something is wanted, the tongue must be used. “Please” is always said for anything, or it isn’t received...

To leave a dirty plate on the table when the meal is finished or light a cigarette and amble out is an unforgivable faux pas. Cigarettes are never lit in the mess hall, and plates are always carried to the kitchen where they are scraped and piled by the eater.¹⁵

Enlisted men and women were fed by a mess hall crew that included a mess sergeant, a first cook, a second cook, a dining hall orderly, and one or more cook’s police. The duties of each of these individuals were laid out in the *Army’s Manual for Army Cooks*:

Mess Sergeant. The mess sergeant is in immediate charge of the mess and directly responsible for its management. He should be a well-instructed cook, if possible a graduate from one of the training schools, and especially selected for his ability to fill the position.

- 1) Drawing and purchasing all rations and other supplies, including the meat, bread, and ice required for the company mess.
- 2) Preparing all bills of fare and submitting them to the company commander for approval.
- 3) Submitting to the company commander a daily statement showing the exact financial condition of the mess.
- 4) Responsibility for the care and preservation of rations and the sorting of fresh vegetables.

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Photo 4. General view from south showing Enlisted Men's Barracks #24 at left and Mess Hall #57 at right (#30432, Gateway National Recreation Area Museum archives)



Photo 5. Overview of barracks and mess halls looking north. Mess Hall Building #58 is at the top center (#13744, Gateway National Recreation Area Museum archives)

- 5) Checking and monitoring cooks' clothing, the condition and cleanliness of dishes and utensils.
- 6) Insuring the kitchen police report no later than ten minutes before mess call.
- 7) Arriving in a clean white coat and trousers thirty minutes before mess call and personally supervising the final preparations of the food and the service of the meals.
- 8) Responsibility for the orderly conduct of those present at meals, and insuring that all enter the dining room in proper uniform, in a quiet and orderly manner with hands and faces washed and hair combed.
- 9) Insuring that tables are filled one at a time and in succession, beginning with the table farthest from the entrance. During the meal, he is responsible for preventing unnecessary noise and wasting food.
- 10) Insuring that garbage and slop cans are frequently emptied.

First Cook. The first cook has the following responsibilities:

- 1) In the absence of the mess sergeant, the first cook assumes his duties and responsibilities.
- 2) Under the direction of the mess sergeant, he is responsible for the proper preparation of the food.
- 3) Alternating with the second cook in getting up to prepare breakfast.
- 4) Assisting the mess sergeant in supervising the service of the meal in the dining room.

Second Cook. The second cook has the following responsibilities:

- 1) Responding to orders of the mess sergeant and the first cook, and assuming the duties of the first cook in his absence.
- 2) During the meal he remains in the kitchen and serves the food requested by the cooks' police and the dining room orderly, who act as waiters.
- 3) Alternating with the first cook in getting up to prepare breakfast.
- 4) Sweeping out the kitchen, cleaning the range and boilers, washing the kitchen table, and, assisted by the kitchen police, scrubbing or mopping the kitchen floor.

Dining Room Orderly. The dining room orderly was detailed monthly. He was responsible for the cleanliness of the dining room and pantry and for the dishes and utensils used. Specific duties included:

- 1) Accounting in a book provided all breakage of dishes and other equipment and the names of the men responsible for the breakage.
- 2) Reporting to the dining room at least 10 minutes before breakfast call.
- 3) Cutting bread into thin slices and piling it neatly upon plates, one of which is provided for each table.
- 4) Following the end of the meal, gathering up the food remaining on platters and returning it to the kitchen.
- 5) Placing unused slices of bread in the breadbox for reuse during subsequent meals.
- 6) If syrup is to be used for breakfast, filling the pitchers on the previous evening.

- 7) If butter is to be served, preparing it, and in warm weather not taking it from the ice box until it is to be served.

Cooks' Police. The cooks' police are under the orders of the mess sergeant and the cook in charge. Their duties include:

- 1) Serving all meals under the direction of the mess sergeant and waiting upon tables at mealtime.
- 2) Washing the kitchen utensils that have been used in the preparation of the meal or assisting the dining-room orderly in clearing the tables.
- 3) Washing the dishes under the supervision of the dining-room orderly.
- 4) Cleaning the sink and mopping the floor.
- 5) Following washing the dishes reporting to the mess sergeant for additional duties that may include peeling potatoes, carrying coals, and washing windows, or any other duties assigned.¹⁶

Food in the Mess Hall

Army food has frequently been a source of complaint and derision. For example, Andrew Pohlman, who wrote of his Army experiences in 1906, shortly after Building #58 was constructed, indicated that "one of the most serious detriments to a young man in the army is the quality and quantity of the rations."¹⁷

Food preparation in the mess hall was and is based on the concept of the *ration*, the allowance for the subsistence of one person for one day. The garrison ration was intended for troops in garrison, such as those at Fort Hancock. From the Revolutionary War to the First World War, the garrison ration was the basic measure of subsistence for all U. S. Army personnel.¹⁸

As defined in the 1916 edition of the *Mess Sergeant's Handbook* (Holbrook 1916), the ration included the following foods or their equivalents:

Fresh beef	20 oz.
Flour	18 oz.
Baking powder	.08 oz.
Beans, dry	2.4 oz.
Potatoes, fresh	20 oz.
Prunes	1.28 oz.
Coffee	1.12 oz.
Sugar	3.2 oz.
Milk (evaporated)	.5 oz.
Vinegar	.16 oz.
Salt	.64 oz.
Peppper (black)	.04 oz.
Cinnamon, ground	.014 oz.
Lard	.64 oz.
Butter	.5 oz.
Sirup [<i>sic</i>] (molasses)	.32 oz.
Flavoring extract (lemon)	.014 oz. ¹⁹

Methods of translating these ration amounts into actual meals were suggested in the Bill of Fare for one month included in the *Manual for Army Cooks*. This list is included in the Historical Documents appendix, which also includes sample recipes for soups, meat, vegetables, salads, desserts, and bread for sixty men.²⁰

Mentions of the mess halls in the Fort Hancock base newspaper give insight into life in the Fort's mess halls. For example, the World War I-era newspaper, *On Guard*, included the following list:

General Orders in the Mess Hall of This Co.

1. To take charge of those spuds and all gravy in view.
2. To watch my plate in a military manner, keeping always on the alert for any stray sausage that comes within sight, smell or hearing.
3. To report any bread sliced too thin to the Mess Sergeant.
4. To repeat all calls for seconds.
5. To quit the table only when satisfied that there is nothing left.
6. To receive but not to pass on to the next man to me any meat, cabbage, beans, or ham and eggs, left by Non-Coms, Buck-Privates or Cuckoos.
7. To talk to no one who asks for onions.
8. In case of fire to grab all eatables left by others in their escape.
9. In any case not covered by instructions to call the Company Clerk, Mess Sergeant or Sergt. Major.
10. To allow no one to steal anything in the line of grub.
11. To salute all pork-chops, chicken, beefstake, ham and eggs, liver and onions, butter or sugar.
12. To be especially watchful at the table and during the time for eating to challenge anyone who gets more prunes than myself.²¹

A new garrison ration was prescribed by Presidential Executive Order effective July 1, 1927:

Beef, fresh	18 oz.
Bacon	6 oz.
Flour, wheat	18 oz.
Baking powder	.08 oz.
Beans, dry	1.2 oz.
Rice	.8 oz.
Potatoes	17 oz.
Onions	5 oz.
Tomatoes, canned	2 oz.
Prunes	.384 oz.
Jam	.64 oz.
Apples, evaporated	.128 oz.
Peaches, evaporated	.128 oz.
Macaroni	.5712 oz.

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Cheese	.5712 oz.
Flavoring extract	.014 oz.
Coffee, roasted ground	1.5 oz.
Tea	.05 oz.
Cocoa	.3 oz.
Sugar	4 oz.
Milk, evaporated	1 oz.
Butter	1.75 oz.
Oleomargarine	25 oz.
Vinegar	.08 gill
Pickles, cucumber	.08 gill
Salt	.5712 oz.
Pepper, black	.04 oz.
Lard	.32 oz.
Lard, substitute	.32 oz.
Sirup [sic] (molasses)	.1427 gill
Cinnamon	.014 oz ²²

In the years leading up to World War II, personnel of the Quartermaster Corps developed operational rations for a variety of combat situations (including the famous C and K Field Rations) while retaining the garrison ration (see photo 6). An innovation approved by the rank and file soldier was the kitchen spice pack, which contained an assortment of spices, flavorings, condiments, and miscellaneous food items.²³



Photo 6. Standard mess fare c. 1930s. (#7109, Gateway National Recreation Area Museum archives)

By World War II, the food served to enlisted men had evolved from that served thirty years earlier (see photo 7). A 1943 article discussed the favorite foods of soldiers in Army mess halls based upon a survey of 500 mess halls and 2.5 million meals:

Give an American soldier frankfurters, mashed potatoes, cocoa, and you can keep the roast beef, the French fries, the apple pie and the coffee....

The survey showed...Army men listed their likes in this order: Meats—hot dogs, boiled ham, roast veal, sausages, roast beef, bacon and cold cuts; potatoes—mashed, baked, boiled, hashed brown, and pan fried; desserts—cake and cookies, canned fruits, fruit salad, and pie.

The Army likes its eggs scrambled, its coffee not too strong, and it prefers cocoa and milk to coffee anyway.

Cold weather, cloudy weather, outdoor life, and the presence of an officer in the mess hall all make a soldier eat more, the survey showed.²⁴

The same survey revealed that the greatest cause of food waste was not the cooking or the type of food but mealtime absenteeism: “Mess sergeants had always prepared food for the number of men who answered the morning call. They never properly calculated the number of men who were present at roll call but absent from meals—because of indisposition, snacks at the post exchange, early leaves. Now they allow for mealtime absenteeism, which runs up to 33%.”²⁵

World War II Mess Halls at Fort Hancock

During the first portion of the Second World War, the mess hall and the adjoining barracks #25, were occupied by a Guardsmen unit. In June 1943, the buildings were converted to accommodate a contingent of Women Army Corps (WACs) who had been transferred to Fort Hancock (see photo 8). In February 1944, a new contingent of about 25 WACs arrived at Fort Hancock from Madison Barracks, Sackets Harbor, New York.²⁶



Photo 7. Interior view of typical mess hall room looking towards northwest corner. Five-panel door to attic and framed opening to kitchen on the right (#4629, Gateway National Recreation Area Museum archives)



Photo 8. WACs dining in Mess Hall #58, 1943. (#1943-914, Gateway National Recreation Area Museum archives)

Several messages in the WAC gossip column, WACWorks, conveyed some of the news of the mess:

Two new cooks, Anselowitz and Cole were so proud of the Pfc. Stripes that they worked all day in the mess hall with the stripes pinned on their dresses and set a record that evening getting stripes sewn on everything except pajamas—and the meals those gals have been cooking, well, it[']s just like home and mother.²⁷

K.P. is almost fun when the mess Sgt. starts serving cider during the afternoon break.²⁸

Sgt. Blanton relates this story. She walked into her mess hall one day and was stopped cold by the realization that something was wrong. She sat down at a table to puzzle it out. The table looked perfect except for one thing. KP Margaret Mansfield had set all the tables for a detachment of left-handed WACs.²⁹

For once the cooks got their due---they had an obnoxious habit of coming over to the barracks and hiding such things as beds and mattresses. Last week, however, all six beds in the mess hall were denuded and all taken to the barracks and dumped unceremoniously in the middle of the rec. room floor.

If the entire WAC detachment begins to waddle, blame it all on Pvt. Mary Grant, who is not only a cook, but a baker—and how! Pumpkin pie and hot rolls at one meal are going to bring the G.I. girdle back into style.³⁰

The practice of wearing hats to and from the mess hall is a good disciplinary measure, but we were rather startled to discover Pfc. Mansfield taking a bath with hers still perched jauntily on her head. We think it will do to look into this to discover whether it is the natural result of a long day's KP or whether the new rule "has done something to us."³¹

CHRONOLOGY OF DEVELOPMENT AND USE

1900-1905	Strength of companies assigned to Fort Hancock increased from 320 to 432 rank and file.
1903-1904	Quartermaster General Humphrey authorized construction of detached mess hall for the four enlisted men barracks.
March 1904	Secretary of War Taft approves fund for the construction of four mess halls.
April 1, 1904	Quartermaster Bickham placed advertisements seeking bids for the four mess halls and related buildings.
April 30, 1904	John Milnes & Company submitted the lowest responsible bid, \$55,976 for the four mess halls.
November 1904	Change order issued for reinforcement of the roof structure.
January 2, 1905	Second change order issued to increase the size of a basement door.
May 11, 1905	The third change order was issued to eliminate oiling of the exterior brick.
June 1905	Four mess halls were completed.
Summer 1905	Screens were installed in the doors and windows of the mess halls.
1905-1920	Curving vehicular road running between Barracks #22-25 and Mess Halls #55-58 converted into a concrete paved, pedestrian walkway. Magruder Road completed to the west of the mess halls.
1929	Repairs totaling \$1,800 were made to the kitchen/mess halls 55, 57, and 58. This work included repairs and repainting of downspouts, gutters, tin decks, and ridge rolling; repair of electric wiring, flooring, and plumbing; replacement of broken glass; and interior and exterior painting.
December 1936	Repairs totaling \$820 completed, including the repainting of interior, repairing downspouts and gutters, renovation of doors, and replacement of electric light fixtures.
1938	Repairs totaling \$185.52, including carpenter repairs to rear porch and steps (see photo 9), repairs to lock on side door, painting of rear porch, and construction of a hood over the kitchen range.
1939	Repairs totaling \$475.05 to replace metal cornice and install repairs to gutters, leaders, and downspouts.
1940	Repairs totaling \$684.65, including painting of walls ceiling and trim, patching of walls, and general carpenter repairs.
June 1941	Replacement of one door frame to the ashpit, totaling \$5.60. ³²
1943	Alterations made to change the building to a women's mess hall.
1950s	Asphalt-paved parking lot was laid out to south of building (see photos 10-13).

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- 1958** Existing metal cornices and gutters were cut off at the main roof and new wood gutters were installed. Portions of old metal cornice were retained as flashing (from Drawing 9582 "Replacement of Metal Cornices," Gateway National Recreation Area Archives).
- 20th c. Alterations** Original wood cornice was redesigned and replaced with new cornice at lower roof, included removal of dentils.
- All joints at both brick and stone masonry were repointed.
- First floor window sash were almost entirely replaced.
- Exterior storm doors were installed at single door entryways.
- 1973** Alterations were undertaken by the U.S. Army. The original slate shingles were replaced with green asphalt shingles and asphalt siding installed at north and south dormers.
- 1974** Fort Hancock was officially deactivated and management of the site formally handed over to the Department of the Interior.
- 1986** Building #58 described in the Historic Structures Report to be "in the worst condition of the four mess halls." On the exterior, the west porch gutter was damaged, mortar was disintegrating at chimneys and walls, horizontal cracks opened at the east and south window lintels, and window panes were broken. The porches were in poor condition. The west porch had warped floors and pipe rails that had rusted through. The east porch had severely rotted column bases and warped flooring. On the interior, the concrete topping in the kitchen-pantry area was deteriorating, all other floors were covered with checkered, vinyl tile. Plaster walls had cracks and holes and the metal ceilings were rusting.³³
- 1989-1990** Historic Structure Assessment Report noted existing condition of Building #58. The basement appears to have been little altered from the original construction. The first floor had a partition running north-south that divided the main central mess hall space (see figures 10 and 11). Critical conditions on the exterior included rusting pipe rails, severe corrosion of window lintels, failing paint at all wood trim and metal cornices, holes in corroding sheet metal porch roofs, failure of the box gutter at the west porch, rot at west porch columns and pilasters, failure of west porch ceiling boards, failure of roof structure at east porch, failure of porch flooring, and deterioration of window sash. On the interior, the subfloor in the kitchen was rotting from chronic moisture, plaster was cracked and failing from water damage, plaster ceilings had collapsed in the basement, there was failure of paint overall, and the existing mechanical, electrical, and plumbing systems were in poor condition.³⁴
- 1996** Removal of east porch roof, columns, floor, and stairs, and complete replacement to match the historic porch.
- 2001** Removal of west porch roof, columns, floor, and stairs, and complete replacement to match the historic porch.
- New steel lintels installed over first floor windows.
- First floor renovated to create modern office space, including partitions, carpeting, some modern doors, wall coverings, and stripping all interior wood trim.
- ADA-compliant bathrooms were built at north end of the first floor.
- Basement was renovated to create modern office and meeting space, including partitions, roll-type flooring, drop ceilings, and modern doors.
- 2009** Wood windows and doors at first floor were stripped of paint, repaired, reglazed, and repainted. Window jambs were also stripped of paint and repainted.

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Photo 9. Mess Hall Building #56 showing the rear east kitchen porch. Some historic aerial images show the rear porch of Building #58 as partially enclosed, though the extent of the enclosure is not clear (#759.9, Gateway National Recreation Area Museum archives).



Photo 10. Overview of Mess Hall Building #58 site looking northeast, December 1956. Note parking lot at south side. (#11212, Gateway National Recreation Area Museum archives)

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Photo 11. West façade of Mess Hall #57 looking toward northeast, c. 1956. Note porch columns painted white. (#11210, Gateway National Recreation Area Museum archives)



Photo 12. General view of mess halls toward northeast, c. 1956. Mess Hall #58 is cut off far left. Mess Hall #57 at far right. (#11209, Gateway National Recreation Area Museum archives)



Photo 13. Mess Hall Building #58, south elevation c. 1956 (#21091, Gateway National Recreation Area Museum archives)

STATEMENT OF SIGNIFICANCE AND LEVEL OF INTEGRITY

As mentioned in the historic overview, Building #58 is one of four mess halls constructed to accommodate four adjacent enlisted personnel barracks. Building #58 is the only one of the four mess halls that is currently occupied. In its process of conversion from original to current use as office space for National Park Service personnel, some interior alterations have been made, most of which are reversible. Partitions have been installed to form cubicles and offices within the central mess hall space. The kitchen area has been altered by the construction of bathrooms. The basement has been partitioned to accommodate several offices. Despite these interior changes, significant portions of the historic interior fabric remain intact. Among notable elements are the pressed metal ceiling, door and window casings and door transoms, the configuration of the south hallway, and the division of spaces at the south end of the building. The exterior also retains a substantial portion of original or historic fabric including the west porch, the main west doorways, the east kitchen porch, the corbelled brick chimneys, and the central sheet metal ventilator.

Building #58 is significant as a component of the early twentieth century development of Fort Hancock in its role as part of the network of military posts established and enlarged to protect New York. Although not critical to fort operations, Building #58, along with the associated barracks, played a significant secondary role in servicing the needs of enlisted personnel. The historic interest of Building #58 is heightened by its World War II era role as the mess hall that served the contingent of WAC personnel stationed at the facility. The building contributes to the significance of the Fort Hancock and Sandy Hook Proving Ground National Historic Landmark.

Building #58 retains a high degree of integrity. Addressing each of the seven aspects of integrity in turn, the building remains on its original site, therefore it retains integrity of location. The building has been maintained to retain and/or restore significant elements of its historic fabric and interior changes have also been respectful of important original elements. Therefore, it retains integrity of design. The building remains part of an ensemble of early twentieth century military buildings, and therefore, it retains integrity of setting. The building retains much of its original exterior and interior fabric with the exception of its roof covering which has been replaced with asphalt shingles. Therefore, it retains integrity of materials. Evidence of workmanship remains in its many surviving historic elements, and due to its lack of major alterations, it retains integrity of feeling. The building still conveys associations with its original use, and these associations are conveyed to the visitor by interpretive signage.

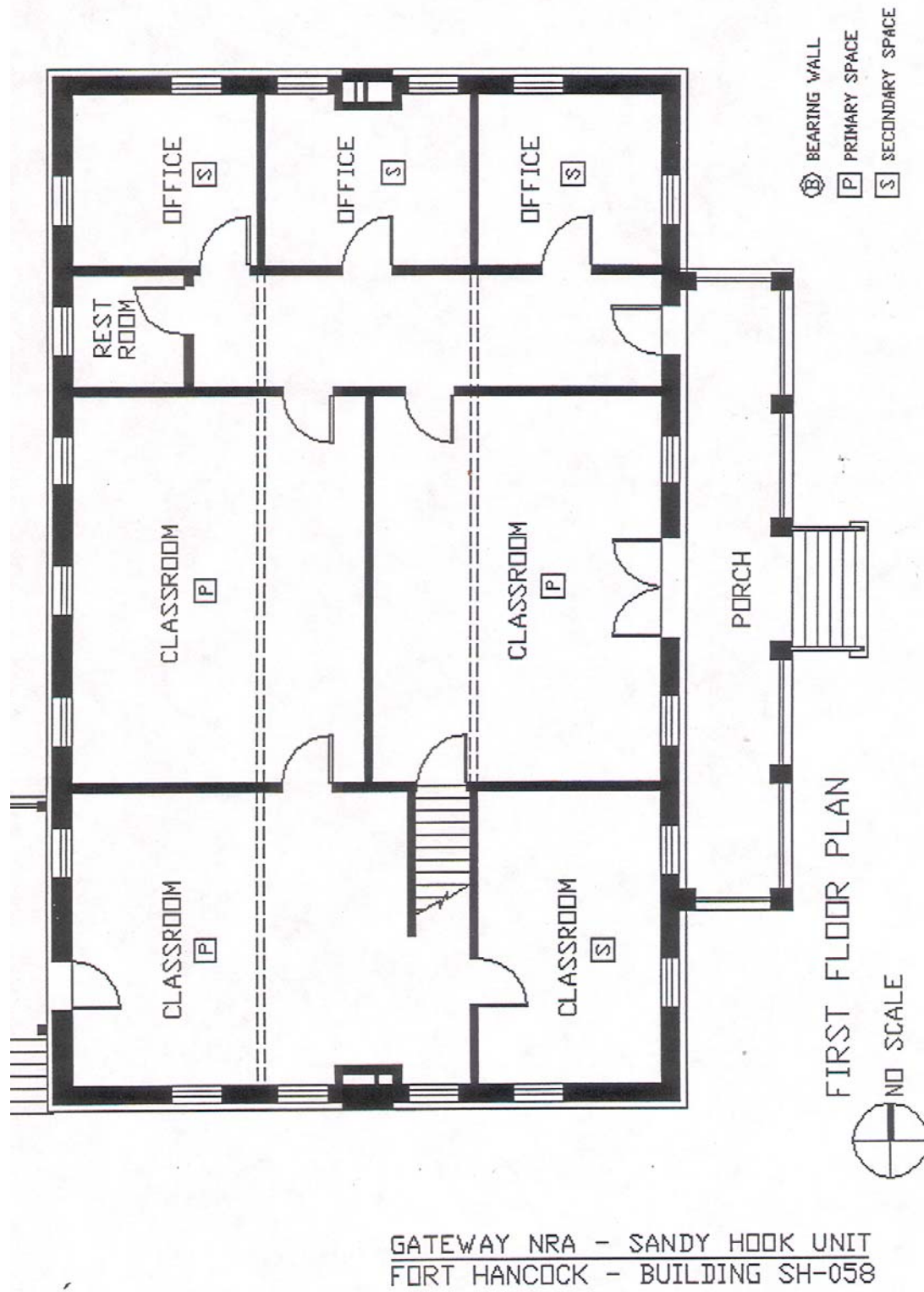
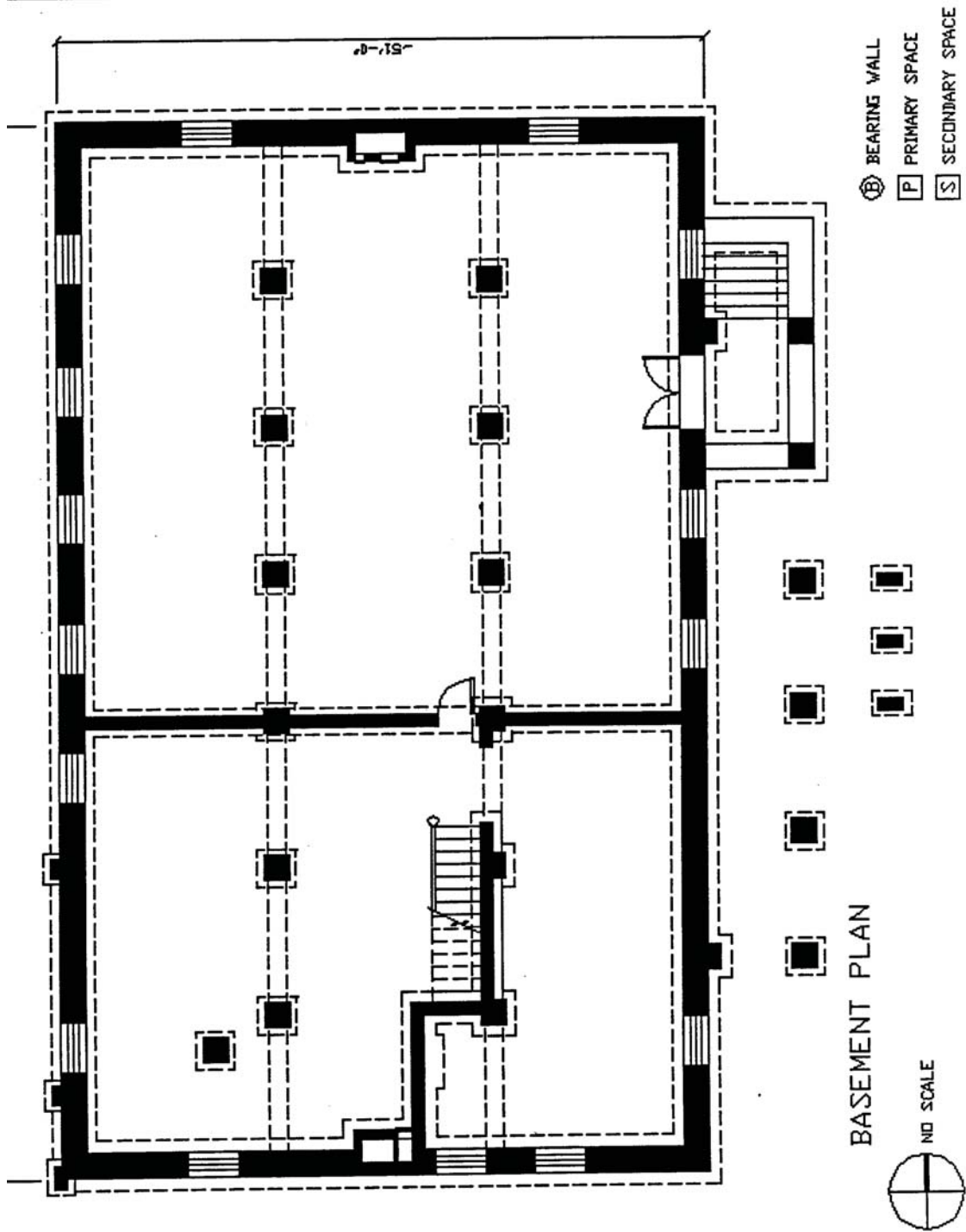


Figure 10. Mess Hall Building #58, First Floor Plan. 1990. Historic Structure Assessment Report, Architectural Conservation Center.



GATEWAY NRA - SANDY HOOK UNIT
 FORT HANCOCK - BUILDING SH-058

Figure 11. Mess Hall Building #58, Basement Plan. 1990. Historic Structure Assessment Report, Architectural Conservation Center.

PHYSICAL DESCRIPTION

Mess Hall Building #58 is one of four originally identical, 140-man mess halls designed and constructed as part of the second phase of building at Fort Hancock during 1904-1905. Fort Hancock is located at the northern end of Sandy Hook, a sandy, narrow peninsula at the northeastern tip of New Jersey. The peninsula is bounded by the Atlantic Ocean to the east and Sandy Hook Bay to the west. The topography is flat and lies at sea level. The historic core of Fort Hancock, centered on a half-round shaped parade ground, is oriented towards the western side of the peninsula (see figure 12). The enlisted men's barracks and associated mess halls are paired along the curving western edge of the main parade ground. The four mess hall buildings are located along Magruder Road, which runs behind the western side of the parade ground. The mess halls are sited to the rear of each complementary two-story barracks building (#22 through #25). Mess Hall Building #58 sits to the rear of Barracks Building #25 and is the northernmost of the mess hall buildings.

SITE

Building #58 is sited within a curve in the vehicular road, Magruder Road. Magruder Road wraps around Building #58 running parallel to the east elevation and then turning west to run parallel to the north elevation (see existing condition drawing A102). Magruder Road dates to at least the inter-war period and is shown on maps dating to the 1920s. A concrete sidewalk lines the edge of the road. Immediately to the south is an asphalt-paved parking area that runs right up to the building foundation. The rectangular parking lot is approximately 48'-6" wide at its widest point and 45'-0" long. It is edged with a 6-inch concrete curb. It has six vehicular parking spots. A curb cut from Magruder Road provides vehicular access to the parking lot. A parking lot has been located at the south side of the building since at least the 1950s as shown in historic photographs. However, the configuration of parking spots and curbing materials have changed. On the north side of the building are two cast iron bollards that remain from an original drive shown on plans from 1905. The bollards are approximately 2 feet tall and painted green (see photo 14).

Pedestrian walkways of various materials lead from this parking area to the western porch. The walkway running east west from the northern edge of the parking area at the southwest corner of the building has both historic slate and smooth concrete paving, which is assumed to be modern. This walkway meets a 3-foot wide historic, exposed aggregate concrete walkway that runs north-south in between the barracks and mess hall buildings (see photo 15). The location of this sidewalk follows an original vehicular road, part of the original design of Fort Hancock in 1895. However, the exposed aggregate concrete walk probably dates to c. 1930 based on aerial photographs. There is a 10-foot by 4-foot rectangular concrete landing at the base of the main west porch steps that is not original. A modern, 4-foot wide, smooth concrete walk runs from this landing to meet the historic exposed aggregate walkway. Grassy or earthen areas are located immediately adjacent to the foundation at the north, east, and west elevations. There are no other plantings.

Mess Hall Building #58 has associated signage that is located on the adjacent site, as well as mounted on the building itself. Site signage includes two white wooden signs, mounted on square wood posts set in the ground that are not original (see photo 16). The white wood signs are mounted close to the building foundation at the southeast and northwest corners. Both read "National Park Service Headquarters." In addition, there are two brown metal interpretive signs located to the northwest and southwest corners of the adjacent site (see photo 17). These signs were installed in 2010 and provide information on the history of the mess hall. There are also two small, building mounted, black and white metal signs that read "58." The metal sign mounted on the east elevation at the southeast corner is original (see photo 18). The metal sign mounted at the top of the stairs to the west porch is not original.

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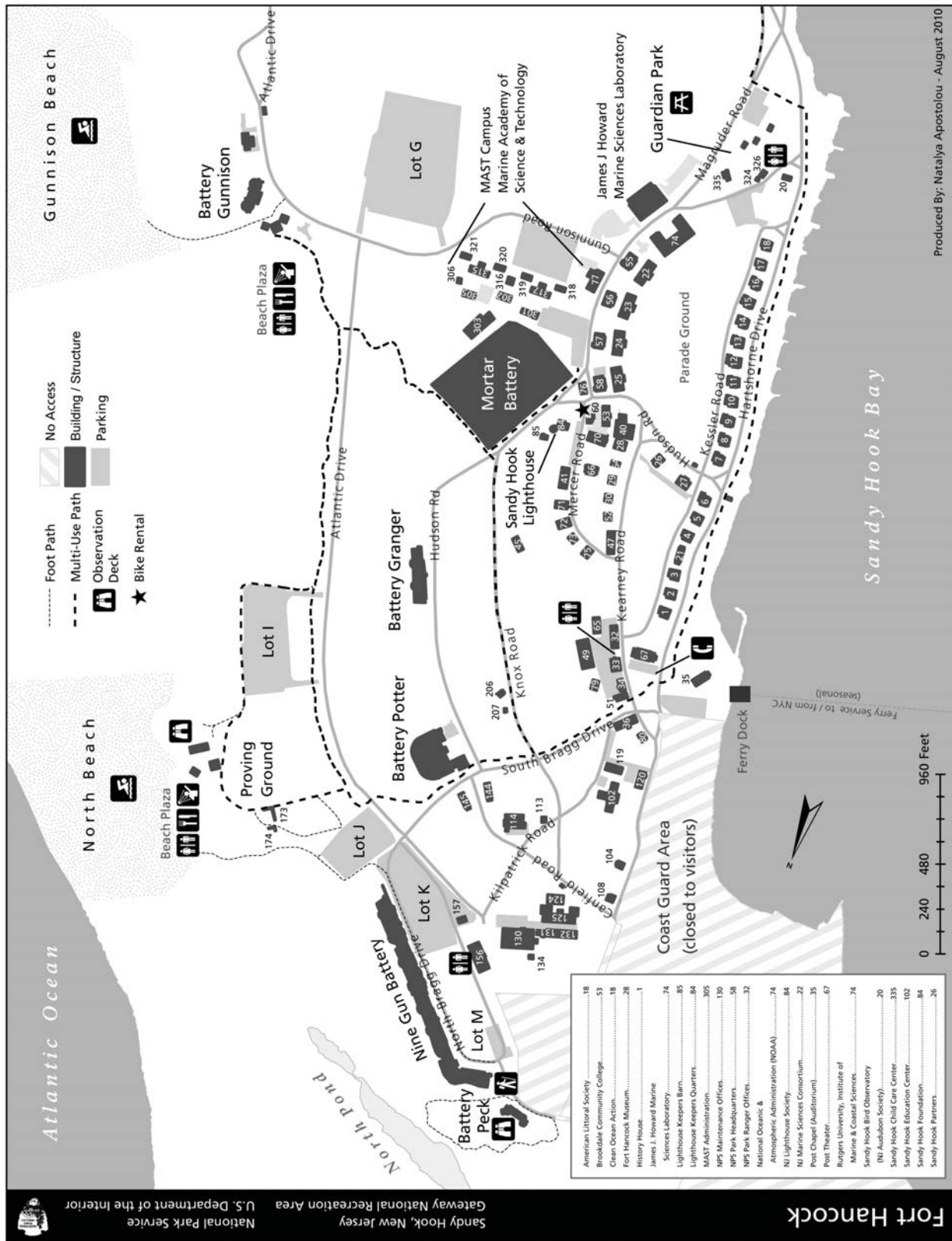


Figure 12. Map of Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area (NPS).



Photo 14. Historic cast iron bollard located on the north side at the foundation (JMA, August 2010)

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Photo 15. View of north-south walk running between Barracks #25 and Mess Hall #58 looking north (JMA, August 2010)



Photo 16. White wood sign located at the southeast corner (JMA, August 2010)



Photo 17. Brown metal interpretive sign located at the southwest corner of the adjacent site (JMA, August 2010)



Photo 18. Original “58” sign located on the east façade (JMA, August 2010)

EXTERIOR

Mess Hall Building #58 is a one-and-a-half story, rectangular building with a partially exposed basement level. The building has a hipped roof with large, gable-end dormers to the north and south. The building is symmetrical with seven bays on the east and west elevations and four bays on the north and south elevations. Building #58 has a large, five-bay wide porch on the west with a low slope, hipped roof. On the east, there is a small, two-bay wide porch with a low-slope roof. The overall form, fenestration pattern, and setting are very well preserved. However, historic materials and elements have been replaced, including modern roofing materials, replacement windows, and new porch floors.

Walls

Mess Hall Building #58 has walls of pressed buff brick laid in a running bond and a foundation of random-coursed, dark, quarry-faced, Hudson Palisade diabase. A contrasting, smooth finished, light limestone was used at the water table course and first floor and attic level window sills. The basement level windows have diabase window sills. The first and second story windows are embellished with jack arches with articulated keystones, built with specially shaped bricks. The exterior masonry has been completely repointed during renovation work. The brick masonry has been inappropriately repointed with a 1/8-inch thick smear coating of gray mortar. The foundation masonry has been repointed with a dark gray, Portland cement mortar that matches the adjacent stone. Original pointing mortar does remain behind the repointing mortar. Both brick and foundation masonry were originally pointed with a buff, speckled mortar with natural, marine feldspar sands and an unpigmented, hydraulic binder. Please see the analysis of mortar samples M-1 through M-5 for more information on the original and later repointing mortars (Appendix H).

West (Front) Elevation

The west elevation has seven symmetrically placed openings (see existing condition drawing A200 and photos 19 and 20). The five central openings are sheltered by a hipped roof porch. The porch has a set of wood steps leading to the central bay. The central bay contains double doors, while a second single door entry is located in the second bay from the south end. The remaining bays contain single, double-hung, sash windows. The elevation has four basement windows, located in the first, fourth, fifth, and seventh bays, and

Mess Hall
Building #58

Fort Hancock
Sandy Hook, New Jersey



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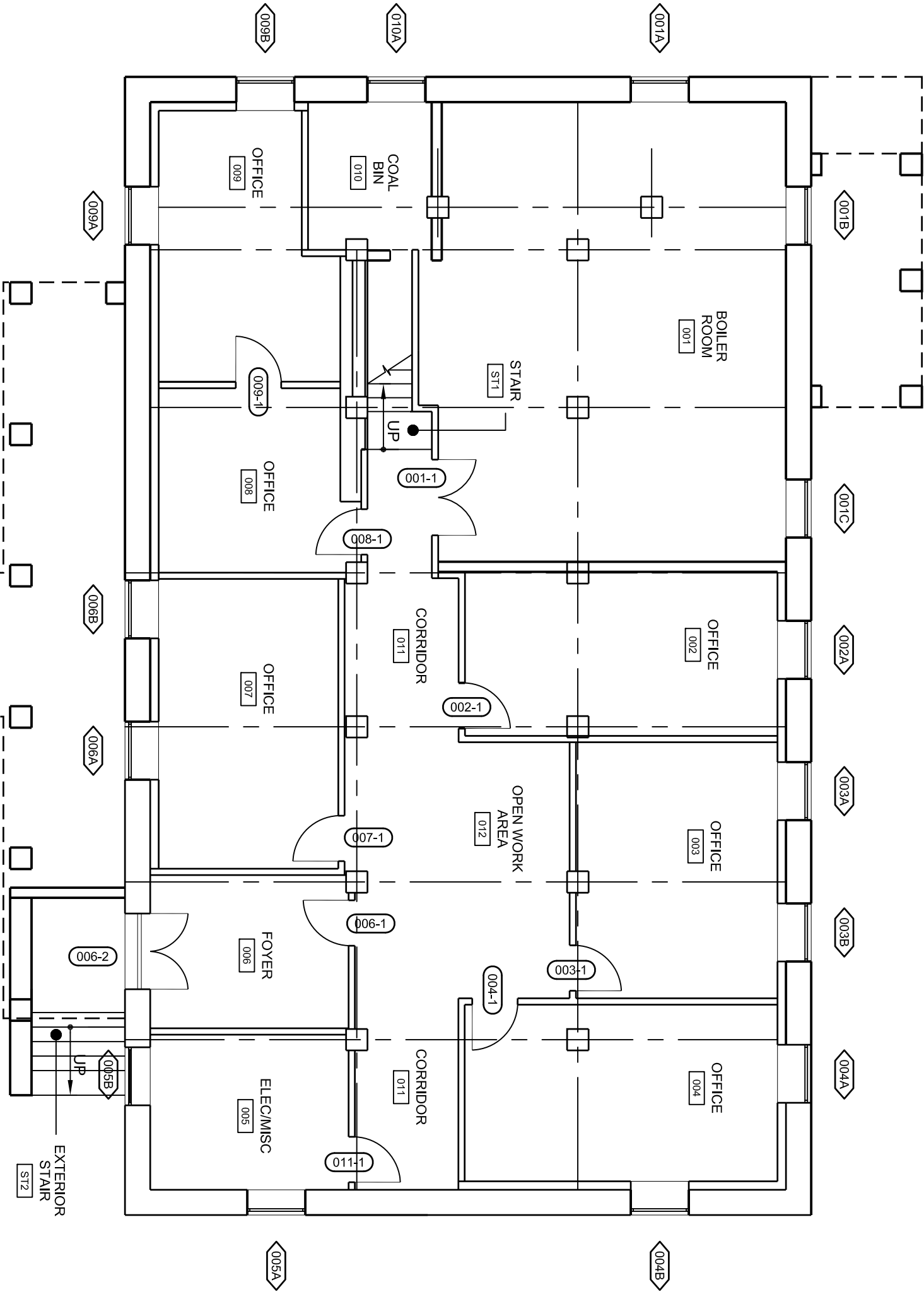
FINAL
March 18, 2011

Existing Conditions
Basement Floor Plan

A100

NOT TO SCALE.
reduced size drawing

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MESS HALL #58 - BASEMENT FLOOR PLAN
SCALE: SEE GRAPHIC SCALE

Mess Hall
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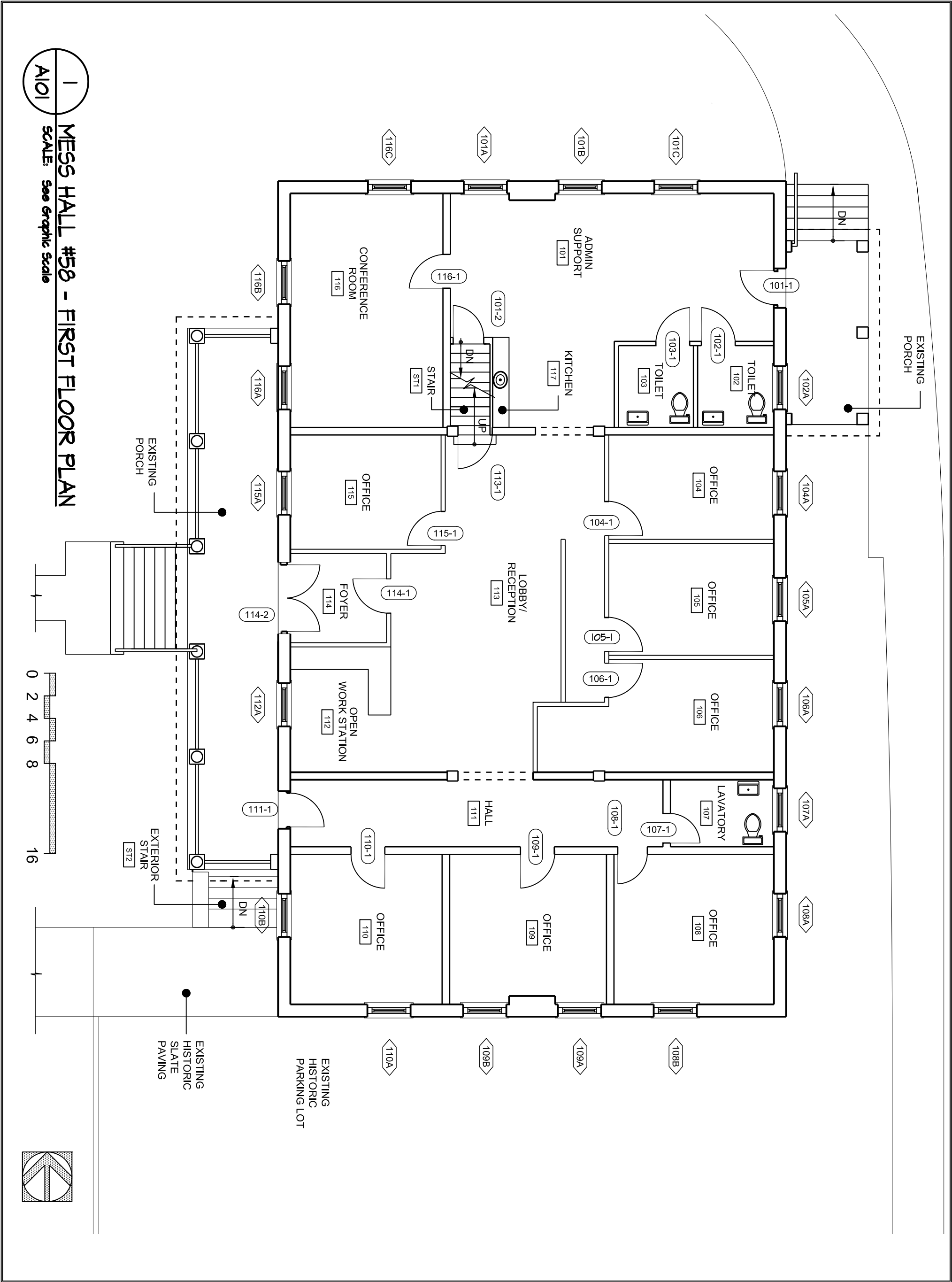
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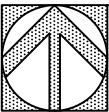
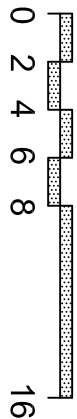
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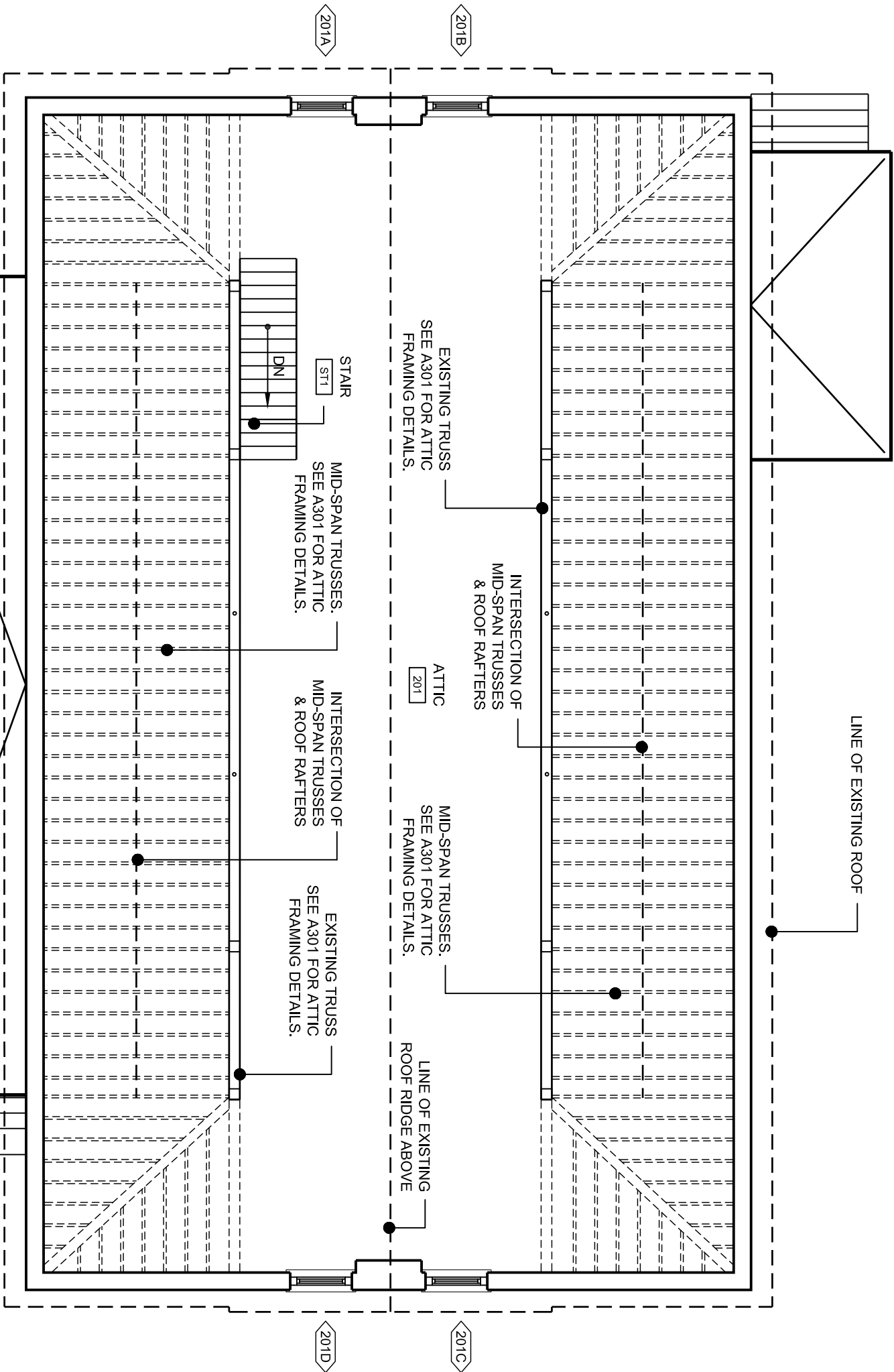
Existing Conditions
First Floor Plan
and Site

A101



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A101
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SCALE: See Graphic Scale



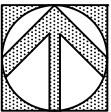
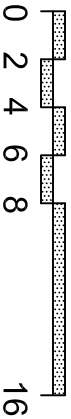


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A102

MESS HALL #58 - ATTIC PLAN

SCALE: SEE GRAPHIC SCALE



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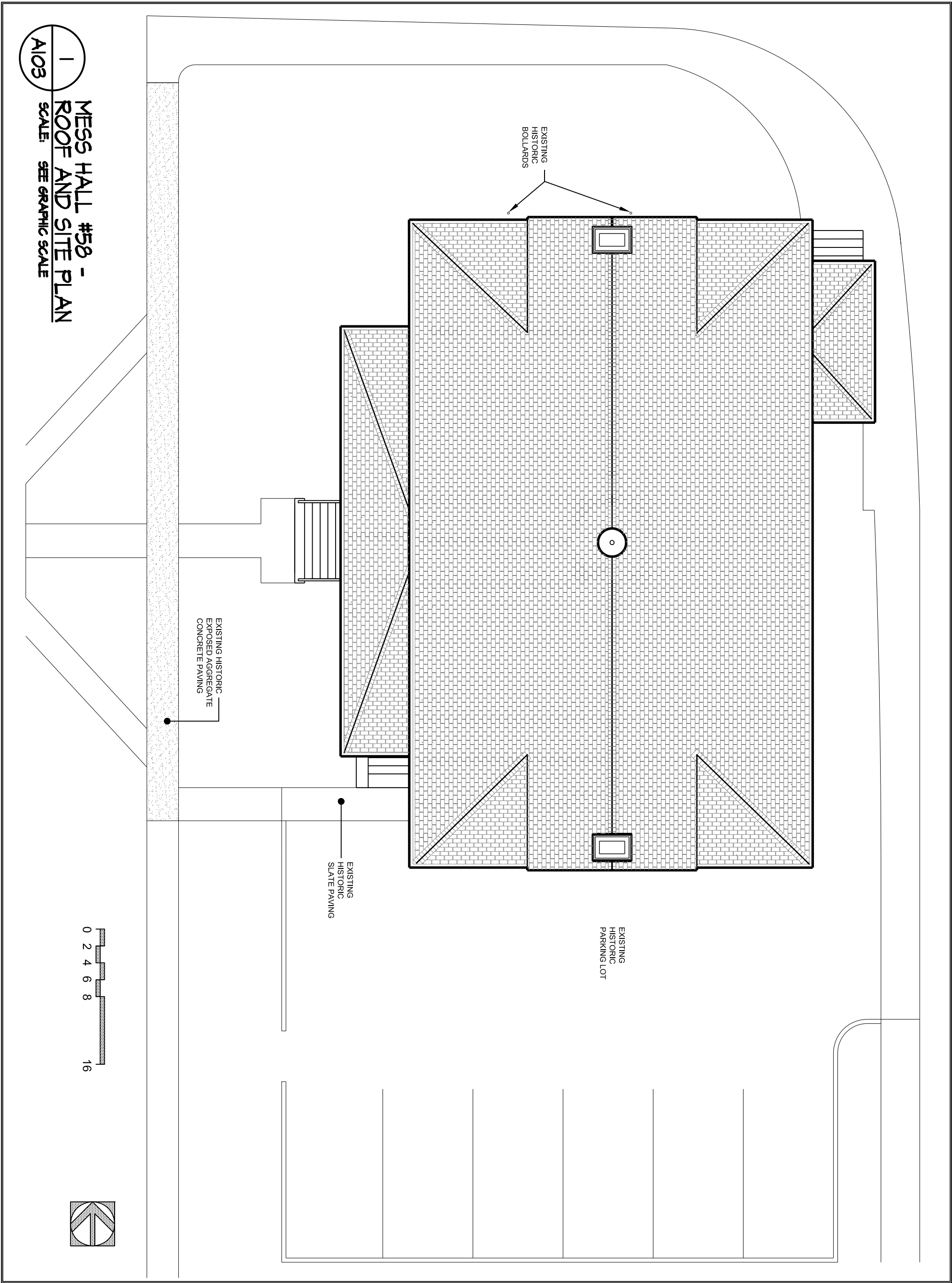
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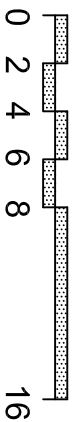
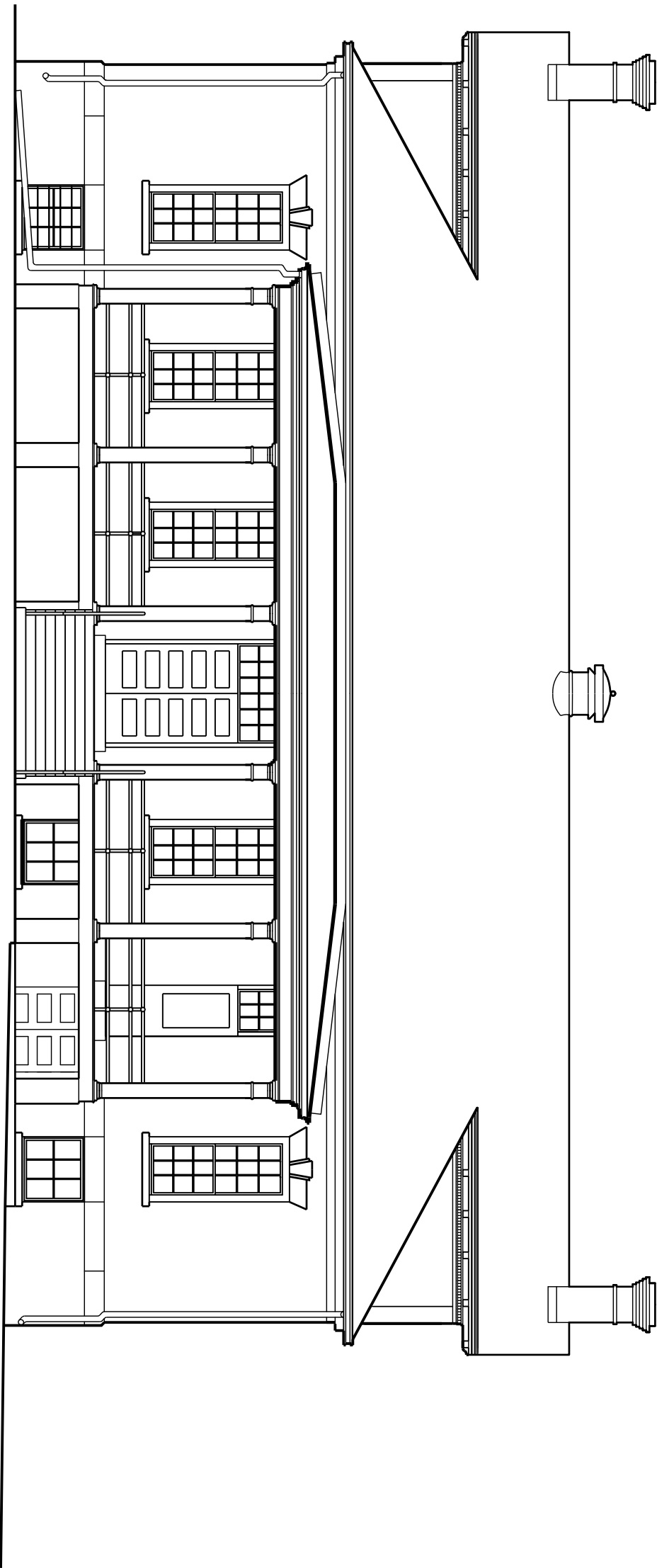
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Roof and Site Plan

A103

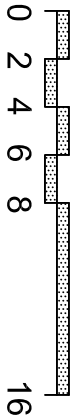
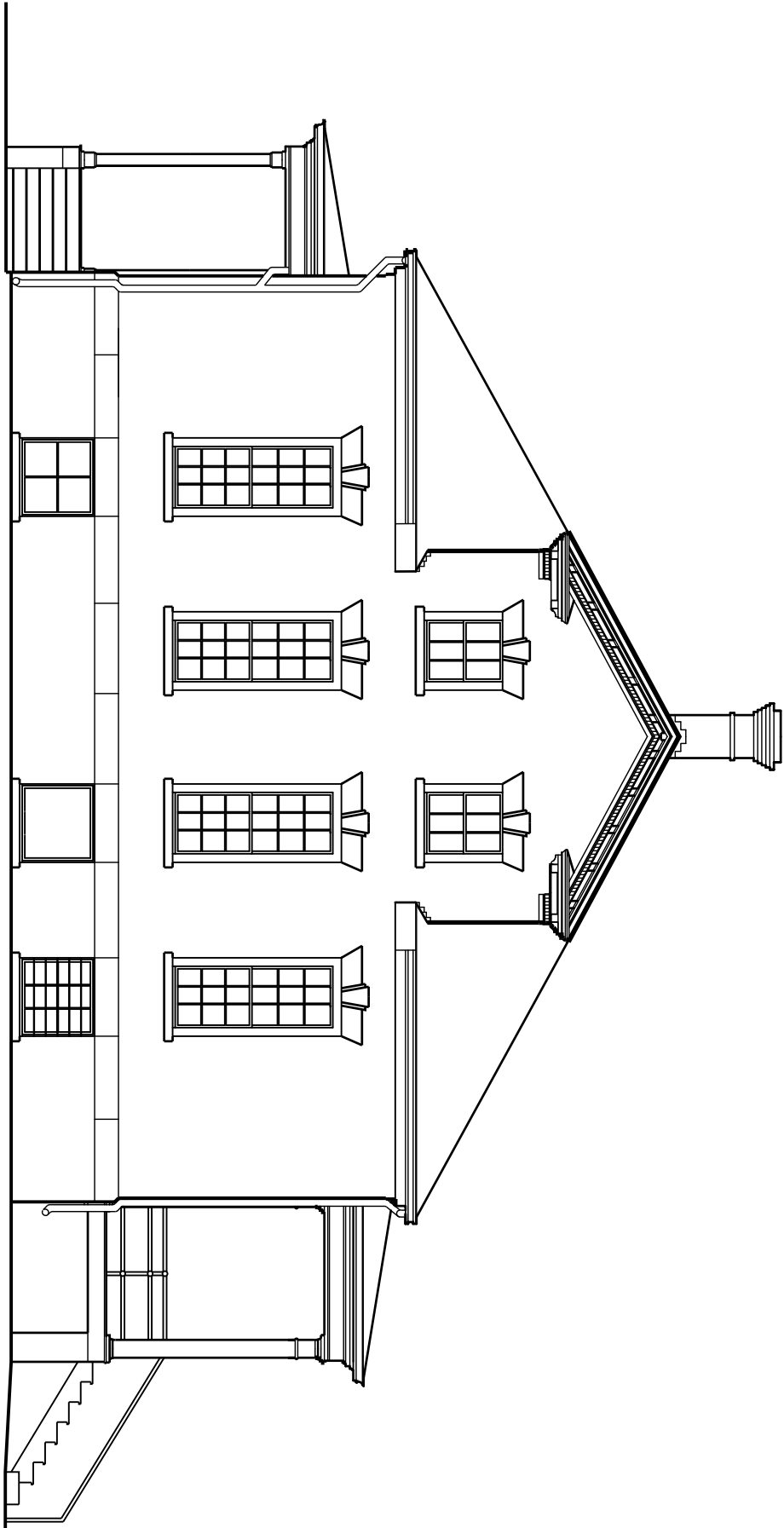
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A103
MESS HALL #58 -
ROOF AND SITE PLAN
SCALE: SEE GRAPHIC SCALE



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MESS HALL #58 - WEST ELEVATION
SCALE: SEE GRAPHIC SCALE
A200



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A201

MESS HALL #58 - NORTH ELEVATION

SCALE: SEE GRAPHIC SCALE

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Building #58

Fort Hancock
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Existing Conditions
East Elevation

A202

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Existing Conditions
South Elevation

A203

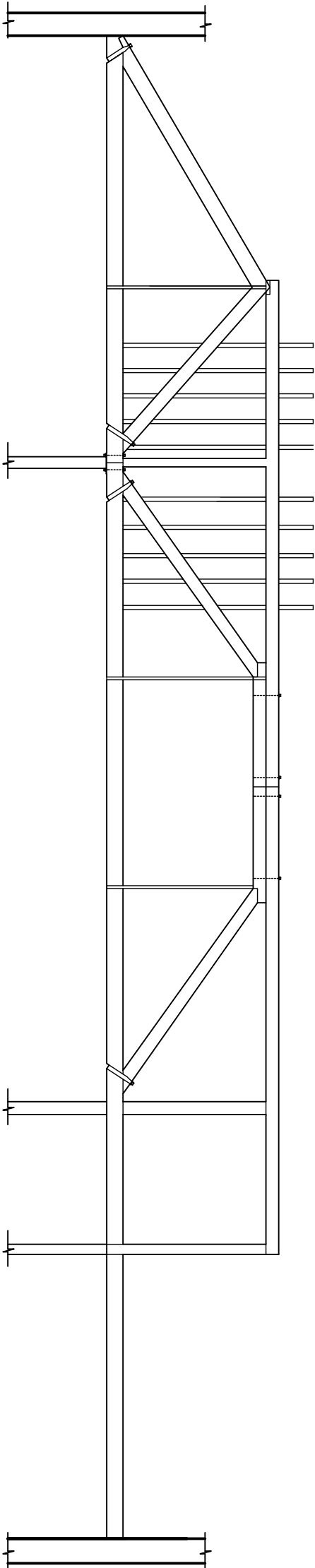
NOT TO SCALE
reduced size drawing

Mess Hall
Building #58

Fort Hancock
Sandy Hook, New Jersey

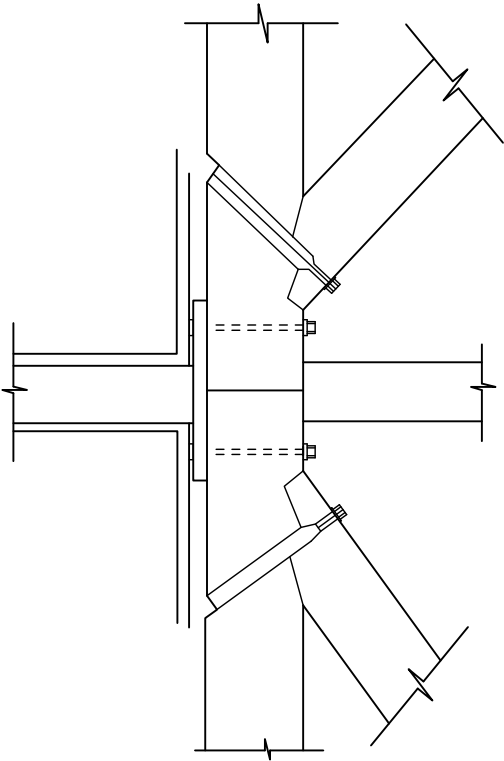
JMA

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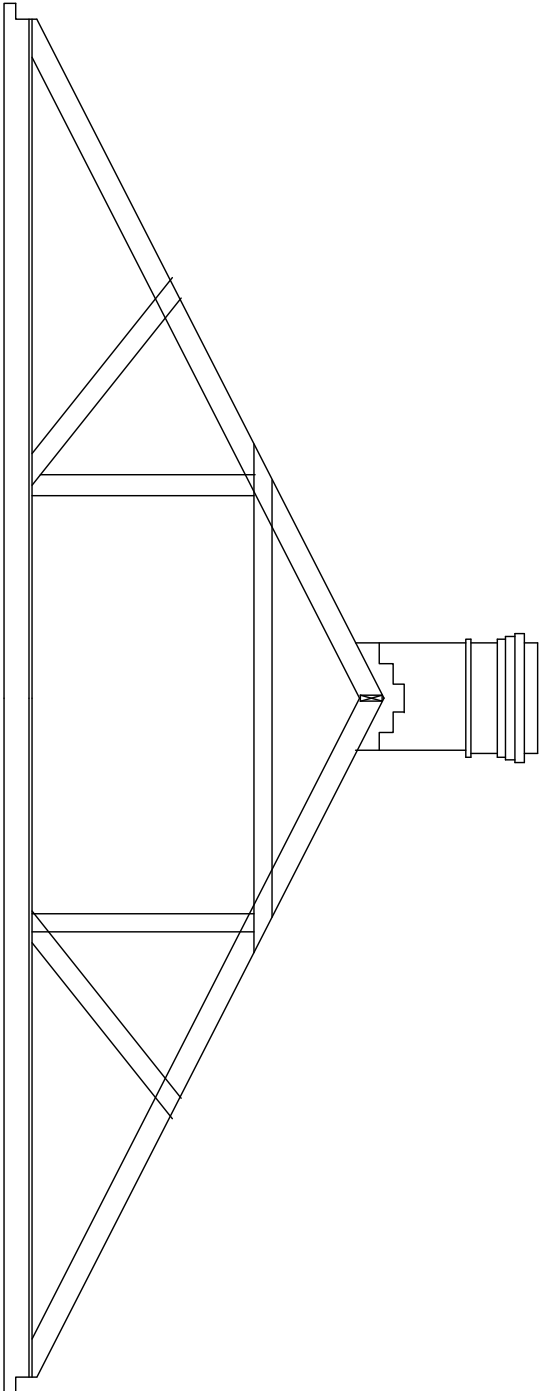
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A301

MESS HALL #58 - LONGITUDINAL ELEVATION OF TRUSS
SCALE: SEE GRAPHIC SCALE A



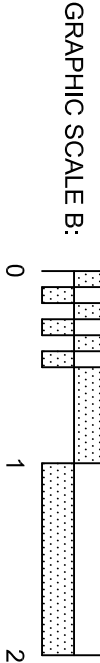
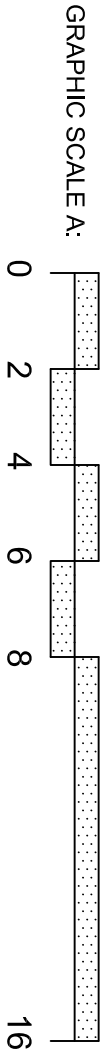
2
A301

**MESS HALL #58 - TRUSS DETAIL
CONNECTION TO POST**
SCALE: SEE GRAPHIC SCALE B



3
A301

MESS HALL #58 - SECTIONAL ELEVATION OF TRUSS
SCALE: SEE GRAPHIC SCALE A



A301

Artic Framing
Details

FINAL
March 18, 2011

NOT TO SCALE:
reduced size drawing

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Photo 19. West elevation (JMA, October 2009)



Photo 20. View of Building #58 looking northeast (JMA, October 2009)

a basement door placed in the sixth bay. The masonry materials at the west elevation wall are original but have been completely repointed. The basement windows appear to be original. The first floor wood windows are replacements except for the northernmost window, which is believed to be the only original window remaining on the first floor. The exterior window sash and frames, doors and door frames, and cornices were originally painted with a dark, olive-colored paint. The exact hue is difficult to discern in the paint samples, which exhibited several different colors of weathered olive paint (see Appendix I: Paint Analysis).

Primary Porch (West Elevation)

The primary porch extends across most of the width of the west side of the building. This porch features six tapered wood columns, employing a Roman Doric order. Roman Doric pilasters at the building wall echo the end columns. Painted wood steps extend up to the central porch bay; the bottom step is stone. The porch features two-inch diameter cast iron railings that span from column to column. The railing is composed of three horizontal rails and a cast iron post at the midpoint. The porch is raised upon six free-standing brick piers, 17 inches square in cross section. The porch deck is constructed of tongue and groove wood flooring. The columns, which support a wood-framed porch roof, have bases and plinths constructed of painted cast iron. The porch ceiling is constructed of three-inch flush board slats. There is one ceiling mounted light at the porch with an unknown light source set inside a glazed black metal box; the original light fixture appears to have been a ceiling mounted light in the same location, consisting of a simple metal ring at the base with an exposed light bulb.

With the exception of the porch flooring, porch ceiling, and steps, all of the porch elements are original. Portions of the pipe railings, wood columns, and pilasters are certainly replacements, given their deteriorated condition c. 1990. The porch floor, floor framing, and steps were rebuilt in 2001 without the proper slope to allow for water drainage. An examination of the deteriorated west porches at the adjacent mess hall buildings indicate that the main entrance porch floors were originally built with minimal or no slope. However, these surviving west porches are severely deteriorated and may or may not be original.

Evidence from historical photographs indicate that the porch columns, pilasters, cornice, floor fascia boards, and steps were probably painted a dark olive color, similar to that found on the exterior door trim (see Appendix I: Paint Analysis). By 1956, the porch columns and pilasters began to be treated with a much lighter paint, which has continued to the present. The porch floors and ceilings appear to have always been treated with a slightly lighter, though not white, paint color. There is no original paint remaining at the west porch, given the recent porch work and the stripping of earlier paint layers.

East (Rear) Elevation

The rear east elevation also has seven symmetrical bays (see existing condition drawing A202 and photos 21 and 22). A small porch protects the two bays at the north end. All of the bays at the first floor have nine-over-nine double hung wood sash, with the kitchen door located at the northern bay. At the basement level, six of the seven bays has a six-light, awning style, wood window.

Secondary Porch (East Elevation)

The secondary porch, a stoop, provided access to and from the kitchen. This porch, which is raised on brick piers, has a tongue and groove wood flooring, wood pilasters, and wood porch posts, square in cross-section, with wood capitals, wood plinths, and cast iron bases. The ceiling is constructed of narrow tongue and groove slats. There is a single ceiling mounted, glazed metal box light fixture that matches the light on the west porch. The east porch is reached by a set of five wood steps with an iron pipe railing bolted to the water table at the lower end and a wood pilaster at the upper end. The rear east porch was reported to be in very poor condition c. 1990 and the current porch ceiling, flooring and floor framing, porch steps, railing, and portions of the columns and pilasters were installed in 1996. There are few historical photographs that show the rear east porch; however, the few photographs show that the porch columns and pilasters were typically painted dark, probably the dark olive color found in samples from the original door jambs, until c. 1956. No original paint was found at the rear east porch elements.

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Photo 21. View of Building #58 looking northwest (JMA, October 2009)



Photo 22. East elevation (JMA, October 2009)

South and North Elevations

The south and north elevations are marked by central gabled roof wall dormers (see existing condition drawings A201, A203, and photos 23-26). The first story is fenestrated by four, symmetrically-placed, nine-over-nine, first story windows, while the dormer is fenestrated by two, three-over-three, double hung, sash windows symmetrically arranged.

Doorway and Window Openings

The original exterior walls are pierced by generally symmetrical and evenly spaced doorway and window openings. All doorways had diabase sills. The west façade has a double main entry, placed in the center of the west wall, and a secondary single door, located to the south. The double doors are constructed with five recessed panels and a 12-light transom above. Each leaf is 2'-11 1/2" by 7'-9 1/2". The secondary single hall door has 28-lights in the upper section and two horizontal panels below surmounted by a six-light transom; it has a modern screen door. The basement entrance on the west elevation has five-panel, double wood doors with each leaf measuring 2'-6 1/2" wide.

On the east, the kitchen door at the north end has four large square lights in the upper portion with three narrow horizontal panels below. A two-light transom surmounts the door, and it is protected by a modern screen door. From historical photographs, the doors and door frames were treated with the same dark color, which appears to have been a dark olive color that was found on the original door jambs (see Appendix I: Paint Analysis). The original wood doors have been stripped of their earlier paint layers.

All window openings at the first and second floors have limestone sills; the lintels are jack arches with keystones, built with specially shaped bricks, which are carried by structural steel lintels. The basement windows have diabase sills and lintels formed by the limestone water table.

First story window openings are fitted with double hung, nine-over-nine sashes. All of the first floor windows have replacement sash, except the northwest window 116B, which is original. The replacement windows are slightly smaller than the originals and are surrounded with a wider casing trim. The original window trim had a 2 1/2-inch wide molded jamb. The more recent replacements have a 5-inch wide, flat jamb. The majority of the first floor windows at Buildings #55, 56, and 57 also appear to be replacements with 5-inch wide window casings. Investigations at Building #55 revealed that the earlier window trim remains encased within the



Photo 23. South elevation (JMA, October 2009)

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Photo 24. View of Building #58 looking southwest (JMA, October 2009)



Photo 25. North elevation (JMA, October 2009)

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Photo 26. View of Building #58 looking southeast (JMA, October 2009)



Photo 27. Detail of stepped terne-coated flashing at the east porch roof (JMA, August 2010)

larger, replacement window casing. It is likely that the windows were replaced at the same time, possibly during c. 1970s by the U.S. Army. The replacements were in poor condition c. 1990, when they were noted as having rotted elements and missing glass panes.

The attic level is also fitted with wood, double hung, three-over-three windows that appear to be original. The awning type, basement wood windows contain six lights and are covered with fixed exterior storm sash. All of the basement windows, with the exception of the northeast window 011A, appear to be original.

Roof and Gutter System

The roof of the mess hall is a hipped roof with raised dormers to the north and south (see existing condition drawing A102). The main roof, the sides of the dormers, and the east and west porch roofs are covered with asphalt shingles. The current asphalt shingles were installed in 2001. However, the original slate shingles were removed c. 1973 and replaced with asphalt shingles. Asphalt shingles were also installed at the east porch roof in 1996 and at the west porch roof in 2001 to replace the original standing seam tin roofs. The asphalt shingle roofing has stepped terne-coated stainless steel flashing at porch roofs, facades, chimneys, and the raised gable ends (see photo 27). Corbelled brick chimneys rise at the north and south ends of the ridge. There is a metal ventilator at the center of the ridge.

The western asphalt shingle porch roof also has a perimeter metal box gutter that drains to a single downspout with a long extender to drain to grade at the northwest corner. The small asphalt shingled east porch has a perimeter metal box gutter that drains to a single downspout that connects with the northeast downspout from the main roof. All of the downspouts drain to grade as they did originally.

The roof cornice at the dormer ends is decorated with dentils, which appear to be the original metal cornice. The lower edges of the main roof have a plain cornice with a molded, metal box gutter mounted at the fascia (see photo 28). The original metal cornice with dentils located at the edges of the main roof was removed in 1958 and has since had a series of fascia mounted gutters. The current molded roof gutter at the main roof is drained by 4-inch and 6-inch round copper downspouts located at the four corners of the building.



Photo 28. Detail of southeast roof with the historic metal cornice at the dormer and simpler replacement metal box gutter at the lower roof (JMA, August 2010)

INTERIOR SPACES

First Floor

The first floor of Mess Hall Building #58 is divided into three main rectangular spaces (see existing condition drawing A101). The central space was historically a single large, open mess hall room, which is currently divided up into public lobby and private office spaces. The mess hall had large framed openings leading into the southern and northern sections. The southern portion of Building #58 was historically divided into a hall, lavatory, and three smaller spaces originally noted as a Cook's Room, Barber Shop, and Tailor Shop. The configuration of this southern portion has been retained in its current use as hall, lavatory, and private office space. The northern portion of Building #58 was originally the large kitchen and pantry spaces. Today, the original kitchen floor plan has been altered by the construction of ADA-complaint toilets, while the pantry is now a conference room space. The original stairs to the basement and attic floors remain relatively unaltered at the northern portion of Building #58.

The paint investigation at Building #58 revealed that there was very little original paint remaining at the first floor (see Appendix I: Paint Analysis). The majority of the interior wood trim, doors, and windows had been stripped of all earlier paint layers. The plaster walls were all covered with thin gypsum veneer wall board. One sample taken from the underside of a window sill in the former Pantry revealed many earlier paint layers, which have not survived elsewhere. Paint evidence from this windowsill and the attic side of door 113-1 indicate that the interior wood trim was originally treated with a dark shellac finish. Historical photographs reveal that the interior trim was dark and slightly glossy and the walls were treated with a lighter color until World War II, when interior walls and trim were painted with a single lighter color.

First Floor: Historic Mess Hall

The mess hall room, which occupies the central section of Building #58, was historically a large room that was open between the east and west exterior walls. The original mess hall room is currently divided into a foyer, an L-shaped public lobby, and private office space to the east and northwest (see photos 29 and 30). The main double door entrance at the western porch now leads into an enclosed foyer. The foyer opens directly into the public lobby space, which wraps around to the southwest, where there is an open work station/reception area. Three private office spaces are located to the east, separated from the lobby by a partition wall. A fourth office is located in the northwest corner. The current materials and finishes are detailed in the accompanying table below.

The original mess hall room now consists of the following spaces:

- Office 104
- Office 105
- Office 106
- Open Work Station 112
- Lobby 113
- Foyer 114
- Office 115

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First Floor: Historic Mess Hall			
Element	Materials	Condition	Est. Date of Construction
Floor	Modern carpet	None noted	2001 renovation
Walls	North and south interior walls	Original plaster, currently covered with gypsum board veneer	1904, gypsum board veneer from 2001 renovation
	Interior partitions to create offices and foyer are gypsum board on metal or wood framing with glass panels at the upper wall and a wood cornice with dentils at the top	None noted	2001 renovation
Wood Trim	Wood baseboard-original 6 ¾-inch tall, flat board with recently added 1 ¾-inch top molding at north, east, and south walls	Good	1904 flat baseboard, 2001 top molding
	Wood baseboard at recent interior partition walls	Good	2001 renovation
	Wood trim and pilasters flanking north and south framed openings	Stripped of original finishes and coated with a clear polyurethane coating	1904
Ceiling	Painted tin ceiling with fleur de lys design at cove molding. Design includes rectangular urn and garland panels.	Good	1904
	Foyer 114: Gypsum board finish on metal or wood framing	Good	2001 renovation
Windows and Trim	Window sash with interior mounted storm sash	Good Interior sash painted white	Replaced at unknown date, repaired in 2001
	Window trim	Good Interior trim has been stripped of original finishes and coated with a clear polyurethane coating	1904

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First Floor: Historic Mess Hall			
Element	Materials	Condition	Est. Date of Construction
Interior Doors and Trim	104-1: Modern hollow core door with 6 raised panels and modern trim	Good operating order	2001 renovation
	105-1: Modern hollow core door with 6 raised panels and modern trim	Good operating order	2001 renovation
	106-1: Modern hollow core door with 6 raised panels and modern trim	Good operating order	2001 renovation
	114-1: Modern hollow core door with 2 raised panels and 9-pane glazed panel above and modern trim	Good operating order	2001 renovation
	113-1: Original 5-raised panel wood door with door trim decorated with dentils, original door knob and hinges, and 3-light transom	Good operating order All paint stripped at door and door trim at lobby side. Door and trim on lobby side finished with a clear polyurethane coating. Rear stair side of door retains paint coatings. See paint sample 113-1.	1904
Lighting	School house type pendant lights (2)	Good working order	2001 renovation
	Foyer 114: Recessed fluorescent light fixtures in drop ceiling	Good working order	2001 renovation

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Photo 29. Mess hall space looking northwest (JMA, October 2009)



Photo 30. Mess hall space looking southeast (JMA, October 2009)

First Floor: Lavatory 107

The current lavatory, located at the eastern end of Hall 111, has always been a single unit toilet room. The current fixtures are not historic (see photo 31). The following table details the current materials and finishes.

First Floor: Lavatory 107			
Element	Materials	Condition	Est. Date of Construction
Floor	Turquoise linoleum floor	None noted	2001 renovation
Walls	Original plaster covered with gypsum board veneer	None noted	1904, gypsum board veneer from 2001 renovation
Wood Trim	Wood baseboard-original 6 ¾-inch tall, flat board with recently added 1 ¾-inch top molding at east wall	Good	2001 renovation
Ceiling	Painted tin ceiling with egg and dart design at cove molding.	Good	1904
Windows and Trim	Window sash with interior mounted storm sash	Good Interior sash painted white	Replaced at unknown date, repaired in 2001
	Window trim	Good Interior trim has been stripped of original finishes and coated with a clear polyurethane coating	1904
Interior Doors and Trim	107-1: Original 5-raised panel wood door with door trim decorated with dentils, original door knob and hinges	Both sides of this door have been stripped of original finishes and coated with a clear polyurethane coating	1904
Lighting	School house type pendant light (1)	Good working order	2001 renovation
	Wall mounted light fixture over sink	Good working order	2001 renovation
Fixtures	Toilet and sink	Fixture conforms to current code at 1.6gpf	2001 renovation



Photo 31. Lavatory 107 looking east (JMA, October 2009)

First Floor: Historic Cook's Room (Office 108)

The southeast Office 108 occupies the same footprint as the original Cook's Room from the 1904 floor plan. The office has primarily modern finishes from the 2001 renovation (see photos 32-34). The following table provides details on the current materials and finishes in Office 108.

First Floor: Historic Cook's Room (Office 108)			
Element	Materials	Condition	Est. Date of Construction
Floor	Modern carpet	None noted	2001 renovation
Walls	Original plaster covered with gypsum board veneer	Water damage above the east window	1904, gypsum board veneer from 2001 renovation
Wood Trim	Wood baseboard-original 6 ¾-inch tall, flat board with recently added 1 ¾-inch top molding at north, east, and south walls	Good	1904 flat baseboard, 2001 top molding
Ceiling	Painted tin ceiling with fleur de lys design at cove molding	Minor gaps between tin ceiling tiles	1904
Windows and Trim	Window sash with interior mounted storm sash	Good Interior sash painted white	Replaced at unknown date, repaired in 2001
	Window trim	Good Interior trim has been stripped of original finishes and coated with a clear polyurethane coating.	1904
Interior Doors and Trim	108-1: Original 5-raised panel wood door with door trim decorated with dentils, original door knob and hinges, and 3-light transom	Good working order. Door trim is missing some dentils. Door trim has been stripped of paint and is coated with a clear polyurethane coating. Door remains painted, but may have been stripped of earlier paint. See paint sample 108-1.	1904
Lighting	School house type pendant light (1)	Good working order	2001 renovation



Photo 32. Historic Cook's Room (Office 108) looking southeast
(JMA, October 2009)



Photo 33. Historic Cook's Room (Office 108) looking southwest (JMA, October 2009)



Photo 34. Historic Cook's Room (Office 108) looking northwest
(JMA, October 2009)

First Floor: Historic Barber Shop (Office 109)

The central Office 109 located at the south end of Building #58 occupies the same space that was originally designated a Barber Shop. However, it is probable that a larger, original northern opening into the hall has been infilled with modern wall framing and gypsum board to create the current smaller northern doorway to the hall. This office was renovated with new finishes during the 2001 renovation. The following table details the current materials and finishes found in Office 109.

First Floor: Historic Barber Shop (Office 109)			
Element	Materials	Condition	Est. Date of Construction
Floor	Modern carpet	None noted	2001 renovation
Walls	Original plaster covered with gypsum board veneer	None noted	1904, gypsum board veneer from 2001 renovation
	Exposed brick at projecting chimney piece at south wall	None noted	1904, probably always finished
Wood Trim	Wood baseboard-original 6 $\frac{3}{4}$ -inch tall, flat board with recently added 1 $\frac{3}{4}$ -inch top molding at north, east, and south walls	Good	1904 flat baseboard with some 2001 replacements, 2001 top molding
Ceiling	Painted tin ceiling with fleur de lys design at cove molding	Minor gaps between tin ceiling tiles	1904
Windows and Trim	Window sash with interior mounted storm sash	Good Interior sash painted white	Replaced at unknown date, repaired in 2001
	Window trim	Good Interior trim has been stripped of original finishes and coated with a clear polyurethane coating.	1904
Interior Doors and Trim	109-1: Modern hollow core door with 6 raised panels and modern trim	Good working order	2001 renovation
Lighting	School house type pendant light (1)	Good working order	2001 renovation

First Floor: Historic Tailor Shop (Office 110)

The southwest Office 110 is located in a space that was historically the Tailor Shop. As in Office 109, it is believed that a large, original north opening leading into the hall has been enclosed with modern wall framing and gypsum wall board to create the current, smaller north doorway to the hall (see photos 35 and 36). This office has been renovated recently with modern finishes. The following table details the current materials and finishes found in Office 110.

First Floor: Historic Tailor Shop (Office 110)			
Element	Materials	Condition	Est. Date of Construction
Floor	Modern carpet	Wear at south of room	2001 renovation
Walls	Original plaster covered with gypsum board veneer	None noted	1904, gypsum board veneer from 2001 renovation
Wood Trim	Wood baseboard-original 6 ³ / ₄ -inch tall, flat board with recently added 1 ³ / ₄ -inch top molding at north, east, and south walls	Good	1904 flat baseboard, 2001 top molding
Ceiling	Painted tin ceiling with fleur de lys design at cove molding	Minor gaps between tin ceiling tiles	1904
Windows and Trim	Window sash with interior mounted storm sash	Good Interior sash painted white	Replaced at unknown date, repaired in 2001
	Window trim	Good Interior trim has been stripped of original finishes and coated with a clear polyurethane coating.	1904
Interior Doors and Trim	110-1: Modern hollow core door with 6 raised panels and modern trim	Good working order	2001 renovation
Lighting	School house type pendant light (1)	Good working order	2001 renovation



Photo 35. Historic Tailor Shop (Office 110) looking south (JMA, October 2009)



Photo 36. Historic Tailor Shop (Office 110) looking northwest
(JMA, October 2009)

First Floor: Hall 111

The first floor Hall 111 provided access from the southern, single door entrance at the western porch to the offices located at the south end of Building #58. The current hall has the same footprint as the original hall. However, it is believed that two former openings to Offices 109 and 110 have been enclosed with modern framing and gypsum wall board to create the smaller, current doorways to these offices (see photo 37). The following table details the current materials and finishes found in Hall 111.

First Floor: Hall 111			
Element	Materials	Condition	Est. Date of Construction
Floor	Modern carpet	None noted	2001 renovation
Walls	Original plaster covered with gypsum board veneer	None noted	1904, gypsum board veneer from 2001 renovation
Wood Trim	Wood baseboard-original 6 $\frac{3}{4}$ -inch tall, flat board with recently added 1 $\frac{3}{4}$ -inch top molding at north, east, and south walls	Good	1904 flat baseboard with 2001 replacement along south wall, 2001 top molding
	Wood trim and pilasters flanking northern framed opening to mess hall room	Good The wood pilasters have been stripped of paint and coated with a clear polyurethane coating. Wood trim has been painted white.	1904
Ceiling	Painted tin ceiling with egg and dart design at cove molding	Minor gaps between tin ceiling tiles	1904
Interior Doors and Trim	See Lavatory 107, Office 108, Office 109, and Office 110 for interior doors	-	-
Lighting	School house type pendant lights (2)	Good working order	2001 renovation



Photo 37. Hall 111 looking east (JMA, October 2009)

First Floor: Historic Kitchen

The original mess hall kitchen was located at the northeast corner of Building #58. Originally, the kitchen was one large open room. Currently, two toilet rooms have been constructed in the southeast corner of the kitchen. The northwest corner is enclosed with movable partitions to create a small break room. A galley kitchen is located in the southwest corner (see photos 38-41). The floor of the historic kitchen is four inches higher than the central mess hall space. The kitchen floor was topped with a four-inch thick concrete slab at some point prior to 1986. The concrete slab is visible at the rear east entrance. It appears that the kitchen floors in several other mess hall buildings at Fort Hancock, including Buildings #55 and 57, also received the same treatment, indicating that the work was probably undertaken when the buildings were all maintained by the same owner.

The historic kitchen space is currently divided into the following spaces:

- Administrative Support 101
- Kitchen 117
- Toilet 102
- Toilet 103

The current materials and finishes in the historic kitchen area are detailed in the following table.

First Floor: Historic Kitchen			
Element	Materials	Condition	Est. Date of Construction
Floor	Turquoise linoleum finish, four-inch concrete slab topping and 6-inch curb above original floor level	None noted	2001 renovation, 1950-1970 concrete floor and curb
Walls	Original plaster covered with gypsum board veneer	None noted	1904, gypsum board veneer from 2001 renovation
	Exposed brick at projecting chimney piece at north wall	None noted	1904, probably always finished
	Interior partitions at Toilets 102 and 103, gypsum board on metal or wood framing	Good	2001 renovation
Wood Trim	Wood trim at south framed opening to mess hall room	Good Trim has been stripped of original finishes and coated with a clear polyurethane coating.	1904
	Wood baseboard in Toilets 102 and 103 and at partition walls	Good	2001 renovation

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First Floor: Historic Kitchen			
Element	Materials	Condition	Est. Date of Construction
Ceiling	Painted tin ceiling with simple fleur de lys design	One area of damage	1904
	Toilets 102 and 103: Gypsum board finish on metal or wood framing	Good	2001 renovation
Windows and Trim	Window sash with interior mounted storm sash	Good Interior sash painted white	Replaced at unknown date, repaired in 2001
	Window trim	Good Interior trim has been stripped of original finishes and coated with a clear polyurethane coating.	1904
Interior Doors and Trim	102-1: Modern hollow core door with 6 raised panels and modern trim	Good working order	2001 renovation
	103-1: Modern hollow core door with 6 raised panels and modern trim	Good working order	2001 renovation
	101-2: Modern hollow core door with 6 raised panels and modern trim	Good working order	2001 renovation
	116-1: Modern hollow core door with 6 raised panels and modern trim	Good working order	2001 renovation
Lighting	School house type pendant light (1)	Good working order	2001 renovation
	Recessed ceiling fluorescent light fixtures in ADA-compliant toilet rooms	Good working order	2001 renovation
	Cabinet mounted task lighting at kitchen area	Good working order	2001 renovation
Fixtures	Brushed metal sink with modern faucet at kitchen	Good working order	2001 renovation
	Modern toilet and sink fixtures in Toilets 102 and 103	Good working order. Fixture conforms to current code at 1.6gpf	2001 renovation



Photo 38. Historic kitchen area looking northeast towards entrance to east porch (JMA, October 2009)



Photo 39. Historic kitchen area looking west (JMA, October 2009)



Photo 40. Historic kitchen area, view of ADA compliant bathrooms at southeast corner (JMA, October 2009)



Photo 41. Historic kitchen area, view of galley kitchen at southwest (JMA, October 2009)

First Floor: Historic Pantry (Conference Room 116)

Conference Room 116 occupies the same space as the historic pantry for Building #58. This pantry room has been refinished during the 2001 renovation (see photos 42 and 43). The current materials and finishes are detailed in the following table.

First Floor: Historic Pantry (Conference Room 116)			
Element	Materials	Condition	Est. Date of Construction
Floor	Modern carpet	None noted	2001 renovation
Walls	Original plaster covered with gypsum board veneer	None noted	1904, gypsum board veneer from 2001 renovation
Ceiling	Painted tin ceiling with fleur de lys design at cove molding	Minor gaps between tin ceiling tiles	1904
Windows and Trim	Window sash 116A and 116C with interior storm sash	Good Interior sash painted white	Replaced at unknown date, repaired in 2001
	Window sash 116B with interior storm sash	Good Interior sash stripped of paint and coated with a clear polyurethane coating	1904
	Window trim	Good Interior trim has been stripped of original finishes and coated with a clear polyurethane coating. See paint sample 116-1.	1904
Interior Doors and Trim	See Kitchen 101 for interior door, modern trim at door opening	Good working order	2001 renovation
Lighting	School house type pendant light (1)	Good working order	2001 renovation



Photo 42. Historic pantry (Conference Room 116) looking southwest (JMA, October 2009)



Photo 43. Historic pantry (Conference Room 116) looking north
(JMA, October 2009)

Stairs: Basement to First Floor

The stairs running between the basement and first floor are the original, single run wood stairs with a modern wood handrail (see photo 44). The stairs are currently covered with carpet. The lower half of the eastern wall of the stairs has original, painted vertical bead board paneling. The lower half of the western wall is formed by an internal, painted brick partition wall. The upper portions of the walls and the ceiling have gypsum board veneer panels. See paint sample B-3 for more information on the paint history of the bead board paneling.

Stairs: First Floor to Attic

The stairs from the first floor to the attic are the original single run, painted wood stairs with a modern wood handrail. The stairs are accessed on the first floor through door 113-1 located in the northwest corner of the main lobby (see photo 45). The attic stairs have original plaster walls on the east and west. The stairs are open to the attic above with no other ceiling enclosure (see photo 46).

Basement

The basement of Building #58 has changed significantly from the original plan (see existing condition drawing A100). The 1904 plan shows the basement roughly divided into three main spaces: a large room to the south with smaller rooms located to the northeast and northwest. Today, the current Boiler Room 001 retains the original footprint of the northeast room. It remains an unfinished utility and storage area. The historic northwest and southern spaces have been partitioned and upgraded to private office and meeting room spaces with modern finishes and systems. The basement retains the original fourteen 17-inch by 17-inch brick piers.

There is very little original paint evidence from the basement of Building #58 (see Appendix I: Paint Analysis). However, there is evidence of an early grayish yellow green at the bead board partition at the north stair and vestiges of many dirty whitewash layers on the wood beams and floor joists at the ceiling of the Boiler Room. This utilitarian storage area was originally treated with cheap whitewash at the ceilings and the bead board partitions were repainted as needed.

Basement: Boiler Room 001 and Coal Bin 010

The Boiler Room 001 and Coal Bin 010 remain in their original locations. They are currently unfinished rooms used for equipment and storage. The floor is exposed concrete with square control joints 3-feet square. The walls are exposed brick at the north and east and exposed bead board walls to the west or modern partition walls to the south. Ceilings are the exposed first floor structure, including the 12 x 12 summer beam running the full length of the building (see photos 47 and 48). At the north end of the Boiler Room ceiling is cement parging on metal lath between steel framing members that support the kitchen hearth above (approximately 7'-0" x 15'-0") (see photo 49). Portions of the Boiler Room ceiling also show evidence of plaster and wood lath and the summer beam had evidence of early layers of whitewash. Windows along the north wall, 011B and 011C, are original awning style wood windows. The north window 001A is a 6-pane window, that appears to be an upper sash from a double hung wood window and is not an original awning type window. The Boiler Room houses current HVAC systems as well as old equipment that is no longer in use, including an unused boiler and oil tank (see photo 50).

The Coal Storage Bin at the northwest corner is constructed of double wythe, load-bearing brick walls (see photo 51). The Coal Storage Bin currently houses a fuel oil tank.

Basement: Renovated Spaces

The renovated portion of the basement includes all spaces except the northeast Boiler Room area and north stair. The renovated space consists of a hallway running north-south which gives access to office spaces, the basement door foyer, and utility rooms (see photos 52 and 53). The only original elements are the painted, square brick piers that support the first floor structure, and the painted brick foundation walls, where exposed. The current finishes are summarized in the table below.

Mess Hall Building #58-Fort Hancock
Historic Structure Report
Gateway National Recreation Area

The renovated basement spaces include the following:

- Offices 002, 003, 004, 007, 008, and 009
- Corridor 011 and Open Work Area 012
- Electrical Room 005
- Foyer 006

Basement Floor: Renovated Spaces			
Element	Materials	Condition	Est. Date of Construction
Floor	Turquoise linoleum finish (Corridor 011, Open Work Area 012, Foyer 006)	None noted	2001 renovation
	Modern carpet (Offices 002, 003, 004, 007, 008, 009)	None noted	2001 renovation
	Painted concrete (Electrical Room 005)	None noted	1904
Walls	Modern gypsum board clad wall partitions with rubber base	None noted	2001 renovation
	Exposed brick foundation walls	None noted	1904
Ceiling	Gypsum board clad ceiling framing	None noted	2001 renovation
Windows and Trim	Window sash	Good Interior sash painted white	1904
	Window trim	Good Interior trim painted white	2001 renovation
Interior Doors and Trim	001-1: Double leaf, 5-raised panel wood doors	Good working order	1904 salvage, but not in original location
	008-1: Raised 3-panel wood door with 4-pane glazing and original hardware.	Good working order	1904 salvage, but not in original location
	006-1: Modern hollow core door with glazing and modern trim	Good working order	2001 renovation
	Modern hollow core door with 6 raised panels and modern trim (002-1, 003-1, 004-1, 011-1, 007-1, 009-1)	Good working order	2001 renovation
Lighting	Recessed fluorescent light fixtures	Good working order	2001 renovation



Photo 44. Stairs from the basement to first floor, looking north
(JMA, October 2009)



Photo 45. Door at northwest corner of the mess hall space leads to the attic stair (JMA, October 2009)



Photo 46. Stairs from the first floor to the attic, looking north
(JMA, October 2009)



Photo 47. Boiler Room, south end looking east (JMA, October 2009)



Photo 48. Boiler Room looking northeast. Note oil tank no longer in use (JMA, October 2009).



Photo 49. Boiler Room concrete and metal ceiling at north end (JMA, October 2009)



Photo 50. Boiler Room looking northwest. Note old boiler no longer in use (JMA, October 2009).



Photo 51. Coal Bin looking northwest (JMA, October 2009)



Photo 52. Open Work Area 012 looking towards southeast offices (JMA, October 2009)



Photo 53. Corridor 011 looking south (JMA, October 2009)

Attic

The attic has two full length wood trusses running in the north south direction. The roof trusses are formed with 7 $\frac{3}{4}$ " x 8" timber top and bottom chords with the web members a mixture of 7 $\frac{3}{4}$ " square timber diagonals and vertical steel rods (see attic framing details A301). The attic joists frame to the sides of the bottom chords. The sloping roof is framed with rafters spanning from the exterior bearing walls to the top chord of the trusses. The span of those rafters is cut in half with a diagonal prop from the rafter to the bottom chord of the truss. To form the ridge, which is centered between the trusses, another set of rafters span from the truss top chord to the ridge board. A collar tie at the truss top chord controls horizontal thrust from the upper rafters. See Drawing A301 for details of the attic truss system.

The attic is currently used for storage (see photo 54). The high velocity HVAC system is threaded throughout the perimeter of the attic, with vents cut through the floor to the occupied spaces below. The attic is fitted with utilitarian lighting strung along the center of the room.



Photo 54. Attic overview looking south. Note opening for stair to first floor at lower right. (JMA, October 2009)

CHARACTER DEFINING FEATURES

A building's historic significance is defined in the context of historically significant events, activities, or people. The way we connect a building to a historic period is by identifying its character defining features, which are the visual aspects of the building that together form its character. Determining a building's character defining features is the first step in determining the appropriate treatment for a historic resource. By identifying the character defining features, these key elements can be retained and preserved. The following chapter outlines the character defining features of Mess Hall Building #58, which should be referenced in all future alterations to the building. These features of Building #58 collectively give it a unique visual appearance and express the overall historic character of the building.

Overall, the exterior and interior of the Mess Hall are in very good condition. Care has been taken to retain and preserve most of the original historic fabric. The historic porches and roof configurations, door and window openings, landscape features and most original building materials are extant. However, significant materials have been replaced at the main roof and porch roofs. For the most part, the original plan layout is intact. Partial height partitions were erected in the historic mess hall and kitchen spaces at the first floor. The condition of these building components suggests they are inspected and maintained.

METHODOLOGY

Using the few historic drawings and photographs available, JMA performed a field survey of Mess Hall Building #58 at Fort Hancock during which the character defining features were identified. Observations were made about the building's setting as well as its form, materials, finishes, details, and level of craftsmanship. Conclusions were drawn about the remaining historic fabric making use of historic images of Mess Hall Building #58 and Barracks Building #25. The identification of the character defining features below was guided by *Preservation Brief Number 17: Architectural Character; Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving their Character* (Nelson 1988).

FORT HANCOCK HISTORIC DISTRICT

- Uniformity among buildings of the same type
- Compatibility between buildings achieved by materials, proportions and color
- Classical revival architecture with restrained detailing
- Restrained use of landscape material. Trees usually located at street edges only.
- Strong site plan which governs placement of all buildings
- Open spaces which are defined by buildings
- Orientation to the Bay, the importance of views, and connection to the outside world
- Hierarchy and regimentation among buildings; clearly established major and minor buildings
- Buildings with clearly defined primary and secondary facades
- Hierarchy and identity for open spaces; major public spaces having a ceremonial character, and subordinate open spaces used as service spaces (Fort Hancock Rehabilitation Guidelines, 1999: 10)

BUILDING #58 EXTERIOR

Site

- Formally laid out and sparse military setting
- Atlantic Ocean to the east and Sandy Hook Bay to the west

- Flat topography
- Curving, asphalt paved vehicular road to the east
- Level, grass covered parade ground to the west with paved pedestrian walkways
- Level, grass-covered areas between buildings, crossed by intersecting pedestrian walkways
- Existing exposed aggregate concrete and slate paving
- Grassy areas and minimal vegetation
- Regularly spaced, curving row of identical, paired barracks and mess hall buildings lining the northern edge of a parade ground
- Rectangular buildings with porch projections which share similar construction details and building materials
- Views of open water to the east and west
- View of Sandy Hook Lighthouse sited immediately to the northeast
- Historic cast iron bollards at north foundation marking location of original drive

Form

- Rectangular, one-and-a-half story, symmetrical building with hipped roof and raised dormers
- One story, deep porch extending along the majority of the west façade
- One story smaller porch on east façade at north end

Style

- Symmetry and classical proportions at all four elevations
- Spare and clean elevation lines
- Simple materials and details reflecting underlying function and purpose of building

Walls

- Buff brick in running bond pattern with 1/8" butter joints
- Specially shaped buff brick at jack arches over first and second floor windows
- Quarry faced, diabase foundation set in random coursed ashlar with flush mortar joints
- Smooth faced, bevel-edged limestone water table course with 1/8" wide joints
- Smooth faced limestone window sills at first floor and attic floor windows
- Diabase at basement level window sills

Porches and Stairways

Main West Porch

- Symmetrical distribution of 6 columns in tapered Roman Doric order
- Wood frame, low slope, hipped porch roof
- Six brick pier foundation supports measuring 17" by 17" and distributed symmetrically
- Centrally located, straight run of painted wood steps up to main porch
- Two-inch diameter cast iron railings span from column to column. Railings consist of three horizontal rails with a slightly raised cast iron post at the midpoint between the columns.
- Wood columns with painted cast iron bases and plinths
- Roman Doric pilasters at far ends of the porch along the building wall
- Three-inch painted wood slats at porch ceiling
- Painted wood tongue and groove floor

Rear East Porch

- Three 7 inch square porch posts symmetrically distributed
- Wood framed, low slope porch roof

- Three brick pier foundation supports measuring 17” by 17” with 6” limestone cap and distributed symmetrically
- Straight run of painted wood steps up to the side of porch
- Single metal railing attached to the building wall
- Two square pilasters along the building wall
- Painted wood tongue and groove floor
- Painted tongue and groove ceiling

West Exterior Stairway to Basement

- Simple, straight run stair with 6 slate treads running under the southern end of the west porch provide access to basement
- Slate curbs at west basement entrance

Windows

- Symmetrical placement of windows on all four facades
- Brick jack arches with articulated keystones at first floor and attic level windows
- Plain rectangular openings at basement level cut just below the water table course
- Limestone window sills at first floor and attic levels
- Diabase window sills at basement level
- Simple wood window trim
- One original wood, nine-over-nine, double hung window sash at window 116B
- Original pine wood, three-over-three, double hung window sashes in wood frames at attic level
- Original pine wood, 6-lite, awning sash at basement level

Doorways

- Oversized, double leaf, 5 panel, wood doors at main west entrance with a 12-lite transom and original hardware, including the original door knob with egg and dart detailing
- Single wood door at west porch entrance with two horizontal panels below and 28 smaller lites above, a 6-lite transom, and original hardware
- Oversized, double leaf wood doors at west basement entrance with 5 panels each and original hardware
- Single wood door at east porch has 3 narrow horizontal panels and 4 large square lites above with a 2 lite transom and original hardware

Roof and Roof Features

- Hipped roof with raised, gable-end dormers at north and south ends
- Roof trusses, framing, and 1” by 6” tongue and groove sheathing
- Internal chimneys with decorative corbelling detail at top on each gable end
- Metal, cylindrical ventilator in the center of the roof
- Raised gable end cornice with dentils and brackets
- Perimeter box gutter at main roof and porch roofs
- Copper downspouts

Exterior Signage

- Small metal and enamel building number plaque “58” wall-mounted on east elevation
- A small metal and enamel building number plaque “58” attached to the top riser of the front porch steps at the west elevation (replacement of original)

Missing Character Defining Features at Exterior

- Slate shingles at main roofs

- Standing seam metal roof system at west and east porch roofs (original type of metal unknown)
- Dentils and bracket detailing at main roof cornice
- Stone edging at path and concrete landing
- Original first floor window sash. Original molded window trim believed to be encased in current flat window jamb.

BUILDING #58 INTERIOR

Plan

First Floor

- Central, rectangular open space at central historic mess hall space flanked on the north and south by smaller offices and service areas
- Floor plan at southern portion subdivided into a long east-west hall, a small lavatory, and three office spaces
- Floor plan at northern portion subdivided into a large open kitchen area to east and a smaller room to west

Basement Floor

- Footprint of original Boiler Room and Coal Storage Bin spaces

Attic Level

- Open attic floor plan with no partitions

Flooring

First Floor

- Possible original quarry tile flooring in kitchen/administrative support area extant under new linoleum surface
- Wood strip flooring believed to be extant below carpet and vinyl tile
- Original first floor framing including summer beam, joists, and steel framing to support kitchen hearth

Basement Floor

- Concrete floors, exposed and unpainted in Boiler Room, painted in Electrical Room

Attic Level

- Wood strip flooring

Walls

First Floor

- Original plaster surfaces at the perimeter walls and original partition walls remain but are covered with gypsum board veneer
- Four large square wood timbers embedded in full-height plaster walls separating the mess hall room from support spaces
- Remnants of the original brick chimneys extant on the north in the kitchen/administrative service area and on the south in the center office

Basement Floor

- Original bead board and brick walls at stairway at the basement

Attic Level

- Plaster wall surfaces at stair from first floor to attic

Trim

- Original interior window trim throughout first floor at original walls with a simple profile, apron and dentils at the cornice, stripped of paint history
- Door trim extant at the lavatory, at the office in the northeast corner of the main floor, at the door to attic, at the main entrance, and at the secondary entrances on the east and west elevations of the building
- Trim at framed openings at central mess hall space with a simple profile and dentils at the cornice, stripped of paint history
- Original plain, rectangular wood base board partially extant throughout the first floor; top bead molding and molded trim is not original.
- Six-inch concrete curb in kitchen/administrative support area
- Brick wall base in conference room

Doorways

First Floor

- Five-panel single leaf wood door (107-1) with original hinges and knob extant at the lavatory
- Five-panel single leaf wood door (108-1) with 3-lite transom and original hinges and knob extant in the first floor office in the northeast corner
- Four-panel single leaf wood door (113-1) with 3-lite transom extant at the entrance to the attic space

Basement Floor

- Five-panel double leaf wood doors (001-1) extant in the boiler room
- Three-panel and 4-pane single leaf wood door (008-1) with original hardware extant in the technology office adjacent to the left of the conference room

Ceilings

First Floor

Original decorative pressed tin ceiling with integrated cove trim at room perimeter extant throughout the first floor with slight variation in details:

- Historic Mess Hall Room - pressed tin ceiling panels with fleur de lys cove molding, rectangular urn and garland panels
- Historic Shop and Office Spaces - pressed tin ceiling panels with fleur de lys cove molding
- Hall - pressed tin ceiling with small egg and dart cornice
- Lavatory - pressed tin ceiling with egg and dart detailing and cove molding
- Historic Pantry - pressed tin ceiling with less ornate fleur de lys cove molding cornice
- Historic Kitchen - pressed tin ceiling with recent damage

Basement Floor

- Remnants of original concrete ceiling on metal lath in boiler room approximately, 7'-0" x 15'-0".
- Historic oil tank and boiler in Boiler Room.

Stairways

- Original utilitarian painted wood steps up to attic space
- Original utilitarian wood steps down to basement level concealed under carpeting

Missing Character Defining Features on Interior

- Ceramic tile floor and ceramic tile cove in lavatory
- Quarry tile floor tile in former kitchen space and pantry
- Kitchen hearth
- Kitchen hood suspended from ceiling

CONDITION ASSESSMENT

The condition assessment section provides a detailed description of the material and system problems noted at Mess Hall Building #58. For each identified problem, the probable cause of deterioration is noted, if known. Recommended repair work to address each problem follows in Part 2: Alternatives for Treatment. The condition assessment includes a methodology for the survey, a description of exterior conditions by building element, a description of interior conditions by floor, an overview of building systems; a code assessment to review accessibility and fire safety compliance concerns, and a summary of security issues. A more detailed structural assessment is included in Appendix A.

METHODOLOGY

The survey of Mess Hall Building #58 was undertaken by a team of architects, architectural conservators, and structural engineers from John Milner Associates, Inc. (JMA) and Keast and Hood. The survey was conducted over a series of site visits in October and December 2009 and August 2010. The scope of the survey included the assessment of the building site, exterior envelope, and interior spaces. The survey was conducted from the ground and from all accessible spaces. The survey did not include direct access to the roof. The team also observed the adjacent existing mess hall buildings at Fort Hancock in order to understand the remaining historic fabric and alterations undertaken at Building #58.

Conditions were noted in field notes, sketches, and annotated drawings. Measurements were taken to produce schematic level measured drawings of both elevations and floor plans. Digital photographs were taken to detail specific conditions. Archival quality photographs were taken of the site, exterior, and interior spaces to document overall conditions. Material samples of both mortar and paint were taken for laboratory analysis (see Appendices H and I).

EXTERIOR CONDITIONS

The exterior of Building #58 is in very good condition. Building #58 was renovated in 2001 and was in the process of being repainted during the survey. It appears to be very well maintained. The main concerns on the exterior involve poor site drainage at the northeast corner that may be contributing the problems at the first floor framing, inappropriate repointing mortar, wood rot and deterioration of porch floor boards, and deterioration at the attic level windows.

Site

The grassy areas immediately adjacent to Building #58 have evidence of poor site drainage in areas where the downspouts discharge water runoff at grade. The most problematic spot is the northeast corner where ponding water, eroded soil, moss, and rising damp are visible where a downspout discharges rain water at grade (see photo 55). This area of poor site drainage corresponds to an area of soft floor joists at the northeast corner of the kitchen floor, which is likely exacerbated by the problems seen on the exterior. In addition, there is eroded soil, ponding water, and rising damp where downspouts discharge at the northwest corner of the building and poor drainage and moss growth in the area adjacent to the north foundation (see photos 56). However, there are no interior deterioration problems known to be associated with these areas.

The associated site features, including paving materials and small site features, are in fair condition, with signs of wear and weathering. The historic slate paving at the southwest corner of the building is worn with characteristic delamination (see photo 57). There is a significant 1-inch deep area of loss at one corner and a ½-inch uneven lipping between the slabs. These areas of loss and uneven settlement should be monitored. Existing paving materials should be assessed for acceptability in regards to universally accessible paving materials.

The historic exposed aggregate concrete walk running north-south between the barracks and mess halls has cracking at corners (approximately 25 feet overall) with some grass growing through the cracks. There is evidence of old patches, which are sound but mismatched. There are approximately 15 linear feet of newer exposed aggregate paving at the north end, which has a slag aggregate that is not seen in the historic aggregate.



Photo 55. Detail of site drainage at the northeast corner. Note the eroded soil and moss growth that indicates poor site drainage. (JMA, October 2009)



Photo 56. Condition of site drainage at the northwest corner. Note the discharge of two downspouts and ponding water. (JMA, October 2009)



Photo 57. Detail of historic slate paving at southwest portion of the site. Note delamination and lipping between slabs. (JMA, August 2010)

At the north side of the building, the early cast iron bollards have failing paint. The current signage is in good condition.

Walls

The exterior masonry walls at Building #58 are in good condition, with the masonry exhibiting wear from a long history of use. The brick, limestone trim, and foundation diabase masonry have been completely repointed (see photo 58). Unfortunately, the brick masonry has been completely and inappropriately repointed with a thin 1/8-inch smear coating of gray mortar over the original buff-colored pointing mortar. It is very likely that this mortar will fail prematurely and it should be properly replaced with new mortar to be compatible with the original mortar in color, profile, and physical performance.

The foundation joints have a 1/4-1/2 inch thick, dark gray repointing mortar over the original buff-colored mortar; the dark gray mortar has weathered to a light gray. The mortar at the foundation, though darker than the original, was correctly installed at the proper depth. The foundation has minor failed joints overall with approximately 100 linear feet of failed mortar joints. When this stone is repointed, the masons should use a mortar that is compatible with the original mortar in color, profile, and physical performance.

The buff-colored face bricks exhibit fine cracks on almost every unit (see photos 59 and 60). The cracks seem to be worse at the outside corners. However, this is only because the cracking in the brick at the corners has attracted more dirt. On close inspection, the fine cracks are visible on each unit. Given the widespread cracking, which is not localized in any one area, it is believed that the cracking is caused by a manufacturing flaw. It is possible that a past harsh cleaning and the marine environment may have exacerbated the original flaw. However, based on the limited survey, the cracking is too general to have been caused by anything other than a manufacturing problem. Additional material testing on a range of these bricks would help determine if these bricks are appropriate for salvage and whether they contain significant amounts of salts. Thin section microscopy would help determine the depth of the cracking and any damage it has caused to the brick's protective fire skin. In general, masonry sealants are not recommended; given the marine environment, it is highly likely that there are salts in the cracks and adjacent pore structure. Sealing the masonry would trap the salts within the masonry and could accelerate damage.



Photo 58. Detail of the masonry at Building #58. Buff colored brick at the top with characteristic hairline cracks. Light limestone trim at center. Dark diabase ashlar masonry at the foundation. (JMA, October 2009)



Photo 59. Detail of hairline cracks at the brick masonry at the west porch piers. The cracking is typical of almost all brick units regardless of location. (JMA, October 2009)



Photo 60. Detail of typical cracked brick unit with a crack through the long axis of the face and smaller cracks radiating up and down. (JMA, October 2009)

Overall, the masonry has been splashed by paint during repainting campaigns (see photo 61). The diabase masonry has a uniform black discoloration over the outside surface, which appears to be from normal weathering. The only cleaning required would be the use of a paint remover to remove the splashes of paint.

At the west elevation, there is minor cracking at the stucco at the ground line at the southwest corner. The main double door sill has been recently painted gray. A worn section of stone has been filled recently with a cement patch (14"x24"x1") (see photo 62). The southern single door sill at the west elevation has a small area of wear that has been patched with cement; there is evidence of a past coating. This stone sill also has a crack through the unit (approximately 6 linear inches) (see photo 63). The wear at the stone sills bear testimony to the passing of many men and women over the past one hundred years; patching this wear is an appropriate repair.

The north elevation has rust staining and delamination at the window sill at opening 010A. The rust staining was caused by the past corrosion of a window grate. Rust staining is extremely difficult to remove from light colored stone and should not be cleaned. There is also a slight wave in the plane of the wall along the center line with minor bulging at the first floor window lintel level. This movement is evidence of the past corroding lintels, which have disrupted the masonry but have since been repaired.

On the east elevation, the stone at the rear east door sill has recently been painted gray. The stone sill has a 4-inch thick concrete topping on top of the worn stone sill (see photo 64). The 4-inch concrete topping continues throughout the kitchen and pantry areas.

The south elevation has a crack that runs through the foundation wall at the southwest corner. The crack was not believed to be of structural concern, but it should be monitored to determine if it is opening further. The south elevation also has a slight ripple in the wall plane along the center line of the south elevation. The bulge appears at the level of the first floor window lintels and was probably caused by the past corrosion of window lintels, which were replaced during recent renovations. There is evidence of brick displacement at the masonry adjacent to the window lintels. The brick masonry has been repointed in these areas and the joints have not reopened. The south elevation also has biological growth and rising damp at the southeast foundation where the downspout discharges close to the foundation.



Photo 61. Note the green splashes of paint on the limestone and diabase masonry. (JMA, October 2009)



Photo 62. Detail of the main west entrance door sill. Note the cement patch at center and recent gray paint. (JMA, August 2010)



Photo 63. Detail of the door sill at the southern entry at the west façade. Note the large concrete patch and evidence of a past gray coating. (JMA, August 2010)



Photo 64. Detail of the east entrance door sill. Note the thick concrete topping, which extends across the kitchen and pantry floors. The concrete topping was placed on top of a well worn door sill. The gray paint is recent. (JMA, August 2010)



Photo 65. East porch floor. Note the deterioration at the exposed ends of the floor boards. (JMA, October 2009)

Porches and Basement Entry

The east and west porches were in severely deteriorated condition and were almost completely rebuilt during recent renovation work. Both porches are in good condition and have been faithfully restored. However, both the west and east porch floors do not have adequate slope to drain water to the exterior; according to modern standards, porch floors should have a minimum of ¼-inch slope per foot. The east porch already has rotted floor boards, which were recently repainted. There are approximately 100 square inches of soft floor boards at the porch edge (see photo 65).

At the steps to the west basement entrance, the slate curb at grade is composed of two stone slabs set perpendicular to each other. The south stone is delaminating. The two stones that form the curb have lost a cramp that held them together at the outside corner and they are slightly displaced (see photo 66).



Photo 66. West basement entry stair. Note the gap between the slate curb and the rectangular slot where a cramp once held the stones together. (JMA, October 2009)

Window and Door Openings

The windows are generally in good condition at the basement and first floor levels. However, the attic level windows are beginning to deteriorate at the meeting rails and bottom rails of the lower sash. The attic windows appear to be the original double-hung three-over-three wood windows. At the northwest attic level window (201D), the top sash is soft at the meeting rail and the lower sash requires a 1'x3" Dutchman at the lower corner (see photo 67). The exterior trim has failing paint. At the southwest window (201B), there is a gap between the sash and frame. The meeting rail at the top sash is soft and the bottom rail at the bottom sash is rotted. At the southeast window (201A), the meeting rail at the top sash is soft and the bottom rail at the bottom sash is rotted.

At the first floor level, all of the windows are double-hung, nine-over-nine wood replacements except for window 116B, which appears to be original. The original corroding window lintels have been replaced with new lintels. In the past, the corroding window lintels had caused significant masonry displacement, as can be seen at other similar buildings at Fort Hancock (see photos 68 and 69). According to park maintenance staff, all of the first floor windows were taken to a shop and stripped, repaired, repainted, and reglazed within the past year. Existing jambs and window frames were stripped using a heat gun and then repainted.



Photo 67. Interior detail of the northwest attic window (201D). Note the damage at the interior muntins. (JMA, October 2009)



Photo 68. Original nine-over-nine window at Building #57 with a thinner casing and wider sash. Note the disruption of the masonry caused by the corroding lintel. (JMA, August 2010)



Photo 69. Detail of the original window at Building #57. Note the thinner casing and original hardware. (JMA, August 2010)

The basement awning type wood windows appear to be original, except for window 001A (see photos 70 and 71). They are generally in good condition with a few exceptions. All of the basement windows except those at the north elevation have been fitted with fixed exterior storm sash. North basement window 001A appears to be an upper sash from a double hung wood window and not an original basement window. Window 001A has loss of wood, failure of glazing putty, and failure of perimeter mortar. North basement window 009B has failing paint, corroding iron bars, and failure of perimeter mortar. At west basement window 009A, there is minor paint failure at the iron bars and wood windows and failure of the perimeter mortar.

All of the exterior doors are original and in good working order. The single doors at the east and west elevations have modern screen doors. According to park maintenance staff, all exterior doors were recently taken to a shop and stripped of all paint prior to repair and repainting. Door jambs have not been stripped and valuable historical paint evidence remains intact.

Roof and Rainwater Drainage System

The roof and rainwater drainage system at Building #58 is in good condition. The current, non-historic asphalt shingle roofing at the main building roof, porch roofs, and at the dormer siding dates to 1996-2001. Though it replaced the original slate and standing seam metal roofs, the current asphalt shingle roof has 10-15 years of service life remaining (see photo 72). The terne-coated flashing and associated building sealants are in good condition, requiring inspection and maintenance to remain watertight (see photo 73). Roof level vent pipes and the central ventilator show no signs of corrosion (see photo 74).

The main building and roof cornices are missing the historic dentil details, which remain at the north and south dormer cornices (see photo 75). The non-historic fascia-mounted, molded metal gutters and copper downspouts are in good condition (see photo 76). The original cornice had a built-in box gutter set within a formed, metal cornice. Site drainage remains problematic and rainwater is not effectively drained at the building foundation.



Photo 70. North elevation of Building #58. Note the three-over-three attic windows, nine-over-nine first floor windows, and variety of basement windows and grates. Basement window 001A appears to be a six-over-six top sash from a double hung wood window. (JMA, October 2009)



Photo 71. Interior side of a typical awning window at the basement level. (JMA, October 2009)



Photo 72. Detail of the roof at Building #58. Note the stepped flashing at the chimney and roof vent. (JMA, August 2010)



Photo 73. Detail of the stepped flashing at the east porch roof. (JMA, August 2010)



Photo 74. Detail of the central ridge ventilator. (JMA, April 2009)



Photo 75. The dormers at Building #58 retain the original dentils at the cornice. The lower roof edge has a fascia mounted molded metal gutter. (JMA, August 2010)

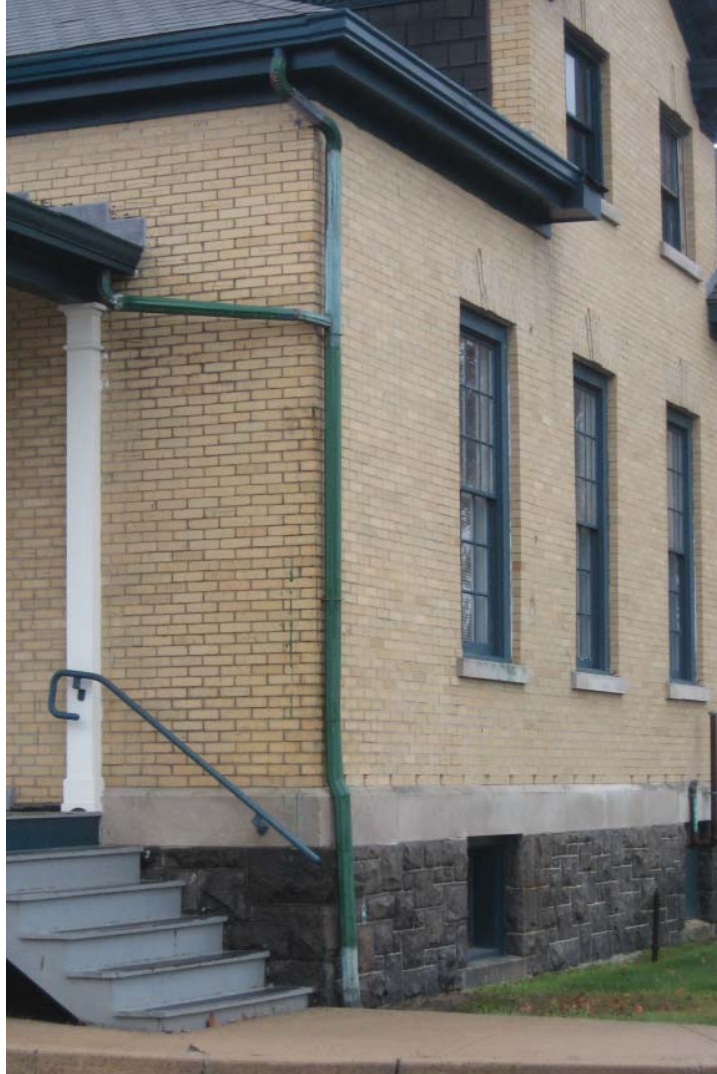


Photo 76. Northeast corner of Building #58. Note the perimeter box gutters at the main roof and east porch roof, the copper downspouts, and the outlet at grade. (JMA, October 2009)

INTERIOR CONDITIONS

The interior of Building #58 is in excellent condition. The building was completely renovated in 2001 and the current finishes have been well maintained. There is very little material deterioration. The main concerns involve cracking, settlement, and concerns at the roof trusses. However, these conditions require only minor repairs and monitoring at this point. These repairs and inspections should be undertaken immediately to prevent further deterioration of these structural components. Additional details of the structural assessment can be found in Appendix A.

First Floor

The first floor of Building #58 retains the original floor plan of the mess hall with upgraded finishes and systems to support its use as modern office and meeting space. Floors are covered with modern carpet or linoleum tile that shows general but minor wear. Masonry curbs and concrete subfloor at the kitchen and pantry areas are not original. The original plaster walls have been covered with a thin gypsum board veneer. Original, flat baseboards remain at original walls in the historic mess hall and south office area, but have been dressed up with a top bead. Doors are a mix of original raised wood panel doors and modern hollow core doors. Ceilings are the original painted, pressed tin ceilings except at enclosed spaces created in the 2001 renovation, including the main entrance foyer and ADA-compliant toilets. The first floor is lit with non-historic pendant school house light fixtures throughout. Modern electrical wiring is concealed at the baseboard.

There is settlement at the northeast corner of the first floor in the former kitchen area. Settlement is causing separation of the masonry curb at the base of the wall from the plaster wall surface (see photo 77). This area is immediately above an area of damaged floor joists, noted in the basement Boiler Room, and associated with poor site drainage at the exterior. This movement should be monitored to determine whether settlement is ongoing.

Throughout the first floor, the original wood trim that remains at windows, doors and door trim, and decorative pilasters has been stripped and finished with a clear, polyurethane coating (see photo 78). The current coating is not appropriate according to the limited remaining paint history. The original interior trim finish appears to have been a dark shellac coating. The dark shellac would have obscured the knots and other imperfections of the wood trim.

There is minor damage to the original architectural elements on the first floor. Water damage was apparent at the east upper wall surfaces in Office 108. The door trim at Office 108 on the hall side is missing some dentils at the trim molding (see photo 79). There are also some gaps at the tin ceiling tiles. No other deterioration was noted.

Basement

The majority of the basement was renovated in 2001 to provide additional office and meeting space. The northeast Boiler Room and Coal Bin were the only areas to remain unfinished. The renovated basement spaces have linoleum floors in common areas, carpet in offices, and concrete floors in utility areas. The walls are gypsum board clad partition walls with rubber baseboard. The doors are typically modern, hollow core doors with new wood trim. The ceilings are gypsum board clad modern assemblies with recessed fluorescent lights. The original square brick piers remain throughout.

Some original architectural elements remain at the north end of the corridor near the stair to the first floor. The original wood bead board molding remains at the east side. The double doors to the Boiler Room are not original, but appear to be salvaged doors from the appropriate period (see photo 80). The glazed wood door to Office 008 also appears to be a salvaged door, but was not originally in this location.

Material deterioration is a concern in the Boiler Room 001. The settlement at the northeast corner of the kitchen is caused by damage at three floor joists in this location where they sit in masonry pockets at northeast corner (see photo 81). They are crushed approximately 1/4-inch at their bearing surfaces. The joists were not wet at the time of survey, but this condition should be kept dry and should be routinely monitored for further damage.



Photo 77. Detail of the masonry curb at the northeast corner of the historic kitchen area. Note the gap between the wall and the curb. (JMA, October 2009)



Photo 78. Interior view of a typical first floor replacement window. Note the wide casing and the interior trim, which has been stripped of its paint. (JMA, October 2009)



Photo 79. Detail of the wood trim at the door to Office 108. Note the missing dentils, the lack of paint, and the shiny polyurethane coating. (JMA, October 2009)



Photo 80. One leaf of the double doors to the Boiler Room. These doors may be historic but are not in their original location. (JMA, October 2009)



Photo 81. Detail of the floor joists supporting the northeast corner of the former kitchen floor. Note the damage where the wood sits in the masonry wall. (JMA, October 2009)

At the north end of the Boiler Room, the ceiling has a steel framed section with cement-parged panels, which originally supported the industrial cooking equipment in the kitchen above (see photo 82). Currently the steel is corroding and causing minor cracking at the masonry foundation wall. The cracking is not of immediate concern; however, the steel should be cleaned to bare metal and treated with a primer to inhibit further corrosion.

In the Electric Room 005, the crack at the southwest corner runs through to the interior wall. It is believed that this crack has been caused by thermal movement and is not of structural concern. However, this crack should be monitored for a full year to make sure that it does not open further. If this crack is caused by thermal movement, it is likely that the crack will open and close through the cold and warm seasons, but should not widen further.

Attic

The attic remains one large unfinished space, which is currently used for storage and for HVAC ducts. The insulation in the attic was not applied at the north and south dormers, which may cause significant heat loss (see photo 83). The roof trusses require work to ensure that the trusses are bearing properly. At the eastern truss, a nut is missing at the north heel and the top diagonal chord is cracked, requiring reinforcement. See the structural assessment in Appendix A for further detail on the required work.



Photo 82. Detail of the steel framing and cement parged panels at the north end of the Boiler Room. Note the corrosion of the steel beams. (JMA, October 2009)



Photo 83. Detail of the underside of the roof at the north dormer end. Note the lack of insulation at the dormer roof. (JMA, October 2009)

Mechanical, Electrical, and Plumbing Systems

The first floor and basement are conditioned with a two-zone “Jet Pack” Cooling System. The main floor is cooled from the attic level, and the basement level is cooled from underneath the crawl space where the condensers reside below the west porch. The circular diffusers are visible in the pressed metal ceiling throughout the first floor.

Two modern oil storage tanks reside in the old Coal Bin (Room 010) in the basement level. This fuel serves the new cast-iron (Smith) boiler and a heating module located on the floor in the middle of the Boiler Room (Room 001). A historic oil tank and boiler remain in the Boiler Room.

Mess Hall Building #58 is on a sewer system. All new plumbing systems were introduced in 2001. One hot water tank resides in the Boiler room. The supply lines are copper and the waste lines are PVC piping. The waste lines are exposed and travel through basement level offices. The plumbing lines do not have thermal or acoustical insulation. Lavatories are vented with single pipe vents on the east side of the main roof. The cylindrical vent at the center of the roof is original, but is currently covered with insulation and is not operable.

New electrical wiring was introduced in 2001 for all three floors of the building. One active and one defunct electrical panel reside in the Boiler Room. The main building electrical panel, used to disconnect all power

entering the building, is located in the Electrical/Misc. Room (Room 005) along with an alarm panel. The fire annunciation system and the smoke detectors are hard-wired. In the event of a fire, the alarm system dials out to the ranger system alerting them of an emergency.

Lighting throughout the building is provided by fixtures with fluorescent and incandescent bulbs. The central space and the perimeter offices on the main level are illuminated by a single, pendant fixture attached to the decorative ceiling. There is task lighting at each desk. The toilet rooms (Room 102 and 103) have surface-mounted fixtures. The attic level has four open light bulbs providing light. The basement level has all fluorescent lighting. There is one ceiling-mounted light fixture at the east and west porches.

CODE ASSESSMENT

The Secretary of the Interior's *Standards for Rehabilitation* defines the rehabilitation of historic properties as "the process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural or architectural values" (DOI Regulations 36CFR67). Implicit in this definition is the need to modify the historic structure to meet the needs of contemporary and efficient use. The repairs or alterations associated with this process must be executed without damaging features or finishes that are important in defining the building's historic integrity. Consistent with the Secretary of the Interior's *Standards for Rehabilitation*, the code assessment component of this report calls for the limited and sensitive upgrading of features at Mess Hall Building #58 for code compliance purposes. The recommendations included here were developed with the information provided in *The Fort Hancock Rehabilitation Guidelines Sandy Hook, NJ* (McCoy 1999). Using historic drawings as a basis for visual inspection, field surveys were conducted in October and December 2009 to inspect existing conditions at Building #58 during which observations were made about the life safety and accessibility issues.

The International Code Council (ICC) has established guidelines for determining when and to what extent modifications in existing and historic buildings are required to comply with state and local codes. Any expectation for compliance with these requirements is further defined by the scope of repairs, alterations and degree of historical significance accorded to the structure. Enforcement of the code requirements depends on their interpretation by local building officials. Building #58 at Fort Hancock is acknowledged as a historic building located in the Historic District of Fort Hancock in Sandy Hook, New Jersey by the National Park Service (NPS), and as such special provisions apply for compliance to life safety and accessibility issues. The sum of work proposed in this report to achieve the rehabilitation of Building #58 is classified in the International Existing Building Code (IEBC Chapter 6) as a Level 1 Alteration. The proposed supplemental installation of a new sprinkler system at the attic level could be interpreted as a Level 2 Alteration (IEBC Chapter 7). The incorporation of any or all of the proposed recommendations for code compliance for future use of Building #58 will require a more comprehensive and detailed code analysis.

The proposed work for Building #58 is also classified in the New Jersey Rehabilitation Subcode as an Alteration. As an alteration project, Building #58 is required by the barrier free subcode to be accessible. Therefore specific guidelines must be met when bathroom fixtures or hardware are replaced. The replacement fixtures or hardware shall comply with ICC/ANSI A117.1-2003, Sections 603 through 608. According to the standards for historic buildings identified in the New Jersey Subcode, as an alteration, the recommended scope of work at Building #58 must also comply with three sets of requirements. These are identified as: products and practices, materials and methods, and basic requirements. The basic requirements are meant as a "measuring stick," assuring that none of the proposed work will make the building less compliant. Consistent with the International Building Code 2006 (IBC) and the International Existing Building Code 2006 (IEBC), the mess hall is given a group B classification. It is a place to conduct business and a historic building functioning simultaneously as a historic museum. According to the New Jersey Rehabilitation Subcode Guidance Document, the Subcode allows the use of replica materials, establishes provisions for historic buildings used as historic museums and identifies building elements that may meet relaxed code requirements in order to preserve the historic value and integrity of a historic building. This report will address requirements in the New Jersey Rehabilitation Subcode that may differ from IEBC and the International Fire Code (IFC) realizing that these are always subject to interpretation by the New Jersey State Historic Preservation Office.

The fire safety component of the code assessment for Building #58 has been written using the International Existing Building Code 2006, the International Building Code 2006, and the International Fire Code 2006 as references. This report assumes that the current Business occupancy classification of the Building #58 will not change and that the NPS will continue to use the building primarily for office space.

As a project located in the state of New Jersey, the New Jersey Rehabilitation Subcode of the Uniform Construction Code is the required code to evaluate the Mess Hall Building #58's conformance to Life Safety standards. The State of New Jersey has adopted by reference the model code of the International Code Council 2006, International Building Code known as the "IBC/2006" as its building subcode subject to modification. Any reference to the mechanical code, plumbing code, ICC/ANSI A117.1 standard (including reference to Chapter 11), or the ICC Electrical Code listed in chapter 35, shall be considered a reference to the appropriate adopted mechanical, plumbing, electrical subcode referenced in N.J.A.C. 5:23-3 or to the barrier free subcode, N.J.A.C. 5:23-7, as appropriate.

Building #58 has also been evaluated for its compliance with accessibility codes. This report refers to ADA (Americans with Disabilities Act), ABA (Architectural Barriers Act), and the Americans with Disabilities Act and Architectural Barriers Act Accessibility Guidelines (ADAABAAG), which were adopted by the NPS in 2006. The ADAABAAG states that alterations to historic buildings shall comply with ADA requirements except when the state historic preservation office determines that compliance with the requirements would threaten or destroy the historic significance of the building or facility.

In a historic building it is important to define the goals of a security system; proposed strategies can include architectural devices, electronic security features, in addition to a trained staff to support both of these. The development of a security program for Building #58 at Fort Hancock is related to the perceived level of risk and requires additional investigation as part of a more detailed future study. Nevertheless, the recommendations for increased public and employee security included in this report are based on the assumption that there is a low level of perceived threat at the Fort Hancock campus. Additional insights for improving general visitor safety were provided by Bruce Lane, the current Chief of Law Enforcement for Gateway National Recreational Area.

The NPS is committed to promoting sustainability in facility planning and design. The NPS Guiding Principles of Sustainable Design (1993) provide recommendations for the treatment of cultural resources, energy management and facility maintenance. These are important for guiding the alteration of historic buildings. However, sustainability concerns are outside the scope of this project; therefore, this report does not address energy conservation measures.

Overview

The recommendations included in this report are intended to make Building #58 accessible to the public and employees of the NPS. Currently, the basement level is used primarily as office space and is not open to the public. The first floor level has a mixed use with both office and public spaces, including bathrooms. The attic level is actively used for storage and is not open to the public. It is JMA's recommendation that an individual with disabilities and employed by the NPS should have the opportunity to travel comfortably between the first floor and basement levels of the building. This code assessment addresses modifications for the following non-compliant conditions at Building #58:

- Non-ADA compliant exterior conditions
- Non-ADA compliant interior conditions
- Non-compliant fire safety and egress issues

Non-ADA Compliant Exterior Conditions

A survey of the existing conditions at Building #58 and a review of accessibility guidelines led to the conclusion that the building is currently inaccessible from the exterior by disabled individuals. An accessible route is defined by the ADA as a "continuous unobstructed path connecting all the accessible elements and spaces of a building or facility. Interior accessible routes may include corridors, floors, ramps, elevators, lifts and clear floor space at fixtures. Exterior accessible routes may include parking access aisles, curb ramps,



Photo 84. Overall view of Mess Hall Building #58 from the southwest. Note the lack of a continuous path and accessible entrance (JMA, October 2009).

crosswalks at vehicular ways, walks, ramps and lifts.” Building #58 lacks an exterior accessible route and an accessible entrance into the building. Furthermore, the existing parking lot does not provide an accessible parking spot and fails to identify an ADA compliant path between the parking lot and an accessible entrance into Building #58 (see photo 84).

Consistent with the goals outlined in the Fort Hancock Cultural Landscape Report Treatment Plan, under Public Safety and Accessibility, JMA’s recommendations are intended to increase the accessibility and safety of the environment at Fort Hancock for all visitors and staff members. Some of the existing paving materials are damaged, creating uneven surfaces and inaccessible circulation paths around the mess hall building. JMA supports the repair and/or in kind replacement of the existing deteriorated surfaces instead of introducing new materials. The circulation paths traveling around Building #58 and establishing an accessible route from the parking lot, to an accessible entrance, are to be smooth and stable. As recommended in the Fort Hancock Cultural Landscape Report Treatment Plan, the pathways between the mess halls and the barracks buildings and along the sidewalks leading to parking lots should also be lit. New street lighting and site lighting will enhance accessibility and personal safety throughout the Fort Hancock complex. JMA supports lighting measures that make the campus safer and minimize the impact to the environment by controlling the light pollution.

According to ADAAG Section 4.13.17 and CABO ANSI Figure B4.13.7, the layout of both sets of doors at the entrance to the mess hall create an inaccessible condition. The referenced accessibility guidelines state that doors in series shall swing either in the same direction or away from the space between the doors (see ADAAG Figure 26). Our survey findings indicate that because the historic main doors of the mess hall (114-2) swing inward and the existing door into the main interior space (114-1) swings outward, the space between these doors does not meet the minimum required space. The minimum space between 2 hinged or pivoted doors in a series shall be 48” plus the width of any door swinging into the space. According to the New Jersey Rehabilitation Subcode, historic doors used for egress purposes may swing inward. As exit access doors, it would be appropriate for both doors (114-1) and (114-2) to swing outward toward the exterior. However, if the operation of the first set were changed to achieve this, consideration will need to be given as to how this impacts an accessible entry into the building through the main, west porch entrance. The new door operation may interfere with proposed ramp and lift systems; see Sheet ALT#1 for schematic level accessibility alternatives A and C. A different strategy for providing the required clearance between the doors



Photo 85. View of the main entrance foyer from public lobby looking northwest. The central space has smooth and continuous circulation spaces (JMA, October 2009).

that respects the historic operation of the doors entails relocating the partition separating the Foyer Room 114 from the Lobby/Reception space further into the central area of the floor plan.

Our survey revealed that the existing heights at the west and east porches show variation in riser height. The eight risers comprising the stair run up to the main, west porch of Building #58, varied in height from 7 ½" at the first (concrete) step to 8 ⅛" high at the top riser (wood) just before reaching the porch floor. Per the New Jersey Rehabilitation Subcode, Section 5:23-6.33 Historic Buildings – (9ii) when stairs are replaced or repaired, the existing or original riser height shall be permitted to remain. However, for accessibility reasons it is desirable to have uniform riser heights. An elderly person or someone with a visual impairment may fall where the riser heights vary to this degree. In new construction, risers in a single stair run may not vary more than .375" in height from one another. It is JMA's recommendation that these steps be rebuilt even though it is not required in historic buildings. Even if a new accessible ramp and/or lift is installed, the stairs should be rebuilt to provide uniform riser heights and to reduce any tripping hazards.

Non-ADA Compliant Interior Conditions

Upon entering the building, circulation through the first floor level is free and unencumbered. The main interior corridors are of sufficient width, clearance and acceptable slope to meet the requirements of the guidelines, including the floor in the kitchen and service area to the left of the main public space which slopes downward toward the reception area (see photos 85-87). The floors are carpeted but the exposed edges are fastened to the floor surface. One minor passageway in the central main room is problematic despite the 4'-6" width measured from wall-to-wall. A partial height wall separates the offices, Rooms 104, 105 and 106, at the perimeter of the main room from the public seating area. Our survey revealed that this path is heavily lined with file cabinets denying accessible passage into the offices (see photo 88). Conversations with employees confirmed that the use of the passageway as an additional filing/storage area was caused by insufficient space within the individual offices. JMA recommends that a comprehensive program be developed to better understand the spatial needs of the staff and to maximize the use of the existing space. It may be easier and less expensive to simply shift the partition outward expanding the width of the passageway. Relocating the file cabinets will still not provide the necessary 5'-0" clear width for someone in a wheel chair to rotate and change direction.



Photo 86. View of southern hall looking west. The existing Hall provides an accessible circulation path. Existing furniture currently located along the Hall should be relocated to keep the path open (JMA, October 2009).



Photo 87. View of historic kitchen space, now administrative area, looking west. Circulation from the central area of the Mess Hall to the Admin/Support area is unencumbered. Short pile carpets are taped down to maintain a continuous path (JMA, October 2009).



Photo 88. View of the corridor created by the partial height partition in the historic mess hall space. Note the cabinets and equipment which have narrowed the passage (JMA, August 2010).

There is no ADA compliant circulation between the first floor and basement level. The only possible routes to move between these floors, via either interior or exterior stairs, are not universally accessible. Access to both floors for disabled employees would be desirable given that there are private offices and common work spaces at both the basement and first floors. Once in the basement, the existing main corridor provides an accessible circulation path.

The existing, in-swing, historic double doors (114-2) have the original hardware. In order to make these accessible, the doors will need to be activated by a push-button mounted to the side (see photo 89). The single leaf door from the Foyer (114-1) is appropriately sized and has ADA compliant hardware (see photo 90). The width of the single leaf doors providing entry from both the east porch (101-1) and the west porch (111-1) meet ADA requirements, but both retain their original historic hardware, which is non-compliant (see photos 91 and 92).

According to ADAAG Section 4.13.17, (and CABO ANSI Figure B4.13.7 Two Hinged Doors in a series) regarding two doors in a series, the minimum space between two hinged or pivoted doors in a series shall be 48" plus the width of any door swinging into the space. Doors in series shall swing either in the same direction or away from the space between the doors (refer to ADAAG Figure 26). Our survey findings indicate that because the historic main west entrance doors of the mess hall (114-2) swing inward and the existing door into the main interior space (114-1) swings outward, the space between these doors does not meet the requirement stated above. As exit access doors, it would be appropriate for both doors, (114-1) and (114-2) to swing outward. In a historic building, however, as previously stated in this report, the main doors are not required to swing outward. There are two possible options:

1. If the historic doors (114-2) are made to swing outward, consideration must be given to how their new operation will impact an accessible entry into the building. The proposed new ramp and landing for providing accessible entry into Building #58 through the primary doors of the building, in Alternate C, Lift and Ramp System, should be designed to assure that the new door swing does not interfere with the accessible path. Refer to diagram Alternative C, Lift and Ramp System, North Elevation, Sheet ALT #1.

2. A different strategy for providing the required clearance between doors 114-2 and 114-1 that respects the current operation of these doors would entail relocating the partition separating the foyer Room 114 from the Lobby/Reception space further toward the interior of the main space.

Existing male and female toilets on the first floor meet the door clearance and wheelchair circulation requirements necessary for accessible design. The existing toilet room signage installed on the doors does not meet current accessibility standards; they have correctly mounted accessible hardware. In addition, the installation heights of some of the individual toilet room features are non-compliant, including the height of the lavatories, sinks, mirrors, faucet controls, and dispensers (see photos 93-95). There is another non-compliant toilet room on the first floor that is not required to be upgraded provided the other toilets meet accessibility guideline standards.



Photo 89. Existing historic double in swing doors with original hardware at main west entrance (114-2). In order to make these accessible, the doors will need to be activated by a push button mounted to the side (JMA, October 2009).



Photo 90. The single leaf door from the foyer (114-1) is appropriately sized and has ADA compliant hardware (JMA, October 2009).



Photo 91. Entrance door from east porch has ADA compliant width but retains original hardware (JMA, October 2009).



Photo 92. The single leaf entrance door from the west porch has ADA compliant width but retains original hardware (JMA, October 2009).



Photo 93. View of ADA compliant toilets located to southeast of historic kitchen area. The most recently built accessible toilet facilities have the required ADA compliant door hardware (JMA, October 2009).



Photo 94. View of western ADA compliant toilet. These bathrooms show inconsistent efforts to address accessibility needs on the interior (JMA, October 2009).



Photo 95. View of eastern ADA compliant toilet. These bathrooms show inconsistent efforts to address accessibility needs on the interior (JMA, October 2009).

Fire Safety and Egress Issues

A survey of the existing conditions at Building #58 revealed an overall adequate compliance with fire protection and egress requirements for a 1 ½ story historic structure that is classified as a Class B Occupancy. The existing door widths, window openings intended for emergency egress, corridor and stairway widths are all acceptable to meet the occupant load of the Building #58. However, the existing conditions in Building #58 impose some physical limitations to the building users, particularly at the stairs. There are inadequate head height clearances at the steps below the main porch, which run from the basement entrance up to grade, and at the top of the interior stairs connecting the basement level to the first floor. The stairway on the west elevation providing access to the basement level from grade is not a required means of egress. Nevertheless, this stairway could provide immediate access to the exterior for an individual waiting for assistance in an area of rescue at the basement level. Per the New Jersey Rehabilitation Subcode, 5:23-6, Historic Buildings, Item 5, Means of Egress: Existing door openings and corridors and stairway widths of less than specified width in N.J.A.C. 5:23-6.10, through 6:30 may be approved, provided that, in the opinion of the subcode official there is sufficient width and height for a person to pass through the opening or traverse the exit. While this stair has several deficiencies, it could be modified to meet basement level accessibility and egress needs, according to the New Jersey Subcode and contingent upon interpretation by the local code official.



Photo 96. Typical hand held dry chemical fire extinguisher shown here at the basement level (JMA, October 2009).



Photo 97. Overview of the attic looking north. The debris and miscellaneous items in the attic are a fire hazard (JMA, October 2009).

Additionally, neither the stair connecting the first floor and attic space, nor the stair between the first floor and the basement are enclosed or have a fire resistance rating. These conditions have been considered to be acceptable because of the historic status of Building #58. The existing dry-chemical fire extinguishers at all three levels of Building #58 are an appropriate and adequate fire suppression system (see photo 96).

Consistent with the IBC, the New Jersey Rehabilitation Code, Section 5:23-6.33, Historic Buildings, Item 9 I and I) grants special fire safety provisions for historic buildings which allow the building to preserve the original, character-defining building materials. Regarding stairways and their enclosures, the Subcode states "Stairway enclosures may be omitted in a historic building for that portion of the stair serving the first and second floor. This provision shall be applied to only one stair per building...In buildings of 3 stories or less, exit enclosure construction shall limit the spread of smoke by the use of tight-fitting doors and solid elements. Such elements shall not require a fire-resistant rating." This provision has been applied to the stair connecting the basement level to the main level. Classified as a 1 ½ story structure, use of the attic space is not acknowledged.

The area of greatest fire hazard at Building #58 is in the attic level. The unenclosed existing wood steps provide the only exit access from an unfinished space currently used informally for storing cardboard boxes, assorted files, and rolls of architectural drawings (see photo 97). These stairs are excessively long by modern standards. The existing conditions survey revealed uncovered junction boxes and exposed conduit runs throughout the space. While there are two smoke detectors on this floor and a fire extinguisher for suppression, the current conditions create a very real fire safety concern at the attic level. In addition, the current dilapidated state of the existing double hung windows on the north and south elevations at the attic level is problematic. Their smooth operation is critical in order for firemen to have ready access to the attic. While an automatic sprinkler system is not a requirement, it should be selectively installed as a measure to mitigate potential fire damage, at the attic level only. The design and installation of this system should be carefully considered to ensure that the pipe routing does not damage the building's historic fabric.

Additional fire hazards were noted at the basement level in both the electrical room and the boiler room. Holes in the electrical room ceiling disturb the integrity of the fire-rated ceiling enclosure. The debris and miscellaneous items in the electrical room are also a fire hazard (see photos 98 and 99). The current boilers are conveniently located in the former coal storage area within the existing boiler room. The existing masonry

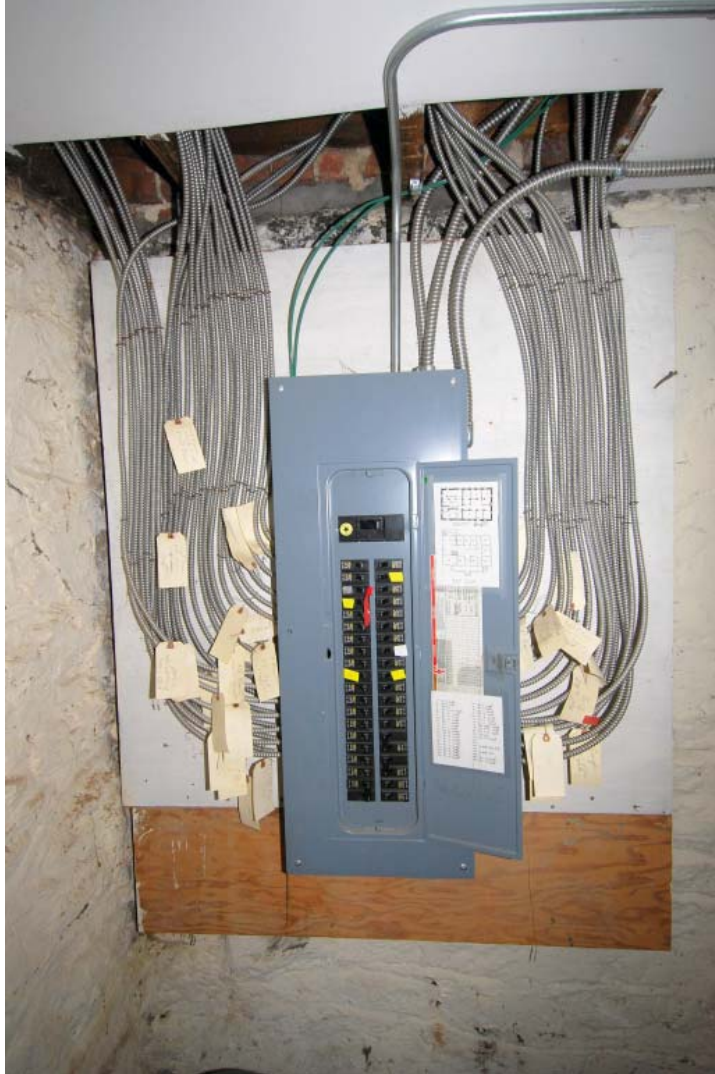


Photo 98. Detail of holes in the ceiling of the electrical room at the basement level. Holes in the Electrical Room ceiling disturbs the integrity of the fire-rated ceiling plane (JMA, October 2009).



Photo 99. Overview of the electrical room looking west. The debris and miscellaneous items in the Electrical Room are a fire hazard (JMA, October 2009).



Photo 100. Detail of heating equipment in the boiler room.
Heating equipment residing in the main portion of the boiler room
should be enclosed by fire rated partitions as an additional safety
precaution (JMA, October 2009).

walls act as fire-rated partitions. However, heating equipment residing in the main portion of the boiler room should be enclosed by fire-rated partitions as an additional safety precaution (see photo 100). The remaining historic concrete on metal lath ceiling material in this location can be used as it was originally, to provide a fire-rated ceiling plane. The exposed conduit, unprotected equipment, debris, and miscellaneous items in the boiler room are currently a fire hazard.

According to the New Jersey Rehabilitation Code, Section 5:23-6.33, Historic Buildings, item 8, Interior Finishes, "The existing finishes or replacement finishes on corridor walls and ceilings may be accepted where it is demonstrated that it is the historic finish... (i) In buildings other than Group R-3 or R-5, finishes in exitways shall have a flamespread classification of Class III or better. Existing non conforming materials shall be surfaced with an approved fire-retardant paint or finish unless the building is equipped throughout with an automatic sprinkler system installed in accordance with the building subcode." The central corridor walls in the basement level consist of painted brick piers, painted drywall and original painted bead board near the base of the steps. The basement ceiling is also painted drywall. If upon further investigation the existing drywall surfaces at the walls and ceiling are deemed non-compliant, that they are not fire-rated, a fire-retardant paint will be recommended for application over this material. Standard 1" or 5/8" drywall Type X exceeds the Class III minimum that is required by code in the exit ways. The existing painted brick piers have a flame spread class of I, exceeding the minimum stated in the New Jersey Rehabilitation Code. The wood species of the historic bead board material is unknown. An approved fire retardant paint applied over the bead board will meet the requirements of this code.

The designation of Building #58 as a historic building grants it special considerations particularly in the requirements of the egress path. The egress path is a directional route that allows movement through well defined exit paths and out of the building in the direction of travel. In a historic building exit doors are not required to swing outward in the direction of egress travel. Therefore, all the exterior doors at the first floor, including the main entrance, and the double doors providing access to grade from the basement floor may be left to swing inward as they have throughout the years. Panic hardware is therefore not recommended at Building #58. Even though the existing historic doors and assemblies do not meet today's fire ratings, their continued use is allowed. The historic doors at Building #58 are also not required to receive new fire safety hardware.

Initiation devices are correctly installed at Building #58 in the form of smoke detectors and manual pull stations at the basement and first floor levels of the building. Strobe lights are the only accessible notification device installed throughout both floors. The devices are correctly located in toilet rooms and other general usage areas such as hallways and the main core of the building plan. In accordance with accessibility guidelines, an audible emergency warning system must be included and located together with the visual alarm.

Per the Basic requirements in the New Jersey Rehabilitation Code as these apply to Group B in Section 5:23-6.17, Item f.) 1. and 2. Exit Signs should meet the criteria stated in this section. No emergency power shall be required for approved self-luminous signs. The fire protection subcode official may accept alternate exit sign design and or location where strict compliance would damage the historic character of the building.

The relationship of fire egress requirements and controlled access into Building #58 is related to its hours of operation. The building is open to the public and the staff during regular business hours only. After 5:00 pm the building is empty. Its exterior doors are locked in an effort to keep intruders out. If a fire emergency were to occur after hours, it is unlikely that locked perimeter doors would conflict with public egress needs since the mess hall would be unoccupied.

Security and Intruder Issues

JMA's understanding of security needs at Fort Hancock is informed through conversations with Bruce Lane, the Chief of Law Enforcement for Gateway National Recreation Area. At this time, the common perception is that there is a low level of threat to the employees and the public at Fort Hancock. As the number of visitors to Gateway National Recreation Area and the Fort Hancock site increases, a broader policy for handling security and intruder issues needs to be developed. Park security requires a multi-tiered approach that allows the different park tenants and a diverse visitor population to enjoy a safe environment well into the future.

The first step requires acknowledging that visitor security begins as one enters the park. Currently, the only security checkpoint resides two miles into the park. It is unclear who enters or leaves the Fort Hancock site. A better location to gauge park access and egress would be at the public entrance into the park. Pedestrian and vehicular circulation patterns into the Fort Hancock campus begin at this point.

In addition, emergency communication systems installed throughout the park are unreliable. The existing emergency call boxes that are placed along paths are marginally successful. Inadequate telephone lines frequently create false alarms. Sometimes, the call boxes do not work at all. Therefore, if an emergency occurs between the park entrance and the visitor's destination point, contacting the ranger system for help may not be possible.

In general, the Fort Hancock campus is poorly lit. Recommendations provided in the CLR should be executed. Public safety throughout the park could be improved by introducing new street and path lighting. Additional exterior lighting should be incorporated at the entrances to the Mess Hall. Currently, only one ceiling-mounted fixture is installed at each porch ceiling on the west and east sides of the building. Accessible paths and a directional signage system would identify accessible entry into the building and improve circulation through the park.

Our survey revealed that currently, there is a minimal level of building security operating at the Mess Hall Building. Manually operated locks with a single key, installed at the historic perimeter doors are bolted at the end of the business day. These are reopened by park rangers for use at the start of the next day. There is no other protection against intrusion. The building also lacks an internal security system for use during off hours. Our site visit also confirmed that several of the surrounding buildings were not locked or that we could push the doors open and get inside without being monitored. In the short-term, a more sophisticated locking system is desired for the perimeter doors that could be installed with the least impact to the historic fabric. Consideration should be given to installing a panic button at the front reception area. This strategy would provide a first line of defense against intruders during business hours.

The ideal system for implementation throughout the Fort Hancock complex benefitting all tenants would be a smart card system. Linked to a computer system, this system would record entry and exit by identified individuals from each building. Due to frequent visits by the public, the security system must be a flexible one. Additional after hour intrusion prevention strategies might include metal contacts installed at the existing window sashes or installing motion detectors to pinpoint main circulation areas.

Conclusion

For the purposes of this assessment, it is assumed that the Class B occupancy designated at Building #58 will remain the same in its future use. Based on this assumption, Building #58 is considered a safe building relatively free from the risk of fire. However, the existing conditions on the interior and exterior of the building reveal an inconsistent response to the requirements of accessibility. From the exterior, Building #58 does not provide universal accessibility. Once inside, however, our survey revealed that significant gestures have been made to address some accessibility requirements. For example, there is an accessible route on the first floor, with adequate clearances and appropriate door hardware. Should future rehabilitation design work at Building #58 be undertaken that would change the program assuming options of this study, a more comprehensive and detailed code analysis will be required.

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PART 2: TREATMENT AND USE

REQUIREMENTS FOR TREATMENT

INTRODUCTION

The requirements for treatment for Building #58, located within Fort Hancock in the Sandy Hook Unit of the Gateway National Recreation Area, identify the applicable laws and regulations that must be met to assure the preservation of extant historic material while responding to modern programmatic and park management needs. All work should be undertaken in compliance with the Secretary of the Interior's *Standards for the Treatment of Historic Properties* and all applicable federal, state and local codes, regulations and policies. The use of Building #58 as a historic structure for administrative park functions, necessitates treatments that respond to human safety, fire protection, and handicapped accessibility issues. This report integrates the requirements that fall under these parameters.

FEDERAL REQUIREMENTS

The purpose of the National Park Service (NPS), as stated in the NPS Organic Act of 1916,¹ and clarified under the NPS General Authorities Act of 1970, as amended in 1978,² is the conservation of park resources and values and the provision for the enjoyment of these resources by current and future generations of Americans. Where use of these resources, either by NPS or the public, conflicts with the goal of resource conservation, the overriding goal is the preservation of the resource.³ As a Federal agency, NPS must conform to various laws,⁴ executive orders,⁵ and guidelines,⁶ aimed at integrating the preservation of cultural resources into ongoing agency programs and policies. Further, Section 110 of the National Historic Preservation Act (NHPA) requires the NPS, as a Federal agency, to take into account the effects of their actions on properties listed or eligible for listing in the National Register of Historic Places. Adverse effects to cultural resources must be mitigated according to Section 106 of NHPA. Within the NPS, "NPS-28: Cultural Resource Management Guideline" elaborates on the laws, policies, and standards applying to cultural resources and offers guidance on their implementation.⁷

Other important pieces of legislation include but are not limited to: The Environmental Policy Act 1969, Coastal Zone Management Act 1972, Estuarine Areas Act, Endangered Species Act, Marine Mammal Protection Act, Migratory Bird Treaty Act, Marine Protection, Research and Sanctuaries Act 1972, Airports Act, Concessions Policy Act 1965, and the Chattahoochee River National Recreation Area Act. Given the extent and frequency of visitor use throughout the Gateway National Recreation Area, these policies are intended to protect the natural resources and its many historic structures and features.

GATEWAY NATIONAL RECREATION AREA REQUIREMENTS

Gateway National Recreation Area (GATE) was the first site selected as part of a nationwide program designed to make National Parkways more accessible to the cities of the United States. It was formally established by Congress in October of 1972 (Public Law 92-592; 85 Stat.1308). Today, GATE is comprised of 26,645 acres of spacious ocean beach, wetlands, wild life preserves and many other resources. Together, they represent the last remnant of the original north Atlantic shoreline and offer a magnificent cultural and recreational resource to the New York and New Jersey metropolitan area.

Gateway National Recreational Area policies and processes recognize the interrelationship of all park resources in their approach and recommendations. Together they articulate a long-term policy for protecting and ensuring the future use of parklands. At the Sandy Hook Unit in particular, the natural resources and the historical significance of the site are key elements of the cultural landscape. A multi-tiered approach is implemented to preserve the historic character of the site, support visitor use and education, and protect its unique ecology.

At a regional level, agency coordination is an important component for successfully implementing the prescribed requirements for treatment affecting the Gateway National Recreation Area. There are over 500 municipal governments in the GATE region and at least 900 separate operating planning agencies. All proposed work affecting the GATE parklands must be reviewed and coordinated with the Gateway

National Recreational Area Management Plan through the park superintendent's office. As stated in the Document NPS-28, Cultural Resource Management, (chapter 5) "Park superintendents are the "agency officials" responsible for adherence to policies and legal procedures in NPS activities under their jurisdiction. Superintendents ensure that all undertakings in their parks, including those carried out by the Denver Service Center (DSC) or outside parties are identified, documented, and considered as appropriate for purposes of Section 106 review... They see that undertakings are carried out in accordance with any conditions or stipulations that result from the Section 106 process." The park superintendent carries direct responsibility for work proposed for historic structures within the park.

The Fort Hancock complex, its land, facilities and fortifications are located in the Sandy Hook Unit of the Gateway National Recreation Area. The management of Fort Hancock specifically and all other units and sites comprising the Gateway National Recreation Area, fall under the jurisdiction of the park superintendent. While National Park Service (NPS) decision-making is informed by a variety of interrelated planning elements, the Foundation Statement is the inception to all policy making decisions and park management strategies. Based on the park's enabling legislation, this document establishes the park's purpose, significance, fundamental resources, values and primary interpretive themes. The Foundation Statement includes recent laws and executive orders that apply to the GATE park system and the Sandy Hook Unit specifically.

As the end result of public involvement and a comprehensive review process, the General Management Plan (GMP) acts as a broad umbrella document that sets the long-term goals for the park. The 1979 GMP for the Gateway National Recreation Area has zoned Fort Hancock as a Village Subzone, one of the areas of major activity within GATE, offering visitor services, educational programs, and exhibits. Continued use will emphasize the "preservation and adaptive reuse of historic resources."⁸ The 1979 GMP is currently being revised and is intended to serve as a guide and reference tool for all future design, development and management of the parks within GATE. The updated GMP will embody the most current analyses, scientific knowledge, public responses and regulations mandated to preserve the cultural resources at Fort Hancock and protect their use by future generations. All future development proposed for the Fort Hancock complex must adhere to the most current version of the GMP whose completion is expected by 2012.

The 1979 vision of Fort Hancock as a restored Gateway Village had not materialized in the 1980s. In 1990, the park looked to redevelop Fort Hancock according to the Secretary of Interior's *Standards* through investment by the private sector. The 1990 GMP Amendment for the Sandy Hook Unit focuses on the adaptive reuse of Fort Hancock through a long term lease and occupancy plan undertaken by entities outside the federal government. Fort Hancock was designed as a rehabilitation zone to be managed through joint public/private arrangements with one or more lessees. The 1990 Amendment called for the retention of select Fort Hancock buildings by NPS for visitor services, interpretation, offices, and maintenance services. All lessee agreements would be subject to review by Sandy Hook stakeholders and review by the New Jersey historic preservation officer.⁹ In 1990, Building #58 was not designated for any specific purpose and would have been eligible for the historic leasing program. However, the 1999 Fort Hancock Rehabilitation Guidelines, which were directed toward private partners in the historic leasing program, did not include Building #58 as one of the buildings available for lease. By 1999, Building #58 was to be retained for NPS functions.¹⁰

The Cultural Landscape Report for Fort Hancock, Treatment Plan; Sandy Hook Unit, Gateway National Recreation Area (Olmstead Center 2006) makes recommendations for public safety and accessibility. Recognizing the long history of the Fort Hancock complex, the recommendations do not focus on restoring conditions to reflect a single period of time. Rather, following the directives of the rehabilitation treatment approach the Cultural Landscape Report (CLR) emphasizes preserving surviving historic characteristics, features, and materials to accommodate new uses through the addition of compatible new features and materials. The primary goal of the CLR recommendations is to provide a safe and accessible park environment for visitors and partners. Specific recommendations for site parking, signage, plantings, and lighting dovetail into other requirements intended to protect aspects of the site's historic character.

STATE REQUIREMENTS

Should the New Jersey State Historic Preservation Office (SHPO) or Advisory Council choose to discuss a proposed project that is deemed an undertaking at a historic structure, the regional director must ensure that the park performance standards and program evaluations address the requirements of Section 106 as well as New Jersey state codes. An undertaking is defined as any project, activity or program that can result in changes in the character or use of historic properties whether federal jurisdiction is direct or indirect. In the event that a park is uncertain whether an action should be classified as an undertaking or should be considered for review, a consultation should be initiated with the State Historic Preservation Office (SHPO) or the park's Cultural Resource Manager. The 2008 Servicewide Programmatic Agreement was created to facilitate early involvement by the SHPO and the Advisory Council in the National Park Service planning process granting the National Park Service some degree of flexibility in determining the extent of SHPO's involvement.

BUILDING CODES

Consistent with stated goals in NPS Program Narrative #147756, for improving operational efficiency, reliability and sustainability, the proposed work at the Mess Hall Building #58, is required to meet established standards of health, safety and welfare. As an adaptively reused historic structure, serving park operations, accessibility and life safety codes are a priority. The International Code Council (ICC) contains standards and guidelines for determining to what extent modifications in existing and historic structures are required to comply with state and local codes. Life safety requirements were gleaned from the International Existing Building Code 2006 (IEBC), the New Jersey Edition of the International Building Code 2006 (IBC), and the International Fire Code 2006 (IFC). Requirements for compliance are based on a Business occupancy classification as defined in the ICC documents. The sum of the work proposed to achieve the rehabilitation of Mess Hall Building #58 is classified in the International Existing Building Code (IEBC – chapter 6) as a Level I Alteration. Compliance with these requirements is further defined by the scope of repairs, alterations and degree of historic significance accorded to the structure. Interpretation by respective project designers and approving officials will ultimately determine the parameters for code enforcement.

The New Jersey Rehabilitation Subcode includes provisions for buildings that meet the standards for historic buildings established by the relevant State or Federal agencies. The New Jersey Rehabilitation Subcode allows the use of replica materials, establishes provisions for historic buildings used as historic museums, and identifies building elements that may meet relaxed code requirements in order to preserve the historic value and integrity of a historic building (NJ Rehabilitation Subcode). Section 6.33 of the New Jersey Rehabilitation Code, Historic Buildings, requires that historic buildings comply with the provisions of this subcode relating to the repair, renovation, alteration, restoration, reconstruction, movement and /or change of use of structures.

The scope of work described in this report for the Mess Hall Building #58 is also classified in the New Jersey Rehabilitation Code as an Alteration. This category of work involves a change in the layout of interior space while other portions of the space remain unaltered. Alteration is defined in the regulations as “The rearrangement of any space by the construction of walls or partitions, the addition or elimination of any door or window extension, extension or rearrangement of any system, the installation of any additional equipment or fixtures, and any work which affects the primary structural component. There are three sets of requirements that apply to an alteration project: products and practices, materials and methods, and basic requirements. . . The basic requirements are used as a measuring stick. The work being done cannot make the building less compliant with the basic requirements than it was before the work was undertaken (New Jersey Rehabilitation Subcode Guidance Document).”

OCCUPATIONAL SAFETY AND HAZARD ADMINISTRATION (OSHA)

There is no record of contaminants or hazardous materials at Mess Hall Building #58. Nevertheless, NPS must comply with the Occupational Safety and Hazard Administration (OSHA) standards when dealing with the abatement of hazardous materials while maintaining, altering, or constructing new or existing structures.¹¹ OSHA Standard 1910 deals with general industry standards; section 1001 of OSHA Standard 1910 specifically addresses asbestos hazards. OSHA Standard 1960 focuses specifically on occupational safety and health programs for Federal employees. General construction standards are contained in OSHA Standard

1926. Further guidance for the application of OSHA standards to NPS facilities is contained in “Director’s Order #50B and Reference Manual 50B Occupational Safety and Health Program.”

ACCESSIBILITY

The National Park Service adopted the Americans with Disabilities Act (ADA), Architectural Barriers Act (ABA), and the Americans with Disabilities Act and Architectural Barriers Act Accessibility Guidelines (ADAABAAG). The ADAABAAG states that alterations to historic buildings shall comply with ADA and ABA requirements except when the state historic preservation office (SHPO) determines that compliance with the requirements would threaten or destroy the historic significance of the building or facility.¹²

SUSTAINABILITY

While sustainability issues are outside of the scope of this report for the Building #58, the National Park Service is committed to using energy wisely and economically. As established in the Energy Policy Act of 1992 and Executive Order 13133 (Greening the Government through Efficient Energy Management), the Service aspires to conduct its activities in a manner that minimizes the consumption of energy, water and renewable fuels.

ALTERNATIVES FOR TREATMENT

OVERALL TREATMENT GUIDELINES

The Mess Hall Building #58 is identified as a contributing feature to the Fort Hancock and Sandy Hook Proving Ground National Historic Landmark that must be preserved and maintained. Building #58 is integral to the entire Fort Hancock District that includes 97 buildings surrounding the historic parade ground. The recommended course of action for the Mess Hall Building #58 is rehabilitation for the exterior and interior. In the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (1992), rehabilitation is defined as the "act or process of making a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values." This treatment assumes that the recommended repairs or alterations are needed in order to allow the continued use of the historic structure in a contemporary and efficient manner. The following standards for rehabilitation should provide overarching guidelines for future proposed modifications:

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired (*Standards* 1992).

The limited restoration of a few exterior and interior features no longer extant at Mess Hall Building #58 is also under consideration. Restoration is defined in Secretary of the Interior's *Standards for the Treatment of Historic Properties* as the "act or process of depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of other features from other periods in its history and reconstruction of missing features from the restoration period." The restoration of key features should be considered when planning for any future alterations to Building #58.

PRESERVATION DESIGN GUIDELINES

The following Preservation Design Guidelines provide specific guidance for the treatment of Mess Hall Building #58 when planning for possible future alterations.

- Preserve the simple and utilitarian nature of Building #58 materials and proportions.
- Preserve the overall massing of the building.
- Historic materials identified as character defining features should be preserved in situ where extant and where condition permits.
- Historic materials identified as character defining features should not be replaced with substitute materials. Repair or replace in kind.

Site

- Preserve, protect, and maintain open spaces and connection with Barracks Row.
- Preserve, protect, and maintain historic site bollards, and exposed aggregate concrete and slate paving.
- Preserve, protect, and maintain perimeter grass planting.
- Preserve the existing historic white enamel with black text building signs on the East Elevation exterior wall and on the West Elevation at the main porch stair riser. When these fall into disrepair, replacement number signs are to be installed consistent with the guidelines in the “FOHA Sign Plan” (2002).
- Upgrade main west entrance signage according to requirements in the “FOHA Sign Plan” (2002).
- Replace missing historic trees in their historic locations as recommended by the 2006 Cultural Landscape Report.
- Restore foundation plantings to be consistent with the designation of the building planting category as recommended by the 2006 Cultural Landscape Report; the classification for the Mess Hall Building #58 is “public.”
- Monitor, evaluate, replace or repair portions of deteriorated concrete walkway with new concrete walkways to ensure a smooth and continuous surface. Match exposed aggregate concrete finish for work at historic paving.
- Monitor, evaluate, replace or repair portions of deteriorated slate walkway with new slate to ensure a smooth and continuous surface. Consider in kind replacement if disrepair is severe.
- Design traffic calming measures such as raised pedestrian crosswalks at key intersections and narrowing roadway entrances at minor roads. These measures should be utilized to reduce vehicular speeds and promote a safe and pleasant pedestrian environment.
- Design additional walkways to accommodate new circulation patterns created by adaptive use activities where needed for safety.
- Install new light fixtures that are consistent with the 2006 Cultural Landscape Report and the National Park Service sustainable goal to minimize light pollution at the Gateway National Recreational Area.

Form and Style

- Preserve existing building, porch, and roof form.
- Design required universal accessibility changes to minimize alteration of the overall historic form or style and to minimize the removal of historic fabric.

- Preserve the symmetry and classical proportions, simple ornament, and simple materials of the original design.
- Design new elements, such as signage and lighting, to complement the original design.

Walls

- Retain existing historic buff brick, diabase, and limestone masonry. Before using salvage brick, test historic brick according to ASTM C67 in order to determine if it is durable for use as face brick.
- Protect historic masonry by preventing water damage caused by overflowing gutters and downspouts or ponding water at the foundation.
- Maintain historic masonry by repointing open joints and using only approved, gentle cleaning methods. Repoint masonry with mortar to match the original in color, profile, and performance characteristics.
- Repair historic masonry, including rebuilding areas of disrupted veneer brick, in a timely manner in order to prevent further deterioration.
- Replace historic masonry in kind to match the existing in size, color, and texture.

Porches and Stairways

- Retain and protect existing porch elements, including brick piers, wood steps, wood and iron columns, pilasters, iron pipe railings, wood floors and ceilings, and roof.
- Maintain porches by preventing water damage from overflowing gutters and downspouts.
- Maintain painted floors to preserve the historic fabric below from excessive moisture. Repair damaged boards at perimeter of porch floor.
- Repair porch elements to create positive water drainage away from the building.
- Design new universal accessibility to have a minimal impact on the historic porches and stairway elements.
- Retain and protect existing basement stairway elements, including slate steps and curbing.
- Maintain site drain at basement stairway landing through routine inspection and cleaning.
- Repair masonry at existing basement stairway to prevent further deterioration, work may include resetting displaced stones, repointing open joints, and installing new cramps at curbing.
- Maintain protective coatings at exterior metal elements, including stair railings and column bases.

Windows

- Retain the original, symmetrical window openings.
- Preserve, protect, and maintain remaining historic awning sash windows at the basement, double hung wood window sash at first floor window 116B, and attic level double hung wood windows.
- Protect and maintain first floor replacement windows, which are similar to historic precedents. When windows have reached the end of their service life, consider replacing windows with custom sash and frames to match window 116B.
- Maintain protective coating at steel lintels in order to prevent displacement of the masonry caused by corrosion.
- Maintain protective coatings on exterior wood trim, including painted historic plywood panel near coal storage bin.

Doors

- Retain the original, rectangular door openings.
- Preserve, protect, and maintain historic wood panel and glazed wood doors, including transoms and original hardware.
- Maintain protective coatings on wood doors to prevent deterioration of wood components.
- Maintain hardware in good working order.
- Repair historic door components in a timely manner to prevent further deterioration.
- Design new universal accessibility to retain historic character of original doors to the greatest extent possible.

Roofs and Roof Systems

- Preserve the unique configuration of the roof planes.
- Preserve, protect, and maintain the brick chimneys and their distinct corbelled detailing.
- Preserve, protect, and maintain cylindrical ventilator, which is currently not in use. Inspect regularly for signs of corrosion.
- Maintain the main roof and porch roofs by cleaning the gutters and downspouts at least twice a year.
- Routinely inspect and replace deteriorated roof shingles, flashing, gutters, and downspouts in a timely manner to prevent further deterioration.
- Maintain protective coatings at cornice and rake returns to prevent deterioration.
- When the current roof has reached the end of its service life, consider the restoration of the slate roof, slate siding at dormers, and metal standing seam porch roofs based on historic precedent. At the main roof eaves, consider the restoration of the concealed box gutter, metal cornice dentils and bracket details to match historic drawings. Design new roof drainage for restored roof and cornice details.

Interior

- Retain and preserve the original floor plan configuration at the first floor where the central large open space is flanked by offices and service spaces.
- Retain the openness of the large central, historic mess hall space. Restore open floor plan by removing non-historic partitions should programmatic requirements allow their removal.
- Retain and preserve the original southern portion of the first floor plan with a long east-west hall leading to smaller office and lavatory spaces.
- Retain and preserve the original northern portion of the first floor plan with a large open area and a smaller room to the west. Restore open floor plan by removing non-historic partitions should programmatic requirements allow their removal.
- Preserve original configuration of all stairways.
- Preserve all original plaster walls throughout. The original plaster walls are believed to exist beneath the current modern gypsum veneer wall board. Original plaster walls are believed to be in a deteriorated condition. The gypsum veneer wall board may remain until plaster surfaces can be restored. Do not remove existing plaster walls or plaster wall finish in future alterations.
- Preserve, protect, and maintain exposed brick chimney walls.
- Preserve, protect, and maintain all original wood baseboards throughout first floor.
- Preserve, protect, and maintain original beadboard and brick walls at basement level.

- Retain and preserve all original wood trim at windows and doorways.
- Maintain all original wood trim at windows and doorways with good quality paint in a color matching the historic palette.
- Preserve and reuse original doors at all locations.
- Preserve and reuse original door hardware including knobs, hinges, and locking mechanisms at all possible locations.
- Maintain original glass transoms.
- Clean, repair, and repaint the pressed metal ceiling as required.
- Restore original floor finishes where extant. Possible locations include wood strip flooring throughout the first floor center room and office spaces. Concrete floor topping in the kitchen and pantry should only be removed if there is a plan to address changes in grade and to restore finishes.

General Accessibility Recommendations

- Install and maintain interior and exterior signage that is ADA-compliant, including signage at all accessible parking spaces and at all permanent interior rooms, fixed at approved heights.
- Install and maintain ADA-compliant storage and shelves. One of each type of fixed storage facility must be accessible. Self service shelves must be on an accessible route but need not comply with reach range requirements.
- Install and maintain detectable warning signs at the adjacent site. Detectable warnings are required on curb ramps and hazardous vehicular areas. The warnings must be truncated domes.
- Install and maintain ADA-compliant informational displays. Displays and written information, documents etc. should be located where these are visible by a seated person. Exhibits and signage displayed horizontally should be no higher than 44" above the floor surface.

General Security and Intrusion Recommendations

- Install and maintain building and pathway lighting at the exterior of Building #58 to improve building security. New lighting must be consistent with the recommendations of the 2006 Cultural Landscape Report.
- Install and maintain an appropriate building security system that allows access into the building by different visitors and keeps track of their identity and building entry times, that alerts rangers in the event of a break-in during off hours, and would include a discrete, manually-controlled intrusion system for use during hours of operation.
- Integrate Building #58 into a site-wide security system that would include security checkpoints at the entrance to the park, additional checkpoints throughout the Fort Hancock campus, and security call boxes and telephone lines to assure communication with the ranger system in the event of an emergency.

ASSUMPTIONS FOR RECOMMENDATIONS

In a historic building, life safety and accessibility concerns become interrelated; they confront the same, physical limitations imposed by the historic design and construction methods. As a result of these concerns, with consideration for the Secretary of the Interior's *Standards for Rehabilitation* the following repairs and alterations are suggested as mitigation methods to improve the overall life safety and accessibility of Building #58. The proposed repairs and alterations are intended to retain and preserve the character-defining features and finishes of the building, with consideration for technical and economic feasibility. Special provisions for code compliance apply to Building #58 because of its status as a historic building. The recommended strategies in this report for improved compliance with life safety and accessibility requirements are also subject to interpretation by state and local authorities, meaning that all or part of these may be implemented in the future. The implementation of the recommendations outlined here will further reduce this risk of fire in the continued use of the structure. If implemented, the recommendations outlined here will assure accessibility from the exterior and increase the level of accessibility within the Building #58 without negatively impacting its original, historic fabric.

Alternatives for Accessible Exterior Entrance

This report presents three schematic design strategies for providing access into Building #58. Refer to Sheets ALT #1 and ALT #2 for graphic illustrations of Alternatives A, B, and C. The drawings should be reviewed simultaneously with the Alternatives for Treatment Matrix and Assessment of Effect Matrix. The proposed accessibility alternatives were based on the following three design assumptions:

1. The ideal accessible entrance to the Mess Hall shall be granted through the main west double doors for all visitors. However, JMA has explored an option (Alternative B) for providing an accessible entrance at the rear east porch, which is located on a pedestrian sidewalk.
2. Historic fabric shall not be lost in the process of creating an accessible entrance to the Mess Hall and all solutions should be reversible. JMA has included options that look at providing lifts set within the framing of both west and east porch floors; however, the adverse effects of these options include the alteration of remaining historic fabric, such as the porch posts and railings, which may not be acceptable.
3. A physically compact and discrete solution is the most desirable strategy. Alternative A, proposed for the north elevation of Building #58, is intended to illustrate how a full-length ramp overpowers an elevation and therefore distracts from the historic setting.
4. Providing an accessible entrance at a secondary elevation was not feasible. The Fort Hancock Rehabilitation Guidelines recommend that an accessible entrance be created at a secondary elevation. The most likely place for an accessible entrance would be sited on the south elevation of the building, adjacent to the main porch and in close proximity to the existing parking lot. However, the placement of the existing exterior basement steps eliminates this strategy.

Recommendations for Interior Circulation

As stated previously, this report has been written with the assumption that employee offices in the basement should be made accessible even though they will continue to be used as private work areas, not open to the public. It is our recommendation that an interior ADA compliant wheelchair lift be installed to create an accessible route between the first floor and basement levels for use by NPS employees (IEBC 2006 308.8.3). The installation of the proposed wheelchair lift must conform to accessibility guidelines requirements. Accessible means of egress platform lifts are required to have stand-by power (2702.2.6-IBC). Platform lifts on an accessible means of egress should not be installed with a fully enclosed hoistway (1007.5.1-IBC). A possible location for the lift would reside at the southwest corner of the building. Refer to diagrams on Sheet ALT #2. Keeping in mind the limitations of the exterior basement steps as the only direct form of egress to grade from the basement level, JMA makes the additional recommendation that an area of rescue be designated in the basement level though this is not required.

ALTERNATIVES FOR TREATMENT MATRIX

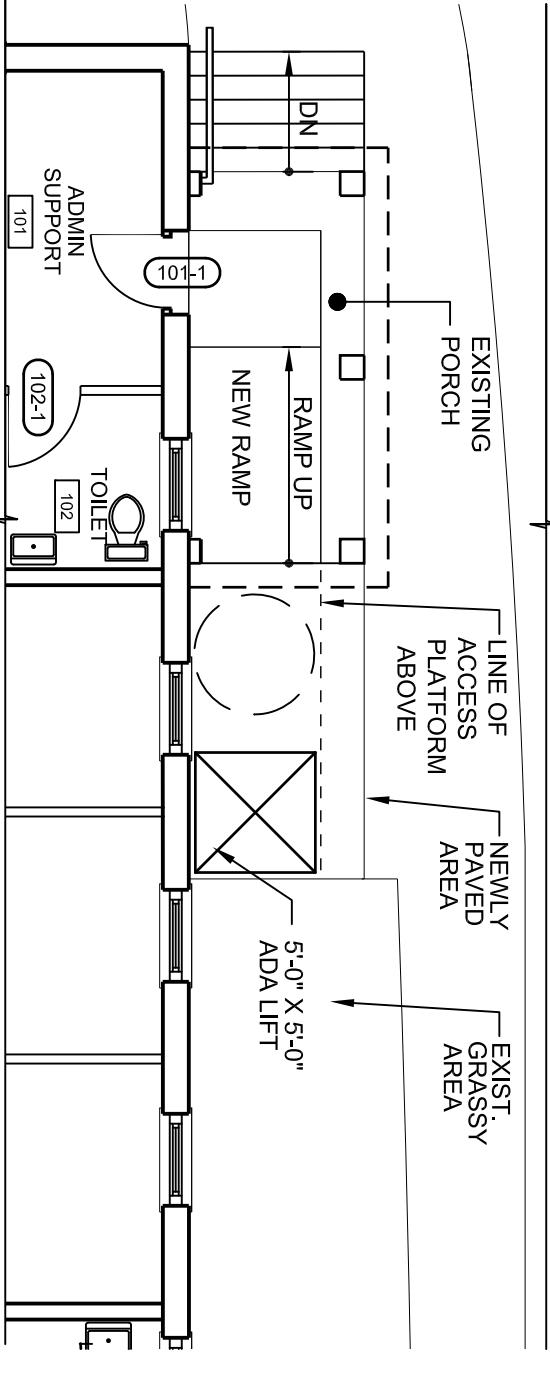
The Alternatives for Treatment Matrix outlines specific repairs that are required to address current deteriorated conditions at Building #58. The matrix provides brief descriptions of why the recommended repair would be beneficial and also warns of possible adverse effects to be considered during project planning.

ALTERNATIVES FOR TREATMENT MATRIX		
ALTERNATIVE TREATMENT	BENEFICIAL EFFECTS	ADVERSE EFFECTS
<u>Site (S)</u>		
S-1. Restore the light-colored stone edging at the rectangular landing at the main entrance steps as seen in c. 1956 photographs.	The materials define the outline of the path and are consistent with those shown in historic photographs.	Limited historic documentation makes in kind replacement difficult.
S-2. Path lighting is recommended at Fort Hancock as pedestrian use of the site increases. Fixtures shall be placed in pedestrian areas not adequately lit by street lighting. This recommendation applies to areas along the path between the mess halls and the barracks buildings and along sidewalks leading to the parking lots.	Additional path lighting will also improve security.	If inappropriately installed, path lighting could negatively impact the uniform Fort Hancock setting and damage historic paving materials.
S-3. Install a new sign on Magruder Road where the sidewalk and parking lot abut.	The new sign will clarify the direction to the building's main entrance on the west elevation. All new street signage must conform to the Fort Hancock Cultural Landscape Report (CLR) and Fort Hancock Sign Plan.	Sign will be inappropriate if it is not consistent with the appearance of other signs in the historic district.
S-4. At parking lot located to the south of Building #58, provide one 96" wide x 20'-0" long accessible parking space in the existing parking lot with adjacent parallel access aisle at least 60" access aisle. Parking space and access aisle and space not-to-exceed a 1:50 slope in all directions.	No loss of historic fabric. Will enhance site and building accessibility. Consistent with CLR accessibility requirements to improve park use.	None.
S-5. Install a new sign at the building parking lot with universal accessible symbol to designate (1) ADA compliant van parking spot and accessible lane.	No loss of historic fabric. Will enhance site and building accessibility. Consistent with CLR signage requirements to improve park use, safety and accessibility.	Regulatory signage must conform with the standards in the Manual on Union Traffic Control Devices (MUTCD) as outlined in the FOHA Sign Plan. Sign installation and placement must also conform to specifications in FOHA Sign Plan subject to the approval of the Park Superintendent.

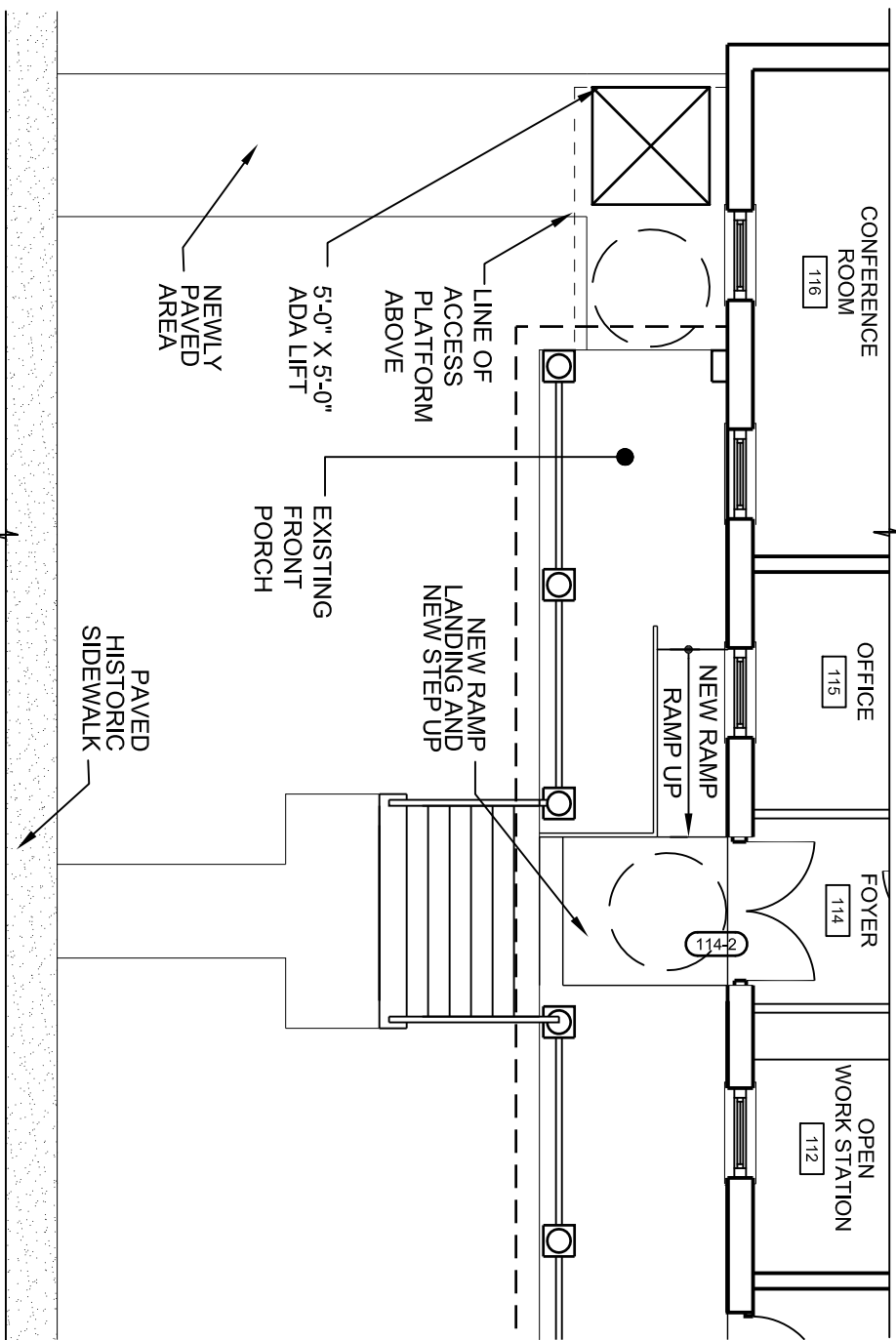
ALTERNATIVES FOR TREATMENT MATRIX		
ALTERNATIVE TREATMENT	BENEFICIAL EFFECTS	ADVERSE EFFECTS
S-6. Rebuild non-historic wood stair at main west porch entrance to establish uniform riser heights for improved accessibility.	Uniform riser heights will improve universal accessibility and remove trip hazards.	None.
S-7. Install downspout extender at one northeast downspout end to direct water away from the building foundation.	Low cost solution will reduce water damage at building foundation and first floor framing.	Above ground downspout extenders are vulnerable to damage and may be unsightly as a long term solution.
S-8. Install downspout extenders at two (2) northwest downspout ends to direct water away from the building foundation.	Low cost solution will reduce water damage at building foundation and first floor framing.	Above ground downspout extenders are vulnerable to damage and may be unsightly as a long term solution.
S-9. Repair cracks and broken edges of historic exposed aggregate paving immediately to the west of Building #58.	Repairs will restore uniform appearance of paving and remove potential tripping hazards.	Exposed aggregate repairs may not match existing historic finish.
S-10. Prepare, prime, and repaint two historic bollards at the north elevation with dark green paint to match the original finish.	New coating will protect metal character-defining features from corrosion.	None.
Architecture: Exterior (A)		
A-1. Maintenance of masonry: a) Repoint diabase foundation and brick walls with mortar to match historic pointing mortar. Repointing work should occur within 5-10 years. b) Remove paint splashes at limestone using a non-acidic paint remover.	Mortar aesthetically and physically compatible with the existing, historic mortar and masonry will make repair invisible. Cleaning will remove paint splashes that mar light colored trim.	Inappropriate paint strippers can damage limestone.
A-2. Repair damaged stone treads and landing at existing exterior stairway down to basement level.	No loss of historic fabric.	Visible repair.
A-3. Repair slate slab at the top of the basement steps.	No loss of historic fabric.	Visible repair.
A-4. Porch floors: a) Maintain ample slope at main west porch floor (modern standard is a minimum slope of 1/4" per foot). b) Repair rotted floor boards at east porch (3 square feet total). c) Sand and repaint new wood surface with alkyd base paint in the same color as the existing.	No loss of historic fabric. Invisible repair.	None.

ALTERNATIVES FOR TREATMENT MATRIX		
ALTERNATIVE TREATMENT	BENEFICIAL EFFECTS	ADVERSE EFFECTS
A-5. Exterior metal: a) Clean and repaint the cast-iron railing and cast-iron column plinths at west elevation with appropriate paint system. b) Prepare, prime, and paint existing metal window grates (2).	No loss of historic fabric.	None.
A-6. Replace all broken window lites.	Protects building interior from the elements. Replacement in -kind.	Loss of historic building fabric.
A-7. Paint exposed metal from previous lintel repairs.	No loss of historic fabric. Helps conceal repair.	None.
A-8. Exterior storms: a) Install storm windows at the basement level. b) Replace modern metal screen doors with wood screen doors to match doors shown in historic photographs.	Improves thermal control of building.	Introduction of new materials may interfere with the appearance of historic openings. High initial cost.
A-9. Repair (4) damaged double hung wood windows at the attic level. Prepare, prime, and paint.	Improves thermal control of building interior. Improved operation will permit fire department access in the event of fire. No loss of historic fabric.	Repair is likely to be more expensive than replacement in kind.
A-10. Remove eighteen (18) non-historic window casings and replace eighteen (18) non-historic first floor sash with new sash to match window 116B. Assume that original historic window casings remain under non-historic casings.	Provides uniformity at first floor windows.	First floor windows may have been replaced during the historic period and should remain.
A-11. Restore the original slate shingles at the main roof and sides of dormers.	Restores historic appearance of building.	High cost. Requires new gutter system.
A-12. Restore the original metal dentil and bracket detailing at main roof cornice made of stamped metal.	Restores historic appearance of building.	High cost.
A-13. Restore the original built-in gutter system at main and porch roofs.	Restores historic appearance of building.	High cost. Original wood material is less resistant to weathering unless it is consistently preserved and maintained. Restored built-in wood gutter system is difficult to integrate with metal roof system at porch.

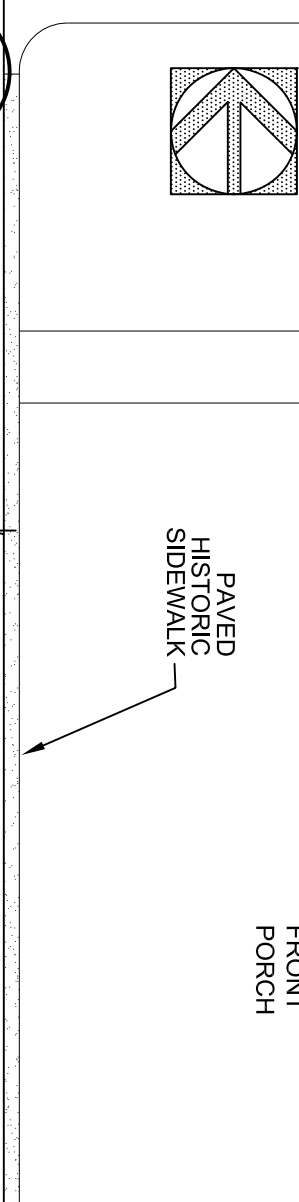
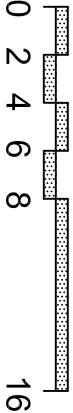
ALTERNATIVES FOR TREATMENT MATRIX		
ALTERNATIVE TREATMENT	BENEFICIAL EFFECTS	ADVERSE EFFECTS
A-14. Restore the original standing seam metal roof at the main porch (west side) and secondary porch (east side).	Restores historic appearance of building.	High cost.
A-15. Install compliant handrail at exterior basement stairway. New basement handrail may or may not be exempt under New Jersey Rehabilitation Subcode.	No loss of historic fabric. Contributes to building safety and accessibility.	Introduces new material. Visible.
A-16. Design universal accessible entrance to main west or rear east entrances. See recommended alternatives below:		
a. Accessibility Alternative A Full Ramp System North Elevation See Sheet ALT#1	Located on secondary elevation. Solution grants access into building through main entrance. This is desirable per accessibility guidelines for historic buildings. At least one accessible entrance which is used by the public shall be provided. Creates opportunity for crosswalk near Hudson Road. Proximity to historic pathway and existing north sidewalk creates better circulation around Mess Hall and fosters improved accessible travel throughout campus. Historic main doors may keep outward swing without negative impact to required clearances. Historic hardware remains in place.	Large ramp visually dominates the north elevation. Large ramp landing occupies corner of west elevation and partially obscures existing window. Ramp system is expensive and difficult to reverse. Second porch ramp requires historic porch railing, adds extra step into building and alters circulation pattern at the west porch. Solution creates longest accessible path from existing parking lot. Electronic push button must be installed to provide compliant door operation.



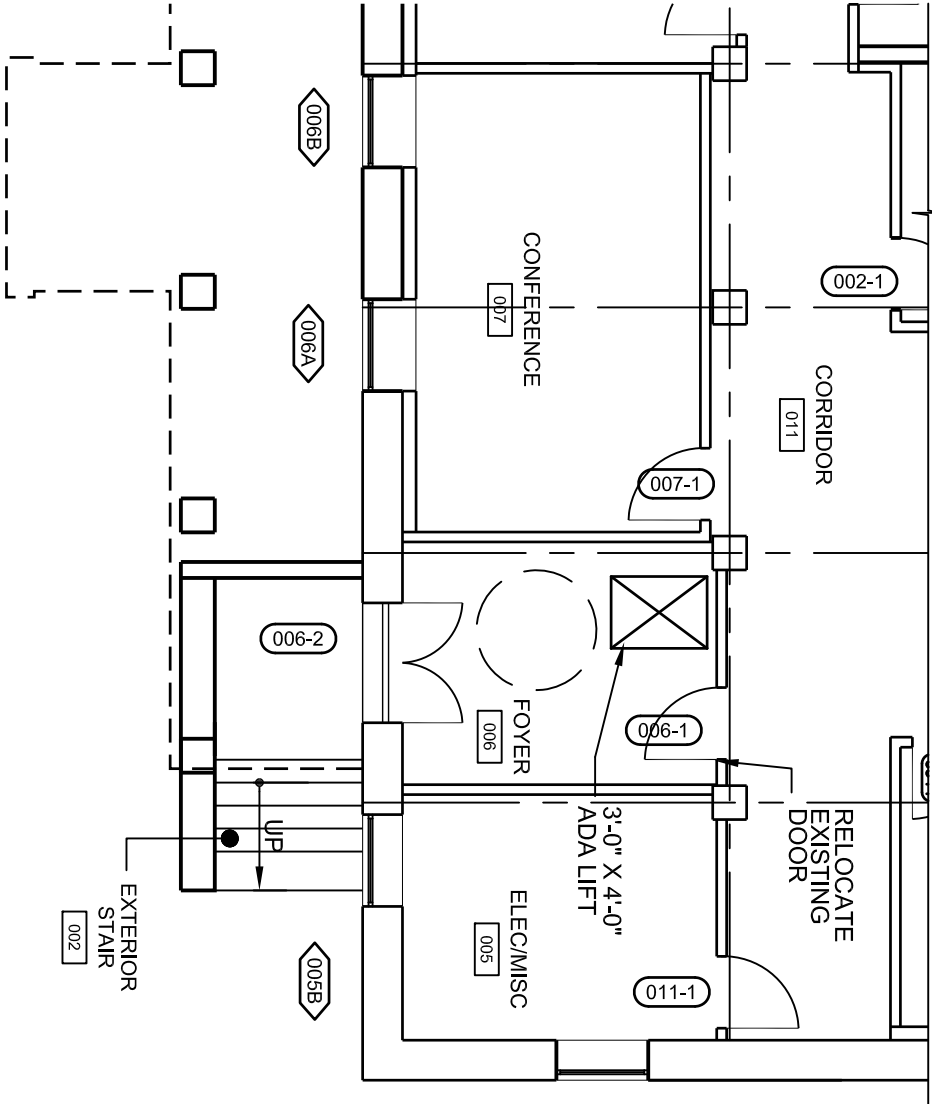
2 MESS HALL #58 - ADA ALTERNATE -B
SCALE: SEE GRAPHIC SCALE



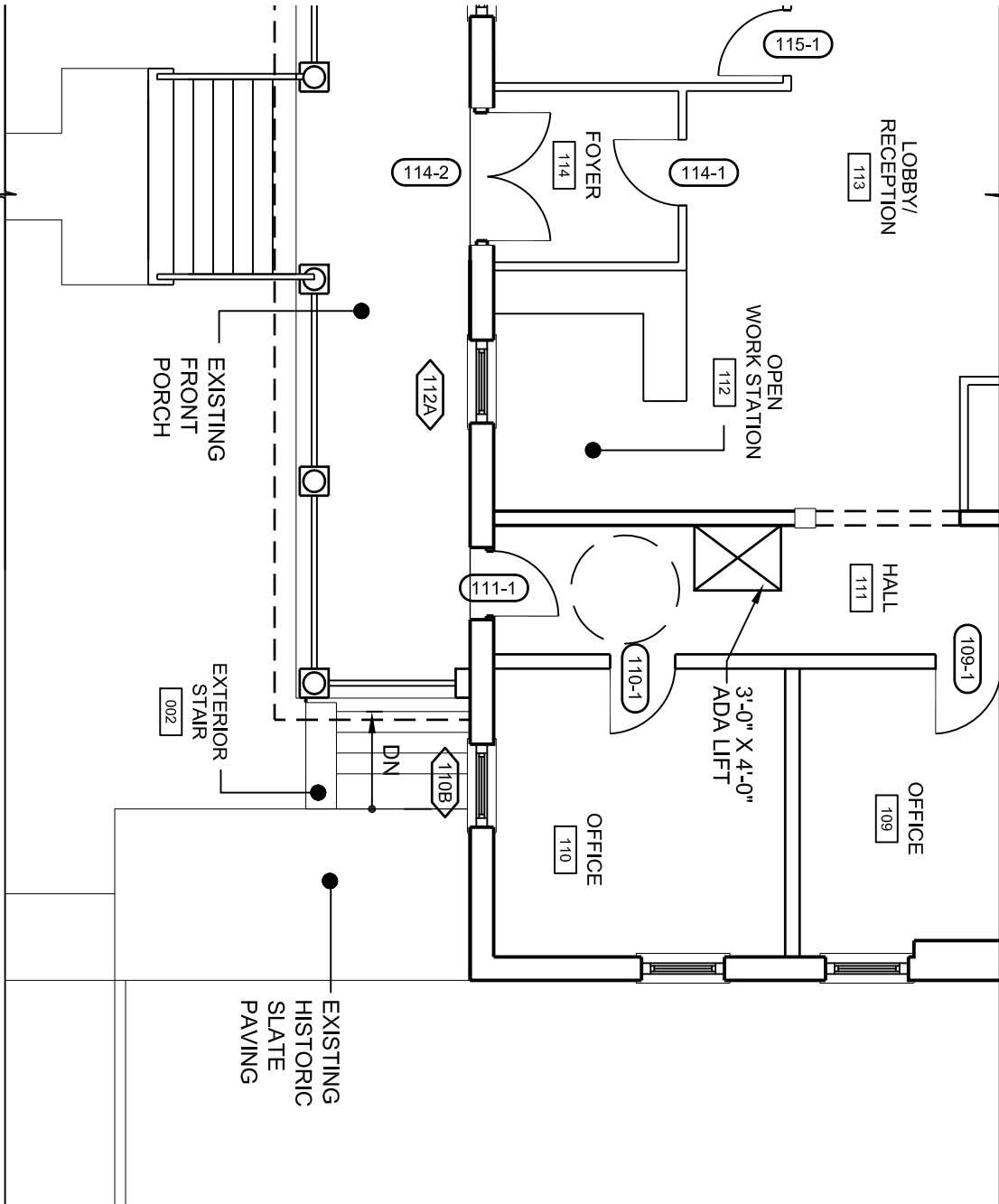
3 MESS HALL #58 - ADA ALTERNATE -C
SCALE: SEE GRAPHIC SCALE



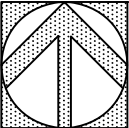
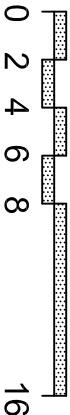
1 MESS HALL #58 - ADA ALTERNATE -A
SCALE: SEE GRAPHIC SCALE



1
PROPOSED LOCATION FOR ADA LIFT
BASEMENT LEVEL
ALT#2
SCALE: SEE GRAPHIC SCALE



2
PROPOSED LOCATION FOR ADA LIFT
MAIN LEVEL
ALT#2
SCALE: SEE GRAPHIC SCALE



ALTERNATIVES FOR TREATMENT MATRIX		
ALTERNATIVE TREATMENT	BENEFICIAL EFFECTS	ADVERSE EFFECTS
b. Accessibility Alternative B Option 1: Lift and Ramp System East Elevation See Sheet ALT#1	Solution creates shortest accessible route from existing parking lot. Solution is visually compact and easily reversible. Solution is conveniently located on main artery, Magruder Road, and in close proximity to nearest intersection, Magruder and Hudson Roads. Historic door operation continues. Historic hardware may remain. Lower cost than Alt A or Alt C	Solution grants access into building through a service entrance. This is not desirable per accessibility guidelines for historic buildings. The lift and landing partially obscure a window. Solution requires modification to existing grassy area. Porch ramp and new step alter circulation at east porch. Porch ramp may be a safety hazard without the installation of a railing to safeguard against falling. An electronic push button must be installed to provide code compliant door operation.

ALTERNATIVES FOR TREATMENT MATRIX		
ALTERNATIVE TREATMENT	BENEFICIAL EFFECTS	ADVERSE EFFECTS
b. Accessibility Alternative B Option 2: 5'0"x5'0" ADA Lift within East Porch East Elevation	Solution creates shortest accessible route from existing parking lot. Solution is efficient, visually compact and reversible. A new lift system creates an opportunity to install a new porch floor flush with the interior floor elevation, eliminating the current step difference into the building. A new porch floor is an opportunity to install a sloped floor (1/4" per foot) to facilitate the drainage of water from the surface. A newly raised porch floor is an opportunity to rebuild the existing steps connecting to the sidewalk with consistent riser heights. Solution is conveniently located on main artery, Magruder Road, and in close proximity to the nearest intersection, Magruder and Hudson Roads. Historic door operation continues. Historic hardware may remain.	Solution grants access into building through a service entrance. This is not desirable per accessibility guidelines for historic buildings. The lift obscures window 102A. A raised porch floor requires raising the supporting historic piers (with frame extensions) to meet the new floor elevation. A reduced vertical dimension between the porch floor and the porch ceiling will require replacing the existing columns with shorter columns. At least one additional step will be need to be added to connect the sidewalk to the new porch floor. A new, longer railing will need to be built to address the extra step. The new step will project further into the sidewalk circulation area. A newly paved landing adjacent to the porch will require some modification of the grassy area. Electronic push button must be installed to provide compliant door operation. The combined proposed changes at the east porch will alter the historic appearance of the east elevation of the Mess Hall.

ALTERNATIVES FOR TREATMENT MATRIX		
ALTERNATIVE TREATMENT	BENEFICIAL EFFECTS	ADVERSE EFFECTS
c. Accessibility Alternative C Option 1: Lift and Ramp System West Elevation See Sheet ALT#1	Solution grants access into building through main entrance. This is desirable per accessibility guidelines for historic buildings. At least one accessible entrance which is used by the public shall be provided. Proximity to Hudson Road creates an opportunity for a crosswalk. Proximity to historic pathway and north sidewalk improves circulation around the Mess Hall and encourages accessible campus wide travel. Historic doors may keep outward swing, without negative impact to required clearances. Historic hardware remains in place.	The solution is located on west elevation, a primary building elevation. The lift and landing partially obscure a window. Solution requires modification to existing grassy area. Porch ramp and new step alter circulation at west porch. Electronic push button must be installed to provide compliant door operation.

ALTERNATIVES FOR TREATMENT MATRIX		
ALTERNATIVE TREATMENT	BENEFICIAL EFFECTS	ADVERSE EFFECTS
c. Accessibility Alternative C Option 2: 5'0"x5'0" ADA Lift within West Porch West Elevation	Solution grants access into building through main entrance. This is desirable per accessibility guidelines for historic buildings. Tucking the lift under the porch roof offers some protection to the user during inclement weather and helps prevent deterioration of the lift system. The solution is efficient, visually compact and reversible. A new lift system creates an opportunity to install a new porch floor flush with the interior floor elevation, eliminating the current step difference into the building. A new porch floor is an opportunity to install a sloped floor (1/4" per foot) to facilitate the drainage of water from the surface. A newly raised porch floor is an opportunity to rebuild the existing steps connecting to the sidewalk with consistent riser heights. A newly paved area connecting the historic paved sidewalk to the left side of the porch creates better circulation around the Mess Hall and fosters improved accessible travel throughout the campus. Creates an opportunity for crosswalk near Hudson Road. Historic door operation continues. Historic hardware may remain. The solution is less expensive than the full ramp system (Alternative A) and the combined ramp and lift systems (option 1 under Alternative B and Alternative C).	Solution requires the removal of some historic cast iron railing and contemporary floor boards. The existing pilaster on the left side of the porch may also need to be removed. A raised porch floor requires raising the supporting historic piers (with frame extensions) to meet the new floor elevation. A reduced vertical dimension between the porch floor and the porch ceiling will require replacing the existing columns with shorter columns. At least one additional step will be need to be added to connect the sidewalk to the new porch floor. A new, longer railing will need to be built to address the extra step. The new step will project further into the sidewalk circulation area. A newly paved landing adjacent to the porch will require some modification of the lawn area. Proximity of the lift system to the building's perimeter wall will partially block the view out of window 116A. Electronic push button must be installed to provide compliant door operation. The combined proposed changes at the west porch will alter the historic appearance of the west elevation of the Mess Hall.

ALTERNATIVES FOR TREATMENT MATRIX		
ALTERNATIVE TREATMENT	BENEFICIAL EFFECTS	ADVERSE EFFECTS
Architecture: Interior (A)		
A-17. Restore original quarry tile floors in the first floor lavatory.	Restores historic materials.	Limited historic documentation makes in kind restoration of quarry tile color and shapes difficult.
A-18. Remove vinyl tile and carpeting in public areas to restore suspected original hardwood floor below. Sand, smooth and refinish original floor material.	Restores historic materials.	Field investigation may result in uncovering different floor material or badly damaged historic material. Potential high costs.
A-19. Refinish all original interior wood window and doorway trim in a color matching the historic palette. Remove non-historic top bead molding at baseboards.	Restores historic appearance of building interior. Shellac finishes are easily retouched.	Historic shellac finish is not as durable as current polyurethane coating.
A-20. Clean, repair, and paint the pressed metal ceiling in the first floor core plan area. Minor gaps in metal tiles do not require repair.	Maintains and preserves the historic appearance of the ceiling in the open central space	Potential high cost.
A-21. Repair existing mechanical diffusers in the pressed metal ceiling.	Maintains the historic appearance of the ceiling in the open central space with new equipment.	Requires careful treatment of surrounding historic material.
A-22. Patch existing hole in drywall ceiling above the electrical panel in the Electrical Room.	Assures continuous fire-rated ceiling plane. No loss of historic fabric. Will enhance building fire safety.	Visible repair may be concealed under paint.
A-23. Install attic roof insulation to cover juncture of primary roof and gable end conditions.	Improves thermal control of building envelope. Low cost. No loss of historic fabric.	Introduction of new materials may partially conceal the appearance of the unfinished historic attic materials.
A-24. Install a drinking fountain that is accessible to a person in a wheelchair and an individual who has trouble bending or stooping. Based on current occupancy, one drinking fountain is required by code.	Provides accessible amenities for employees. Possible locations for a drinking fountain would be adjacent to current ADA bathrooms at the northeast corner.	Location for drinking fountain and plumbing may be difficult to establish.
A-25. Remove abandoned oil tank and boiler that are no longer in use.	Increases storage area in the basement.	May involve removal of original equipment and character defining features. May also require environmental remediation.

ALTERNATIVES FOR TREATMENT MATRIX		
ALTERNATIVE TREATMENT	BENEFICIAL EFFECTS	ADVERSE EFFECTS
A-26. Install recommended lift system to allow for access between basement and first floors with designated Area of Refuge at basement level. Lift system is not required if basement level has a non-public use. However, a lift would allow access to all levels for NPS employees. See Sheet ALT#2	Creates accessibility between basement and first floors Proposed first floor level location is close to central open public space and near a perimeter exit access door. Proposed first floor level location provides opportunity for area of refuge, if desired, as this is not required by code. Proposed location at basement level provides an opportunity for areas of refuge outside of main corridor, if desired, as this is not required by code. Basement location is close to perimeter door. Door operation and historic hardware can remain. Installation of lift could justify installation of a unisex ADA bathroom in the basement, if desired.	Proposed location on the first floor level will narrow the circulation of a main corridor. An existing threshold condition at door 111-1 requires a small ramp to navigate level difference at west porch and allow unobstructed exit. There is an existing height clearance issue at the basement door 006-2 related to the west porch floor elevation. The exterior stairs beyond the basement door do not meet the code requirements for egress. The solution requires the removal of a small portion of the historic floor to provide room for the lift. Lift size limited to 3x4.
A-27. Redesign first floor central space (former Mess Hall space) Option 1:		
a. Existing office partitions Alt #1: Extend the partial height office partitions in the existing core plan area using clear glass to the ceiling.	Creates much needed acoustical privacy between offices. The extended portion of the partition would be clear glass. This is an effective strategy for increasing acoustical privacy without blocking the view of the historic ceiling. A painted silicone bead should be used to seal the junction between the partition and the historic ornamental ceiling. This strategy will not damage the historic ceiling and is reversible.	May contribute to the loss of historic fabric if the incorrect strategy is used between the ceiling plane and the top of the extended partition.
b. Existing office partitions Alt. #2: Construct a ceiling at the height of the current office partitions.	Creates maximum acoustical privacy between offices.	Opaque partitions will destroy the open character of the historic mess hall space, a significant character defining feature.

ALTERNATIVES FOR TREATMENT MATRIX		
ALTERNATIVE TREATMENT	BENEFICIAL EFFECTS	ADVERSE EFFECTS
c. Existing office partitions Alt #3: Leave current existing office partitions as is.	Low cost. Maintains open character of former mess hall space.	Does not improve acoustical privacy between offices.
d. Remove existing partial height partition and align new partial height partition with the back wall of office 106.	To accommodate file cabinets and allow for unobstructed accessible travel to and from the offices in the core plan area.	Without developing a comprehensive plan to clearly define the spatial needs of the staff, efforts to address work and storage needs will be misguided.
e. Eliminate the open office space at the southwest corner of the main core area and reuse this location for a new public seating area.	No loss of historic fabric. Low cost. Opens up the core plan and improves public circulation.	Lack of definition between public and private/staff needs is evident in current layout. Layout is inefficient.
f. Install a single reception desk in close proximity to public seating and clearly visible upon entering the space.	No loss of historic fabric. Low cost. Helps to meet need for public reception.	Existing public reception component is unclear.
A-28. Redesign first floor central space (former Mess Hall space) Option 2: Eliminate all non-historic offices in the central reception area.	Opening up this space is consistent with its historic use as the open dining room.	Loss of office space may be problematic if the staff size is not reduced.
A-29. Install discrete ADA compliant signage at all permanent rooms meeting the requirements of character proportion, finish and contrast at the approved ADA compliant height. Signs and sign systems used on the interior but not visible from the exterior of the building are out of the scope of the FOHA Sign Plan.	New signage would bring Building #58 into compliance with current ADA requirements.	None
A-30. Maintain galley kitchen at historic kitchen space in good working order.	Provides amenities for office personnel.	Galley kitchen is not historic but is allowed under rehabilitation guidelines.
Structural (ST)		
ST-1. Monitor cracks at the south wall near the west corner in order to determine if there is active movement in this location (see Appendix A: Structural Assessment for recommended monitoring methods).	Low cost. Monitoring will help establish whether this cracking requires repair and could prevent major deterioration.	None

ALTERNATIVES FOR TREATMENT MATRIX		
ALTERNATIVE TREATMENT	BENEFICIAL EFFECTS	ADVERSE EFFECTS
ST-2. Clean the steel beams and girders to bare metal at north end of 1st floor framing in boiler room. Prime with corrosion-inhibiting primer.	Protects structural integrity of building. Low cost.	None
ST-3. Monitor cracks at the north basement wall in order to determine if there is active movement in this location (see Appendix A: Structural Assessment for recommended monitoring methods).	Low cost. Monitoring will help establish whether this cracking requires repair and could prevent major deterioration.	None
ST-4. Install straps at sloping top chord at north end of east timber truss in attic.	Protects structural integrity of building.	None
ST-5. Replace missing nut at the heel joint at the north end of the east roof truss in the attic.	Protects structural integrity of building. Low cost.	None
<u>Safety (SF)</u>		
SF-1. Clear the existing floor of the Boiler Room of all combustible debris and storage items immediately.	Removes a potential fire hazard.	None
SF-2. Enclose the existing boiler equipment in the Boiler Room with 1 hour fire-rated partition, ceiling, and fire door. Current enclosure does not meet building code.	Enhances life safety at basement level and protects historic fabric throughout. A fire in the boiler room would be contained within the rated construction materials.	Visible partitions in this historic open space.
SF-3. Install exit signage throughout the building to identify all exits and exit access doors from any direction of egress travel (1011-IBC). Exit signs shall be internally or externally illuminated at all times. Emergency power shall be provided for exit signs that are not self-luminous (1011.5.3-IBC).	Reduces confusion in case of a fire.	None
SF-4. Repair exterior steps leading up to grade from the basement.	Repairs will improve egress from the basement.	Repairs may negatively impact historic fabric.
SF-5. Properly cover all electrical junction boxes and conceal exposed conduit in the attic.	Removes a potential fire hazard.	None

ALTERNATIVES FOR TREATMENT MATRIX		
ALTERNATIVE TREATMENT	BENEFICIAL EFFECTS	ADVERSE EFFECTS
SF-6. Install an audible emergency warning system loud enough and distinctive enough to attract the attention of persons who have partial hearing loss. The audible alarm must be located wherever visual alarm stations are located.	New warning system would bring Building #58 into compliance with current ADA requirements.	None
SF-7. Install a sprinkler system in the attic (not required by code).	Removes a potential fire hazard, particularly if the attic is continued to be used for storage.	Building must continue to be conditioned to avoid freezing pipes and water damage.
SF-8. Paint wood bead board at basement stair with a fire retardant paint.	Preserves historic fabric while meeting building code.	None
<u>Security (SC)</u>		
SC-1. Install additional lighting at Mess Hall porches.	Improves security at night.	Lighting may invite unwanted pests. Building mounted lighting may negatively impact historic fabric.
SC-2. Install additional pathway lighting around the Mess Hall Building. The Fort Hancock CLR (2006) states that "Local/ Subdivision light levels should maintain 0.5 to 0.7 footcandle illuminance and 6 to 1 average/ minimum uniformity."	Additional path lighting will improve security.	If inappropriately installed, path lighting could negatively impact the uniform Fort Hancock setting and damage historic paving materials.
SC-3. Install new locking system at historic perimeter doors.	Improves security when building is unoccupied.	New locking systems are not designed for historic doors. May negatively impact historic fabric.
SC-4. Install panic button near reception desk in central area.	Improves building security.	None
SC-5. Install an alarm system requiring metal contacts be placed at window sashes.	Improves building security.	None
SC-6. Install motion sensors on the interior of the mess hall to monitor circulation areas after hours.	Improves security when building is unoccupied.	None
SC-7. Install smart card security access system.	Improves building security.	New hardware may negatively impact the appearance of the historic building.

ASSESSMENT OF EFFECT

The Assessment of Effect Matrix below mirrors the Alternatives for Treatment Matrix detailed in the previous section. The intent is to establish a framework for recognizing conflicting recommendations and to give the National Park Service clear direction for developing compliant treatments.

ASSESSMENT OF EFFECT MATRIX			
ALTERNATIVE TREATMENT	POTENTIAL EFFECTS	MITIGATING MEASURES	BENEFICIAL EFFECTS
<u>Site (S)</u>			
S-1. Restore the light-colored stone edging at the rectangular landing at the main entrance steps as seen in c. 1956 photographs.	Insufficient historic documentation makes it difficult to replace-in kind materials.	Match the appearance shown in the historic photograph. Materials to be consistent with CLR.	Restoration of historic appearance of site.
S-2. Path lighting is recommended at Fort Hancock as pedestrian use of the site increases. Fixtures shall be placed in pedestrian areas not adequately lit by street lighting. This recommendation applies to areas along the path between the mess halls and the barracks buildings and along sidewalks leading to the parking lots.	New lighting fixtures may negatively impact the historic appearance of Fort Hancock.	Install uniform fixtures that conform to the character of Fort Hancock. Materials to be consistent with CLR.	Improves site security.
S-3. Install a new sign on Magruder Road where the sidewalk and parking lot abut.	New signage element.	Signage should be consistent with Fort Hancock Cultural Landscape Report (CLR) guidelines and Fort Hancock Sign Plan.	Clarifies direction of main entrance on west elevation.

ASSESSMENT OF EFFECT MATRIX			
ALTERNATIVE TREATMENT	POTENTIAL EFFECTS	MITIGATING MEASURES	BENEFICIAL EFFECTS
S-4. At parking lot located to the south of Building #58, provide one 96" wide x 20' long accessible parking space in the existing parking lot with adjacent parallel access aisle at least 60" wide. Parking space and access aisle and space not-to-exceed a 1:50 slope in all directions.	Reduces parking spots available adjacent to the building.	Designate additional parking at adjacent lots.	Provides universal accessibility and meets current ADA requirements.
S-5. Install a new sign at the building parking lot with universal accessible symbol to designate (1) ADA compliant van parking spot and accessible lane.	New signage element	Signage should be consistent with ADA and CLR guidelines.	Provides universal accessibility and meets current ADA requirements.
S-6. Rebuild non-historic wood stair at main west porch entrance to establish uniform riser heights for improved accessibility.	New stair may not match historic stair element.	Details of the original stair should be replicated as much as possible.	Improves accessibility and removes trip hazard.
S-7. Install downspout extender at one northeast downspout end to direct water away from the building foundation.	Introduces a non-historic site drainage element.	Install downspout extenders to match the existing downspout in material, color, size, and shape.	Improves site drainage away from the building using relatively low-cost repair.
S-8. Install downspout extenders at two (2) northwest downspout ends to direct water away from the building foundation.	Introduces a non-historic site drainage element.	Install downspout extenders to match the existing downspout in material, color, size, and shape.	Improves site drainage away from the building using relatively low-cost repair.

ASSESSMENT OF EFFECT MATRIX			
ALTERNATIVE TREATMENT	POTENTIAL EFFECTS	MITIGATING MEASURES	BENEFICIAL EFFECTS
S-9. Repair cracks and broken edges of historic exposed aggregate paving immediately to the west of Building #58.	New repairs may be difficult to match to the existing exposed aggregate paving.	Install exposed aggregate to match the existing paving with aggregate having the color, density, and grading as the original.	Repaired walk surface will reduce trip hazards and improve the appearance of the site.
S-10. Prepare, prime, and repaint two historic bollards at the north elevation with dark green paint to match the original finish.	None.	Choose paint color to match historic palette.	Well-maintained coatings protect metal against corrosion.
<u>Architecture: Exterior (A)</u>			
A-1. Maintenance of masonry: a) Repoint diabase foundation and brick walls with mortar to match historic pointing mortar. b) Remove paint splashes at limestone.	Incompatible repair will detract from historic appearance. Inappropriate or aggressive cleaning can damage limestone.	Mortar should be aesthetically and physically compatible with the existing mortar and masonry. Non-acidic paint strippers should be used on limestone.	Invisible repair
A-2. Repair damaged stone treads and landing at exterior basement steps.	Visible repair	Repair stone to create as smooth a surface as possible.	No loss of historic fabric
A-3. Repair slate slab at top of basement steps.	Visible repair	Repair slate to create as smooth a surface as possible.	No loss of historic fabric.
A-4. Porch floors: a) Maintain ample slope at main west porch floor (modern standard is a minimum slope of 1/4" per foot). b) Repair rotted floor boards at east porch (3 square feet total). c) Sand and repaint new wood surface with alkyd base paint in the same color as the existing.	Increasing the slope of the main west porch floor may impact the historic porch level, porch columns, porch piers, and entrance steps.	Design new porch floor to have minimal impact on historic fabric.	Increased durability of porch floor

ASSESSMENT OF EFFECT MATRIX			
ALTERNATIVE TREATMENT	POTENTIAL EFFECTS	MITIGATING MEASURES	BENEFICIAL EFFECTS
A-5. Exterior metal: a) Clean and repaint the cast-iron railing and cast-iron column plinths at west elevation with appropriate paint system. b) Prepare, prime, and paint existing metal window grates (2).	None	Apply correct treatment to resist corrosion of cast-iron.	No loss of historic fabric
A-6. Replace broken window lites.	Loss of historic fabric	In kind replacement of glass	Repair not visible. Increased thermal performance of building.
A-7. Paint exposed metal from previous lintel repair.	None	Paint color to match historic palette.	Paint will conceal the repair.
A-8. Exterior storms: a) Install storm windows at the basement level. b) Replace modern metal screen doors with wood screen doors to match doors shown in historic photographs.	Introduction of new material may obscure appearance of historic sashes. High cost.	Select and install storm windows that do not obscure historic window characteristics.	Increased thermal performance of building.
A-9. Repair (4) damaged double-hung windows in attic. Prepare, prime, and paint.	Repair more expensive than in kind replacement.	Repair window without damaging surrounding historic fabric.	No loss of historic fabric. Improved window operation provides access to fire department at attic level.
A-10. Remove eighteen (18) non-historic window casings and replace eighteen (18) non-historic first floor sash with new sash to match window 116B. Assume that original historic window casings remain under non-historic casings.	Replacement may remove fabric that dates to the period of historic significance.	Investigate the date of the installation of current non-historic window casings and sash.	Original appearance of mess hall windows would be restored.

ASSESSMENT OF EFFECT MATRIX			
ALTERNATIVE TREATMENT	POTENTIAL EFFECTS	MITIGATING MEASURES	BENEFICIAL EFFECTS
A-11. Restore the original slate shingles at the main roof and sides of dormers.	High cost. Requires new compatible gutter system.	Refer to historic photographs and few historic drawings for details.	Restores original appearance of building.
A-12. Restore original metal dentil and bracket detailing at main roof cornice made of stamped metal.	High cost	Refer to historic photographs and few historic drawings for details.	Restores original appearance of building
A-13. Restore original built-in gutter system at main porch roofs.	High cost. Wood is not as weather resistant as a metal system. Wood gutter system difficult to integrate with existing metal roof.	Restore wood gutter system at same time as slate shingle material is restored at roof plane.	Restores original appearance of building.
A-14. Restore original standing seam metal roof at main porch (west side) and secondary porch (east side).	High cost	Refer to historic drawings and photographs for historic flashing details.	Restores original appearance of metal
A-15. Install compliant handrail at exterior basement stairway.	Visible repair. New material introduced.	Consult IBC life safety recommendations	Enhances life safety in Mess Hall. No loss of historic fabric.
A-16. Design universally accessible entrance at main west entrance. See recommended alternatives below:			
a. Accessibility Alternative A Full Ramp System North Elevation	High Cost, Loss of historic fabric. Longest accessible route. Located on north and west elevations.	Consult CLR 2006 and Fort Hancock Rehabilitation Guidelines.	Building access through main entrance.
b. Accessibility Alternative B Option 1: Lift and Ramp System East Elevation	Building access through service entrance. Small loss of historic grassy area. Solution on east elevation.	Consult CLR 2006 and Fort Hancock Rehabilitation Guidelines.	Low cost. Shortest accessible route. Reversible.

ASSESSMENT OF EFFECT MATRIX			
ALTERNATIVE TREATMENT	POTENTIAL EFFECTS	MITIGATING MEASURES	BENEFICIAL EFFECTS
b. Accessibility Alternative B Option 2: 5'0"x5'0" ADA Lift within East Porch East Elevation	Proposed option would alter the historic appearance of the east elevation of the Mess Hall.	Consult CLR 2006 and Fort Hancock Rehabilitation Guidelines.	Low cost. Shortest accessible route. Reversible.
c. Accessibility Alternative C Option 1: Lift and Ramp System West Elevation	High cost. Loss of historic fabric. Solution on main, west elevation.	Consult CLR 2006 and Fort Hancock Rehabilitation Guidelines.	Lower cost than Alternative A. Building access through main entrance.
c. Accessibility Alternative C Option 2: 5'0"x5'0" ADA Lift within West Porch West Elevation	Proposed option would alter the historic appearance of the west elevation of the Mess Hall.	Consult CLR 2006 and Fort Hancock Rehabilitation Guidelines.	Lower cost than Alternative A. Building access through main entrance.
Architecture: Interior (A)			
A-17. Restore original quarry tile floors in first floor lavatory	Limited historic documentation makes in kind restoration difficult.	Search historic repair receipts and drawings for clues about tile sizes, pattern, and colors. Install a smooth, continuous surface.	Restores original floor material.
A-18. Remove vinyl tile and carpeting in public areas to restore suspected original hardwood floor below. Sand, smooth and refinish original floor material.	Limited historic documentation may result in uncovering a different historic floor material. Cost for restoration will vary accordingly.	Perform additional field research to determine condition and extent of original fabric. Sand smooth and refinish to create a smooth, continuous surface.	Restores original floor material.
A-19. Refinish all original interior wood window and doorway trim in a color matching the historic palette. Remove non-historic top bead molding at baseboards.	Refinishing with historic shellac finish may reduce the durability of the finishes in a high use environment.	Utilize modern finishes that achieve the same appearance as shellac, such as oil/polyurethane composite mixes.	Restores historic appearance of building interior.

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ASSESSMENT OF EFFECT MATRIX			
ALTERNATIVE TREATMENT	POTENTIAL EFFECTS	MITIGATING MEASURES	BENEFICIAL EFFECTS
A-20. Clean, repair and repaint pressed metal ceiling in the first floor core plan area. Minor gaps in metal tiles do not require repair.	Potential high cost	Ornamental metal is brittle ; thought should be given to partial in kind replacement where the material cannot be restored properly.	Restores historic appearance of building interior.
A-21. Repair existing mechanical diffusers in the pressed metal ceiling.	Increased high cost. Increased damage to historic fabric likely.	Requires careful treatment of surrounding historic material.	Restores historic appearance of building interior new equipment.
A-22. Patch existing hole in drywall ceiling above electrical panel in basement Electrical Room.	None	Consult IBC life safety recommendations.	No loss of historic fabric. Patch can be concealed by paint. Enhances life safety.
A-23. Install attic roof insulation to cover juncture of primary roof and gable end conditions.	None	Install according to manufacturers instructions.	Improve energy efficiency by reducing heat loss.
A-24. Install accessible drinking fountain.	Equipment and plumbing may impact interior circulation.	Install drinking fountain near existing plumbing for potable drinking water.	Meets current ADA requirements.
A-25. Remove abandoned oil tank and boiler that are no longer in use.	Potential remediation costs.	Protect historic fabric during equipment removal.	Increases storage in basement.
A-26. Install proposed lift system to allow for access between basement and first floors. Lift system is not required if basement level has a non-public use. However, a lift would allow access to all levels for NPS employees.	Limited loss of interior historic fabric. Reduction of main corridor on main level.	Consult the Fort Hancock Rehabilitation Guidelines and NPS Project Narrative: Project Identification – PMS - 147756	Creates accessibility between main level and basement level. Centrally located within Mess Hall. Opportunity for convenient area of refuge location on both floors. Installation of lift could justify installation of a unisex ADA bathroom in the basement, if desired.

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ASSESSMENT OF EFFECT MATRIX			
ALTERNATIVE TREATMENT	POTENTIAL EFFECTS	MITIGATING MEASURES	BENEFICIAL EFFECTS
A-27. Redesign first floor central space (former Mess Hall space) Option 1:			
a. Existing office partitions Alt #1: Extend office partitions in core plan area to underside of ornamental ceiling using clear glass to the ceiling.	May damage historic ceiling.	Care should be used when creating a seal between the extended partition and historic ceiling. Paint silicone is recommended.	Provides acoustical privacy between offices. Reversible strategy.
b. Existing office partitions Alt #2: Construct a ceiling at the height of the current office partitions.	Would negatively impact the historic character of the former open mess hall space.	None	Would provide maximum acoustical privacy between offices.
c. Existing office partitions Alt #3: Leave current existing office partitions as is.	Would not improve acoustical privacy between offices.	Other sound deadening options could be investigated.	No cost. Would leave the open character of the former mess hall space.
d. Remove existing partial height partition align new partition with the back wall of office 106.	Unmet storage needs threaten to ruin clarity of core plan layout.	Develop a program to address spatial needs to guide future work.	No loss of historic fabric. Facilitates unobstructed travel into offices.
e. Eliminate office space in southwest corner; use for public seating	Lack of interior spatial clarity contradicts the simplicity and austerity of the building's appearance and historic function.	Work with mess hall staff to better understand how they work and interface with the public.	No loss of historic fabric. Low cost. Maximizes use of existing core plan.
f. Install a single reception desk visible upon entering the mess hall space.	Increased visitors to Fort Hancock and the mess hall require clearly defined spaces to gain assistance.	Proposed core plan layout should be consistent with the project narrative and increasing public use of Fort Hancock.	No loss of historic fabric. Low cost. Clarifies public reception.

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ASSESSMENT OF EFFECT MATRIX			
ALTERNATIVE TREATMENT	POTENTIAL EFFECTS	MITIGATING MEASURES	BENEFICIAL EFFECTS
A-28. Redesign first floor central office space (former mess hall space Option 2: Eliminate all non-historic offices in the central reception area.	Would remove existing office space.	New office space would need to be found for displaced staff.	Would restore open character of former mess hall space.
A-29. Install discrete ADA compliant signage throughout interior as required.	Visible installation.	New signage should be discrete.	Meets current ADA requirements.
A-30. Maintain galley kitchen at historic kitchen space in good working order	Galley kitchen is not historic.	Maintain small footprint for new kitchen equipment. Upgrades should not permanently alter historic fabric.	Provides amenities for office personnel. Maintains original use of historic kitchen space.
<u>Structural (ST)</u>			
ST-1. Monitor cracks at the south wall near the west corner.	None	Cracks should be monitored for a full year to understand any cyclic movement.	Monitoring will increase understanding of deterioration and may prevent further damage.
ST-2. Clean steel beams and girders to bare metal and prime with corrosion inhibiting primer.	Thorough cleaning is needed for proper adherence of paint	Select a paint color that is within the historic palette.	Protects structural integrity of building. Low cost.
ST-3. Monitor cracks at the north basement wall.	None	Cracks should be monitored for a full year to understand any cyclic movement.	Monitoring will increase understanding of deterioration and may prevent further damage.
ST-4. Install straps at sloping top chord at north end of east timber truss in attic.	Additional strengthening may be needed at a later date.	Monitor effectiveness of repair over time.	Protects structural integrity of building. Low cost.

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ASSESSMENT OF EFFECT MATRIX			
ALTERNATIVE TREATMENT	POTENTIAL EFFECTS	MITIGATING MEASURES	BENEFICIAL EFFECTS
ST-5. Replace missing nut at the heel joint at the north end of the east roof truss in the attic.	Additional strengthening may be needed at a later date.	Monitor effectiveness of repair over time.	Protects structural integrity of building. Low cost.
<u>Safety (SF)</u>			
SF-1. Clear the existing floor of the Boiler Room of all combustible debris and storage items immediately.	None	None	Removes potential fire hazard. Enhances life safety in Mess Hall. No loss of historic fabric.
SF-2. Enclose existing boiler room equipment with rated partition, ceiling, and door. Current enclosure does not meet building code.	Visible repair	Consult IBC life safety recommendations.	Enhances life safety in Mess Hall. No loss of historic fabric.
SF-3. Install illuminated or self luminous exit signage throughout the building.	Visible installation	Consult IBC life safety recommendations.	Enhances life safety in Mess Hall. No loss of historic fabric.
SF-4. Repair exterior steps leading up to grade from the basement.	May alter historic fabric or material assemblies.	Design repair to retain as much historic fabric as possible.	Improves egress from basement level.
SF-5. Properly cover all electrical junction boxes and conceal exposed conduit in the attic.	None	Consult IBC life safety recommendations.	Enhances life safety in Mess Hall. No loss of historic fabric.
SF-6. Install an audible emergency warning system.	Visible installation	Consult IBC life safety recommendations.	Enhances life safety in Mess Hall. No loss of historic fabric.
SF-7. Install a sprinkler system in the attic (not required by code).	None	Maintain conditioned attic space to prevent freezing and water damage.	Enhances life safety in Mess Hall. No loss of historic fabric.
SF-8. Paint wood bead board at basement stair with a fire retardant paint.	None	Choose color that is consistent with basement color palette.	Enhances life safety in Mess Hall. No loss of historic fabric.

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ASSESSMENT OF EFFECT MATRIX			
ALTERNATIVE TREATMENT	POTENTIAL EFFECTS	MITIGATING MEASURES	BENEFICIAL EFFECTS
<u>Security (SC)</u>			
SC-1. Install additional lighting at Mess Hall porches.	New lighting fixtures may negatively impact the historic appearance of Fort Hancock.	Install uniform fixtures that conform to the character of Fort Hancock. Materials to be consistent with CLR.	Improves site security.
SC-2. Install additional pathway lighting around the Mess Hall Building.	New lighting fixtures may negatively impact the historic appearance of Fort Hancock.	Install uniform fixtures that conform to the character of Fort Hancock. Materials to be consistent with CLR.	Improves site security.
SC-3. Install new locking system at historic perimeter doors.	New systems may require alteration of historic fabric.	Minimize alteration of historic doors. Use custom locking system, if required.	Improves site security.
SC-4. Install panic button near reception desk in central area.	None	None	Improves site security when building is occupied.
SC-5. Install an alarm system requiring metal contacts be placed at window sashes.	None. Installation should not be visible.	None	Improves site security.
SC-6. Install motion sensors on the interior of the mess hall to monitor circulation areas after hours.	Visible installation	Install sensors in least disruptive locations allowable.	Improves site security after business hours.
SC-7. Install smart card security access system.	Visible installation	Do not install equipment directly into masonry units.	Improves site security.

FURTHER RESEARCH

The Historic Structure Report for Mess Hall Building #58 at Fort Hancock has involved historical research, on-site assessment, and schematic level repair recommendations. Several avenues of additional research are herein suggested in order to build on the work undertaken for this report. The following recommendations for further research include repositories for further archival research, material analyses, and architectural investigations.

Additional Repositories

Multiple repositories were visited as part of the research for this report. A few additional repositories may provide valuable information on Building #58; they include The Quartermaster Corps Museum, Fort Lee, Virginia, and The United States Army Heritage and Education Center, Carlisle Barracks, Pennsylvania.

Material Analyses

Additional material analyses could increase the understanding of historic materials and their current condition. It is recommended that further paint analysis be undertaken at adjacent, non-rehabilitated mess halls in order to confirm that the woodwork was originally finished with shellac, as was found at Building #58 in a few areas. Additional paint analysis could help with the original treatment of the plaster walls and confirm the paint history found remaining only in a few areas of Building #58.

Additional testing is recommended for the cracked brick masonry units. Standard ASTM C67 testing of a range of sample bricks would determine if the bricks were durable enough for salvage. Additionally, this standard test would identify if the bricks contain significant amounts of salts. In addition to the standard ASTM C67 testing, thin section microscopy of the bricks would help identify the depth of the hairline cracking and determine the extent of deterioration surrounding the cracks.

Finally, it is recommended that a replication mortar mix be prepared based on the mortar analysis. The replication mix should start by matching the historic speckled natural marine sand. Alkali-stable mortar pigments may be used if required. The replication mix should be used to install mockups prior to undertaking repointing work.

Architectural Investigations

Additional architectural investigations are required to determine the direction of recommended repairs. The investigations include undertaking destructive probes, creating measured drawings of existing conditions, choosing appropriate hardware and fixtures, and determining the appropriate options for recommended repairs.

Destructive probes would be required in order to determine if the existing first floor subfloor is sufficient for restoring historic quarry tile and/or wood flooring. Destructive probes at kitchen and pantry floors would reveal the condition of the historic floor in preparation for the possible restoration of quarry tile flooring. Destructive probes in the first floor office areas would determine if the original wood floors remain or whether the subfloor was sufficient for redoing these floors in wood.

Measured drawings and details of the porches and roof elements are required for repairs and rebuilding at these elements. Measured drawings of both porches and porch elements should be prepared for rebuilding the porch floors with a ¼-inch appropriate slope. These drawings should include the west basement entry area, which may be modified at the same time. Measured drawings of the roof would also be required for reroofing in slate, standing seam metal, or alternate materials, including details for flashing and roof penetrations. Should slate be chosen for reroofing, the work should include an analysis of the main roof trusses to determine whether they can carry this heavier roofing material. The existing trusses have weathered and checked and may not be able to carry their original design load.

Appropriate hardware and fixtures must be chosen for several recommended repairs. It is recommended that NPS investigate appropriate lighting systems and fixtures for new path and building lighting that comply with the Cultural Landscape Report requirements. Research should also identify appropriate options for interior ADA compliant signage and for required fire safety signage. Finally, specific security systems and installation methods should be investigated to determine the most appropriate solutions for Building #58.

Decisions must be made regarding the direction of alterations to address universal accessibility. NPS should choose a universally accessible entrance option and pursue design documents for the chosen alternative. On the interior, NPS should determine if recommendations, such as a lift between first and basement floors or an accessible drinking fountain, are appropriate and within allowable budgets. There should also be a discussion of the options for the redesign of the historic mess hall space, including the non-ADA compliant corridor created by the partial height partition. NPS should choose the most appropriate option based on code compliance and current and future programmatic needs.

PART 2 ENDNOTES

- 1 16 USC 1-4; August 25, 1916, ch. 408, 39 Stat. 535.
- 2 16 USC 1a-1 et seq.; PL 91-383, 94-458, 95-250.
- 3 U.S. Department of the Interior, National Park Service, "Management Policies 2001" (December 2000), 60.
- 4 Antiquities Act of 1906 (16 USC 431-433; June 8, 1906, ch. 3060, 34 Stat. 225); Historic Sites, Buildings and Antiquities Act (16 USC 461-467; August 21, 1935, ch. 593, 49 Stat. 666); National Environmental Policy Act of 1969 (NEPA) (42 USC 4321-4370d; PL 91-190); National Historic Preservation Act (NHPA) (16 USC 470-470x-6; PL 89-665, 96-515).
- 5 Executive Order 11593, May 13, 1971, 36 FR 8921 (Protection and Enhancement of the Cultural Environment); Executive Order 13287, March 5, 2003 (Preserve America).
- 6 Standards and Guidelines for Federal Agency Historic Preservation Programs Pursuant to the National Historic Preservation Act (63 FR 20497-508).
- 7 U.S. Department of the Interior, National Park Service, "NPS-28: Cultural Resource Management Guideline," 2006.
- 8 Gateway National Recreation Area General Management Plan (NPS, 1979): 58.
- 9 General Management Plan Amendment Development Concept Plan and Interpretive Prospectus: Sandy Hook Unit, Gateway National Recreation Area (NPS, 1990).
- 10 Fort Hancock Rehabilitation Guidelines, Sandy Hook, New Jersey (NPS: 1999).
- 11 Occupational Safety and Hazard Administration Standards, 29 CFR 1910.
- 12 U.S. Department of the Interior, National Park Service, "Management Policies 2006" (December 2006), 66.

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Abbreviations:

CFR Code of Federal Regulations

FR Federal Register

USC United States Code

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APPENDIX A: STRUCTURAL ASSESSMENT

STRUCTURAL CONDITION ASSESSMENT

OVERVIEW

Mess Hall Building #58 is a one-story structure with a basement and a partially habitable attic. The building was constructed in 1905. The building is primarily rectangular in plan with its length in the north-south direction. A porch runs along most of the west wall with a smaller covered entrance on the east wall at the northern end. The roof is a hip roof with large dormers on the north and south ends at the attic.

The structural system is comprised of bearing walls around the exterior of the building and two interior frames along its length. Wood joists span the short direction of the building from the exterior bearing walls to the interior frames and between the interior frames. Diagonal wood planking forms the subflooring. The perimeter walls are rubble masonry at basement level and multi-wythe brick masonry above grade. Brick piers at the basement and timber floor beams form the interior frames with timber columns continuing to the roof. Timber trusses were utilized at the frames to create column free spaces at the Mess Room and Kitchen.

On the north end of the building an approximately 9' x 15' area of the main level was framed with steel beams and a concrete slab. This framing may have provided a stronger structure and/or a fire rating for the stove in the kitchen.

METHODOLOGY

The condition of the structural system was assessed via visual observations. The building exterior was surveyed from the ground to assess the condition of the façade and the roof. Each level was observed from the inside however exposed structure was limited to the mechanical and electrical rooms in the basement and the attic since a majority of the structure was covered by finishes. The building immediately to the south of Mess Hall Building #58, which is similar in use, construction type and date, was also observed to aid in our assessment.

OBSERVATIONS AND RECOMMENDATIONS

We have grouped the observations and recommendations into the four main areas: perimeter walls, floor framing, roof framing, and the porches.

Perimeter Walls

A visual examination of the perimeter walls shows the walls are in satisfactory condition with some localized, hairline cracks typical of a building this age and a few instances where cracking is slightly more severe. It was also observed that a majority of the lintels supporting the exterior wythe of brick over openings had been replaced. Observation of the walls was limited to the exterior facade and to the interior face of rubble in the mechanical and electrical rooms since a majority of the walls were furred out.

Two diagonal cracks appear at the southwest corner of the building. The more apparent crack is on the south wall starting at the top of the rubble wall, approximately 40" from the corner and migrating diagonally to the corner approximately 32" from the top of stone. This crack extends through the thickness of the wall and is more apparent from the inside. The other crack is on the west wall starting approximately 17" from the corner at the top of rubble. It could not be determined if this crack extends through the wall or if the two cracks intersect at the corner because the cracks reach the corner below

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grade and the west wall is covered on the inside. We recommend that the crack on the south wall is monitored to determine if the crack is widening or sliding.

Another diagonal crack has occurred on the south wall approximately 13'-8" from the corner and sloping westward approximately 4'-0" to the sill of the adjacent window. It appears on the interior face of wall but is not apparent from the exterior. This crack and the cracks at the southwest corner are most likely due to thermal expansion. The south wall is not shaded by adjacent buildings or landscaping and is therefore exposed to heating from direct sunlight throughout the day. Since the walls were constructed without control joints, cracks have formed to relieve the stresses caused by the expansion. Neither the cracks nor the expansion are of structural concern; however, they should be monitored for movement and water infiltrations.

As previously mentioned, a majority of the steel lintels supporting the exterior wythe of brick have been replaced. This may have been performed during the renovations in the 1970s. It appears the original steel lintels had corroded and had begun jacking the mortar joints and buckling the wall out of plane at the jambs of the openings. That movement is still apparent but the joints were repointed during the lintel replacement and remain tight. The corrosion of steel lintels and disruption of masonry remains active at other buildings of similar construction at Fort Hancock.

Floor Framing

Delving further into the floor framing, the wood floor joists are 2"x11½" joists spaced at 16" centers. They bear atop the rubble exterior walls and frame into the sides of the 9¾"x12" timber beams. The tops of joists are 4" above the tops of beams. The beams bear on 17" square brick masonry piers spaced 10'-5" on centers. Where visible, the floor framing appeared in good condition with little to no splitting or checking. At the northeast corner, the first four joists show signs of decay and have crushed approximately ¼" at their bearing. Water staining can be seen in this corner so water infiltration appears to be the culprit. The water problem appears to be mitigated since the joists were dry at the time of the survey. If this is not the case, the ends will continue to decay and ultimately fail.

The steel beam and concrete slab area at the north end of the first floor is framed with a 9" deep wide-flange girder and 6" deep wide-flange beams spaced approximately 4'-0" on centers. The beams pocket into the exterior wall and frame into the side of the girder with the bottom of the beam ½" above the bottom of the girder. The slab is 3½" thick with the top of the slab matching the top of the girder. The slab turns down at the beams encasing the webs in concrete. The bottom flanges of the beams remain exposed. The steel members are completely coated with rust; however, material loss is minimal. The beams bear on steel bearing plates within the exterior walls. The bearing plates have corroded to the point of scaling which has caused localized cracking in the wall. We recommend that the beams and girders are cleaned to bare steel and painted with a primer coating to prevent further corrosion.

Roof Framing

The roof trusses are formed with 7 ¾" x 8" timber top and bottom chords with the web members a mixture of 7¾" square timber diagonals and vertical steel rods. The attic joists frame to the sides of the bottom chords. The sloping roof is framed with rafters spanning from the exterior bearing walls to the top chord of the trusses. The span of those rafters is cut in half with a diagonal prop from the rafter to the bottom chord of the truss. To form the ridge, which is centered between the trusses, another set of rafters span from the truss top chord to the ridge board. A collar tie at the truss top chord controls horizontal thrust from the upper rafters.

The roof structure appears to be in good condition. Deflection of the trusses is apparent but not excessive and there are no visible signs of overstress in the truss members. One of the timber diagonals has warped, causing a gap in its joints at the top and bottom chords. Otherwise, joints between members remain tight.

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At the heel joints, steel straps positively tie the top and bottom chords together. A nut is missing from the strap at the north heel joint of the eastern truss, rendering that strap useless. The nut should be replaced. Also, at that same heel joint, a check has formed in the top chord. The check exists in the full length of the member and through its entire thickness. Straps should be placed around the member and spaced at 4'-0" intervals to tie the member together and minimize further separation.

Porches

Floor framing for the porches is comprised of 6x10 beams spanning from the basement wall to 17"x17" brick piers along the edge of the porch. Beam and pier spacing is 9'-4" on centers. Floor joists span between the beams and support 1x4 floor planks. Joists are 2x10s spaced 16" on centers. Both porches are in satisfactory condition and show no visible signs of distress.

The roofs are shallow pitched, shed roofs. Roof framing was not accessible; however, based on similar construction elsewhere on the building, it could be assumed that the roofs are framed with sloping rafters spanning from the perimeter walls to beams framing between posts along the edge of the porch. Ceiling joists span the same direction as the rafters. The posts for the secondary porch are 6x6 lumber bearing on the brick piers that support the floor framing. It is assumed that the posts for the main porch are also 6x6 lumber posts and the decorative, round posts are non-structural, column covers. There is no discernible deflection of the roof framing however the condition of the framing could not be assessed due to lack of access.

CONCLUSIONS

Based on our visual assessment Mess Hall #58 is in good structural condition. The conditions stated throughout the report are typical for a building of this age. As noted throughout the report, we recommend the following action items:

1. Monitor the crack in the south rubble wall at the west corner of the basement for further movement. This could be performed by placing a ruler, marked in 1/32" increments, across and perpendicular to the crack and at two locations. Readings should be recorded on a monthly basis and, for consistency, in the morning prior to heating of the wall by the sun. If little or no movement is recorded after a year, monitoring intervals could be extended.
2. The steel beams at the north end of the first floor should be cleaned to bare steel and painted with a primer coating to prevent further corrosion.
3. Replacing the steel bearing plates in the north basement wall would be a difficult and expensive task. Since cracking in the wall is not severe and the wall is not damp in those areas, we recommend monitoring the cracks in the wall and the steel bearing plates for further corrosion.
4. The sloping top chord at the north end of the east timber truss has checked over its entire length. Straps should be installed at 4'-0" intervals to minimize further separation of the member.
5. Replace the nut for the heel joint strap at the north end of the east roof truss to reestablish a positive connection between the top and bottom chords.

With regular maintenance and following the few recommendations summarized above, this building should continue to stand and protect for many years.

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Photo 1: Crack in south wall at west corner. Crack extends through wall.



Photo 2: Crack in south wall at west corner from inside.

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Photo 3: Lintel Replacement. Notice distortion of wall due to rust jacking from previous lintel.



Photo 4: Steel and concrete framing at north end of first floor.

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Photo 5: Truss diagonal to top chord connection. Notice gap in top chord caused by warping of the diagonal member.



Photo 6: Check in sloping timber top chord of east truss – north end.

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Photo 7: Strap at heel joint where top and bottom chords connect. Nut is missing from strap as noted in text above.

APPENDIX B: HABS PHOTOGRAPHS

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Photo B-1. Building #58, looking southeast. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Hamsberger. October 2009.

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Photo B-2. Building #58, west elevation, looking southeast. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. July 2010.

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Photo B-3. Building #58, north elevation. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. October 2009.

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Photo B-4. Building #58, looking southwest. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. October 2009.

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Photo B-5. Building #58, east elevation. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Hamsberger. October 2009.

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Photo B-6. Building #58, looking northwest. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. July 2010.



Photo B-7. Building #58, detail of northwest corner. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. October 2009.

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Photo B-8. Building #58, detail of main west porch. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. October 2009.

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Photo B-9. Building #58, detail of masonry at southeast corner. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. July 2010.

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Photo B-10. View of Building #58 from Sandy Hook Lighthouse. Barracks Building #25 to the rear and Parade Ground and Atlantic Ocean beyond. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. September 2010.

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Photo B-11. Detail view of Building #58 from Sandy Hook Lighthouse. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. September 2010.



Photo B-12. Building #58, looking north from deteriorated porch of Mess Hall Building #57. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. September 2010.



Photo B-13. Building #58, looking northeast from missing rear porch at Barracks Building #24. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. September 2010.

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Photo B-14. Building #58 to the rear of Barracks Building #25, looking southeast. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. October 2009.

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Photo B-15. Barracks Building #25 with Building #58 to the rear, looking northeast. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Hamsberger. July 2010.

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Photo B-16. Barracks Building #25 with Parade Ground in the distance, looking northwest. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. October 2009.

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Photo B-17. Officers Quarters across the Parade Ground, looking west from Building #58. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. October 2009.



Photo B-18. YMCA/Gym Building #40. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. October 2009.



Photo B-19. Sandy Hook Lighthouse. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey.
Photographer: Doug Harnsberger. July 2010.



Photo B-20. Building #58, first floor interior of historic central mess hall space looking northwest towards main west entrance. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. September 2010.



Photo B-21. Building #58, first floor interior of historic central mess hall space looking south. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. September 2010.



Photo B-22. Building #58, first floor interior of historic central mess hall space looking north. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Hamsberger. September 2010.



Photo B-23. Building #58, first floor interior of south hall looking east towards toilet room. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. September 2010.

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Photo B-24. Building #58, first floor interior of south hall looking west towards single door entry. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. September 2010.



Photo B-25. Building #58, basement interior looking north. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. September 2010.

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Photo B-26. Building #58, basement interior, door to northwest corner offices. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. September 2010.

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Photo B-27. Building #58, basement interior, original double leaf basement entry doors on west. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. September 2010.



Photo B-28. Building #58, basement interior, northeast storage room looking north. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. September 2010.



Photo B-29. Building #58, attic interior looking south. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Hamsberger. September 2010.



Photo B-30. Building #58, attic interior looking north. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. September 2010.



Photo B-31. Building #58, attic interior looking north. Fort Hancock, Sandy Hook Unit, Gateway National Recreation Area. Sandy Hook, New Jersey. Photographer: Doug Harnsberger. September 2010.

APPENDIX C: COST ESTIMATE

John Milner Associates
1216 Arch Street, 5th Floor
Philadelphia, PA 19107-2835

December 2, 2010
ICI # 209554
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**FORT HANCOCK
GATEWAY NATIONAL RECREATION AREA
MESS HALL BUILDING # 58
SANDY HOOK, NEW JERSEY
ORDER OF MAGNITUDE COST ESTIMATE**

The following information must be considered and used in conjunction with the Construction Cost Estimate.

1. Information used in the preparation of this Estimate includes:
 - A. John Milner Associates Historic Structures Report Draft Submission, dated December 6, 2010, received by ICI November 2010.
2. This Estimate is based on the following gross building areas:

Basement	3,212 SF
First Floor	<u>3,212 SF</u>
Total	6,424 SF
3. This Estimate is developed and documented according to the Historic Structures Report Recommendations.
4. This Estimate is based on third quarter, 2010 construction unit prices. No escalation has been included. Once a construction period has been established, the appropriate escalation factor, based on four percent (4%) per year must be added.
5. The general contractor's overhead and profit are included in General Requirements, which is added following the Estimate Details.
6. No architectural, engineering, or project management fees are included in this Estimate.
7. The purpose of this Estimate is to establish an Order of Magnitude budget for the described work. Once more detailed investigations and design have been completed, this Estimate should be revised and updated.

JOHN MILNER ASSOCIATES, INC
FORT HANCOCK , GATEWAY NATIONAL RECREATION AREA
MESS HALL BUILDING #58 HISTORIC STRUCTURE REPORT
SANDY HOOK, NEW JERSEY

ICI #: 209554R
 Prep: mcf
 Date: 8/27/2010
 Revised: 12/2/2010

DETAILS - ORDER OF MAGNITUDE COST ESTIMATE

Account	Description	Quantity	Unit	Unit Cost	Amount
ALTERNATIVES FOR TREATMENT					
Site					
S-1	Restore Stone Edging @ Landing, Main Entry Steps	1	LS	\$ 1,500.00	\$ 1,500
S-2	Add Path Lighting	1	LS	3,500.00	3,500
S-3	Install Signs on Magruder Road	1	LS	750.00	750
S-4	Provide Accessible Parking Space	1	LS	250.00	250
S-5	Install ADA Sign	1	LS	250.00	250
S-6	Rebuild Wood Stair @ West Porch	8	R	700.00	5,600
S-7	Install Downspout Extender @ NE Corner	1	EA	150.00	150
S-8	Install Downspout Extender @ NW Corners	2	EA	150.00	300
S-9	Repair Cracks, Broken Edge of Paving	1	LS	1,500.00	1,500
S-10	Prep & Paint Bollards	2	EA	150.00	300
Subtotal					\$ 14,100
Architecture - Exterior					
A-1	Repoint Foundation Wall	930	SF	20.00	\$ 18,600
	Remove Paint Splashes	930	SF	2.00	1,860
A-2	Repair Damaged Stone Treads/Landing @ Basement Stair	78	SF	50.00	3,900
A-3	Repair Slate Slab @ Top of Steps	1	LS	1,500.00	1,500
A-4	Maintain Porch Slope	384	SF	2.50	960
	Repair Rotten Floor Boards @ E Porch	3	SF	75.00	225
	Prep & Repaint Porch Floor	384	SF	2.50	960
A-5	Prep & Paint CI Railing & Column Plinths	72	LF	50.00	3,600
	Prep & Paint Window Grates	2	EA	325.00	650
A-6	Replace Broken Window Lites	1	LS	1,500.00	1,500
A-7	Paint Exposed Metal Lintels	1	LS	1,500.00	1,500
A-8	Install Storm Windows @ Basement Level	15	EA	450.00	6,750
	Replace Modern Screen Doors w/Wood	4	EA	1,350.00	5,400
A-9	Repair DH Windows @ Attic, Prep & Paint	4	EA	1,400.00	5,600
A-10	Replace First Floor Windows, Restore Casings	18	EA	2,750.00	49,500
A-11	Restore Slate Shingles & Dormer Sides	4,050	SF	25.00	101,250
A-12	Restore Metal Dentil & Bracket Details @ Cornice	200	LF	225.00	45,000
A-13	Restore Built In Gutter System @ Roof, Porches	300	LF	125.00	37,500
A-14	Restore Standing Seam Metal Roof @ Porches	594	SF	27.50	16,335
A-15	Install Handrail @ Ext Basement Stairs	16	LF	185.00	2,960
A-16	Universal Accessible Entrance				
	A) - Full Ramp System, North Elevation				
	Sidewalk	100	\$ 10.00 SF	1,000	
	Ramp Paving, Fill	336	20.00 SF	6,720	
	Ramp Walls/Supports	90	175.00 LF	15,750	
	Ramp Railing	160	185.00 LF	29,600	
	Ramp on Porch @ Door	66	35.00 SF	2,310	
	Railing @ Porch	14	185.00 LF	2,590	
	Miscellaneous Patch, Door Button	1	2,500.00 LS	2,500	
Subtotal					60,470

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DETAILS - ORDER OF MAGNITUDE COST ESTIMATE

Account	Description	Quantity	Unit	Unit Cost	Amount
B) - Lift & Ramp System, East Elevation					
	Paving	91	\$ 10.00 SF	\$	910
	ADA Lift & Power	1	25,000 EA		25,000
	New Platform & Foundations	60	75 SF		4,500
	Ramp on Porch @ Door	66	35.00 SF		2,310
	Railing @ Porch, Platform	31	185.00 LF		5,735
	Miscellaneous Patch, Door Button	1	2,500.00 LS		2,500
	Subtotal			\$	40,955
Architecture - Exterior (continued)					
C) - Lift & Ramp System, West Elevation					
	Sidewalk	170	\$ 10.00 SF	\$	1,700
	ADA Lift & Power	1	25,000 EA		25,000
	New Platform & Foundations	72	75 SF		5,400
	Ramp on Porch @ Door	66	35.00 SF		2,310
	Railing @ Porch	32	185.00 LF		5,920
	Miscellaneous Patch, Door Button	1	2,500.00 LS		2,500
	Subtotal			\$	42,830
	Subtotal				\$ 366,020
Architecture - Interior					
A-17	Restore Quarry Tie Floor @ 1st Floor Lavatory	54	SF	20.00	\$ 1,080
A-18	Remove Floor Finish & Restore Wood Floor @ Public Areas	1,040	SF	6.00	6,240
A-19	Repaint Interior Windows & Door Trim	1	LS	10,000.00	10,000
	Remove Top Bead Molding @ Baseboard	600	LF	2.50	1,500
A-20	Clean & Repair Metal Ceiling @ 1st Fl Core Plan Area	1,300	SF	7.50	9,750
A-21	Repair Mechanical Diffusers in Metal Ceiling	1	LS	7,500.00	7,500
A-22	Patch Hole in Drywall Above Elec Panel	1	LS	325.00	325
A-23	Install Attic Roof Insulation	3,200	SF	1.75	5,600
A-24	Install Accessible Drinking Fountain	1	EA	2,500.00	2,500
A-25	Remove Abandoned Oil Tank & Boiler	1	EA	6,500.00	6,500
A-26	Install Lift Between Basement & 1st Fl w/Areas of Refuge	1	EA	30,000.00	30,000
A-27	Redesign 1st Floor Central Space (Former Mess Hall)				
	A) Alt. 1 - Extend Partial Height Partitions to Clg	95	LF	85.00	8,075
	B) Alt. 2 - Construct Ceiling @ Partition Height	690	\$ 12.00 SF	\$	8,280
	C) Alt. 3 - Leave Office Partitions as Is.			N / C	
	D) Remove Partial Ht. Partition & Install New @ 106	14	LF	150.00	2,100
	E) Eliminate Open Office Space @ SW Corner				N / C
	F) Install Reception Desk	1	LS	6,500.00	6,500
A-28	Redesign 1st Floor Central Space (Former Mess Hall)				
	Eliminate all Non Historic Offices - Option 1	95	\$ 65.00 LF	\$	6,175
A-29	Install ADA Compliant Signage	1	LS	1,500.00	1,500
	Subtotal				\$ 99,170

JOHN MILNER ASSOCIATES, INC
FORT HANCOCK , GATEWAY NATIONAL RECREATION AREA
MESS HALL BUILDING #58 HISTORIC STRUCTURE REPORT
SANDY HOOK, NEW JERSEY

ICI #: 209554R
 Prep: mcf
 Date: 8/27/2010
 Revised: 12/2/2010

DETAILS - ORDER OF MAGNITUDE COST ESTIMATE

Account	Description	Quantity	Unit	Unit Cost	Amount
Structural					
ST-1	Monitor Crack @ South Wall, West Corner	1	LS	1,500.00	\$ 1,500
ST-2	Clean Beam & Girders, Paint @ Boiler Rooms	660	SF	5.00	3,300
ST-3	Monitor Crack @ North Wall	1	LS	1,500.00	1,500
ST-4	Install Straps @ Top Cord, North End East Truss	1	LS	2,000.00	2,000
ST-5	Replace Missing Nut @ Heel Joint, East Truss	1	EA	120.00	120
Subtotal					\$ 8,420
Safety					
SF-1	Clean Debris in Boiler Room	1	LS	350.00	\$ 350
SF-2	Enclose Boiler Room Equipment w/1 Hr Enclosure	600	SF	17.50	10,500
SF-3	Install Exit Signage	1	LS	3,500.00	3,500
SF-4	Repair Exterior Steps Leading to Grade from Basement	1	LS		See A-2
SF-5	Cover All Elect. Junction Boxes, Concealed Conduit @ Attic	1	LS	1,200.00	1,200
SF-6	Install Audible Emergency Alarm System	6,424	SF	1.50	9,636
SF-7	Install Sprinklers in Attic	3,212	SF	7.50	24,090
Subtotal					\$ 49,276
Security					
SC-1	Install Additional Lighting @ Porches	496	SF	3.50	\$ 1,736
SC-2	Install Additional Pathway Lighting				See S-2
SC-3	Install Locking System @ Perimeter Doors	1	LS	2,000.00	2,000
SC-4	Install Panic Button @ Reception Desk	1	LS	1,500.00	1,500
SC-5	Install Alarm System on Windows	38	EA	650.00	24,700
SC-6	Install Motion Sensors on Interior	6,424	SF	1.50	9,636
SC-7	Install Card Access System	2	EA	2,000.00	4,000
Subtotal					\$ 43,572
Subtotal					\$ 580,558
Contingency					15% 87,084
Subtotal					667,642
General Requirements					20% 133,528
TOTAL ESTIMATED CONSTRUCTION COST					\$ 801,170

APPENDIX D: HISTORICAL PHOTOGRAPHS



Post Plan No. -----
O.Q.M.G.: Plan No. ~~Sept 1901~~ Building No. ~~58~~

1. Mess Hall Building #58, view of west and south elevations. Post Record Book (1901), Gateway National Recreation Area Archives.



2. Undated photograph showing kitchen porch of enlisted personnel Mess Hall Building #56. Photo #759.9, Gateway National Recreation Area Archives.

Mess Hall Building #58-Fort Hancock
Historic Structure Report
Gateway National Recreation Area



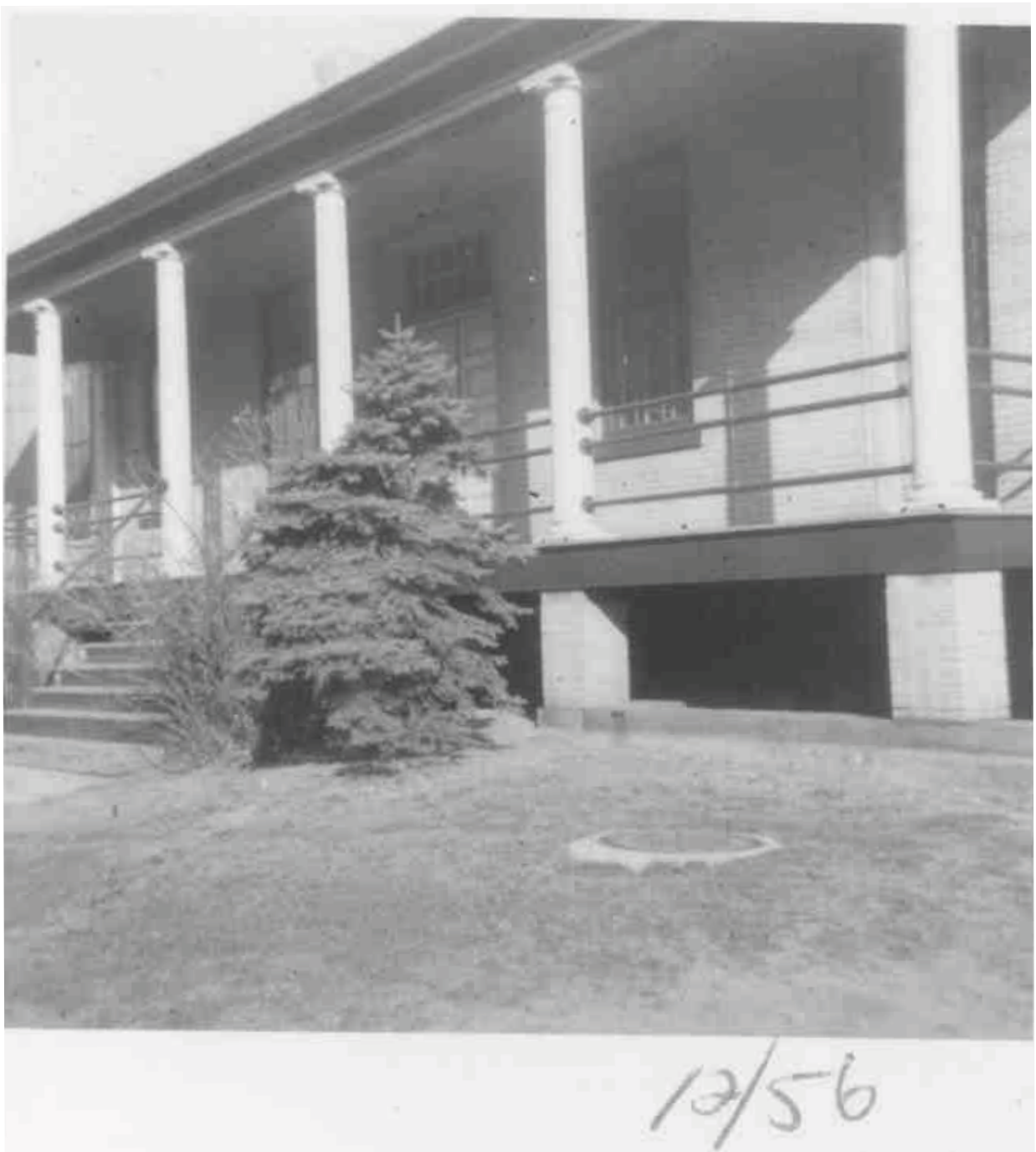
3. Undated photograph showing main porch of enlisted personnel Mess Hall Building #57. Photo #11210, Gateway National Recreation Area Archives.

Mess Hall Building #58-Fort Hancock
Historic Structure Report
Gateway National Recreation Area



4. Undated photograph showing a portion of the main porch of Mess Hall Building 57. Photo #11209, Gateway National Recreation Area Archives.

Mess Hall Building #58-Fort Hancock
Historic Structure Report
Gateway National Recreation Area



5. Photograph showing portion of the main porch of unidentified mess hall (December 1956). Photo #11211, Gateway National Recreation Area Archives.

Mess Hall Building #58-Fort Hancock
Historic Structure Report
Gateway National Recreation Area



6. Photograph of south end and west side of Mess Hall Building #58 (December 1956). Photo #11212, Gateway National Recreation Area Archives.

Mess Hall Building #58-Fort Hancock
Historic Structure Report
Gateway National Recreation Area



7. Undated photograph showing south end of Mess Hall 57 and associated Barracks 24. Photo #30432, Gateway National Recreation Area Archives.



8. World War II era photograph showing officers passing by Mess Hall Building #58. Photo #21091, Gateway National Recreation Area Archives.



9. Undated photograph showing rear east kitchen porch of one of the mess halls, possibly Building #55 or #57. Note concrete topping at door threshold. Photo #7915, Gateway National Recreation Area Archives.



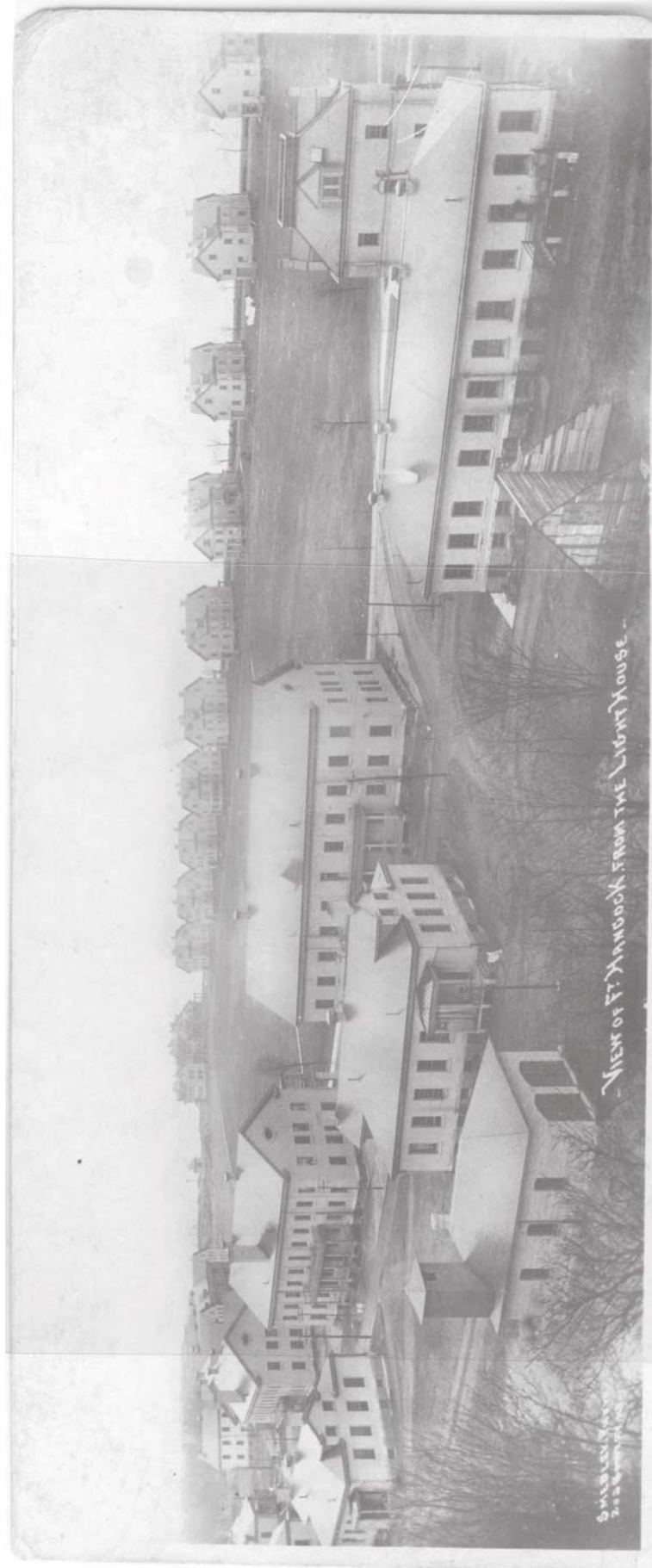
10. Undated photograph showing condition of primary mess hall porch at unidentified mess hall. Note ceiling mounted light fixture. Photo #7955, Gateway National Recreation Area Archives.



11. Winter photograph showing walk between enlisted personnel barracks and mess halls. Building #58 is in the center rear. Photo #13744, Gateway National Recreation Area Archives.



12. Unidentified soldier on motorcycle outside of unidentified mess hall. Unknown date. Photo #1969, Gateway National Recreation Area Archives.



13. Undated aerial view of Fort Hancock from the lighthouse. Mess Hall Building #58 left of center. Note mudroom enclosure at the south end of the rear east porch of Mess Hall Buildings #57 and 58. Also note vehicular road between mess halls and barracks buildings. Photo #779.1, Gateway National Recreation Area Archives.



14. Aerial view of Fort Hancock from Sandy Hook Lighthouse, c. 1943. Mess Hall Building #58 and associated Barracks #25 are center right. Photo #1943-661, Gateway National Recreation Area Archives.



15. Aerial photograph of portion of Fort Hancock, Sandy Hook, New Jersey. North is at the top. 1920. From the ERDC Coastal and Hydraulics Laboratory web site.



16. Aerial photograph of portion of Fort Hancock, Sandy Hook, New Jersey. North is at the top. 1933. From the ERDC Coastal and Hydraulics Laboratory web site.



17. Aerial photograph of portion of Fort Hancock, Sandy Hook, New Jersey. 1962. North is at the top right corner. From the ERDC Coastal and Hydraulics Laboratory web site.



18. Early twentieth century photograph of unidentified mess hall kitchen. Note sheet metal stove hood. Photo may be of the northwest corner of the kitchen between the door to the pantry and an exterior window. Photo #811, Gateway National Recreation Area Archives.



19. Undated World War II era photograph showing table settings in unidentified mess hall. Note dark finish on double leaf, west entrance doors. Photo #13718, Gateway National Recreation Area Archives.



20. World War II era photograph showing soldiers and guests eating in mess hall. Photo #4629, Gateway National Recreation Area Archives.



21. Close-up of World War II era soldiers eating in unidentified mess hall. Photo #17754, Gateway National Recreation Area Archives.



22. WACS dining in Mess Hall 58, c. 1943. Photo #1943-914, Gateway National Recreation Area Archives.

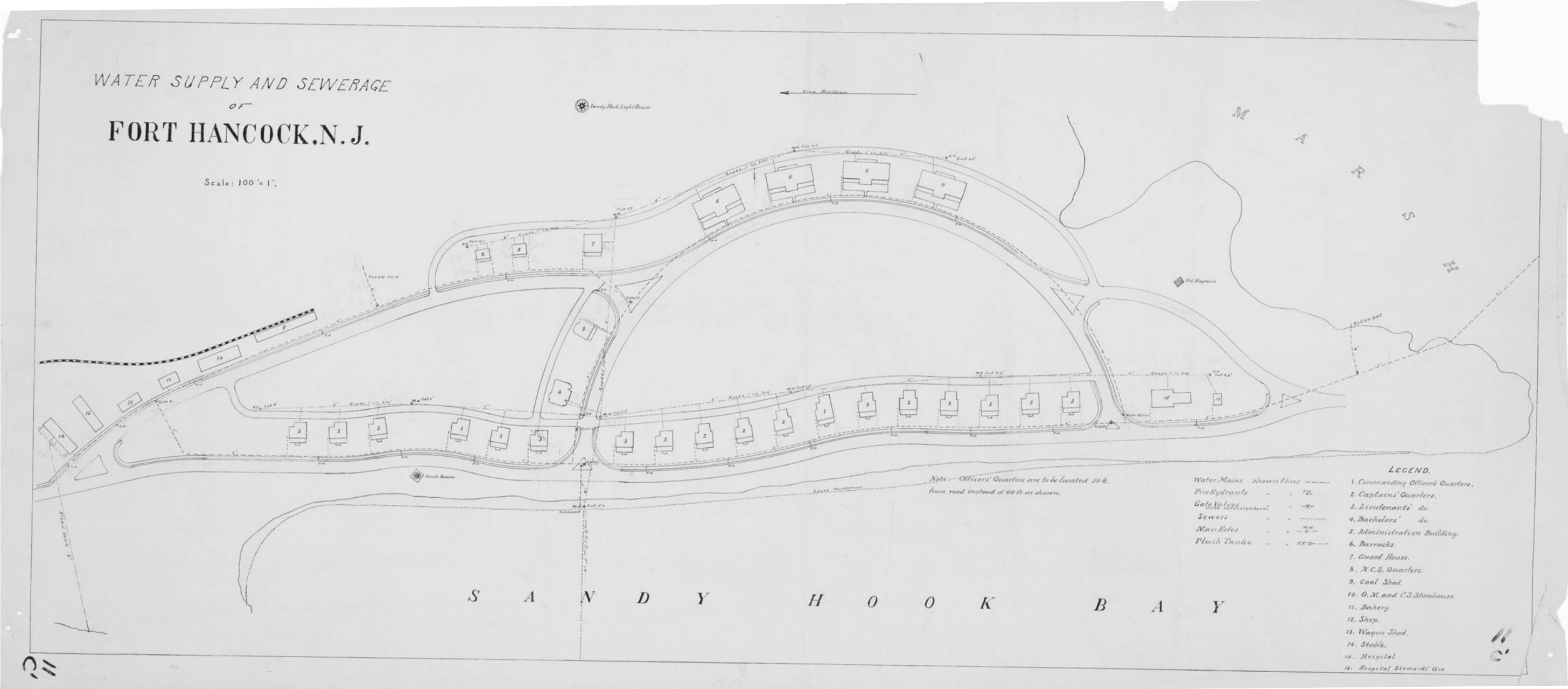


23. Undated photograph showing serving line of unidentified mess hall. Photo #71993, Gateway National Recreation Area Archives.

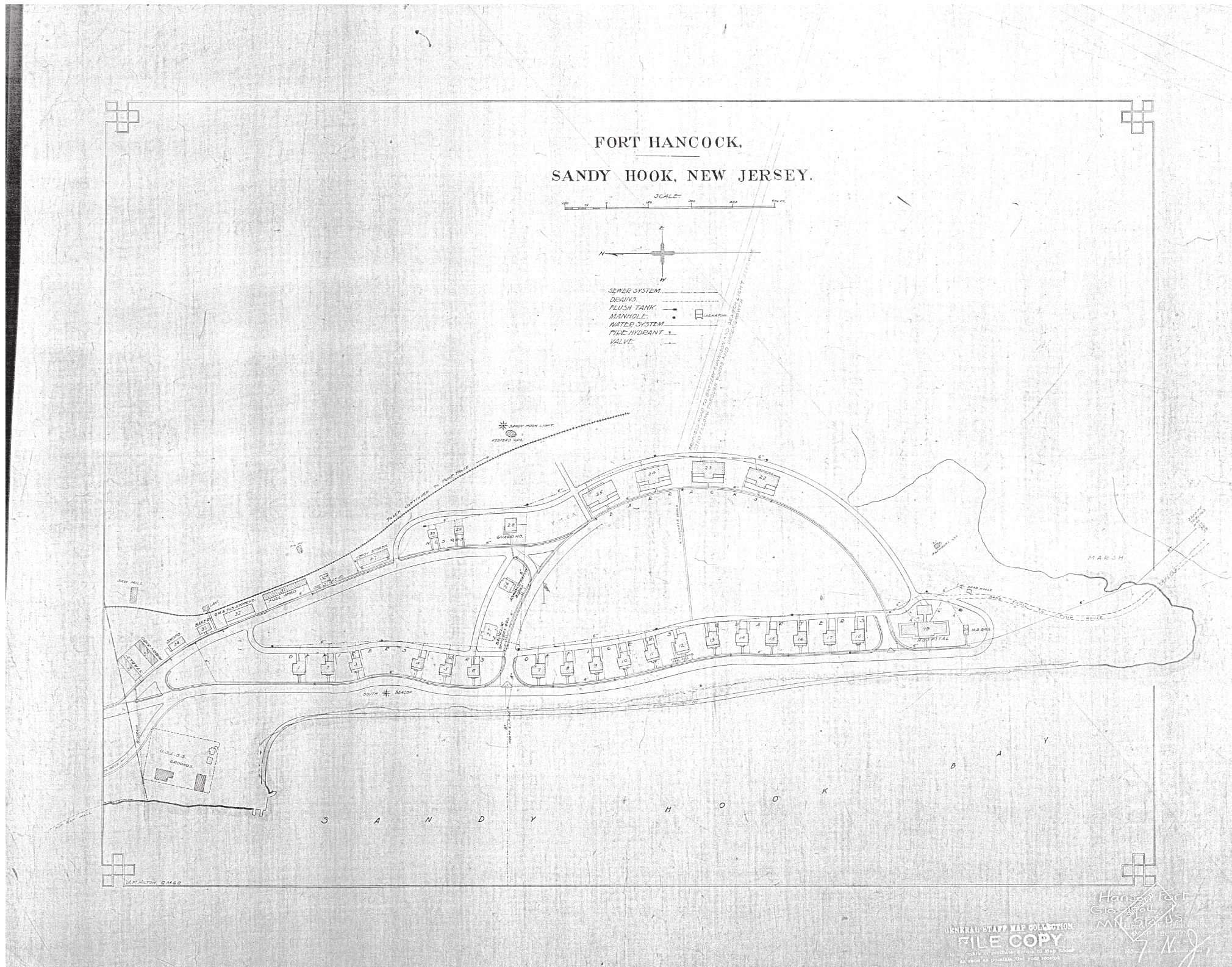


24. Undated photograph showing celebrations in an unidentified mess hall. Photo #2530, Gateway National Recreation Area Archives.

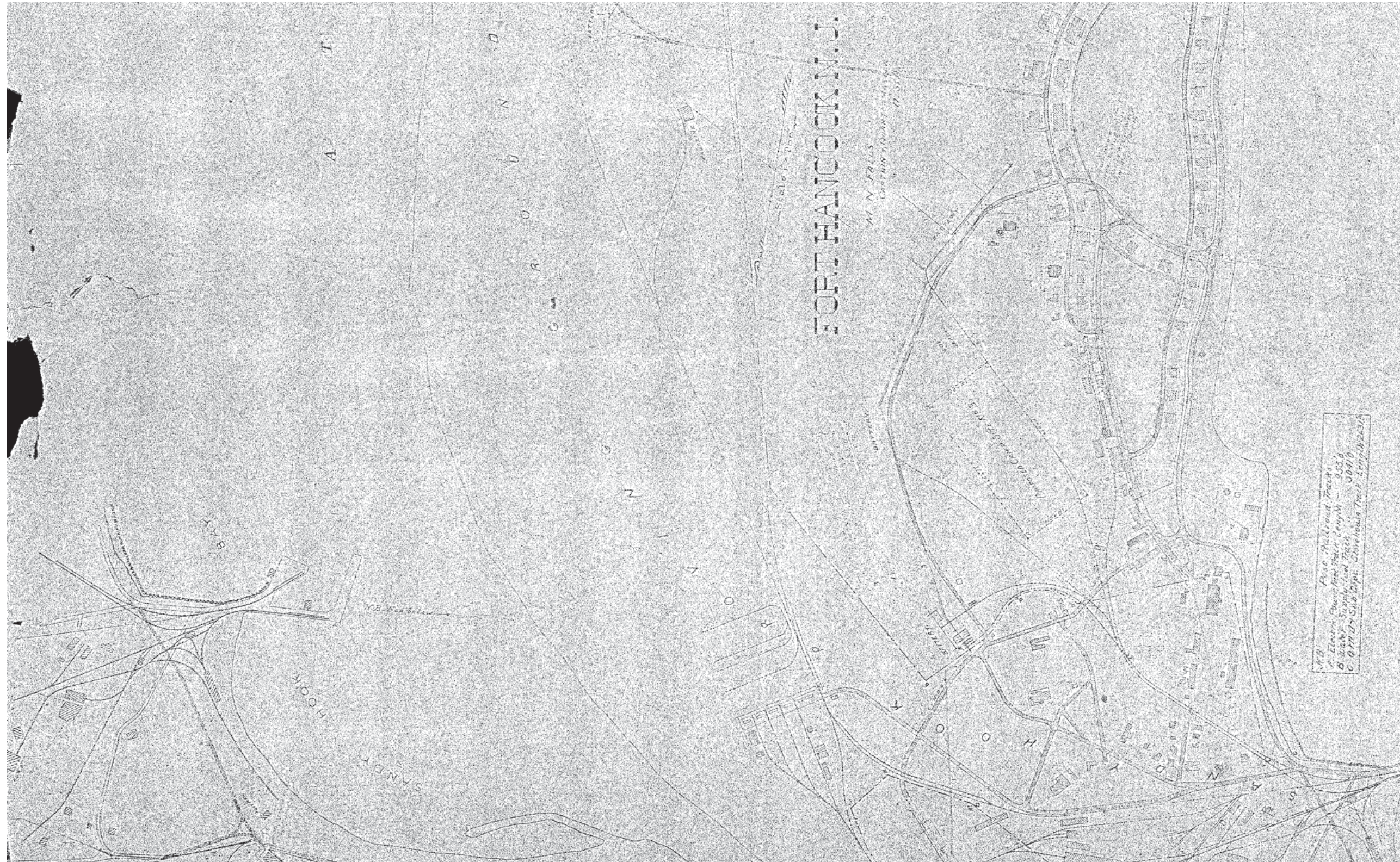
APPENDIX E: HISTORICAL MAPS
AND SITE PLANS



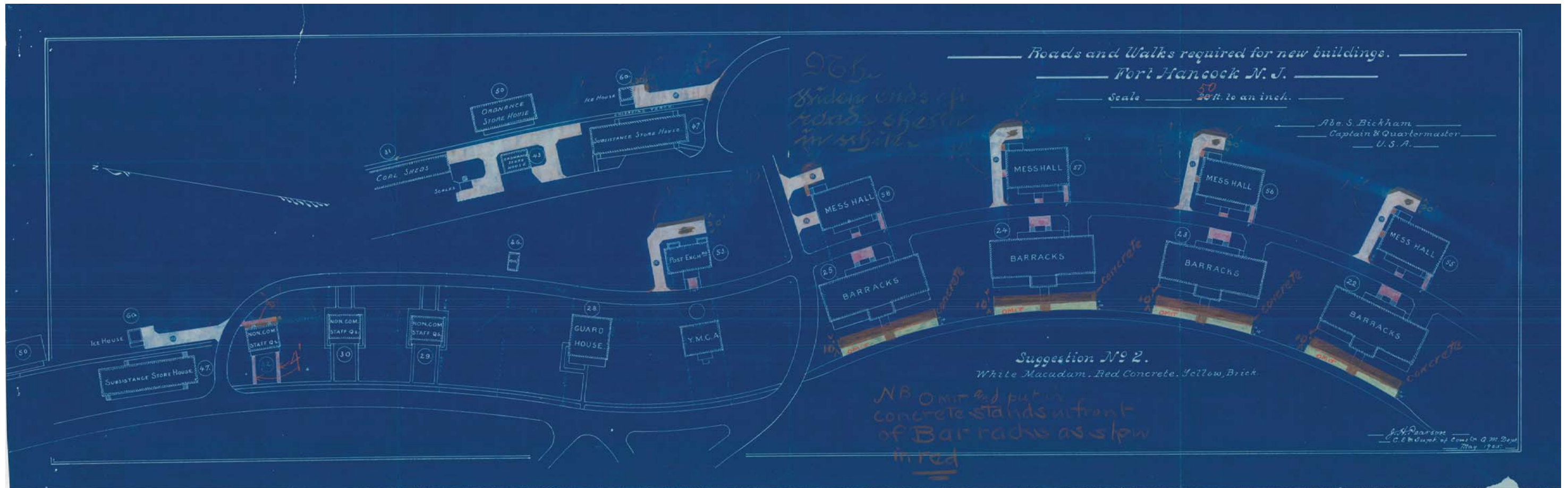
1. Fort Hancock Water Supply Plan, c. 1900, showing the fort prior to the construction of the mess halls. Gateway National Recreational Area Archives.



2. Plan of Fort Hancock showing sewer, drains, flush tank, water system, and fire hydrants, c. 1904. Gateway National Recreational Area Archives.



3. Fort Hancock showing newly built mess halls, c. 1905. Gateway National Recreational Area Archives..



4. Roads and Walks Needed for New Buildings, Fort Hancock (Abe S. Bickman 1905). From the National Archives and Records Administration, College Park, Maryland.

MATCH LINE SHEET NO. 4.

ATHLETIC FIELD

HUDSON ROAD

OBSTACLE COURSE

COAL STORAGE AREA

LIGHT HOUSE

Y.M.C.A.

SEA WALL

SANDY HOOK BAY

MAP OF
FORT HANCOCK.
SANDY HOOK, NEW JERSEY.
SCALE: 1"=200' 23 AUGUST 1946

TRACED BY
H.B.
CHKD. BY
J.T.S.

OFFICE OF THE
POST ENGINEER.

DRWG. NO.
P.E. 46-46

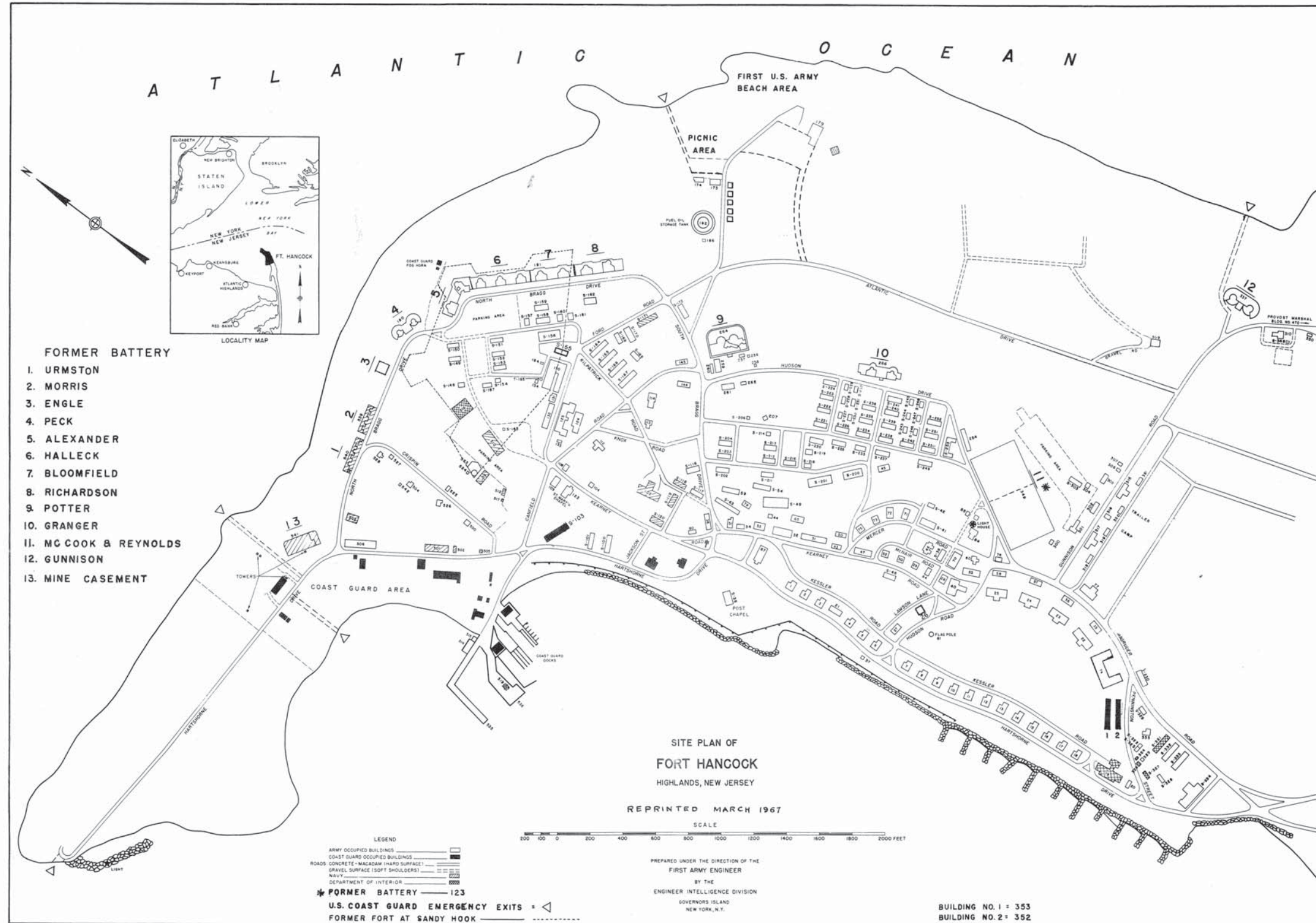
SHEET 3 OF 14.

Appendix E: Historical Maps and Plans - E6

Mess Hall Building #58-Fort Hancock
Historic Structure Report
Gateway National Recreation Area



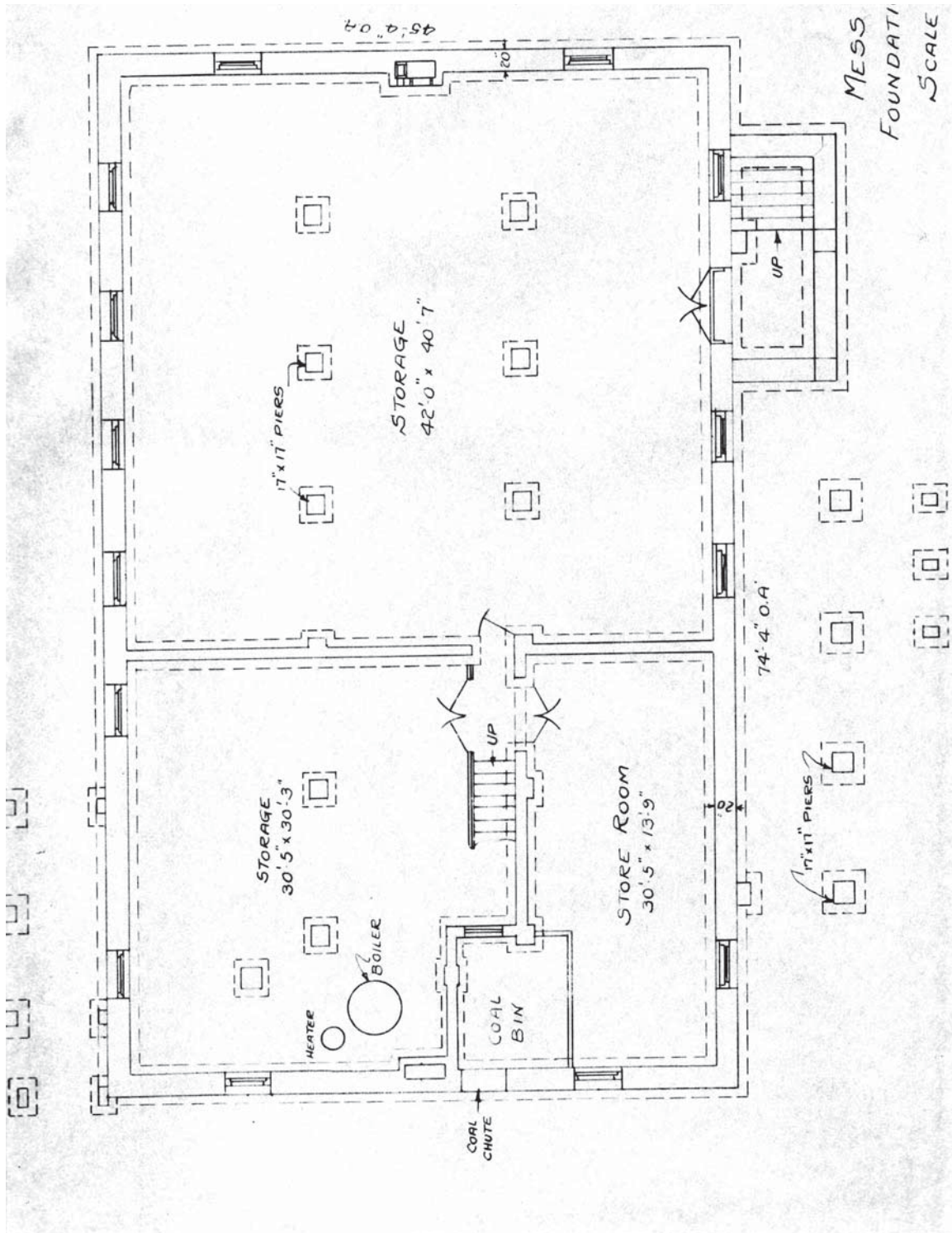
7. Plot Plan of Fort Hancock, NJ, Office of the Post Engineer, Installation of Heating and Hot Water Equipment in Building Nos. 22, 23, 24, 25, 55, 56, 57, and 58 at Fort Hancock, New Jersey. 1 June 1949. Gateway National Recreational Area Archives.



8. Site Plan of Fort Hancock, Highlands, New Jersey. Reprinted March 1967. Gateway National Recreational Area Archives.

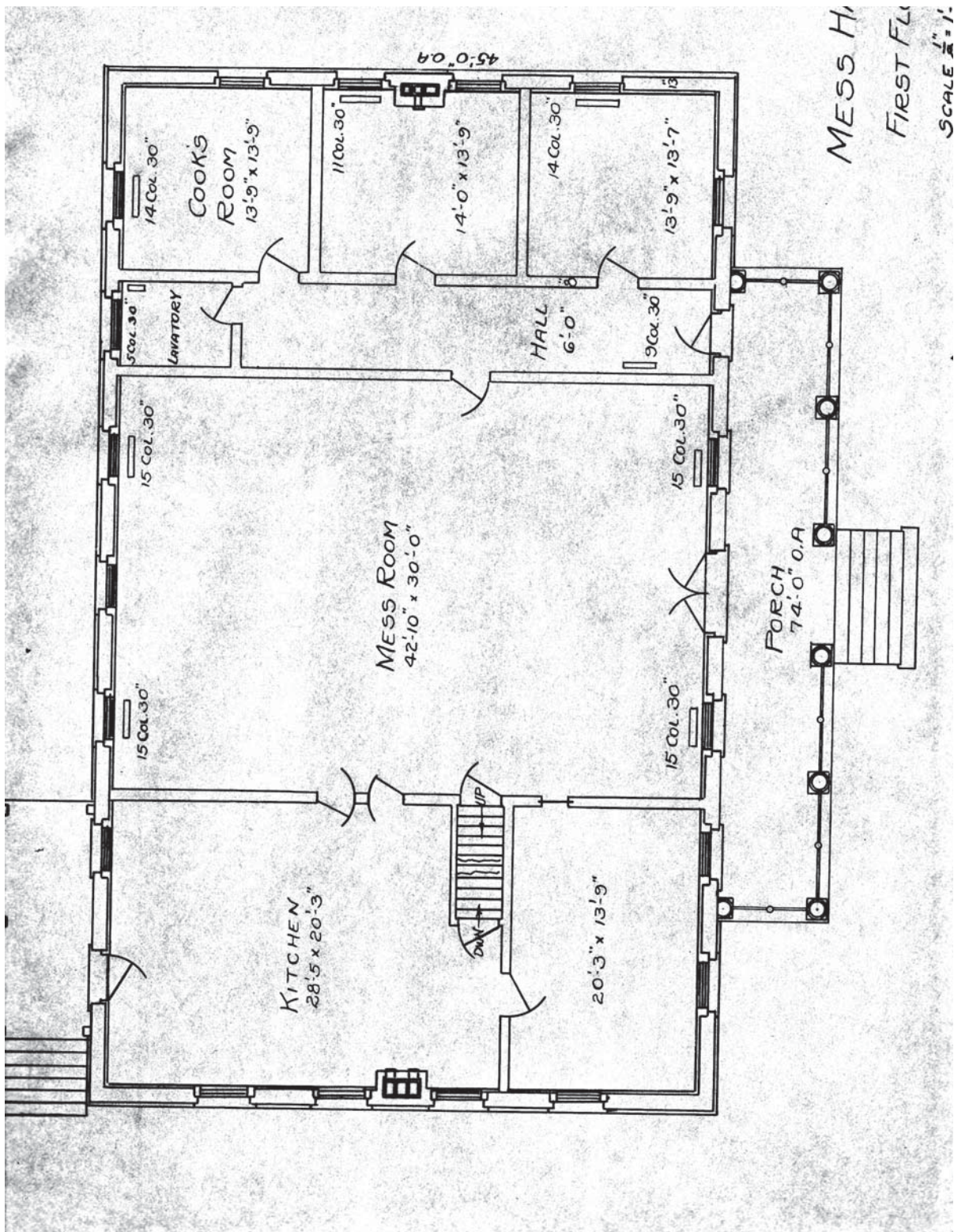
APPENDIX F: HISTORICAL DRAWINGS

Mess Hall Building #58-Fort Hancock
 Historic Structure Report
 Gateway National Recreation Area



1. Building #58. Foundation plan (c. 1901). From RG 92, National Archives.

Mess Hall Building #58-Fort Hancock
 Historic Structure Report
 Gateway National Recreation Area



2. Building #58. First floor plan (c. 1901). From RG 92. National Archives.

Mess Hall Building #58-Fort Hancock
Historic Structure Report
Gateway National Recreation Area

f. Drawings

FORT HANCOCK N.J.
SHEET NO. 1 3 SHEETS
MESS HALL
ANNEX TO BARRACK BUILDING
J.M.G.O. SEP 1901

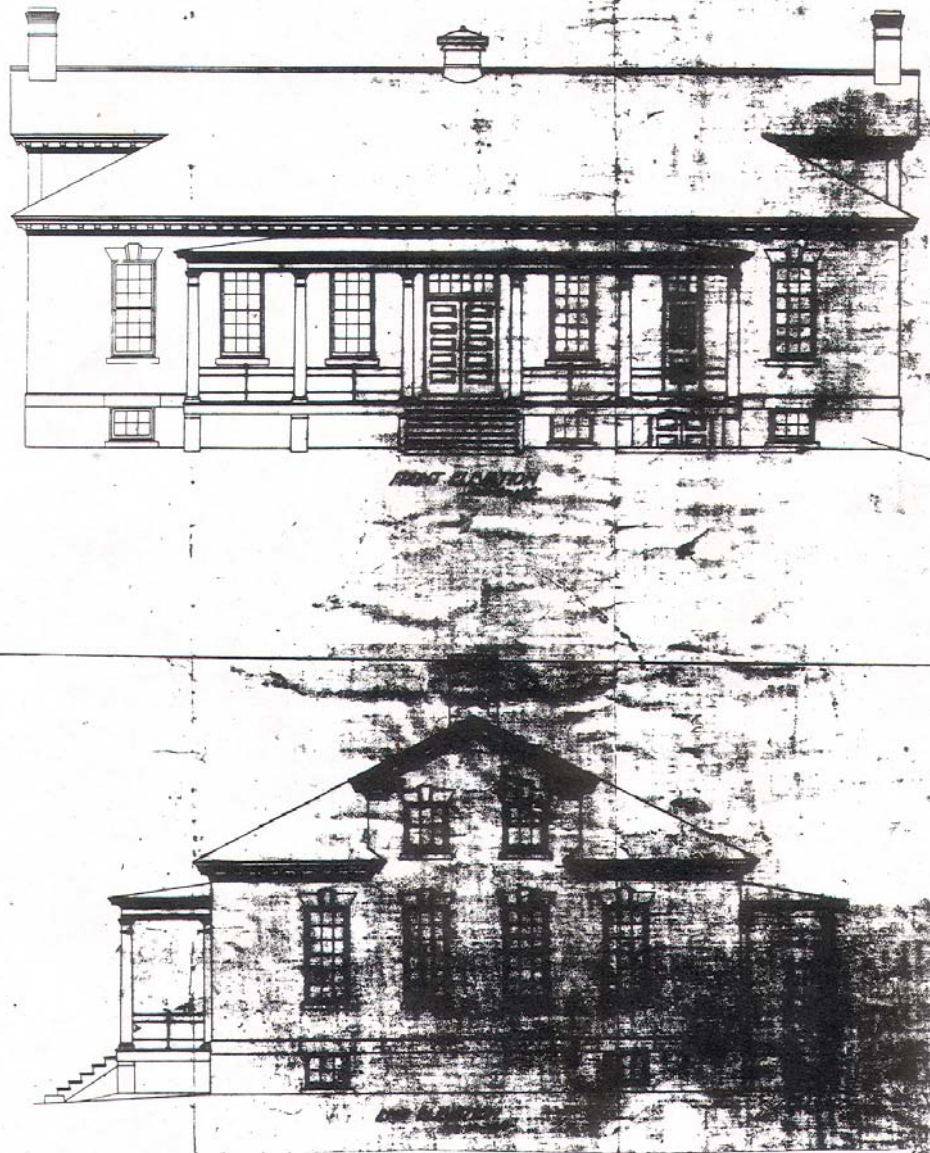


Figure 39. Typical Front (east) and End Elevation, Structures Nos. 55, 56, 57, and 58. U.S. Army Drawings, 1901.

3. Mess Hall. Annex to Barrack Building, Fort Hancock. Typical Front and East End. Office of the Quartermaster General. September 1901.

Mess Hall Building #58-Fort Hancock
Historic Structure Report
Gateway National Recreation Area

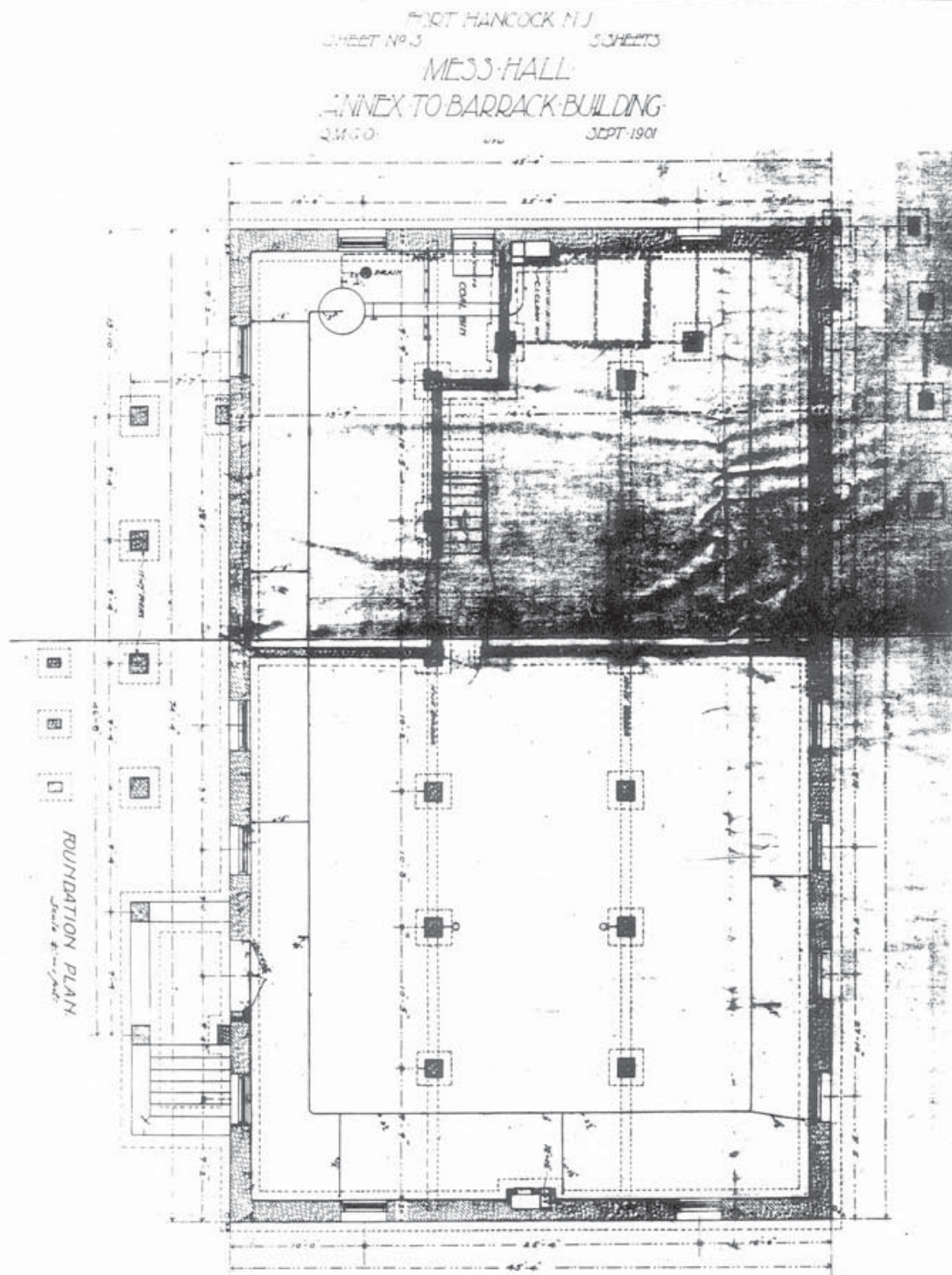


Figure 40. Typical Basement Plan, Structures Nos. 55, 56, 57, and 58.
U.S. Army Drawing, 1901.

4. Mess Hall. Annex to Barrack Building, Fort Hancock. Basement. Office of the Quartermaster General. September 1901.

Mess Hall Building #58-Fort Hancock
 Historic Structure Report
 Gateway National Recreation Area

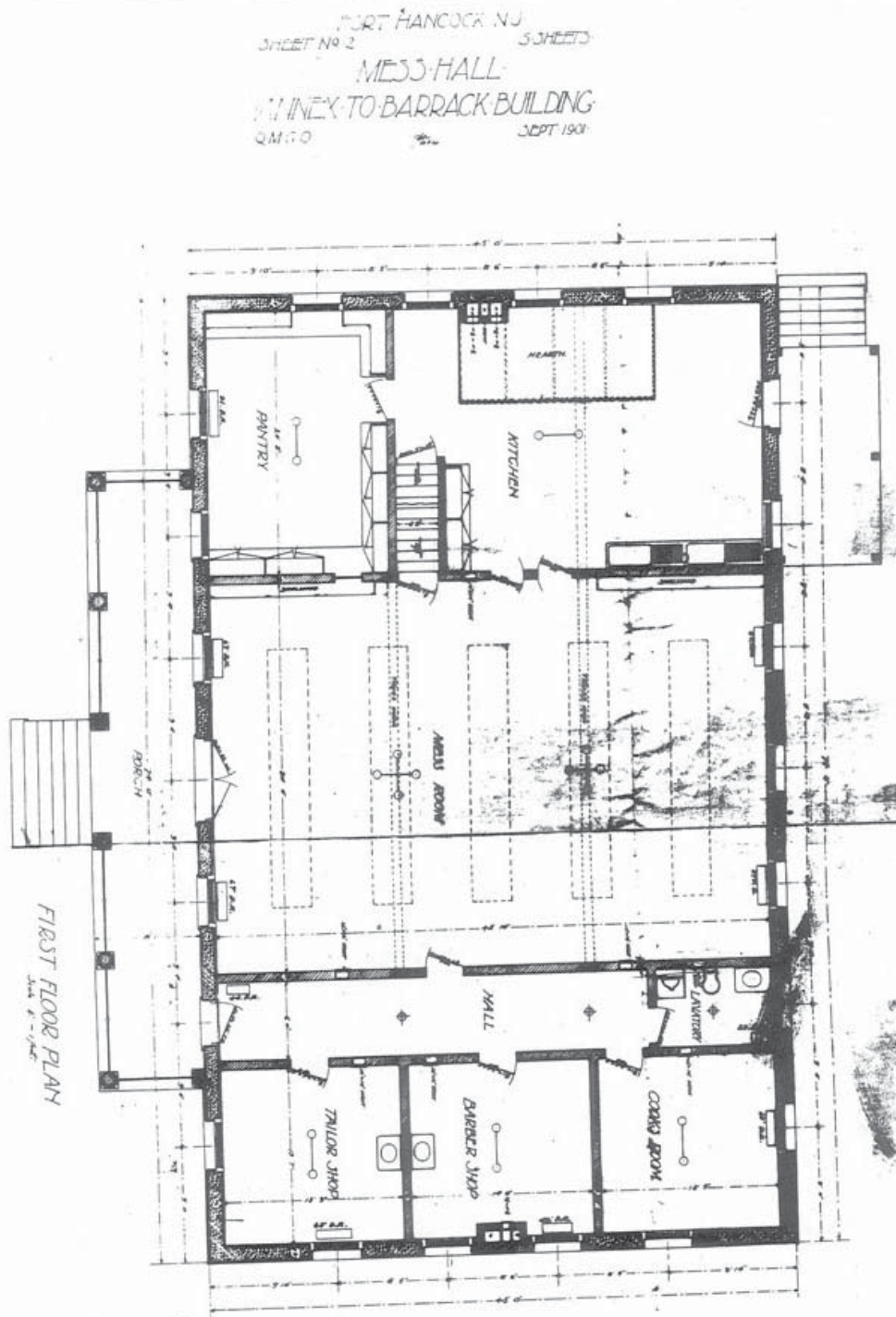


Figure 41. Typical First Floor Plan, Structures Nos. 55, 56, 57, and 58.
 U.S. Army Drawing, 1901.

5. Mess Hall. Annex to Barrack Building, Fort Hancock. First floor. Office of the Quartermaster General. September 1901.

Mess Hall Building #58-Fort Hancock
 Historic Structure Report
 Gateway National Recreation Area

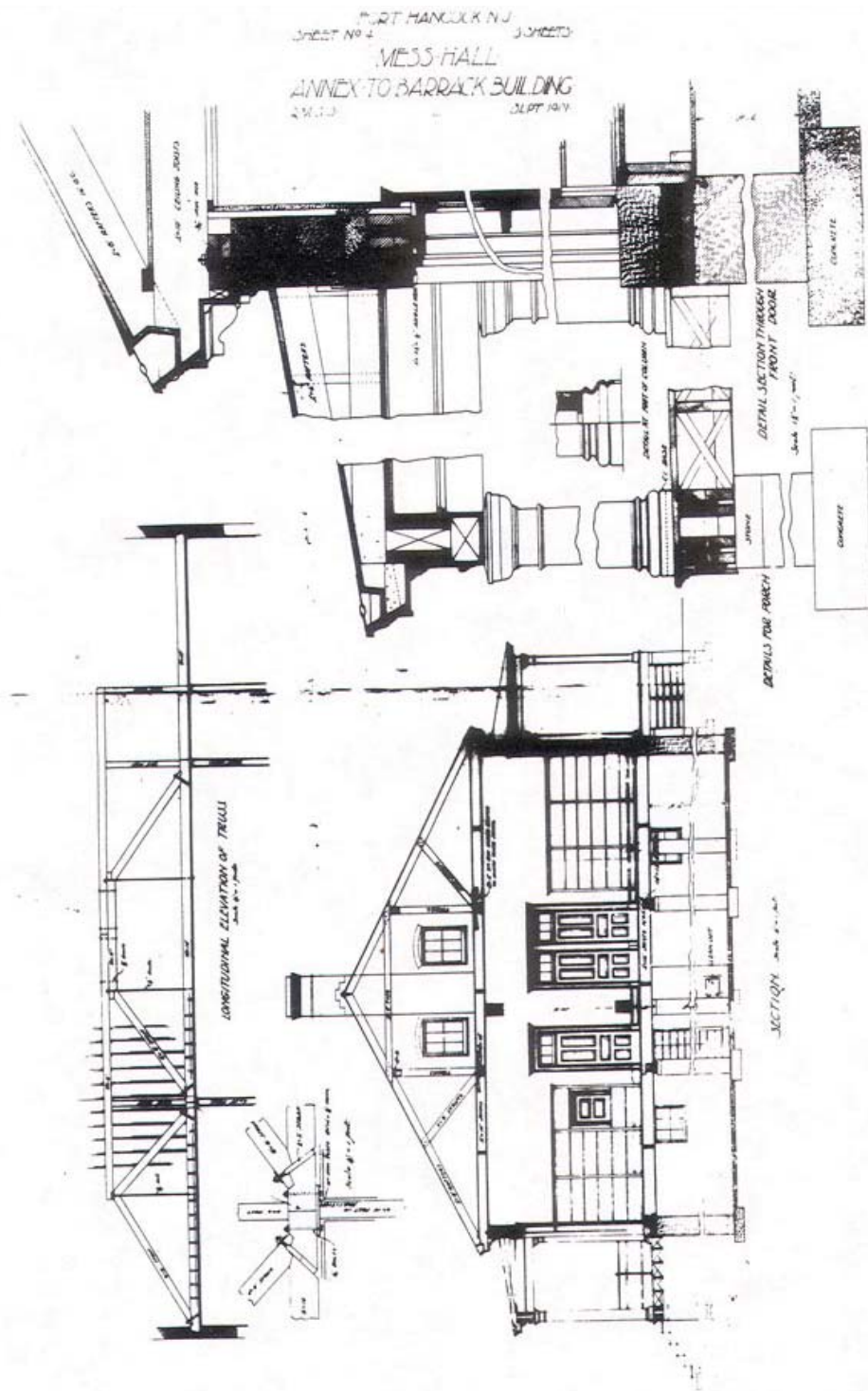
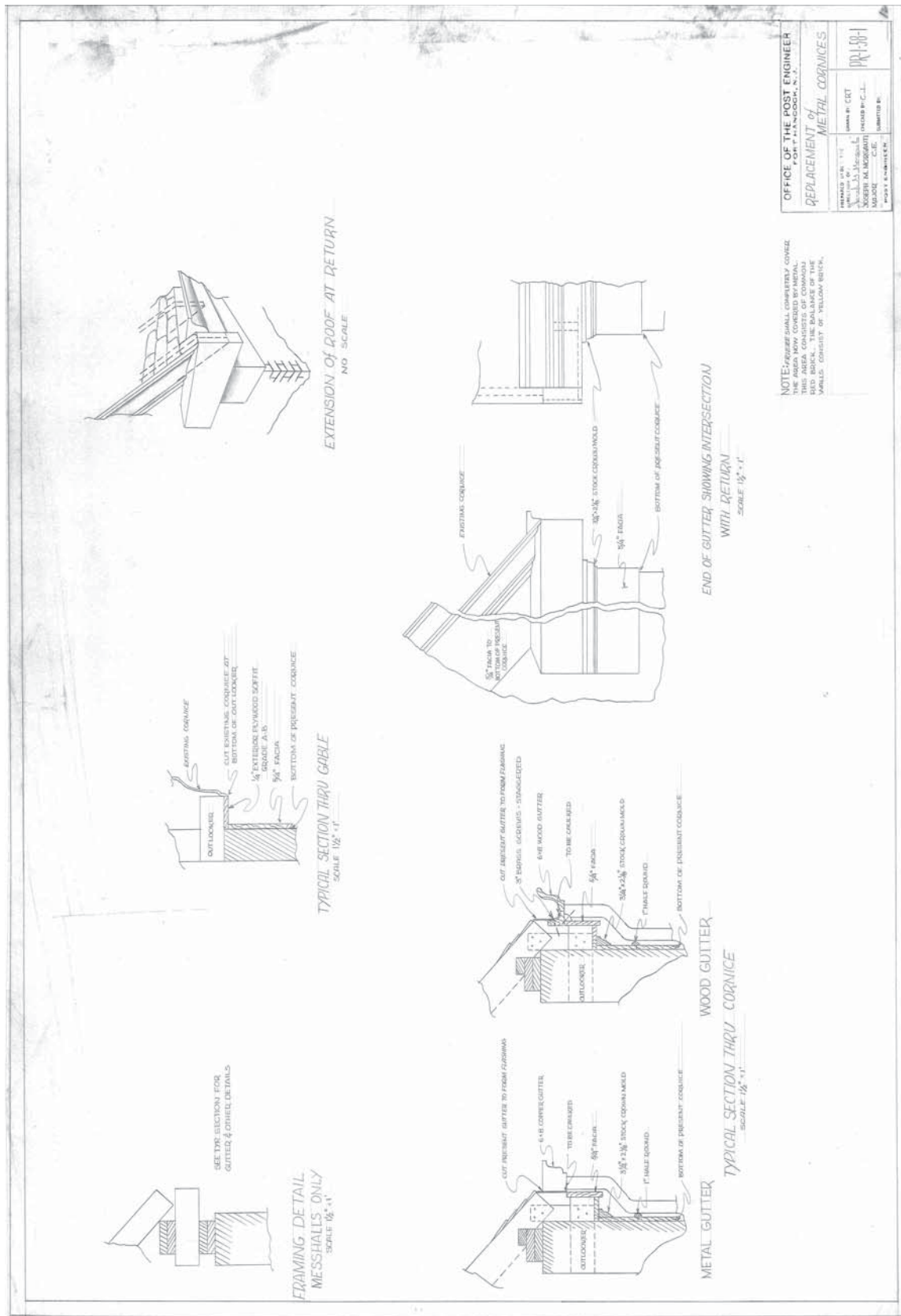


Figure 42. Typical Sections and Details, Structures Nos. 55, 56, 57, and 58. U.S. Army Drawings, 1901.

6. Mess Hall. Annex to Barrack Building, Fort Hancock. Sections. Office of the Quartermaster General, September 1901.



7. Replacement of Metal Cornices. Office of the Post Engineer, Fort Hancock, NJ. Drawing PF-1-58-1. 1958. Drawing #9581, Gateway National Recreation Area Archives.

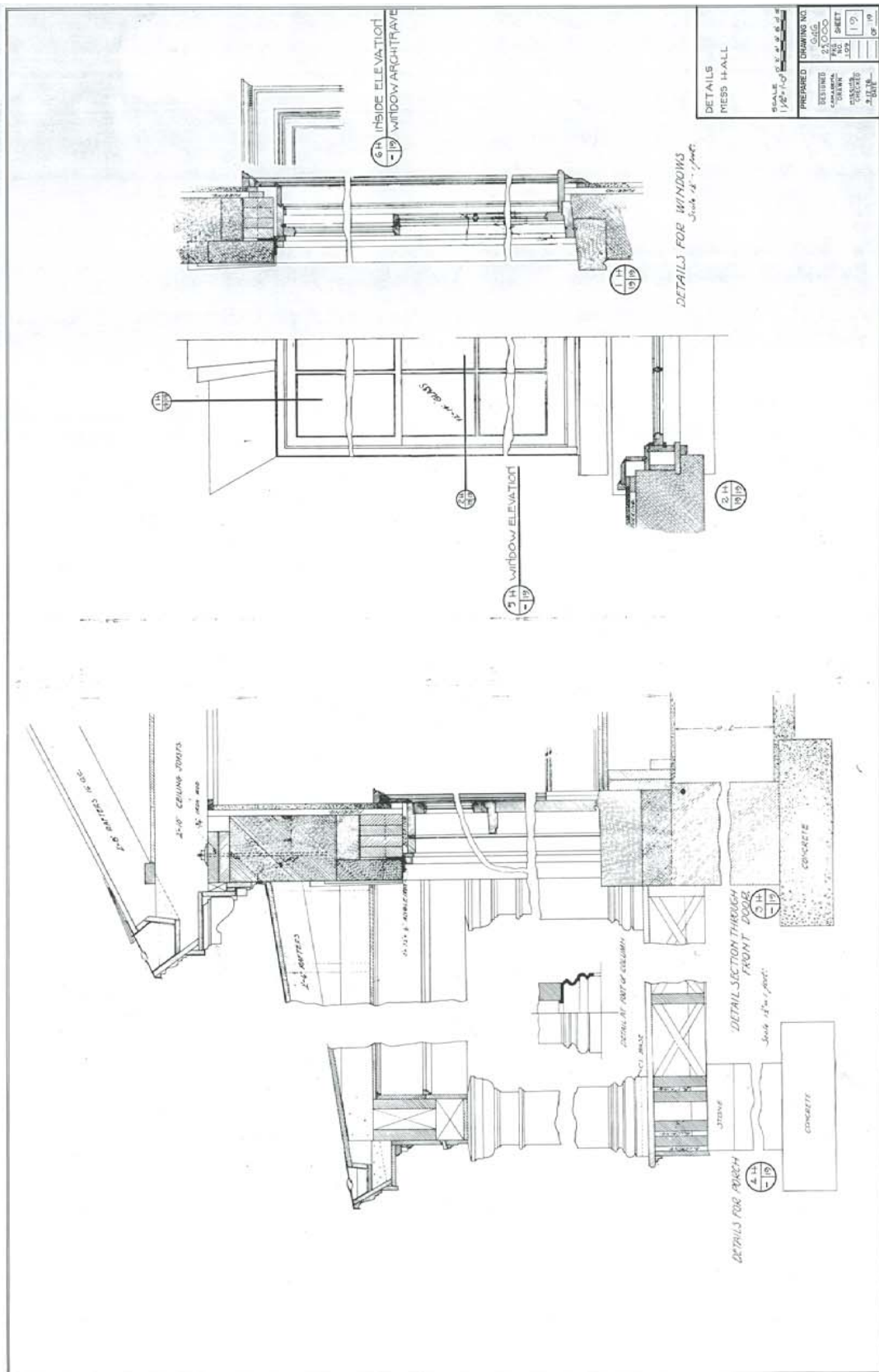


7342

[illegible]

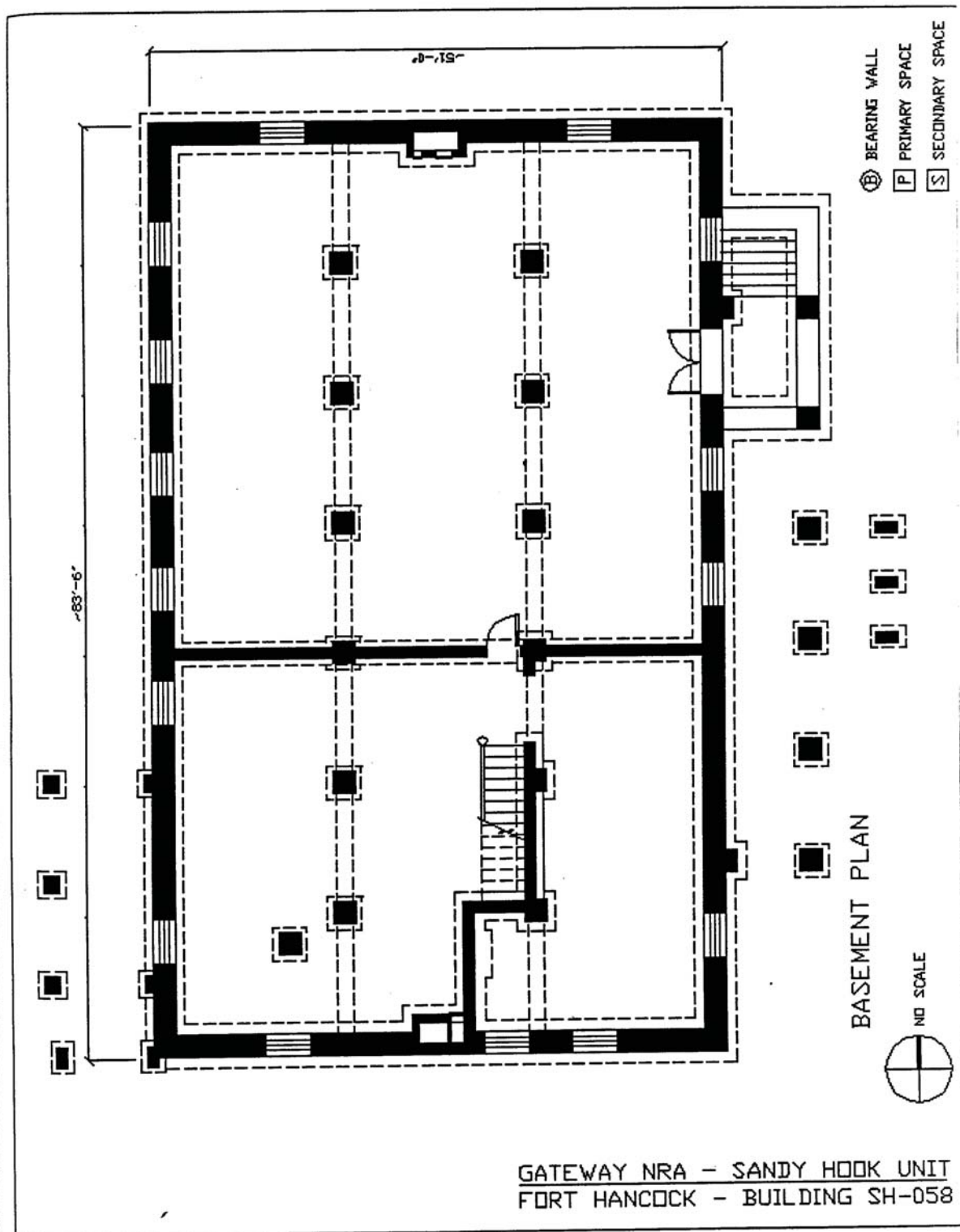
Appendix F: Historical Drawings - F9

Mess Hall Building #58-Fort Hancock
 Historic Structure Report
 Gateway National Recreation Area



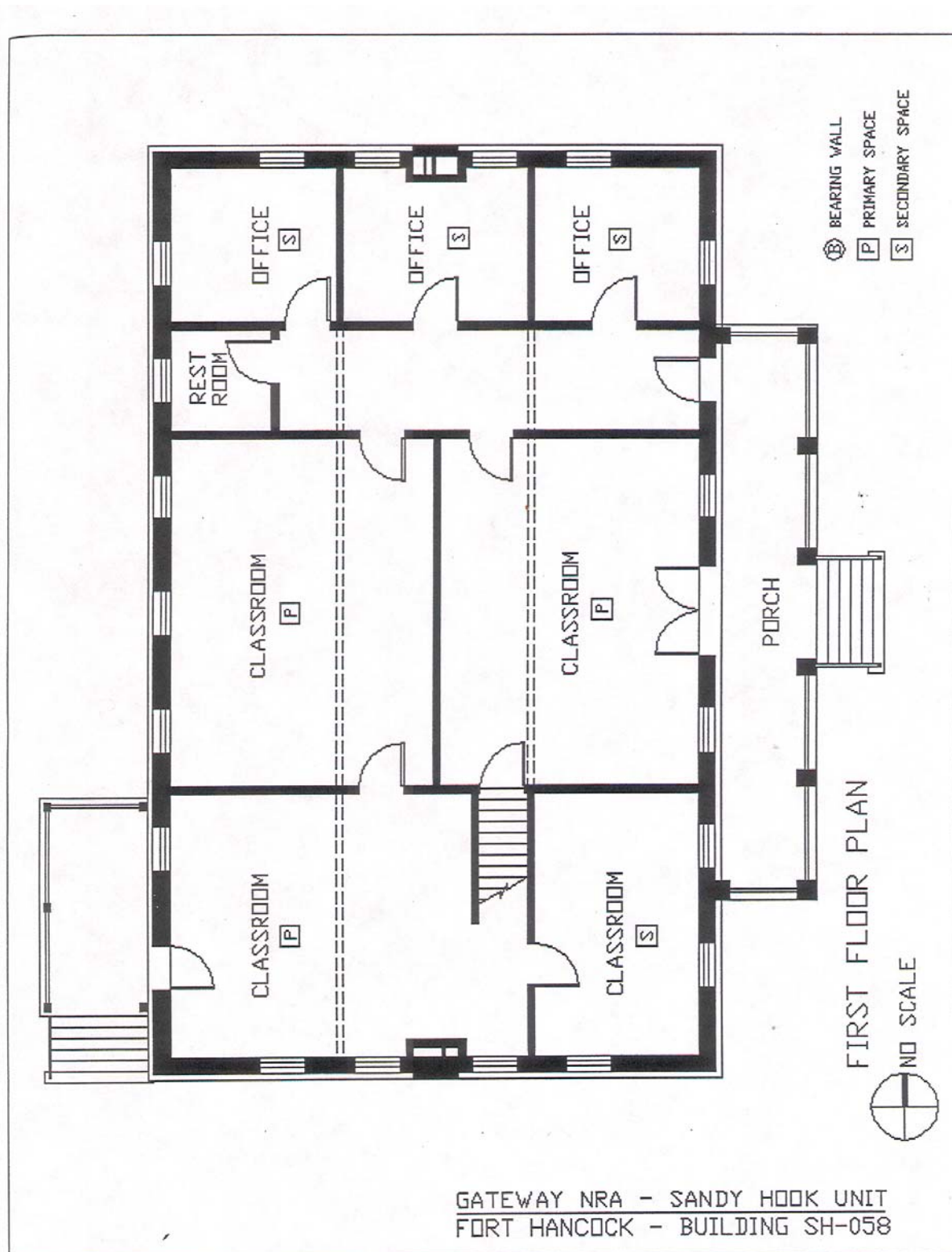
10. Details Mess Halls (West Porch, Wall Section, and Windows). 17 September 1976. Drawing #11778, Gateway National Recreation Area Archives.

Mess Hall Building #58-Fort Hancock
Historic Structure Report
Gateway National Recreation Area



11. Mess Hall Building #58, Basement Plan. 1990. Historic Structure Assessment Report, Architectural Conservation Center.

Mess Hall Building #58-Fort Hancock
Historic Structure Report
Gateway National Recreation Area



12. Mess Hall Building #58, First Floor Plan. 1990. Historic Structure Assessment Report, Architectural Conservation Center.

APPENDIX G: HISTORICAL DOCUMENTS

APPENDIX G: HISTORICAL DOCUMENTS

Historical documents below are provided in digital form only. See accompanying CD for complete files.

U.S. Army. Quartermaster Corps. Subsistence Department.

1914 *Manual for Army Cooks*. Government Printing Office, Washington, D.C.

Deitrick, Capt. L.L., Maj. L.R. Holbrook, Capt. E.S. Wheeler, and Capt. W.H. Smith

1917 *Manual for Army Bakers 1916*. Government Printing Office, Washington, D.C.

Anon.

1917 *Manual for the Quartermaster Corps United States Army*. Government Printing Office, Washington, D.C.

Holbrook, Cpt. L.R. and P. Dunne

1916 *Mess Sergeant's Handbook*. Third Edition. George Banta Publishing Company, Menasha, Wisconsin.

[illegible]

1. Mess Hall Building #58, U.S. Army Building History Card 1, December 1939 (National Archives, Textual Records, College Park, MD)

[illegible]

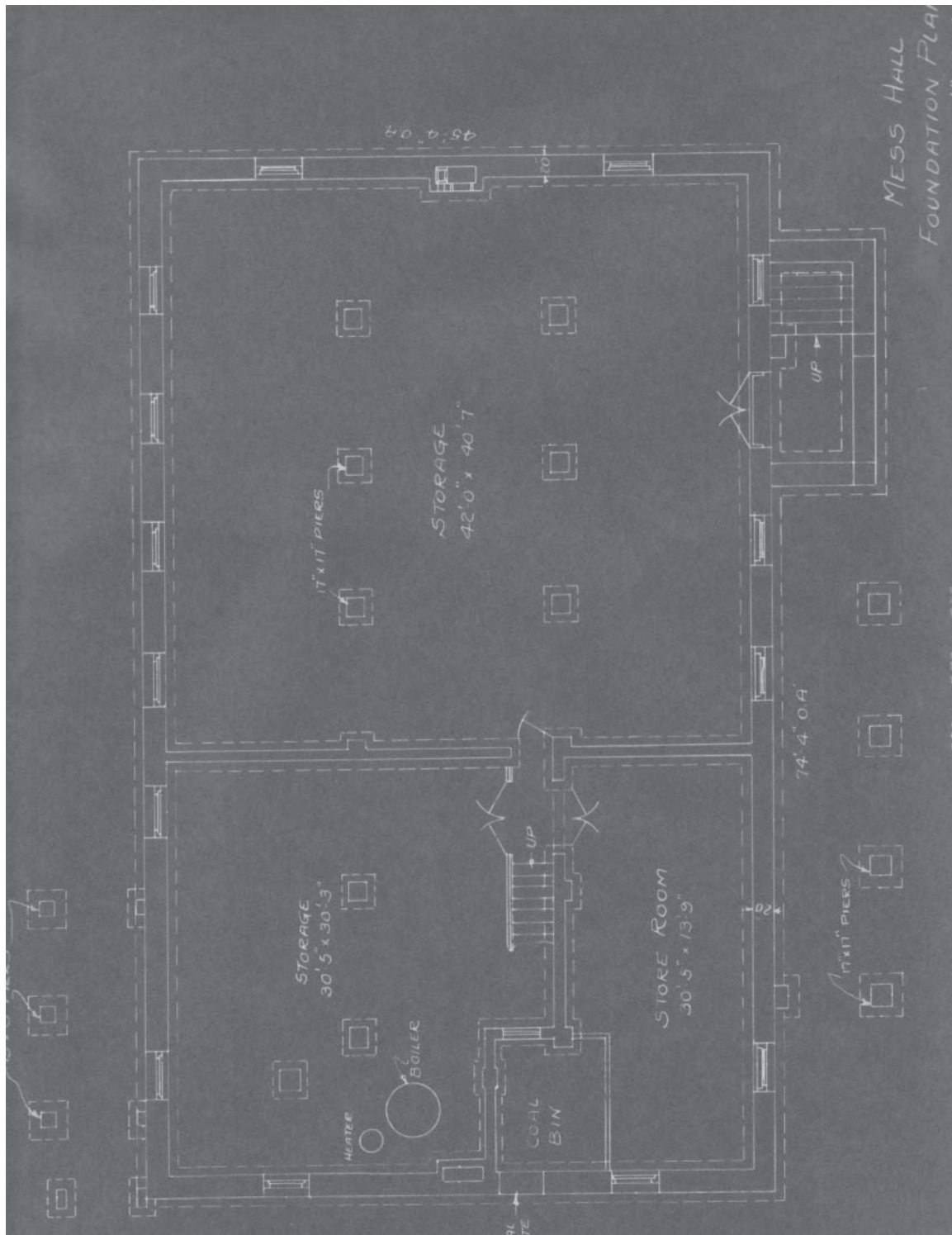
INSTRUCTIONS.—“a” State whether heated from central heating or by individual heating plants, stoves, furnaces, or fireplaces.

2. Mess Hall Building #58, U.S. Army Building History Card 2, Page 1 of 4, December 1939 (National Archives, Textual Records, College Park, MD)

[illegible]

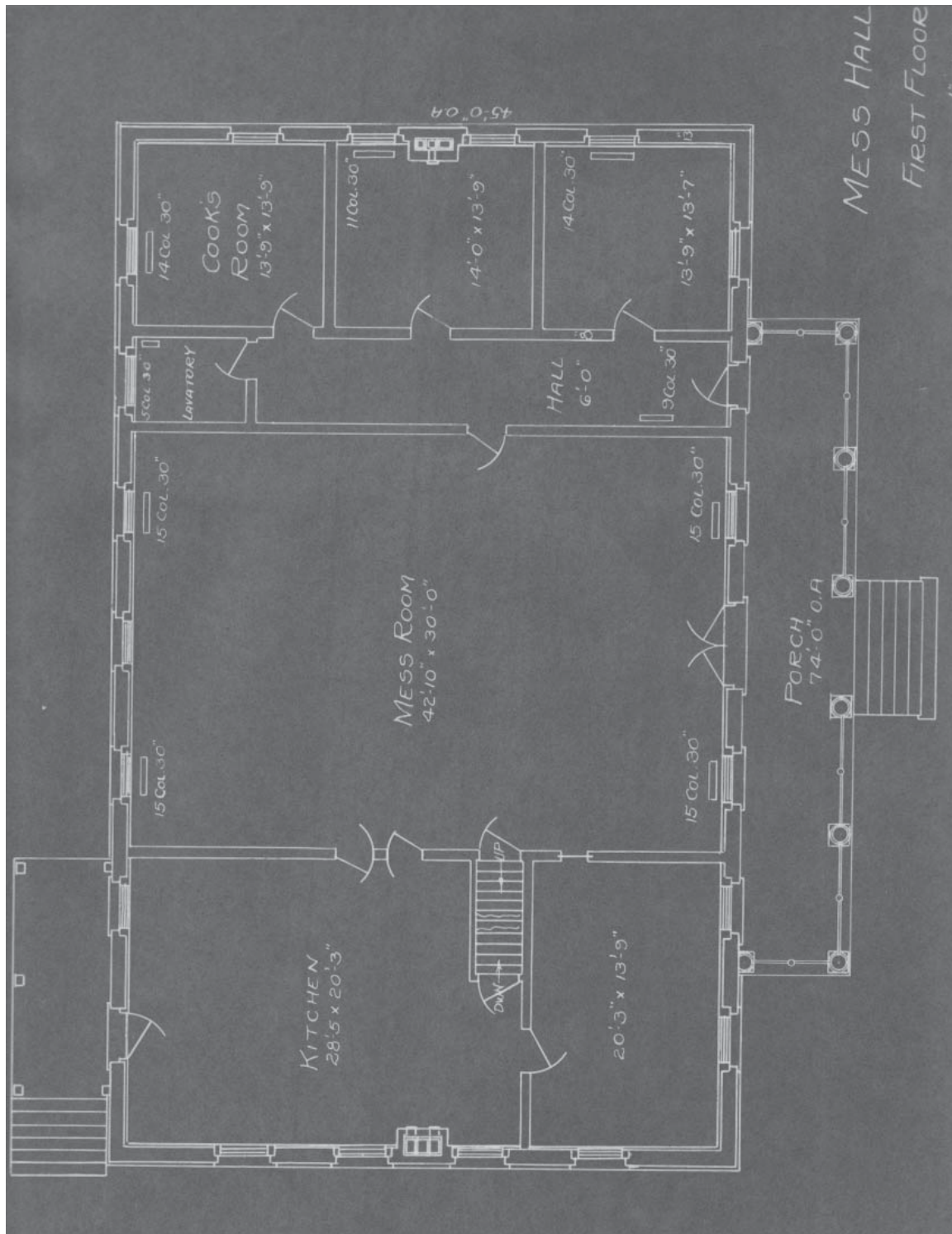
Appendix G: Historical Documents - G3

Mess Hall Building #58-Fort Hancock
 Historic Structure Report
 Gateway National Recreation Area



4. Mess Hall Building #58, U.S. Army Building History Card 2, Page 3 of 4, December 1939 (National Archives, Textual Records, College Park, MD)

Mess Hall Building #58-Fort Hancock
 Historic Structure Report
 Gateway National Recreation Area



5. Mess Hall Building #58, U.S. Army Building History Card 2, Page 4 of 4, December 1939 (National Archives, Textual Records, College Park, MD)

[illegible]

8. Record of Equipment and Condition of Buildings, Fort Hancock, Page 2 of 2, Fiscal Year ending June 30, 1939 (National Archives, Textual Records, College Park, MD)

Mess Hall Building #58-Fort Hancock
Historic Structure Report
Gateway National Recreation Area

9	BUILD- ING NO.	DEGRADATION OF BUILDINGS OR SYSTEMS	BRIEF DESCRIPTION OF IMPORTANT REPAIR WORK ACCOMPLISHED DURING THE FISCAL YEAR, COSTING \$100 OR MORE	REPAIR EXPENDITURES FOR THE PRESENT FISCAL YEAR	TOTAL REPAIR EXPENDITURES FOR THE DATE THE BUILD- ING OR SYSTEM WAS CONSTRUCTED TO PRESENT FISCAL YEAR	TOTAL ORIGINAL COST OF REPAIRS, TO JUNE 30, PRESENT FISCAL YEAR	COST OF NEW STRUCTURE (INCL. CONSTRUCTION, ADDITIONS BUT EXCLUDING REPAIRS) DURING PRESENT FISCAL YEAR
			TOTAL CARRIED FORWARD FROM PAGE 8	\$ 40503.44	\$ 748521.10	\$ 201894.71	\$ 790584
✓	265	Regimental Headquarters Building		63.74	63.74	5888.92	5888
✓	310	U. S. Post Office		71.44	71.44	10406.00	10406
✓	368	Message Center		335.31	335.31	4999.73	4999
		SUB TOTAL ALL OTHER EMERGENCY MISCELLANEOUS BUILDINGS		1566.91	2274.26	99328.33	42794
✓		PERMANENT POST HOSPITAL BUILDINGS					
✓	19	Post Hospital	Carpentry 132.60 Int. wd'wk. 408.44 Int. Tile 2876.87 Int. Paint 1751.32 Plumbing 132.93 Ext. Carpentry 729.55 Plastering 612.79 Int. Wiring 260.76				
✓	74	Auxiliary Hospital					
✓	74	Morgue					
		SUB TOTAL PERMANENT POST HOSPITAL BUILDINGS		20137.05	116652.66	179254.18	35231
✓		EMERGENCY POST HOSPITAL BUILDINGS					
✓	TC-168	Dispensary		164.35	261.66	11739.36	15430
✓	335	Hospital Administration Building		60.47	60.47	15430.00	15430
✓	297	Regimental Infirmary		62.91	62.91	6080.00	6080
✓	333	Nurses Qtrs. with Mess		110.85	110.85	14055.00	14055
✓	334	Nurses Qtrs. with Mess		68.52	68.52	14055.00	14055
✓	335-a	Boiler Room for 335		63.88	63.88	8450.00	8450
✓	335-b	Covered Passage Connecting Hospital & Auxiliary		60.47	60.47	7295.00	7295
		SUB TOTAL EMERGENCY POST HOSPITAL BUILDINGS		591.45	688.76	77104.36	6536
✓		TEMPORARY C.C.C. BUILDINGS TRANSFERRED BACK TO C.C.C.					
✓	T-46	Dormitory		60.47	189.75	2420.26	
✓	T-47	Dormitory		60.47	189.75	2420.26	
✓	T-48	Dormitory		60.47	189.75	2420.26	
✓	T-49	Dormitory		60.47	189.75	2420.26	
✓	T-50	Dormitory		60.47	189.75	2420.26	
		SUB TOTAL TEMPORARY C.C.C. BUILDINGS TRANSFERRED BACK TO C.C.C.		302.35	943.75	112101.30	
✓		PERMANENT ENLISTED MEN'S MESS HALLS (NOT A PART OF A BARRACKS)					
✓	55	Mess Hall		141.13	14476.92	13994.00	
✓	56	Mess Hall	Plumbing 107.00	348.41	11434.62	13994.00	
✓	57	Mess Hall		133.79	10255.09	13994.00	
✓	58	Mess Hall		139.88	9729.92	13994.00	
		SUB TOTAL PERMANENT ENLISTED MEN'S MESS HALLS		763.21	45896.55	55976.00	
✓		TEMPORARY ENLISTED MEN'S MESS HALLS					
✓	T-44	Kitchen Mess Hall Transferred Back to C.C.C.		60.47	122.09	3157.55	
✓	TC-166	Enlisted Mens Mess Hall		108.25	205.56	11674.36	
✓	TC-168	Enlisted Mens Mess Hall		150.98	281.11	11674.36	
		SUB TOTAL TEMPORARY ENLISTED MEN'S MESS HALLS		319.70	608.76	26506.27	

ANNUAL REPORT OF CONSTRUCTION AND REPAIR

Fiscal year ending June 30, 1941

9. Annual Report of Construction and Repair, Fort Hancock, Fiscal Year ending June 30, 1941 (National Archives, Textual Records, College Park, MD)

[illegible]

Appendix G: Historical Documents - G9

Mess Hall Building #58-Fort Hancock
Historic Structure Report
Gateway National Recreation Area

Name		Fort Hancock, New Jersey	Location	Sandy Hook, New Jersey	Established	1972	Government-owned	Lea																		
Character of post		Coast Artillery	Telegraph station	Western Union	Freight station	Highlands, New Jersey	Gov't. Owned	Lea																		
Capacity: Officers		27 Married 246 Bachelor	; N. C. O. 56 Permanent; Enl. men 5089		Animals	12	Motor veh. 76	Privately; Hosp. 1																		
POST BLDG. No.	DESIGNATION OF BUILDING	Laundry	Coal	Oil	Gas	Steam	Electric	Water	Gas	Oil	Steam	Electric	Toilets	Urinals	Kitchen Sinks	Washbasins	Laundry Tubs	Shower Baths	Bathrooms	Fire Extinguishers	Fire Buckets	Storm Windows	Screens	Designed Capacity	Present Occupancy	REMARKS
289	Officers Quarters																							40P	31	Go
290	Officers Quarters																							40P	37	Go
291	Officers Quarters																							40P	33	Go
295	Officers Quarters																							40P	29	Go
296	Officers Quarters																							40P	21	Go
336	Guest House																							22 P	22	Go
																								242		
	C. Mess Halls																									
	Enlisted Men																									
	(a) permanent																									
55	Mess Hall																							140P	140	Fa
56	Mess Hall																							140P	140	Fa
57	Mess Hall																							140P	140	Fa
58	Mess Hall																							140P	140	Fa
	(b) temporary																									
T 44	Kitchen Mess Hall																							210P	210	Fa
TC166	Enlisted Mens Mess Hall																							208P	208	Go
TC168	Enlisted Mens Mess Hall																							208P	208	Go
	(c) emergency																									
TC173	Enlisted Mens Mess Hall																							200P	200	Go
V 175	Enlisted Mens Mess Hall																							200P	200	Go
177	Enlisted Mens Mess Hall																							228P	228	Go
179	Enlisted Mens Mess Hall																							200P	200	Go
180	Enlisted Mens Mess Hall																							200P	200	Go
182	Enlisted Mens Mess Hall																							200P	200	Go
184	Enlisted Mens Mess Hall																							200P	200	Go
185	Enlisted Mens Mess Hall																							200P	200	Go
208	Enlisted Mens Mess Hall																							170P	170	Go
210	Enlisted Mens Mess Hall																							170P	170	Go
217	Enlisted Mens Mess Hall																							170P	170	Go
224	Enlisted Mens Mess Hall																							170P	170	Go
226	Enlisted Mens Mess Hall																							170P	170	Go
234	Enlisted Mens Mess Hall																							170P	170	Go
241	Enlisted Mens Mess Hall																							170P	170	Go
242	Enlisted Mens Mess Hall																							170P	170	Go
253	Enlisted Mens Mess Hall																							170P	170	Go
259	Enlisted Mens Mess Hall																							170P	170	Go
261	Enlisted Mens Mess Hall																							170P	170	Go

11. Record of Equipment and Condition of Buildings, Fort Hancock, Page 2 of 2, Fiscal Year ending June 30, 1941
(National Archives, Textual Records, College Park, MD)

APPENDIX H: MORTAR ANALYSIS

MORTAR ANALYSIS

1.0 INTRODUCTION

This appendix provides an analysis of mortars sampled from Mess Hall Buildings #58 and #57 located within Fort Hancock, Sandy Hook, New Jersey. The mortar analysis was undertaken as part of a historic structure report for Building #58. The primary goal was to characterize the earliest mortars that still remained and to investigate the suitability of later repointing mortars. Mortar analysis is a visual and laboratory examination of cementitious building materials such as mortars, plasters, stuccos, and grouts for the purpose of determining composition and application techniques. The analysis is subjective, and primarily comparative in nature, and may be effectively used to assess the relationship between different parts of a structure or of a structure to similar sites elsewhere. The principal reason mortars are analyzed is to match historic mortars for repointing and reconstruction projects. It is critical that new mortars are physically compatible with adjacent materials and that the surface is aesthetically appropriate to the appearance of the significant historic period of the structure.

The analysis revealed that the earliest pointing mortars sampled from both brick and foundation masonry were all light, unpigmented mortars with a speckled, black-and-white appearance from the aggregate. The binder in the earliest samples was definitely hydraulic, and may have been natural cement or a hydraulic lime mortar. The binder may or may not have contained a small percentage of Portland cement binder. The non-acid soluble fines content, which can come from pigment and Portland cement by-products, constituted a significant but small percentage of the mortar. All of the early mortars shared the same pale yellow feldspar sand with significant grains of blackish green glauconite, typically found in sands from a marine environment. The sands were all relatively fine and poorly graded, with the majority of the grains being 300-600µm in size.

In contrast, the later repointing mortars at Building #58 varied. The repointing mortar at the brick masonry could not be separated for analysis. The brick repointing mortar had been inappropriately installed as a very thin, smear coat of gray mortar. The brick repointing mortar is not appropriate in color or in its installation. The diabase foundation masonry has been repointed with a dark gray mortar, which has weathered to a pale brownish-gray. The foundation repointing mortar is not the appropriate color, but appears to have been installed correctly. Both the brick and foundation pointing mortar is failing in small areas throughout the exterior.

In future repointing work, it is recommended that both brick and foundation masonry be repointed with a mortar that matches the original buff colored mortar in overall color and speckled sands. The new repointing mortar should be compatible with the original mortar as well as with the weathered masonry. Repointing mortar must be appropriately installed according to best practice guidelines.

2.0 METHODOLOGY

2.1 Sampling

John Milner Associates, Inc. (JMA) performed all sampling in October 2009. Mortar samples were taken from the brick and foundation masonry at Building #58. Brick mortar samples were also taken at Building #57 for comparison. Sample information is noted below and on the Mortar Analysis Summary Sheets included with this report. Locations of mortar sampling are noted on building elevations included with this report. The samples are as follows:

- M-1 Building #58, south elevation, foundation masonry, current repointing mortar
- M-2 Building #58, south elevation, foundation masonry, earlier pointing mortar
- M-3 Building #58, north elevation, brick masonry, repointing mortar smear coat over earlier pointing mortar
- M-4 Building #58, west elevation, brick masonry, earlier pointing mortar
- M-5 Building #57, north elevation, west end, brick masonry, earlier pointing mortar

2.2 Analysis

A freshly broken surface of each mortar sample was examined with a stereo-binocular microscope. After the initial observations, three mortar samples were chosen for further analysis (M-1, M-2 and M-5). For these selected samples, binder color and characteristics, proportion and characteristics of voids, and relationship between aggregate and binder were evaluated. The binder was matched to a color standard of the Munsell Soil Color Chart.¹ A portion of each sample was ground in a ceramic mortar to disaggregate the material. The remainder of each sample was set aside for later use in evaluation of potential replication mixes.

Each selected sample was then separated into three components: the acid-soluble fraction, the 'fines' (e.g. pigment, acid-insoluble cement residue, or silt-to clay-sized mineral grains), and the aggregate or sand. Separation was accomplished by wet-chemical techniques. The acid-soluble fraction was first removed by digestion with dilute hydrochloric acid. The fines were separated from the aggregate by washing and filtration, then dried and weighed. The weight of acid soluble material was calculated by difference.

Weight percentages of acid-soluble material, fines, and aggregate in the sample were calculated as an aid in determination of an appropriate replication mortar type. The aggregate was examined microscopically to identify the component materials, as well as evaluate the color, opacity, and shape of the sand grains, and the presence and nature of impurities. The particle size distribution of the aggregate was determined by sieve analysis.

3.0 FINDINGS AND RECOMMENDATIONS

3.1 Observations

All of the original mortars sampled were very similar. They were all buff colored with a natural speckled marine sand that was relatively fine and poorly graded. The original mortars all appear to have had a hydraulic binder that may or may not have included Portland cement. The repointing mortars vary in both composition and method of installation. The brick repointing mortar was a thin smear coat over the original buff colored mortar. The brick repointing mortar was too thin and difficult to separate for analysis; however, it is believed to be a gray Portland cement based mortar. The foundation masonry was repointed with a Portland cement based, dark gray mortar, which has weathered to a pale brown. The foundation masonry was repointed to an appropriate depth. The individual mortar samples are described in detail below; results of the wet-chemical and microscopic analysis are presented in the Summary Sheets in the Appendix.

M-1 Building #58, South Elevation, Foundation Repointing Mortar

The sample of foundation repointing mortar was one solid chunk of mortar from a 1/4-inch wide joint. The sample could not be broken by hand; a hammer and chisel were required. The sample broke through the binder, not the aggregate. The dark gray binder was similar in color to the diabase foundation stone. The exterior surface of the mortar had a rim of lighter gray, bleached mortar. The dark gray binder was smooth in texture with a low gloss. The binder to aggregate ratio was moderate. The void volume was approximately 5% in the form of large irregular voids from entrapped air.

The grains of the aggregate are relatively poorly graded with the majority of the aggregate grains measuring 150-600µm in diameter. The sub-angular aggregate is predominantly translucent, gray to white feldspar with a few translucent grains of orange feldspar and some transparent quartz. There is also abundant dark, greenish-black grains of glauconite.

Based on the date of repointing, the hardness of the sample, and the high fines content (11.64% by weight), mortar sample M-1 is believed to be a Portland cement based mortar. The sands are a natural marine aggregate with a characteristic speckled appearance. The repointing mortar appears to have used sand that was very similar to that used in the original brick and foundation mortar.

M-2 Building #58, South Elevation, Foundation Earlier Pointing Mortar

The earlier pointing mortar sample from the foundation was comprised of many friable, pale gray pieces that were easily broken by hand. The white binder was matte and slightly powdery with some large white nodules throughout. The binder to aggregate ratio was very low; the mortar appears to be mostly aggregate. The speckled appearance of the mortar can be attributed to the black-and-white aggregate. Void volume was approximately 3%, primarily in the form of large, irregular voids from poor packing.

The grains of the aggregate are nearly uniform in size with the majority of the aggregate grains measuring 300-600µm in diameter. The sub-angular aggregate is predominantly translucent, gray to white feldspar with a few translucent grains of orange feldspar and some transparent quartz. There is also abundant dark, greenish-black grains of glauconite.

Based on the date of construction and the significant fines content (5%), mortar sample M-2 is believed to have a hydraulic binder, which may or may not have been Portland cement. The mortar was very lean with little binder. The sands are a natural marine aggregate with a characteristic speckled appearance. The natural sands are fine and poorly graded, which has led to large voids from poor packing.

M-3 Building #58, North Elevation, Brick Repointing and Earlier Mortar

The sample of brick pointing mortar included the current smear coating of mortar over the earlier buff colored mortar. The speckled buff colored mortar was similar to the earlier mortar sampled from the foundation in sample M-2. The earlier mortar was coated with two skim coats of gray mortar, each approximately 1/16-inch, for a total of 1/8-inch in thickness. The earlier mortar had a white matte binder that was slightly powdery in texture. There was microcracking throughout the binder. The binder to aggregate ratio was moderate. Void volume was approximately 2%, primarily in the form of small, irregular voids formed by entrapped air.

The smear coat mortar had a gray binder, which was smooth with a low sheen. The binder to aggregate ratio was moderate. Void volume was minimal, approximately 1%, with small irregular voids from entrapped air. The earlier pointing mortar and later smear coats could not be separated for analysis. Sample M-3 was not chosen for further chemical analysis.

M-4 Building #58, West Elevation, Brick Earlier Pointing Mortar

The sample of earlier brick pointing mortar consisted of many small friable pieces that exhibited black soiling, biological growth, and green paint. The mortar was cracked, delaminated, and generally deteriorated. There were pieces of green painted wood embedded in the mortar. The mortar appeared to be similar to samples of earlier mortar seen in M-2 and M-3. The white binder is smooth and slightly powdery with microcracking overall. The binder to aggregate ratio was moderate. The void volume was low, approximately 2%, primarily in the form of small irregular voids from entrapped air. The samples of mortar were too deteriorated for further chemical analysis.

M-5 Building #57, North Elevation, Brick Earlier Pointing Mortar

The sample of earlier brick pointing mortar was comprised of several solid but friable pieces from a 1/4-inch wide joint. The exterior surfaces were covered with a dark brown to green discoloration, possibly biological. The sample broke easily by hand. The sample was similar to samples M-2, M-3, and M-4. The white binder was powdery and matte with microcracking. The binder to aggregate ratio was moderate. The void volume was low, approximately 2%, with voids primarily in the form of small irregular voids from entrapped air. The aggregate in sample M-5 is identical to that found in sample M-2.

Based on the date of construction and the significant fines content (6.3%), mortar sample M-5 is believed to have a hydraulic binder, which may or may have been Portland cement. The sands are a natural marine aggregate with a characteristic speckled appearance. The natural sands are fine and poorly graded, which has lead to large voids from poor packing.

3.2 Recommendations

Ideally, the composition of the new mortar should duplicate that of the original. Unfortunately, current analysis techniques such as the Cliver and Jedrzejewska methods cannot accurately determine the actual original mix; there are far too many variables.² Current techniques can provide subjective data on properties of the mortar such as hardness, air content, and color; most also free the sand for matching. Actual values for weight percentages of sand and carbonate (through collection of carbon dioxide gas with the digestion of the mortar) can also be determined. However, no technique currently available can accurately determine the actual original mix; there are far too many variables.

As it is not possible to accurately duplicate the original mortar, it is critical that the replacement mortar be compatible with the condition, type, and exposure of the existing masonry. Mortar should be softer than the existing masonry, which will be less durable than new masonry because of weathering and other treatments. Softer mortars will allow for minor masonry movement and prevent deterioration of the weathered masonry. Replacement mortar must also be more porous than the surrounding masonry it supports, thus allowing moisture that may enter a wall to pass through it to the exterior. Hard, dense mortars prevent this moisture movement, causing accelerated deterioration in the masonry unit rather than in the mortar joint. Mortar must also have the appropriate strength and performance characteristics for the job it is required to do. Strength and durability is critical for a mortar used to set a new chimney on an exposed rooftop, whereas flexibility may be more critical for repointing in a more sheltered location.

It is recommended that Building #58 be repointed with an ASTM C270 Type O mortar (1 cement: 2 lime: 9 sand) to match the existing historic mortar in color and texture.³ A Type O mortar should be softer than the buff brick, limestone, and diabase masonry. However, without data on the physical properties of the masonry, it is not possible to provide a replication mix of known physical compatibility. As the porosity of the brick, limestone, and diabase masonry will vary considerably, it will be important to carefully monitor the curing time to ensure that the mortar does not dry too quickly.

A range of samples should be prepared to determine the appropriate materials and proportions for the new mortar. A color match to an historic mortar can usually be achieved by mixing sand (selected to match the historic sand) and binder (lime putty, natural hydraulic lime, natural cement, or Portland cement) to approximate original mortar proportions. Additionally, modern non-organic tinting agents can be used to achieve a match for colored mortars. Masonry cements should be avoided in the formulation of mortar mixes for historic structures, as they may contain unnecessary (and undisclosed) additives and fillers. Small batches of sample mortars can be prepared off-site until a preliminary mix is developed. Final samples should be prepared on site at actual repair locations to determine application method and final tooling, and to establish a performance standard.

General good repointing practice requires that all open mortar joints in masonry walls be repointed. Leaving joints open will lead to moisture penetration and may, in turn, lead to material degradation of internal structural components. Friable, cracked, disintegrated joints must be cut back to sound mortar before repointing. Recommended practice for repointing brick or stone masonry involves raking out existing deteriorated mortar to a depth of ¾-inch to 1-inch beyond the face of the joint. New mortar is then installed, and the new joints profiled to match the originals. Where necessary, voids in bedding mortar must be packed with new mortar, and then repointed to prevent face loading of the masonry and consequent spalling (face loading also occurs when pointing mortar is much harder than the bedding mortar). Mortar joints at horizontal wash surfaces should be cut back to sound material and repointed, leaving sufficient space for backer rod and sealant.

Sequencing of the work must be carefully considered. In projects where masonry is to be cleaned of dirt and biological growth, repointing should typically be done first to prevent moisture penetration into the

Mess Hall Building #58-Fort Hancock

Historic Structure Report

Gateway National Recreation Area

wall and consequent damage to building fabric. However, cleaning after pointing makes matching the repointing mortar to the original somewhat difficult. Matching preliminary samples to a freshly broken surface of the original mortar rather than the dirty exterior surface can help resolve this problem. Similarly, on-site samples for mortar matching can be done in a test-cleaned area. Some types of masonry coatings, most notably water repellent formulations, can interfere with mortar bond, so pointing should be completed before this type of coating is applied.

APPENDIX H: ENDNOTES

¹ The Munsell System of Color Notation identifies color in terms of three attributes: hue, value, and chroma. Color standards are opaque pigmented films on coated paper mounted on charts for each hue. The Munsell Soil Color Chart is a selection of hues appropriate to the evaluation of soil colors.

² Hanna Jedrzejewska, “Old mortars in Poland: a new method of investigation” in *Studies in Conservation*, V. 5, n. 4 (1960): 132-138.

³ ASTM C270 Standard specification for Mortar for Unit Masonry. This standard should be carefully reviewed by anyone responsible for specifying mortars for repointing or repair.

MORTAR ANALYSIS
SUMMARY SHEETS

MORTAR ANALYSIS SUMMARY SHEET

Project Name: Mess Hall Building #58, Fort Hancock, Sandy Hook, NJ

Location: South elevation, foundation masonry, current repointing mortar

Sample No.: M-1

Date: 8/24/10

Chemical Analysis

A. CALCULATIONS (weight in grams)

1. Container Weight:	109.06
2. Sample Weight	3.18
3. Filter Paper Weight	3.95
4. Container + Sand Weight:	110.46
5. Sand Weight:	1.40
6. Paper + Fines Weight:	4.32
7. Fines Weight:	0.37
8. Sand + Fines Weight:	1.77
9. Acid Soluble Weight	1.41
10. Weight Percent Sand	44.03
11. Weight Percent Acid Soluble	44.34
12. Weight Percent Fines	11.64

B. PRE-TEST - Sample

Description: The sample was one solid chunk of mortar from a 1/4-inch wide joint. The sample could not be broken by hand; a hammer and chisel were required. The binder broke through the binder, not the aggregate. The dark gray binder was similar in color to the diabase foundation stone. The exterior surface of the mortar had a rim of lighter gray, bleached mortar. The dark gray binder was smooth in texture with a low gloss. The binder to aggregate ratio was moderate. The void volume was approximately 5% in the form of large irregular voids from entrapped air.

Color: Munsell Value: N 4/

Color Name: Dark gray

softhard

Relative Hardness: 1 2 3 4 5 6 7 **8** 9 10

C. POST-TEST - Sands

Color: Munsell Value: 10YR 7/1

Color Name: Light gray

Opacity: 5% Opaque

88% Translucent

7% Transparent

Angularity: Sub-angular

Composition: Predominantly translucent, gray to white feldspar with few translucent orange feldspar and some transparent quartz. There is also abundant dark, greenish-black grains of glauconite.

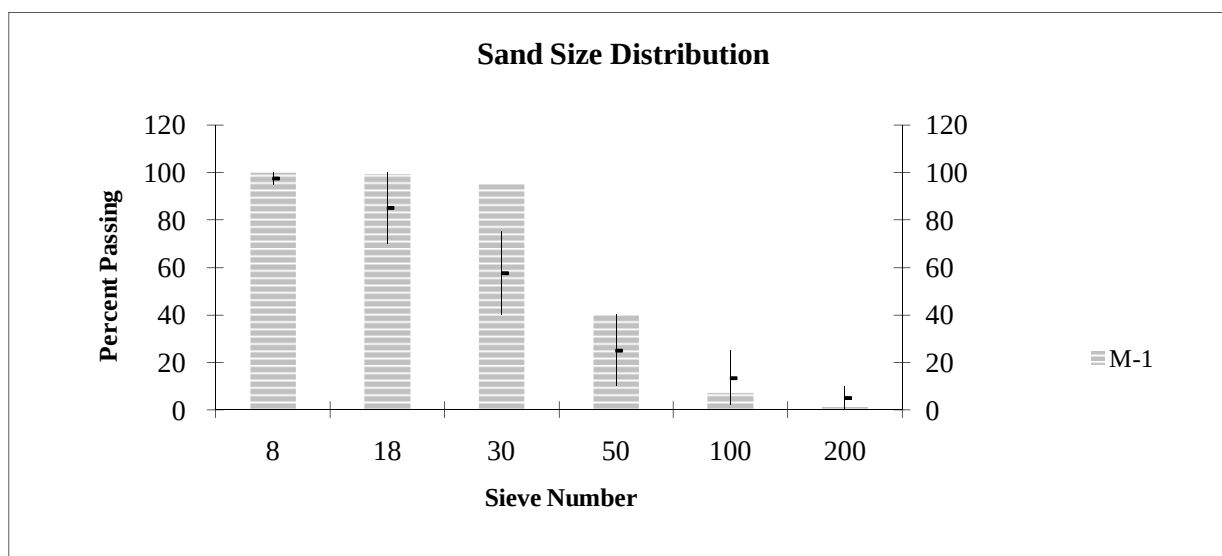
Size:	<u>Sieve No.</u>	<u>Weight</u>	<u>Percent Passing</u>
	8 (2.36mm)	0.00 grams	100 %
	18 (1mm)	0.01 grams	99 %
	30 (600µm)	0.06 grams	95 %
	50 (300µm)	0.77 grams	40 %
	100 (150µm)	0.46 grams	7 %
	200 (75µm)	0.08 grams	1 %
	<200 (<75µm)	0.01 grams	1 %

D. POST-TEST - Fines

Color: Munsell Value: N 3/

Color Name: Very dark gray

E. NOTES: Very little effervescence with the addition of acid. Bubbles died instantly.



Note: Each vertical line represents the range allowable in a mortar sand for a given particle size as specified by ASTM C 144 Standard Specification for Aggregate for Masonry Mortar. Allowable percentages are different for natural and manufactured sands; this chart represents the absolute maximum and minimum of both aggregate types considered together. The bars represent the particle size distribution of the sample.

MORTAR ANALYSIS SUMMARY SHEET

Project Name: Mess Hall Building #58, Fort Hancock, Sandy Hook, NJ

Location: South elevation, foundation masonry, earlier pointing mortar

Sample No.: M-2

Date: 8/24/10

Chemical Analysis

A. CALCULATIONS (weight in grams)

1. Container Weight:	101.19
2. Sample Weight	6.49
3. Filter Paper Weight	3.86
4. Container + Sand Weight:	106.14
5. Sand Weight:	4.95
6. Paper + Fines Weight:	4.19
7. Fines Weight:	0.33
8. Sand + Fines Weight:	5.28
9. Acid Soluble Weight	1.21
10. Weight Percent Sand	76.27
11. Weight Percent Acid Soluble	18.64
12. Weight Percent Fines	5.08

B. PRE-TEST - Sample

Description: The earlier pointing mortar sample was comprised of many friable, pale gray pieces that were easily broken by hand. The white binder was matte and slightly powdery with some large white nodules throughout. The binder to aggregate ratio was very low; the mortar appears to be mostly aggregate. The speckled appearance of the mortar can be attributed to the black-and-white aggregate. Void volume was approximately 3%, primarily in the form of large, irregular voids from poor packing.

Color: Munsell Value: 10YR 8/2

Color Name: White

softhard

Relative Hardness:

1	2	3	4	<u>5</u>	6	7	8	9	10
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C. POST-TEST - Sands

Color: Munsell Value: 5Y 7/3

Color Name: Pale yellow

Opacity: 5% Opaque

88% Translucent

7% Transparent

Angularity: Sub-angular

Composition: Predominantly translucent, gray to white feldspar with few translucent orange feldspar and some transparent quartz. There is also abundant dark, greenish-black grains of glauconite.

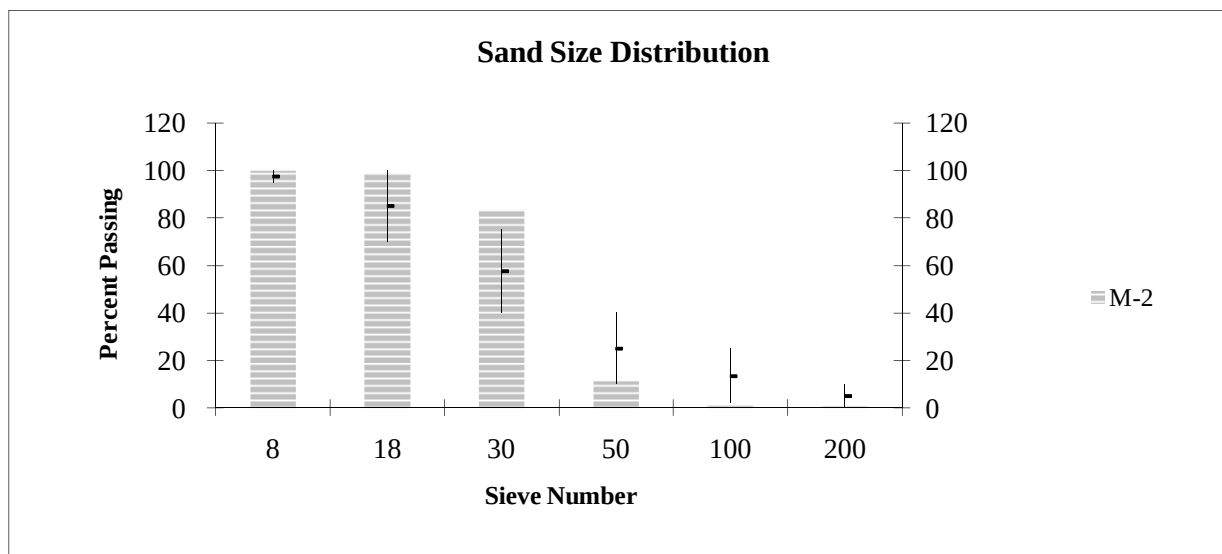
Size:	<u>Sieve No.</u>	<u>Weight</u>	<u>Percent Passing</u>
	8 (2.36mm)	0.00 grams	100 %
	18 (1mm)	0.06 grams	99 %
	30 (600µm)	0.76 grams	83 %
	50 (300µm)	3.57 grams	11 %
	100 (150µm)	0.51 grams	1 %
	200 (75µm)	0.01 grams	1 %
	<200 (<75µm)	0.01 grams	1 %

D. POST-TEST - Fines

Color: Munsell Value: 5Y 6/1

Color Name: Light gray

E. NOTES: Vigorous effervescence with the addition of acid. Large bubbles, digested quickly.



Note: Each vertical line represents the range allowable in a mortar sand for a given particle size as specified by ASTM C 144 Standard Specification for Aggregate for Masonry Mortar. Allowable percentages are different for natural and manufactured sands; this chart represents the absolute maximum and minimum of both aggregate types considered together. The bars represent the particle size distribution of the sample.

MORTAR ANALYSIS SUMMARY SHEET

Project Name: Mess Hall Building #57, Fort Hancock, Sandy Hook, NJ

Location: North elevation, west end, brick masonry, earlier pointing mortar

Sample No.: M-5

Date: 8/24/10

Chemical Analysis

A. CALCULATIONS (weight in grams)

1. Container Weight:	100.93
2. Sample Weight	2.70
3. Filter Paper Weight	3.93
4. Container + Sand Weight:	102.59
5. Sand Weight:	1.66
6. Paper + Fines Weight:	4.10
7. Fines Weight:	0.17
8. Sand + Fines Weight:	1.83
9. Acid Soluble Weight	0.87
10. Weight Percent Sand	61.48
11. Weight Percent Acid Soluble	32.22
12. Weight Percent Fines	6.30

B. PRE-TEST - Sample

Description: The sample was comprised of several solid but friable pieces from a 1/4-inch wide joint. The exterior surfaces were covered with a dark brown to green discoloration, possibly biological. The sample broke easily by hand. The sample was similar to samples M-2, M-3, and M-4. The white binder was powdery and matte with microcracking. The binder to aggregate ratio was moderate. The void volume was low, approximately 2%, with voids primarily in the form of small irregular voids from entrapped air.

Color: Munsell Value: 10YR 8/2 Color Name: White

softhard

Relative Hardness: 1 2 3 4 **5** 6 7 8 9 10

C. POST-TEST - Sands

Color: Munsell Value: 5Y 7/3

Color Name: Pale yellow

Opacity: 5% Opaque

88% Translucent

7% Transparent

Angularity: Sub-angular

Composition: Predominantly translucent, gray to white feldspar with few translucent orange feldspar and some transparent quartz. There is also abundant dark, greenish-black grains of glauconite.

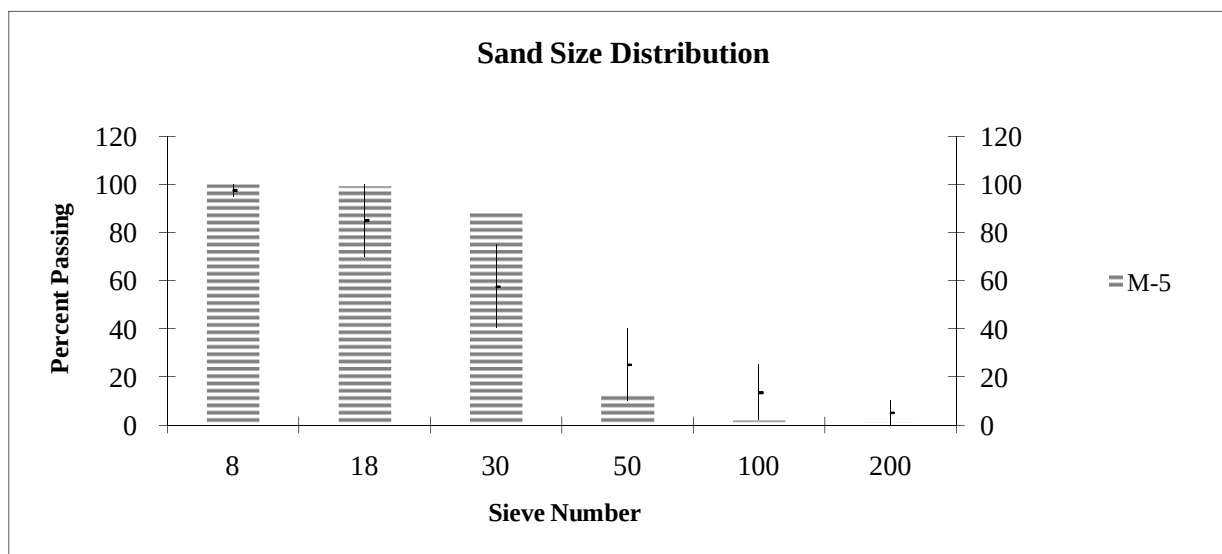
Size:	<u>Sieve No.</u>	<u>Weight</u>	<u>Percent Passing</u>
	8 (2.36mm)	0.00 grams	100 %
	18 (1mm)	0.01 grams	99 %
	30 (600µm)	0.18 grams	89 %
	50 (300µm)	1.25 grams	13 %
	100 (150µm)	0.19 grams	2 %
	200 (75µm)	0.01 grams	1 %
	<200 (<75µm)	0.01 grams	1 %

D. POST-TEST - Fines

Color: Munsell Value: 5Y 6/1

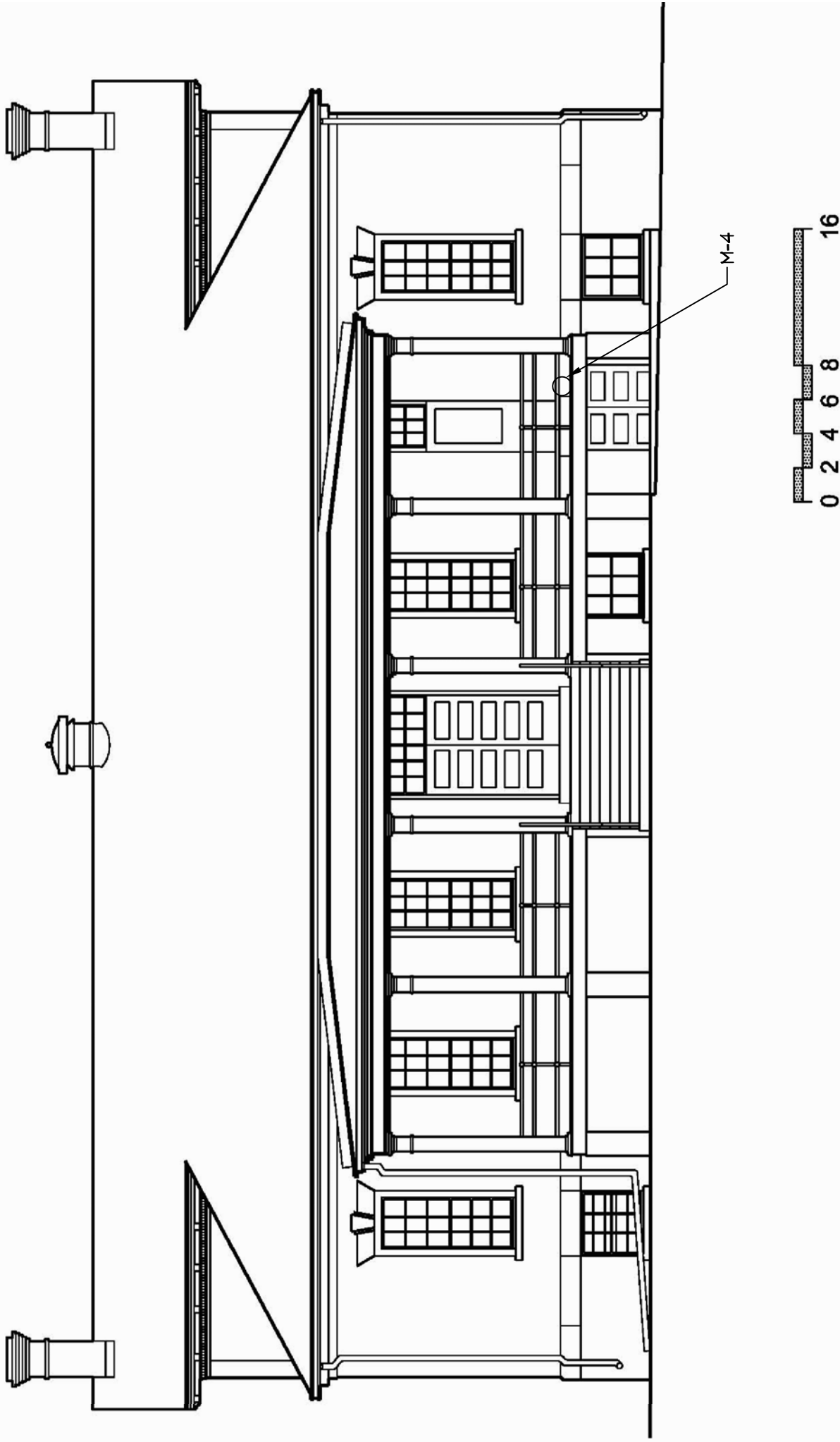
Color Name: Light gray

E. NOTES: Vigorous effervescence with the addition of acid. Large bubbles, digested quickly.



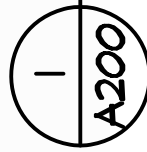
Note: Each vertical line represents the range allowable in a mortar sand for a given particle size as specified by ASTM C 144 Standard Specification for Aggregate for Masonry Mortar. Allowable percentages are different for natural and manufactured sands; this chart represents the absolute maximum and minimum of both aggregate types considered together. The bars represent the particle size distribution of the sample.

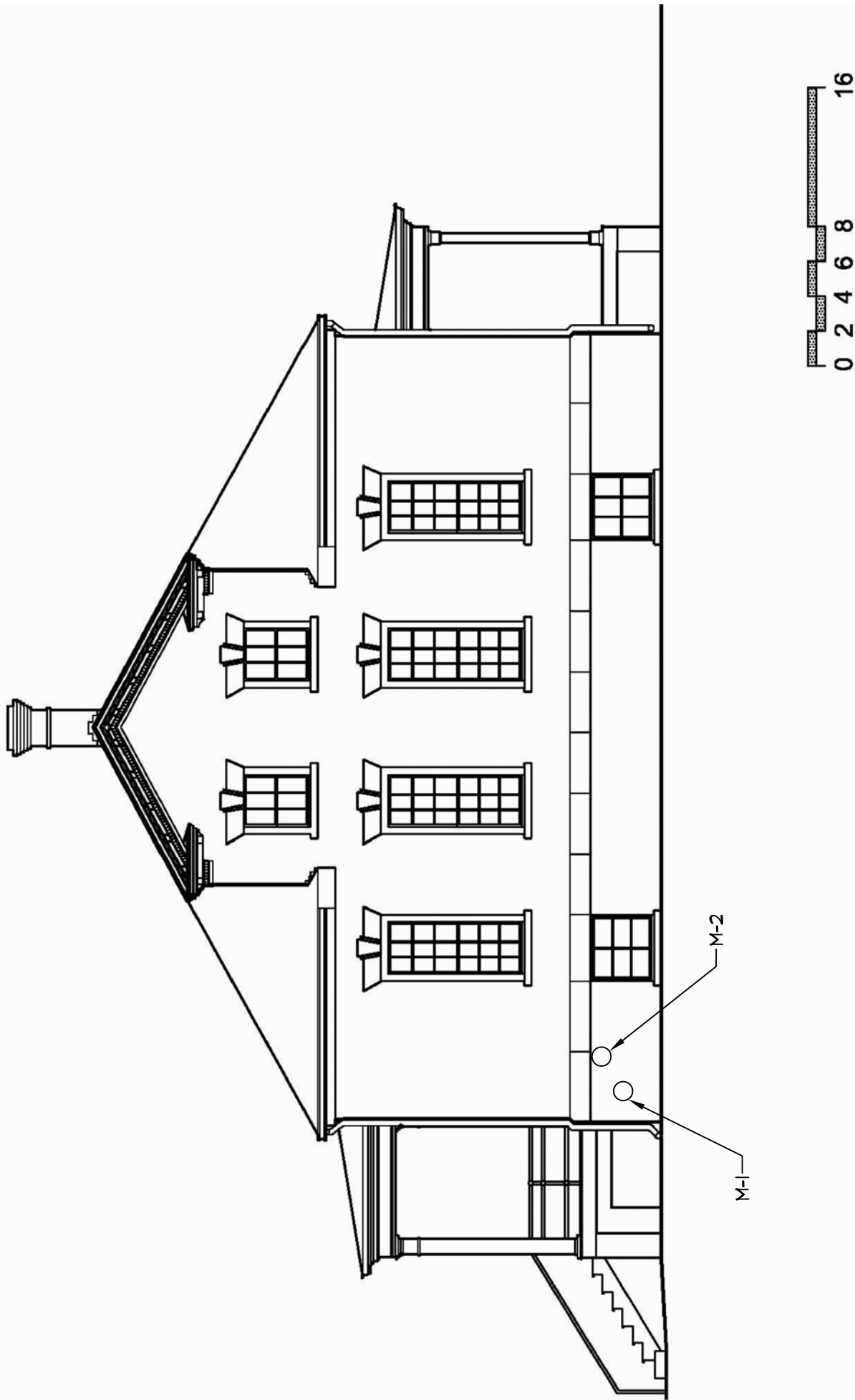
**MORTAR SAMPLE
LOCATION DRAWINGS**



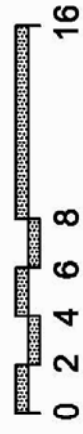
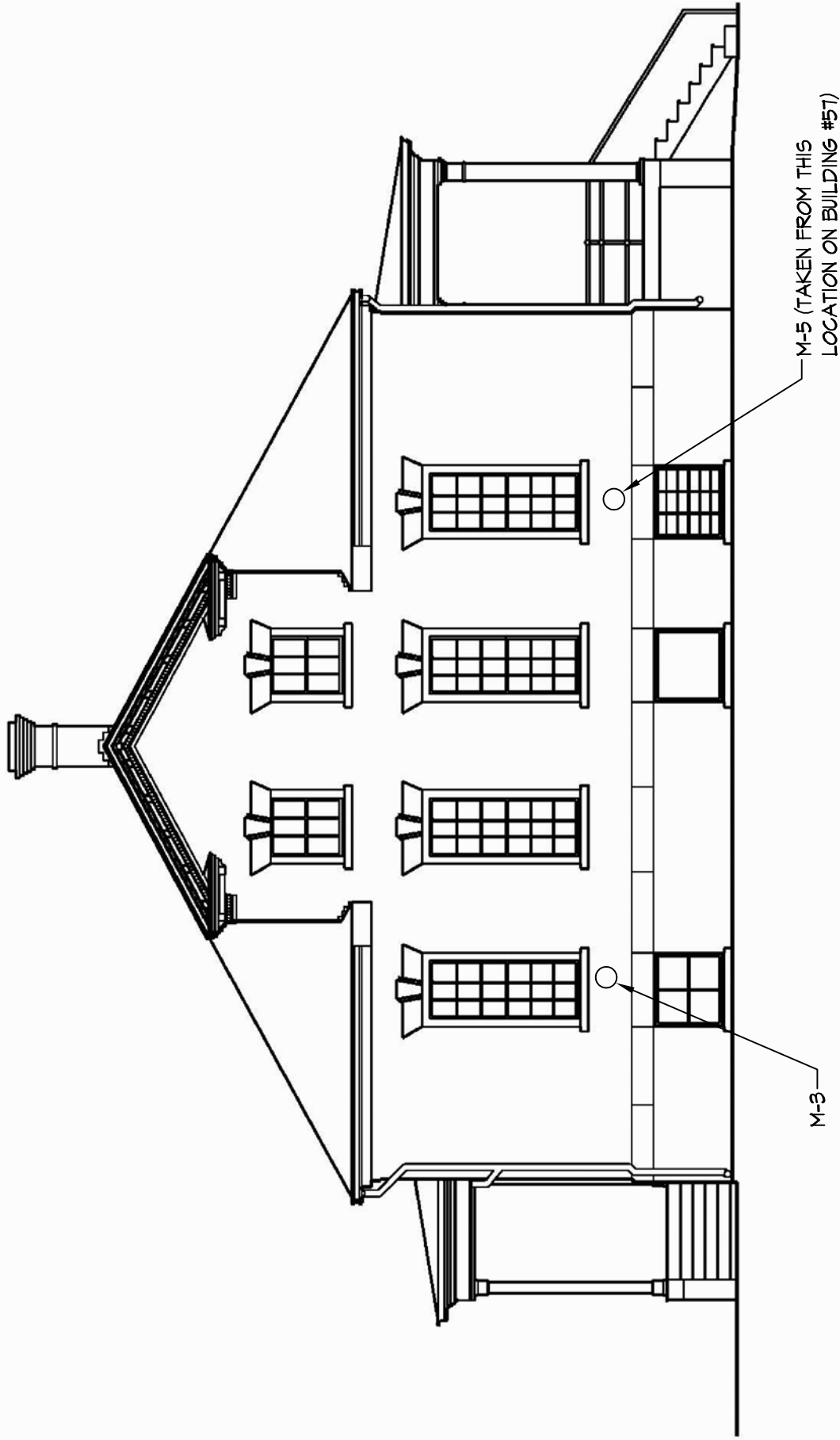
Mess Hall #58 - West Elevation

SCALE: See Graphic Scale





1 Mess Hall #58 - North Elevation
A201 SCALE: See Graphic Scale



APPENDIX I: PAINT ANALYSIS

PAINT ANALYSIS

1.0 INTRODUCTION

The following paint investigation for Mess Hall Building #58 at Fort Hancock, Sandy Hook, New Jersey, was conducted as part of a comprehensive Historic Structure Report to address the future needs of the current National Park Service office and visitor center. Samples were taken from the woodwork on both the exterior and interior in an effort to determine the paint history of this former mess hall. However, the paint investigation was restricted by the general lack of original paint layers, most of which had been stripped during rehabilitation work. No original paint was found on exterior metal elements, for example.

The paint investigation report was intended to determine the earliest paint layers, as well as to understand later changes. Paint samples were taken on site from wood surfaces, including doors and door trim, window trim, bead board wainscot, and structural beams. The paint samples were analyzed to determine their paint seriations, or the sequence of paint layers found on the substrates. No pigment or binder identification was undertaken. The main focus was to identify early paint layers and compare paint seriations.

The exterior paint samples revealed that the exterior trim was originally painted a light to moderate grayish olive (Munsell 5Y 3/4, 10Y 5/2, and 2.5Y 4/2). Historic photographs reveal that all of the exterior trim was originally painted the same moderate olive color, including the metal cornices, window sash and trim, doors and door trim, and all porch elements. However, photographs show that the porch columns were later highlighted with a lighter, white paint by the 1950s. It is not recommended that Building #58 be painted in its historic moderate olive color. It is important that the exteriors of the Fort Hancock buildings be uniform. However, the National Park Service may want to review which shade of green is most historically appropriate for these buildings in the future.

The interior paint samples indicate that the first floor wood trim was originally finished with a shiny, dark brown shellac finish. Evidence of shellac was found on two paint samples and historic photographs confirm that the interior trim had a dark, shiny finish. Currently, the interior wood trim has been stripped of its overlying paint and refinished with a clear, shiny polyurethane coating. The current treatment has exposed the graining, knots, and light colored wood. It is recommended that the interior wood trim be refinished with a dark varnish coating that restores or simulates the original dark shellac coating.

2.0 METHODOLOGY

2.1 Sampling

All sampling was performed by John Milner Associates, Inc. (JMA). Samples were extracted with a small knife blade. Each sample was taken with an effort to include all paint layers and a portion of the substrate. Samples were observed on site with a 25x magnification hand held microscope to ensure that all layers were sampled. Each sample was placed in a labeled coin envelope and sealed. All samples were then transported to a laboratory for examination. See the following table for a list of all samples taken.

List of Paint Samples

Sample No.	Location	Seriation Table No.
Ext-1	West elevation, main central entrance, north door jamb	1
Ext-2	West elevation, south entrance, south door jamb	1
Ext-3	West elevation, basement entrance, north door jamb	1
Ext-4	East elevation, first floor entrance, south door jamb	1
Ext-5	Paint strips from windows (101A/C, 116C or 116B), found on the ground, original location unknown	1
B-1	Basement, door 008-1 to Office 008, corridor side	2
B-2	Basement, door 001-1 to Boiler Room, north door, corridor side	2
B-3	Basement, bead board at stair to first floor	2
B-4	Basement, wood beam in Boiler Room	2
108-1	First floor, door 108-1 to former Cook's Room (Office 108), hall side	3
113-1	First floor, door 113-1 to attic stair, attic side	3
116-1	First floor, window sill 116A in former Pantry (Conference Room 116)	3

2.2 Analysis

At the laboratory, each sample was examined under a Bausch and Lomb stereo zoom microscope (10-70x magnification) with a 2800° Kelvin light source. All fragments were evaluated. One or more were selected for further study, and a temporary mount prepared. All paint layers were recorded, and examined for evidence of dirt and exposure. The earliest layer of finish paint was matched to the Munsell Color System. The Munsell System of Color Notation identifies color in terms of three attributes: hue, value, and chroma. Color standards are opaque pigmented films on coated paper mounted on charts for each hue. For this report, the Munsell Book of Color Glossy Edition was used for color matching. The extent of the historic layers was determined by the color, texture, and thickness of the paint. No pigment or binder identification was included as part of this paint study.

The layers found on all paint samples were recorded on paint seriation tables to allow for easy comparison of their paint history (included at the end of this report). Paint seriation tables include sample number, general location information, substrate, paint seriation, related samples, identification of the technician and sampling date. All paint sample locations are shown on floor plans and selected elevations included with this report.

Paint samples were compared primarily through comparison of seriations. Similar layer patterns indicate that the sampled elements were treated in a similar manner and are similar in age. Different positions of characteristic layers or layer patterns within entire seriations can potentially show that one element is older than another. However, breaks or gaps in the layer pattern could also indicate the loss of some paint layers or evidence of less frequent painting. The paint history is only one part of a building's history and should be correlated to other historical documentation, such as journals, expense logs, or photographs.

The paint colors identified in the seriations represent the colors as they appear in their weathered state under microscopic illumination. It is important to bear in mind that many factors affect the colors as observed during paint analysis. These include, but are not limited to, yellowing of oil media and fading or darkening of pigments with exposure to light. The actual colors used at the building may have been somewhat different than those listed in the seriation tables.

3.0 HISTORY OVERVIEW

Mess Hall Building #58 was constructed in 1904-1905 as part of the first expansion of Fort Hancock, originally built in 1896. Building #58 was one of four identical mess halls constructed to the rear of the four original enlisted men's barracks. Mess Hall Building #58 sat to the rear of Barracks #25. The four mess halls were maintained, altered, and repaired as part of the active military fort until 1974, when Fort Hancock was deactivated. Records indicate that Building #58 was regularly painted about every five years or so, particularly during times of war, when the building was in heavy use. Regular maintenance decreased in the 1970s and the building was in a severely deteriorated state by 1986.

Historical photographs reveal that the exterior woodwork of Mess Hall Building #58 was treated uniformly with a dark paint, including cornices, window sash and frames, doors and door trim, and porch elements (see photos 1, 5, and 6) until the 1950s. Photographs from the 1950s show a change in the treatment of the porch columns, which were then emphasized by light, probably white, colored paint (see photos 2-4). The remaining exterior trim continued to be treated with a uniform, dark color.

Historical photographs from the interior are less reliable. It is difficult to state from which of the four identical mess hall buildings these interior photographs were taken. However, early photographs of the mess hall and kitchen interiors show that these areas typically had light colored walls with dark, shiny wood trim (see photos 7-8). A World War II era photograph shows that the mess hall interior finishes had changed. The wood trim and the walls above the chair rail were painted in a light color, while the chair rail, lower walls, and baseboards were painted a darker color (see photo 9). No historical interior photographs were found for the period post-World War II.

In 2002, Building #58 was completely renovated as National Park Service offices and a visitor information center. This work involved the removal of much of the building's paint history. On the interior, wood trim was stripped and plaster walls were covered with thin gypsum board veneer. Recently, the exterior of Building #58 was repainted as part of ongoing facilities maintenance. The window sash and doors were taken to a shop and stripped of their paint prior to repainting. Similarly, window jambs were stripped of their paint with a heat gun. The following paint investigation was severely limited because of the few remaining original paint layers.

4.0 FINDINGS AND RECOMMENDATIONS

4.1 Exterior

The limited paint evidence on the exterior of Mess Hall Building #58 indicates that the exterior woodwork was originally painted in a moderate olive color. The olive color was found in various shades, from moderate olive (Munsell 5Y 3/4) to moderate olive brown (Munsell 2.5Y 4/2) to light grayish olive (Munsell 10Y 5/2). Early olive paint layers were found on the north jamb at the main west entrance (Ext-1), at the south jamb of the southern entrance on the west elevation (Ext-2), and at the jamb of the west basement entrance (Ext-3). These early olive paint layers were followed by dark yellowish green layers and then the current dark green paint campaigns, applied after a white primer coat.

Samples taken from the south jamb at the east entrance (Ext-4) and from the paint strips from the windows (Ext-5) showed that much of the earlier paint history had been lost. The east entrance jamb had only evidence of a light olive gray layer (Munsell 10Y 6/1) followed by the recent dark green paint layers. The paint strips, taken from the ground where they had fallen during repainting work, revealed only the recent dark green paint layers.

4.2 Interior: Basement

Paint evidence from the interior was less conclusive. Only two elements in the basement area appeared to have any original paint remaining. The wood bead board that forms the east side of the basement stair had more than 12 layers of paint, with an early grayish yellow green layer (Munsell 7.5GY 7/2), then drab brown, dark brown, various hues of greenish gray, and then the current white paint layers (B-3). The wood beam in the Boiler Room area had evidence of many thin, grayish white layers (B-4). These white layers dissolved in hydrochloric acid with vigorous bubbling and are assumed to be dirty white wash layers. This utilitarian area appears to have been maintained with regular coatings of whitewash.

The paint evidence from the historical doors 008-1 and 001-1 has been lost. Samples from these elements (B-1 and B-2) showed only 3-5 paint layers total. These doors were most likely stripped of their paint layers prior to their reuse in the renovated basement corridor.

4.3 Interior: First Floor

At the first floor, historic paint evidence was equally elusive. The majority of the wood trim has been stripped of its paint and coated with a clear, shiny, polyurethane coating. One painted door, door 108 leading from the south hall to the former Cook's Room (Office 108) had evidently been stripped prior to being painted. The sample from this door revealed only two layers of pale yellow and then the current white paint (108-1).

However, there was limited evidence of early, dark brown shellac layers found on the door to the attic (113-1) and at a window sill in the former Pantry (Conference Room 116). The paint sample from the attic side of door 113-1 had few layers of paint, which is expected in an unfinished space. The door had an early dark, thin, shiny coating that was found to flake and soften in denatured alcohol and was thereby determined to be shellac. The shellac layer was followed by two greenish gray layers similar in color to those seen at the basement bead board (B-3), and then the current white paint.

The sample from the window sill in the former Pantry (Conference Room 116) had evidence of many paint layers that contain a fragment of the lost paint history. The window sill sample (116-1) had a similar thin, dark, shiny shellac layer, as seen in the door to the attic. This was followed by early moderate olive layers (Munsell 2.5GY 4/2) and then dark brown, cobalt blue, dark olive, and then lighter layers of yellowish white, white, orange white, and the current white paint.

4.4 Recommendations

4.4.1 Exterior

The historic exterior trim color was an olive color that was more yellow and brown than the current dark bluish green. The historic olive was a tertiary brownish green (Munsell 5Y 3/4, 10Y 5/2, and 2.5Y 4/2). Tertiary colors were favored during the Victorian period at the end of the nineteenth century and would have been appropriate for a c. 1896 military installation. Originally, all of the exterior trim elements, including the porch columns, were also painted in a moderate olive color, though the porch columns have been painted a light color since the 1950s. Though no historic paint layers were found on the exterior

metal elements, these features, such as railings, historic metal cornices, and downspouts, were probably treated with the same olive paint colors.

One of the important character defining features of Fort Hancock is the uniformity of the buildings in its historic core. The building materials and trim colors should remain uniform. It is not recommended that the exterior trim color at Building #58 be changed at this time. However, further paint analysis may be conducted to confirm that moderate olive colors were found throughout the fort buildings. Future guidelines may choose to change the historic exterior trim color to the more historic olive hue.

It is recommended that the exterior trim of Building #58 be maintained with a good quality, medium gloss exterior oil paint with an appropriate primer. This paint system should be proven to bond well when applied over weathered wood. The following recommendations are made using the Master Painters Institute Approved Product numbers, which provide an industry standard for determining paint performance. See www.specifypaint.com for current commercially available products:

Primer: MPI#7 Primer, Oil for Exterior Wood

Windows and window trim, doors and door trim, wood porch elements, and metal cornices and molded gutters: MPI#11 Latex, Exterior, Semi-Gloss

4.4.2 Interior

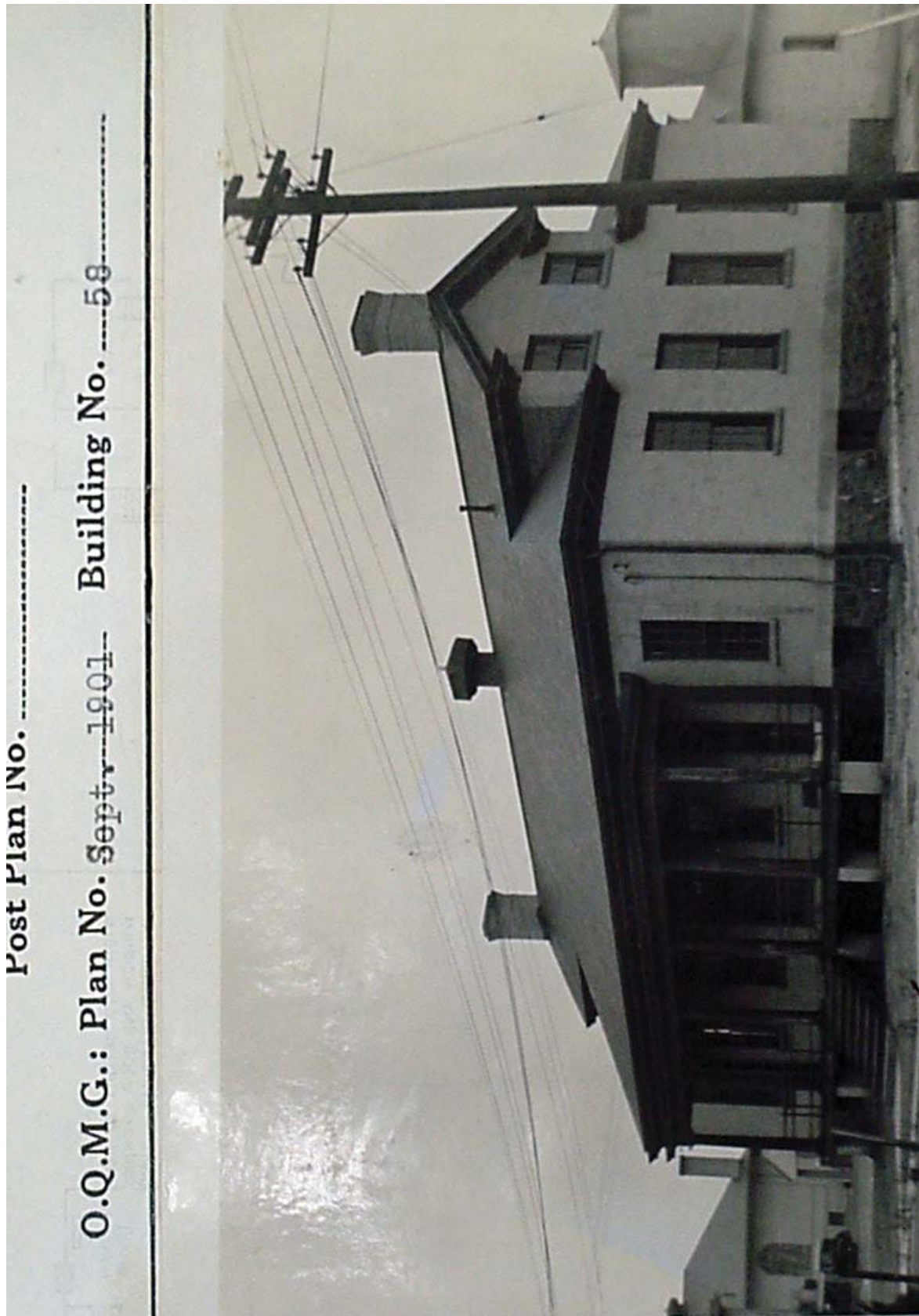
The interior woodwork at Building #58 revealed a varied paint history. The basement Boiler Room ceiling was treated with whitewash, though this treatment is not necessary in this utilitarian space. The basement bead board was painted a grayish yellow green (Munsell 7.5GY 7/2) and later in various shades of greenish gray. However, that paint scheme may not be appropriate for the woodwork in this newly renovated basement area.

The first floor paint investigation indicates that the interior woodwork, including doors and door trim, windows and window trim, and chair rails were originally treated with a dark shellac finish. From historical photographs, it is clear that this early shellac finish obscured the graining and knot holes on the interior trim, which are now exposed under the clear polyurethane coating. It is recommended that the interior woodwork be finished with a dark, shiny varnish that will restore the interior trim. The following recommendations are made using the Master Painters Institute Approved Product numbers

MPI #88: Shellac – This finish would require that the polyurethane coating be completely stripped prior to refinishing. Shellac finishes require refreshing, particularly in high use areas.

MPI # 56: Varnish, Interior, Polyurethane, Oil Modified, Gloss – This finish may or may not require complete removal of the current clear polyurethane coating. Oil modified polyurethanes are more durable than traditional shellac finishes.

In general, it is not advisable to completely remove all overlying paint layers during repainting. This destroys the paint history. In some cases, paint removal may be required in order to remove obscuring paint coatings that disfigure a molding or ornamental piece. Where it is found desirable to strip the woodwork of overlying paints, it is highly recommended that a portion of the woodwork not be touched. This small area will remain as evidence of the paint history.



1. Mess Hall Building #58, view of west and south elevations. Post Record Book (1901), Gateway National Recreation Area Archives.

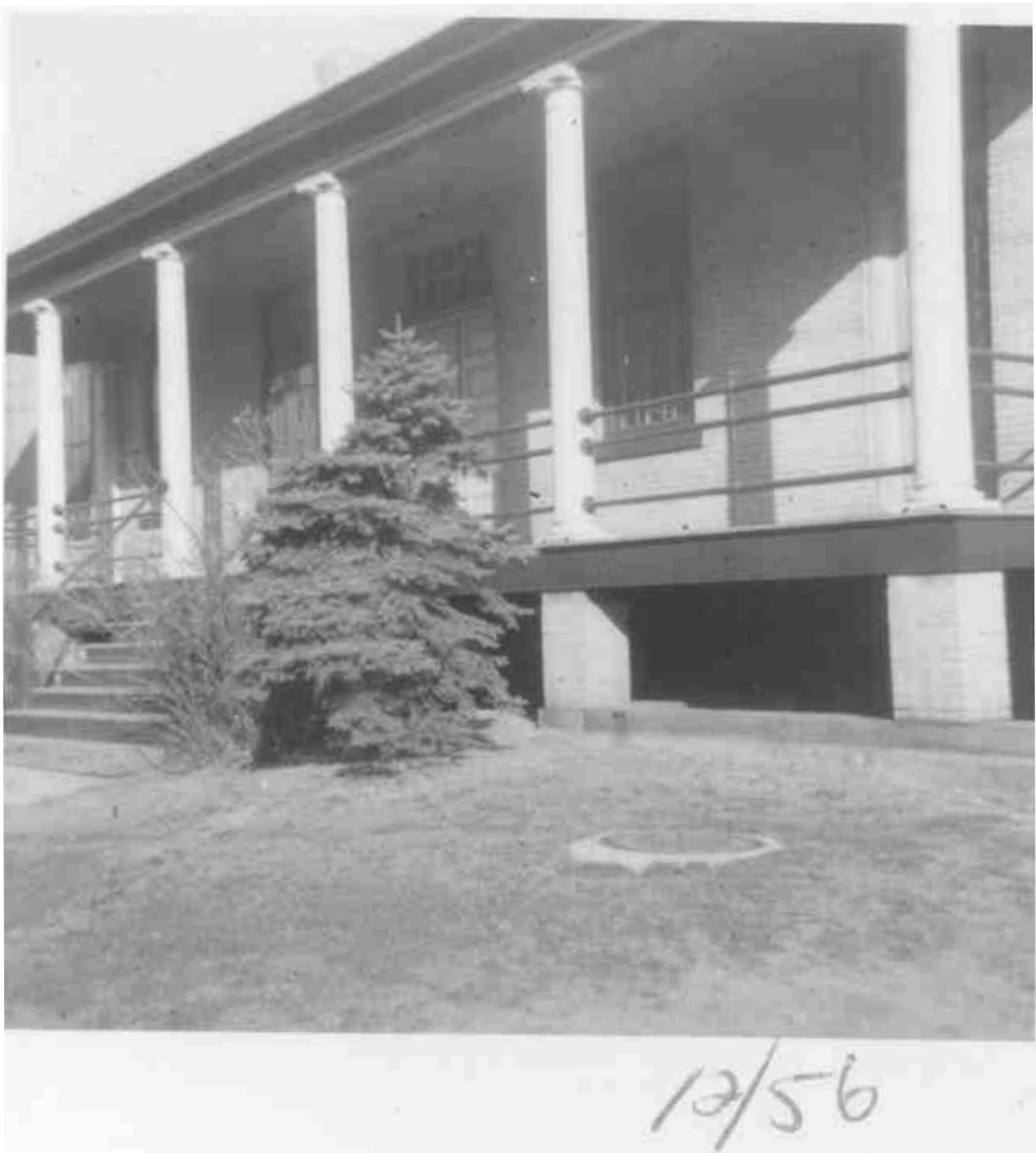


2. West facade of Mess Hall #57 looking toward northeast, c. 1956. Note porch columns painted white. Photo #11210, Gateway National Recreation Area Archives.

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3. General view of mess halls toward northeast, c. 1956. Mess Hall #58 cut off on far left. Mess Hall #57 at far right. Photo #11209, Gateway National Recreation Area Archives.



4. Photograph showing portion of the main porch of unidentified mess hall (December 1956). Photo #11211, Gateway National Recreation Area Archives.



5. Undated photograph showing rear east kitchen porch of unidentified mess hall. Note concrete topping at door threshold. Photo #7915, Gateway National Recreation Area Archives.



6. Undated photograph showing kitchen porch of unidentified enlisted personnel mess hall (Buildings 55 through 58). Photo #759.9, Gateway National Recreation Area Archives.



7. Early twentieth century photograph of unidentified mess hall kitchen. Note sheet metal stove hood. Photo #811, Gateway National Recreation Area Archives.



8. Undated World War II-era photograph showing table settings in unidentified mess hall. Note dark finish on double leaf, west entrance doors. Photo #13718, Gateway National Recreation Area Archives.



9. World War II-era photograph showing soldiers and guests eating in an unidentified mess hall. Photo #4629, Gateway National Recreation Area Archives.

PAINT SERIATION TABLES

Paint Seriation Tables

Paint seriation tables are organized in order to emphasize comparison between paint samples. Samples are grouped according to the similarity in their seriations. As shown in the legend below, dark highlighted layers indicate that the highlighted layer was probably a finish color. Within each table, sample groups that are to be compared are surrounded with a heavier border. All samples within the heavier border are considered to share similar paint histories. Within the comparison sample groups, a dash (-) indicates that this layer is missing from the comparative sequence. It is important to remember that this dash does not necessarily mean that the physical layer has been lost. It could mean that the paint layer never existed on this element.

Legend

	Indicates probable finish color
	Indicates probable varnish or shellac layer
	Indicates probable primer layer
	Indicates groups of samples for comparison
-	Indicates layer is missing from comparative sequence

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Date of sampling: December 1, 2009

Date of analysis: August 27, 2010

Technician: L. Aument

Table 1. Exterior Paint Samples					
Sample	Ext-1	Ext-2	Ext-3	Ext-4	Ext-5
Location	West elevation, main central entrance, north door jamb	West elevation, south entrance, south door jamb	West elevation, basement entrance, north door jamb	East elevation, first floor entrance, south door jamb	Paint strips from windows (101A/C, 116C or 116B)
Substrate	Wood	Wood	Wood	Wood	Wood
1.	Olive paint mixed up with later white primer, which has seeped through cracks	-	Moderate olive brown (Munsell 2.5Y 4/2) Deteriorated, jumbled layers	Light olive gray (Munsell 10Y 6/1)	White primer
2.	Moderate olive (Munsell 5Y 3/4)	Moderate olive (Munsell 5Y 3/4)	Moderate olive (Munsell 5Y 3/4)	White primer	Dark yellowish green
3.	Light grayish olive (Munsell 10Y 5/2)	Light grayish olive (Munsell 10Y 5/2)	Light grayish olive (Munsell 10Y 5/2)	Dark green	White primer
4.	Light grayish olive (Munsell 10Y 5/2)	-	-	White primer	Dark green
5.	Greenish brown	-	-	Dark green	Dark green (with dirt layer)
6.	Dark yellowish green	Dark yellowish green	Dark yellowish green		White primer
7.	Dark yellowish green	Dark yellowish green	-		Dark green
8.	White primer	White primer	-		
9.	Dark green	Dark green	-		
10.	White primer	White primer	-		
11.	Dark green	Dark green	Dark green		

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Table 1. Exterior Paint Samples					
Sample	Ext-1	Ext-2	Ext-3	Ext-4	Ext-5
12.		Dark green	Dark green		

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Table 2. Basement Paint Samples				
Sample	B-1	B-2	B-3	B-4
Location	Basement, door 008-1 to Office 008, corridor side	Basement, door 001-1 to Boiler Room, north door, corridor side	Basement, bead board at stair to first floor	Basement, wood beam in Boiler Room
Substrate	Wood	Wood	Wood	Wood
1.	Gray (Munsell N4.75/)	-	Grayish yellow green (Munsell 7.5G Y 7/2)	Many layers of thin grayish-white colored, very dirty whitewash
2.	Grayish yellow (Munsell 2.5Y 7/4)	-	Drab brown	
3.	Grayish yellow (Munsell 2.5Y 7/4)	Grayish yellow (Munsell 2.5Y 7/4)	Drab brown	
4.	Grayish yellow (Munsell 2.5Y 7/4)	Grayish yellow (Munsell 2.5Y 7/4)	Dark brown	
5.	White	White	Greenish grays	
6.			Greenish grays	
7.			Greenish grays	
8.			Greenish grays	
9.			Greenish grays	
10.			Greenish grays	
11.			White (thick, spongy)	
12.			White (thick, spongy)	

Date of sampling: December 1, 2009

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Date of analysis: August 27, 2010

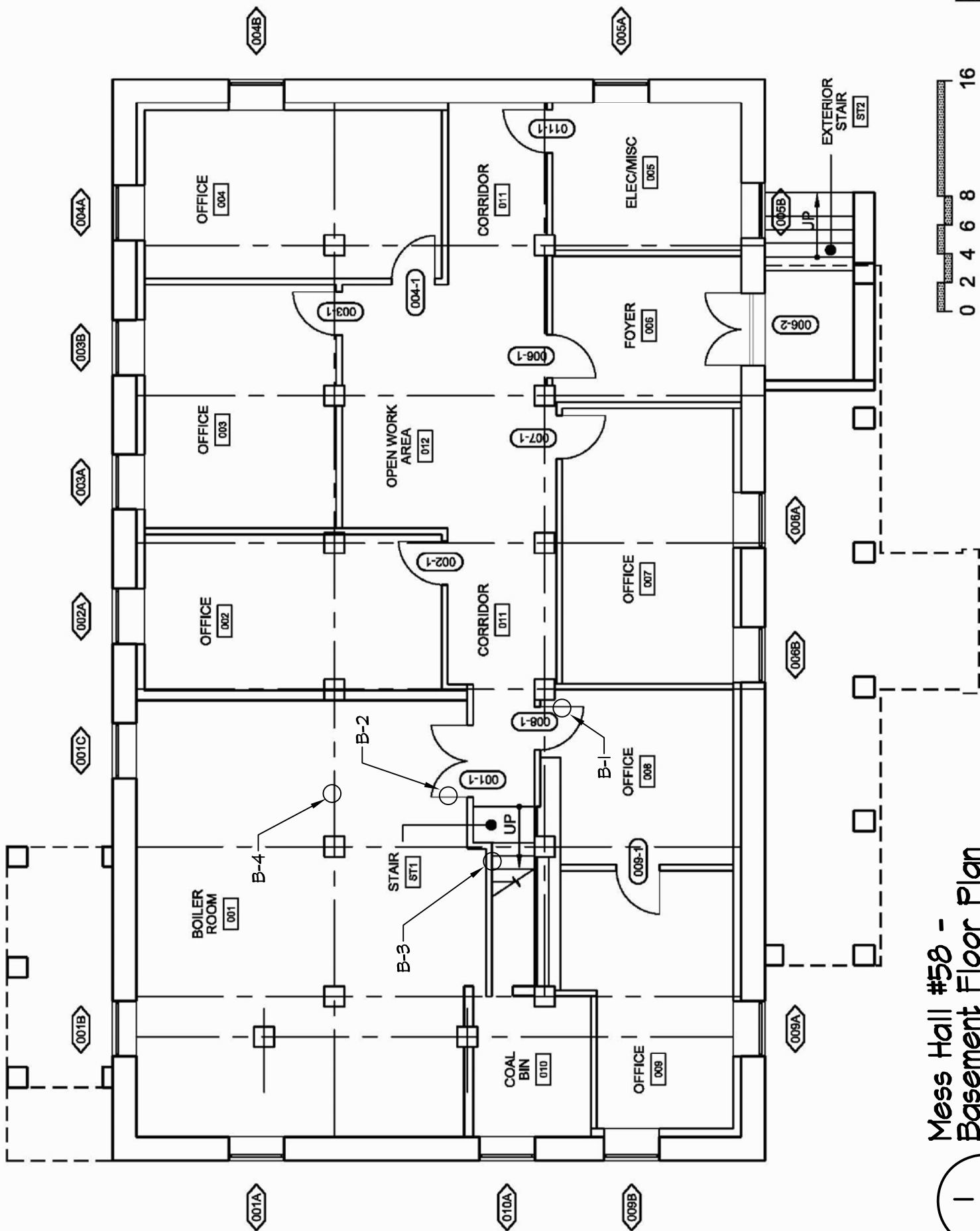
Technician: L. Aument

Table 3. First Floor Paint Samples				
Sample	108-1	113-1	116-1	
Location	First floor, door 108-1 to former Cook's Room (Office 108), hall side	First floor, door 113-1 to attic stair, attic side	First floor, window sill 116A in former Pantry (Conference Room 116)	
Substrate	Wood	Wood	Wood	
1.	Pale yellow (Munsell 2.5Y 8/4)	Thin, shiny, dark brown layer (flaked and softened in alcohol)	Thin, shiny, dark brown layer (flaked and softened in denatured alcohol)	
2.	White	Grayish green	Grayish olive green (Munsell 2.5GY 7/2)	
3.		Greenish gray	Dark brown (thin)	
4.		White	Cobalt blue	
5.			Cobalt blue	
6.			Dark brown (thin)	
7.			Dark olive	
8.			Dark olive	
9.			Dark olive	
10.			Dark olive	
11.			Dark olive	
12.			Dark brown	
13.			Dark olive	
14.			Dark olive	
15.			Dark olive	

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Table 3. First Floor Paint Samples			
Sample	108-1	113-1	116-1
16.			Dark olive
17.			Dark olive
18.			Dark gray
19.			Yellowish white
20.			White
21.			Dark gray
22.			Dark gray
23.			Dark gray
24.			Orange white
25.			Orange white
26.			Brown
27.			Orange white
28.			Gray
29.			White

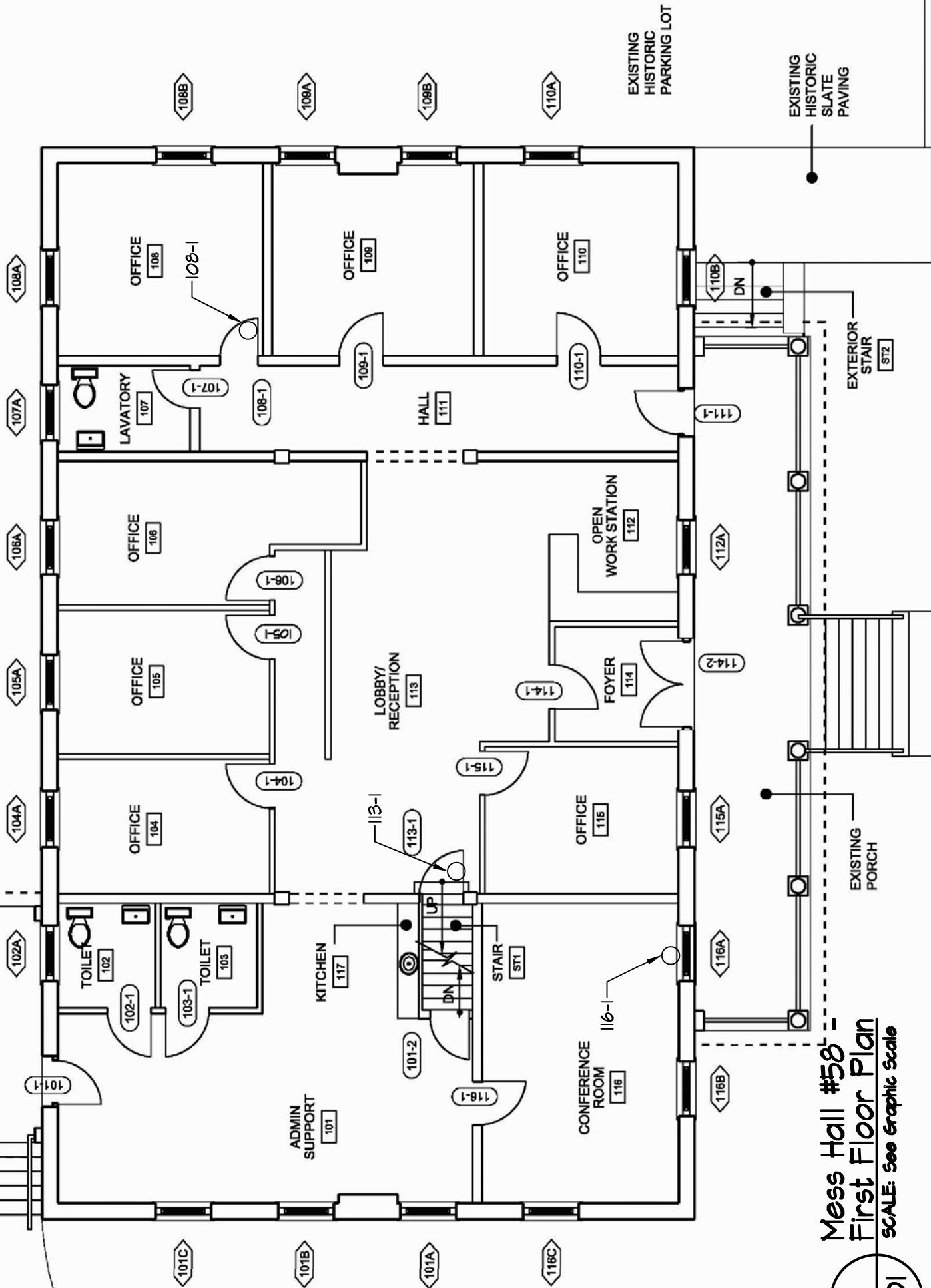
PAINT SAMPLE LOCATION DRAWINGS



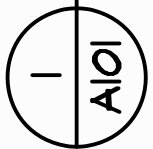
Mess Hall #58 -
Basement Floor Plan
SCALE: See Graphic Scale

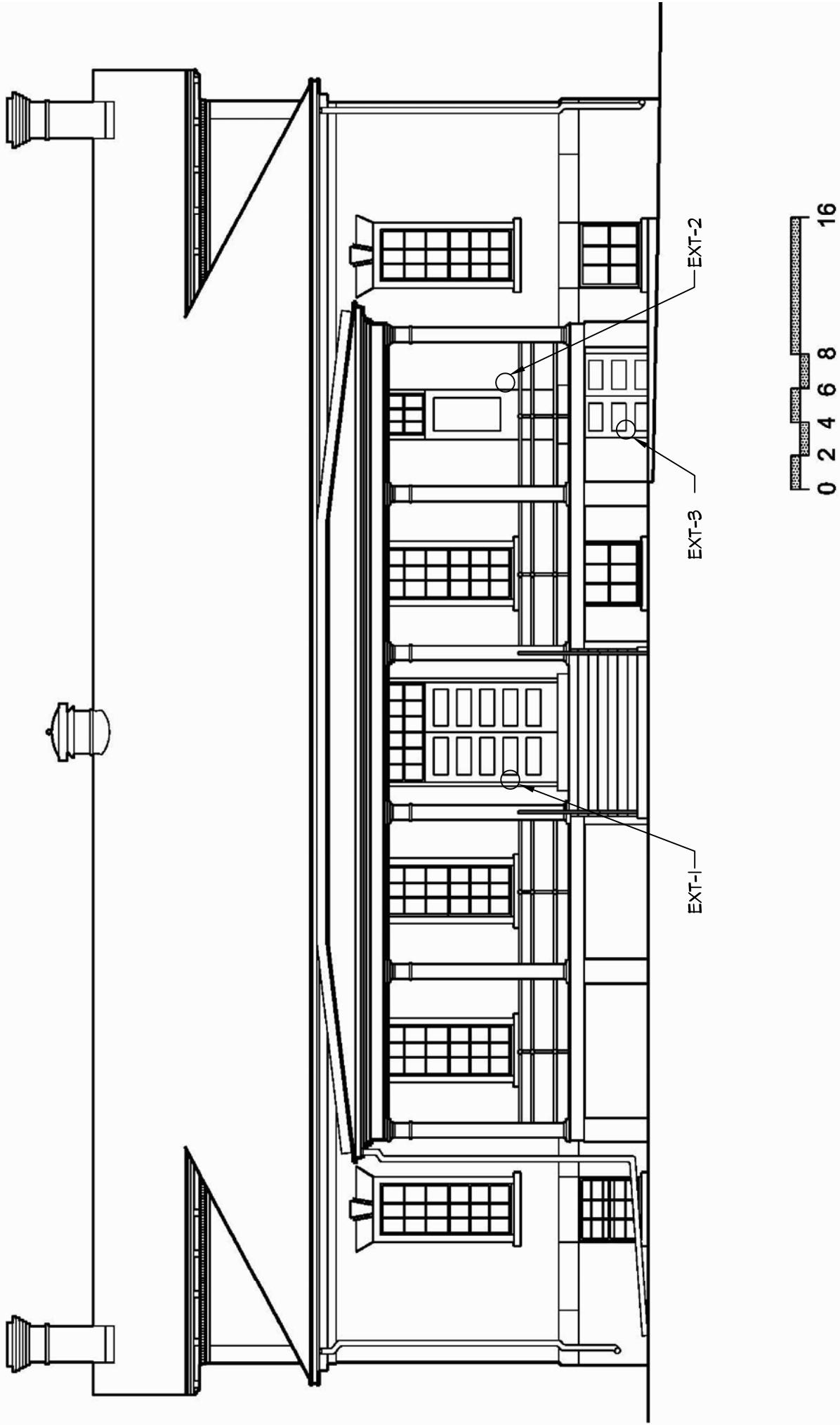


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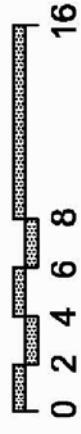
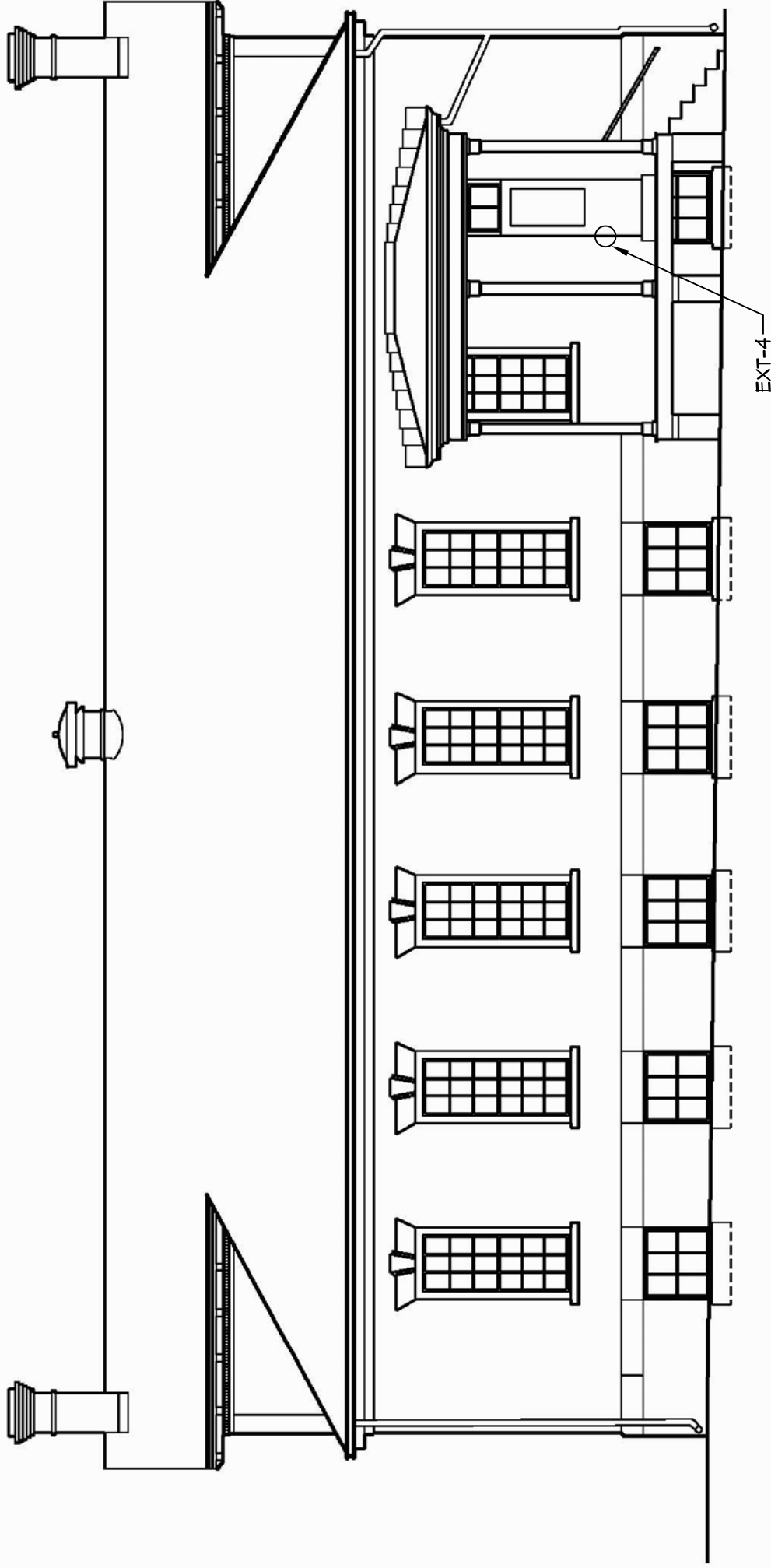


Mess Hall #58 -
First Floor Plan
SCALE: See Graphic Scale





1 Mess Hall #58 - West Elevation
A200 SCALE: See Graphic Scale



1 Mess Hall #58 - East Elevation

SCALE: See Graphic Scale

A202

