historic structure report
restore historic commissary building to 1897

FORT SMITH

NATIONAL HISTORIC SITE / ARKANSAS

APPROVED:

Regional Director, Southwest Regional Office

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Date

HISTORIC STRUCTURE REPORT
RESTORE HISTORIC COMMISSARY BUILDING TO 1897

FORT SMITH NATIONAL HISTORIC SITE
Arkansas

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Figure 1. Commissary from the West (1/2/85): Built on the northwest bastion (bastion 1) of the second Fort Smith 1845-46 as it appeared after its restoration to 1897 appearance.

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ILLUSTRATIONS

The following list of illustrations were done by several individuals. The historical photographs were taken by unknown photographers and are on file at Fort Smith National Historic Site (FOSM). All other photographs and drawings were done by either Craig Frazier or Gary Smith.

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PREFACE

This historic structure report (HSR) is the product of research and design that evolved over five years (1980-85). The research began in the spring of 1980, in response to a development/study package proposal (10-238) prepared by park superintendent JoAnn Kyral to "Restore Historic Commissary Building to 1898" (later revised to 1897). The intent of the task directive (see appendix) was to prepare an updated architectural evaluation section of the earlier historic structure report (NPS, Souder 1973), which would be the basis for decision-making about restoration. However, because construction funding became available before approval and publication of the HSR, design work proceeded, construction drawings 421/25,002 (Sept. 1983) and 421/25,003A (May 1984) were prepared, and restoration treatments were accomplished simultaneously with the documentation and research contained in this report. Therefore, the focus of the investigation and the scope of the research changed as different needs arose and as dictated by the treatment program. For this reason, the following aspects of this report differ from most HSRs.

1. Existing Conditions - "Architectural Data" section: This information is a record of physical conditions and knowledge before, during, and after the restoration effort. This section updates conditions recorded by Souder in 1968, describes conditions as of 1983, documents the construction effort of 1983-84, and illustrates the as-constructed (1985) existing conditions, functioning as a completion report.

2. Target Restoration Date - "Architectural Data" section: The 1980-82 architectural literature search focused on the target restoration date of 1898, the appearance of the structure at that time, and the implications for treatment. Three recommendations emerged from the search:

A need for an archeological investigation that would focus on the porch reconstruction proposed in the 10-238 (see point 3 below)

A revised restoration target date of February 1897 (when U.S. governmental use of the building ended and it was sold as surplus property, demarcating the end of the historic period)

The need for more research to clarify the building's physical appearance in 1897

It was found that restoring the commissary to 1897 would not preclude interpretation of the functions it served after the commissary function while under military and later U.S. Federal Court administration. Modern (post-1897) intrusions would be removed and the original historic fabric would be preserved, thus complying with NPS policy.

In the earlier HSR (NPS, Souder 1973), it was recommended that the building be restored to the 1840s period, when it functioned as the fort commissary. The approach would have required removal of features and reversal of modifications made between the early 1840s and late 1890s (e.g., fireplaces, chimneys, windows, doors, and porches). The continuum of changes in Souder's report was not clear. To clarify the sequence of changes and the building's 1897 appearance, it became necessary to do additional research and to completely update Souder's architectural data as well as Sheire's 1968 historical data (see point 4 below).

3. "Archeological Data" section: This section was originally a separate document requested in a 10-238 to support the architectural update and the development of design criteria for the anticipated porch reconstruction. Because it was not clear which porch or porches were extant in 1897, the NPS Southwest Regional Office contracted with Historic Preservation Associates of Fayetteville, Arkansas, to perform an investigation in the summer of 1982; however, preliminary results proved inconclusive. The firm's principal archeological investigator, Clyde Dollar, died in 1983. His unfinished study was completed and printed by Historic Preservation Associates that year. Information in the study contradicted previous architectural fabric observations, so the research

focus shifted to expanding and clarifying historical data (see point 4 below). Later, it was decided to include an "Archeological Data" section in this report to be written by park archeologist Roger Coleman. Coleman evaluated and expanded upon Dollar's work and conducted supplementary investigations as part of the construction-phase monitoring to write the present "Archeological Data" section.

The "Archeological Data" section (as well as the "Historical Data" section) focuses on the particular needs of the simultaneous construction effort (foundation investigation, stair and porch data, etc.). Although the underlying thrust of this HSR tended to be a compilation of problem-specific or focused studies, the overall HSR product is rather comprehensive.

4. "Historical Data" section: The archeological findings of the 1982 investigation by Dollar challenged Sheire's history findings (1968) and seemed to contradict some above-grade physical evidence. Clarification was necessary concerning the number of porches (more than one or two as previously thought), the types of roofing materials on the building, and the historic grade levels. Southwest Region historian James Ivey was assigned to the project in early 1984. Initially he consulted with Frazier, then he completed research to try to clarify specific questions, and finally he updated and wrote a new "Historical Data" section. This updated component, which incorporates or supersedes earlier histories (Bearss 1963, Haskett 1965, Shiere 1968 and Dollar 1983) is included in this document. Park interpreters Guy Nichols and Tom Crowson, who had gathered old photographs, insurance maps, and other archival data since Sheire's time, contributed a sound basis for justifying the rewrite.

5. Visitor Use/Interpretive Objectives "Administrative Data" section: The park's General Management Plan/ Development Concept Plan/ Interpretive Plan (May 1981) and Interpretive Prospectus (August 1981) were vague about the ultimate use of the commissary. Because the restoration measures revolved around the park interpretation program, it was necessary to clarify these matters. In early 1984, Denver Service

Center interpretive specialist Marilyn Hof was consulted for visitor use/interpretive expertise. Her input has been incorporated in the "Administrative Data" section.

6. "Administrative Data" section: Because of project funding and construction phasing, it was not possible to complete the HSR before preparing construction drawings. Therefore, research focused on answering questions to guide drawing preparation. A draft "Administrative Data" section, including a treatment scenario, was prepared in the spring of 1983 to provide an overall project context for the phase I construction/stabilization and to facilitate the National Historic Preservation Act (NHPA 1966 as amended, section 106) compliance. The draft was then expanded and refined in consultation with former regional historical Architect Dave Battle and regional historian Melody Webb in the winter of 1984 (including the interpretive input by Hof). The "Administrative Data" section was approved on April 27, 1984, before the preservation/restoration work of phase II. It has been edited for this report. The writing of the other HSR components in support of the management decisions contained in the "Administrative Data" section was conducted during and after the recommended work was accomplished.

7. "Architectural Data" section: The "Architectural Data" section in this report is not the comprehensive effort typical of the average HSR. Because it was done while construction was underway, the data focuses on particular problem and treatment issues that came about during construction. In addition, the "Architectural Data" section is largely a discussion and description of the decision-making logic, evolution in the scope of construction work, and documentation of the restoration effort itself.

8. Historic Landscape Data (separate documents): An abbreviated historic landscape plan, including a commissary trail plan, was once considered for inclusion in this report, but landscape treatments were dropped from the scope of work. However, the issue of park landscape management has since resulted in two separate documents of particular

interest to commissary researchers. The plans are Roger E. Coleman's "Historic Landscape at the Fort Smith National Historic Site, 1817-1896" (1984) and the "Landscape Management Plan," prepared by the Southwest Regional Office in May 1986.

What began as a seemingly simple architectural amendment to the earlier HSR evolved into a full-scale, entirely updated HSR. Instead of a planning document, which HSRs are intended to be, this report is also the documentation of the process and product of the two-phase restoration. This HSR required an exceptional amount of coordination between the team members and a great deal of flexibility and patience on the part of regional personnel in this unconventional process. Many people were involved in the compilation of the document, and the authors wish to thank them for their diligent efforts.

C. Craig Frazier
Denver

Figure 2. Historic Periods - Commissary Chronology

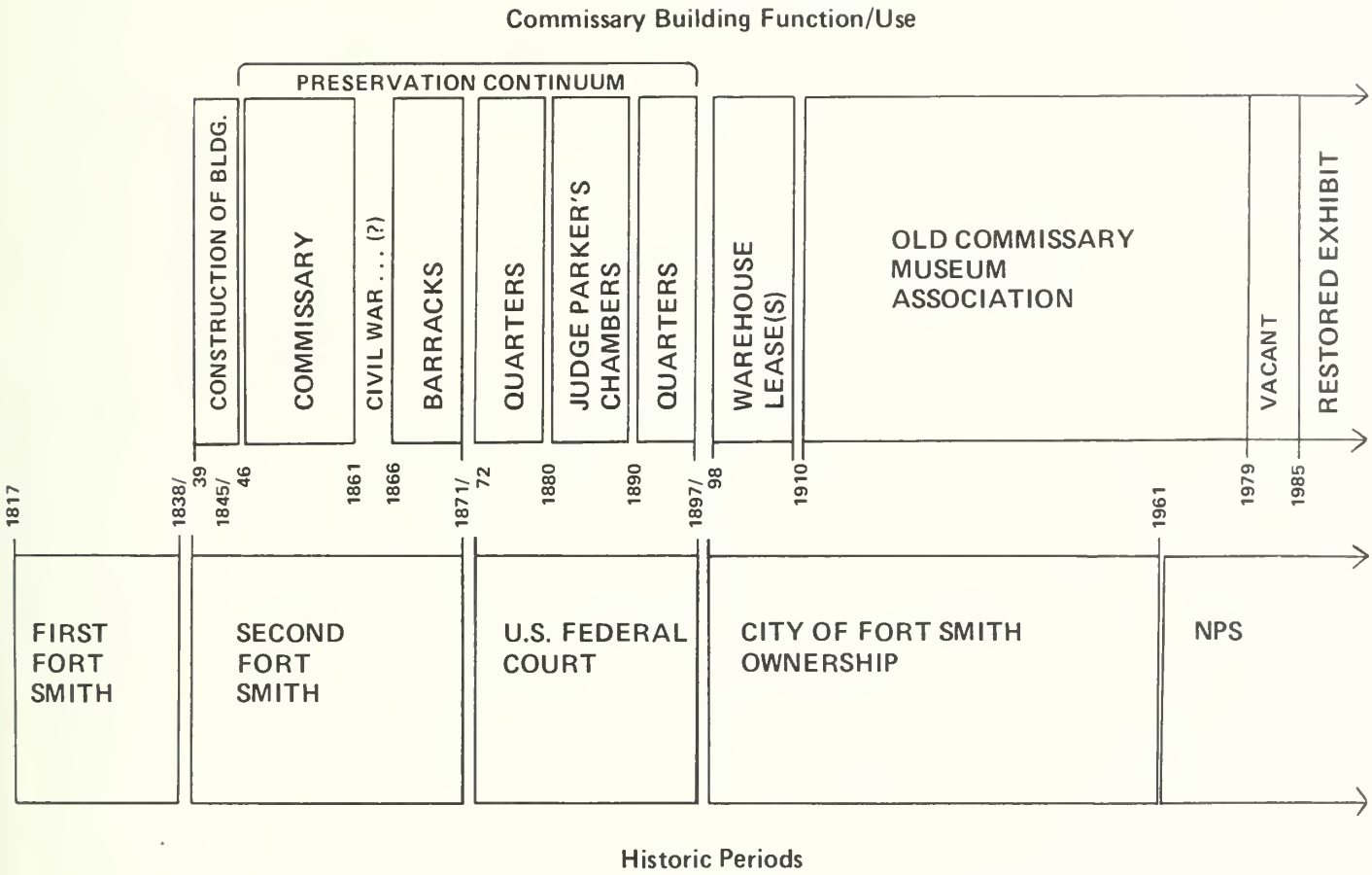

Figure 2. Historic Periods - Commissary Chronology

ADMINISTRATIVE DATA

THE STRUCTURE

The commissary building, a property identified on the National Register of Historic Places as HB-04 (historic building) and on the List of Classified Structures (LCS) as 00376, is at the north edge of Fort Smith National Historic Site, Sebastian County, Arkansas. It was built in 1845-46 on the foundation of bastion 1 of the second Fort Smith (1839-71). (See the LCS information on the commissary at the end of this section for further details.)

The LCS designates its management category as "A--structures that must be preserved and maintained." The site's General Management Plan/Development Concept Plan/Interpretive Plan, approved May 14, 1981, indicates that the commissary "will be restored to its appearance circa 1897."

PROPOSED USE OF THE STRUCTURE

The following descriptions and reasoning for proposed use of the commissary have been summarized from information in the above plan.

The intent and extent of restoration of the commissary is a function of its proposed use as an interpretive feature of Fort Smith National Historic Site. The 1981 "Interpretive Prospectus" (IP) describes the park's interpretive story: "Fort Smith played a major role in westward movement, Indian removal, establishment of Indian territory, and taming the west; and it served as a stronghold of frontier justice." To relate the three major periods of Fort Smith's history to this complex story, the IP recommended that visitors receive a historical overview at the visitor center and then proceed to individual resources to learn how the first fort, second fort, and federal court periods fit into the total story. The first fort would be interpreted at Belle Point, and the Federal Court period would be represented by the courthouse, jail, and gallows. Therefore, interpretation of the commissary would emphasize the supply depot role of the second fort from 1839 to 1871.

Exterior

The commissary is one of two remaining National Register structures of the second fort period; therefore; its exterior restoration is an important part of the re-creation of the historic scene. The IP suggested three to five wayside exhibits to interpret these features. The current recommendation is that one wayside be along the walkway between the courthouse and commissary in a position that allows views of the bastions, cistern, barracks (courthouse), and commissary. This exhibit would show the layout of the second fort and identify the visible features, summarize activities at the fort during this period, and show the extent of the fort's influence, the Indian Territory, other forts, and military roads that depended on Fort Smith. To help visitors visualize the fort's layout, bastion location markers of some kind would be constructed, and part of the fort wall would be reconstructed near the commissary. Modern site intrusions would be removed and electrical power lines would be placed underground.

Because the commissary was the prime resource for interpretation of the 1839-71 period of Fort Smith National Historic Site, the building exterior would be modified by removing nonhistoric (post-1897) features. Reconstructing various features, such as stairs and porches, that came and went during the 19th century would not be necessary, although chimneys, doors, and windows would be restored. Portions of the fort wall would be delineated and capped with stone to show how the commissary was originally a corner bastion of the fort. The asbestos roof would be replaced with slate shingles, and appropriate roof stabilization would be performed.

Interior

First Floor. Visitors would approach the commissary on the south side and enter and exit through the south door. Some regrading of the walkway would be required to allow access into the building by mobility-impaired visitors.

Such a grade change would be compatible with historic site restoration, i.e., the historic grade was higher than present. A wooden platform inside the building at the south corner would allow safe, accessible viewing of the interior and would help protect the historic stone floor. The modern concrete slab would be removed, and the historic floor would be preserved. The platform would provide a base for interpretive devices, and the electrical system would be hidden below its floor. Beyond the small platform area, the large open room of the first floor would be preserved as the primary exhibit of the second fort era, showing the materials, workmanship, feeling, and associations of the time.

The modern interior stairway and restroom would be removed to expose the "ghost" of the historic stairway, which is still visible along the wall; whitewashing of the walls would be avoided to preserve the ghosts of the stairs and other wall features so that visitors can imagine what was there.

Exhibits in the building would depict its function as the post commissary from about 1846 to 1859. Additionally, one exhibit would briefly summarize the chronological history of the building and its physical changes as commissary, barracks, quarters, judges' chambers, etc. Extant post-commissary period modifications, such as the fireplaces, would also be explained. It would not be necessary to staff the commissary, although occasional roving interpreters would be appropriate.

Future plans might include development of a booklet for self-guided tours of the building's exterior to interpret the evidence of changes that is recorded in the fabric of the building. Such features as infilled windows, joist pockets for the various porches and stairs, and the varied mortar colors used at different times could be pointed out in the booklet. A remote surveillance system with intrusion alarm devices would be provided as part of the recommended construction.

Interior

Second Floor. The second floor was vacant and unused, and future use by visitors would not be planned. Once the modern stairways were removed, no access to the second floor would be provided for visitors, satisfying resource protection and safety concerns in this unstaffed building.

Interior.

Attic Area. The attic was vacant, and access would be limited to the existing scuttle reached by ladder. Visitor access would not be intended. There remained in the attic, fixed in place, a historic hoist machine used to move supplies to and from the second floor. Whether or not this excellent example of handmade wooden machinery was "used," it would require preservation treatment. The attic area would also undergo general preservation and stabilization as a part of the commissary reroofing.

GENERAL EXTERIOR/INTERIOR TREATMENT - 1983-85

To facilitate proposed use and interpretation of the commissary, exterior and interior changes were made to the building.

Exterior

The exterior of the commissary was preserved, some restoration appropriate to the 1846-59 period was undertaken, and nonhistoric (post-1897) intrusions were removed.

Interior

First Floor. The interior first-floor walls, ceiling, and floor of the commissary were restored to the 1846-1859 period except for the south corner, which was set aside for interpretive exhibits. This was accomplished by removing post-1897 intrusions and preserving existing fabrics but did not involve reconstructions. The south corner development satisfied safety, accessibility, and security concerns and facilitated appropriate visitor use.

Second Floor. The second-floor interior received minimal preservation treatments to protect masonry and wooden fabrics. Future treatments and possible retrofitting for interpretive facilities are not covered by this plan. Structural preservation included installation of one missing support post, replacement of one nonhistoric and inadequate support post, and reinforcement of both summer beams by anchoring from the attic.

Attic. The attic was stabilized by replacing nonhistoric cross-bracing and installing additional structural systems to provide a sound support for the restored roof and summer beams below; deteriorated elements were replaced or reinforced, and flooring was preserved. The hoist machine received *in situ* preservation treatment. Also, louvered panels were installed in both windows to permit continuous ventilation.

SPECIFIC TREATMENTS ACCOMPLISHED

The following treatments were accomplished in two phases of construction. Phase I extended from September 26, 1983 to January 6, 1984; phase II extended from July 12, 1984 to January 2, 1985.

Phase I - Jobs Bill (1983)

Replaced asbestos shingle roof with slate roof, including replacement of some sheathing, especially at eaves; all new flashing and counterflashing, filled in nonhistoric roof hatch.

Replaced gutters and downspouts with smaller copper system in the same location.

Stabilized the roof structure by installing some sister rafters, replacing some decayed elements, and replacing old hybrid bracing with a uniform bracing system with new cross-braces.

Stabilized the roof system and the attic floor system by installing steel ledgers and steel channel beams, reinforcing floor girders, and transferring loads more appropriately to support posts.

Installed one new and replaced one nonhistoric and inadequate support post in the second floor.

Cleaned out the attic; installed 6-inch insulation; removed, treated, and reinstalled historic flooring at the center of the room; and sheathed the rest of the attic floor with plywood.

Repaired, rebuilt, and repointed the brick parapets to incorporate flashing and the eave cornice at the roof level.

Restored the two large brick chimneys and reconstructed the small (south) chimney to their ca. 1897 appearance; installed vents in the chimneys to facilitate natural ventilation to all floors.

Rehabilitated four first-floor windows, incorporating louvered panels to facilitate natural ventilation.

Removed most modern electrical and natural gas systems, including heaters, from the interior.

Removed 80 percent of the modern concrete slab that covered the flagstone of the first floor.

Cleaned, preserved, and greased the hoisting machine in the attic and installed a new trap door.

Phase II - (FY 84 and FY 85 PRIP)

Reconstructed representative portions of the garrison wall at the south and east where it intersects the commissary, including segments of new concrete and segments of historic stone footings.

Raked and filled masonry cracks and raked and repointed stonework on all four facades, including rebuilding brick arch at south window on the east facade, duplicating historic color and joint shape, and preserving (for interpretation) all historic nailers and joist pockets. Colored mortar joints of brick parapet and cornice.

Removed sewer vent stack from east facade, and stairs, washroom partition, and washroom fixtures from interior. Left historic stair fabric used in modern stair construction in place.

Removed gas meter and piping from east facade.

Removed concrete stair and landing and two stone piers from south facade. Salvaged stonework and ironwork and modified pier/buttress for interpretation.

Restored and repointed retaining wall (former porch foundation) at north.

Raked lower 2 to 4 feet of first-floor interior wall and repointed.

Scraped and whitewashed first-floor wooden ceiling-joist and beam system, duplicating, historic character.

Installed underground electrical and telephone service conduit through the foundation wall at the former location of washroom sewer piping. Passed conduit through garrison wall where former Johnson storage building had cut it in modern times.

Removed the remaining 20 percent of modern concrete slab from the first floor and installed an electrical conduit chase below a portion of the flagstone floor.

Installed the visitor platform at the south corner of the first floor--including 2x sleepers secured to mortar joints in the flagstone floor, 1/2-inch plywood subfloor, the oak flooring that was milled by the crew on site, and the handrailing.

Built the electric panel cabinet with oak veneer and installed the electrical equipment, conduit, and light fixtures. (Reused the 200-amp panel box.)

Removed nonhistoric flagpole from east lawn.

Repaired first-floor support posts and then whitewashed.

Manufactured and installed new locking hardware on first-floor south door and restored north double door.

Completed the repairs and refinishing necessary on all doors and windows and reinstalled them.

Installed electrical and security system wiring in conduit, removed nonhistoric equipment from northeast facade, and installed magnetic

contact security devices. Installed new power pole with meter and disconnect at Second Street.

Performed some plaster stabilization work on second-floor walls.

MANAGEMENT RECOMMENDATIONS

At the writing of this report, no cooperative agreements affected the project. However, to produce a fully useful facility, the following several actions, beyond the scope of this report, would need to be accomplished:

museum exhibit design (pkg. 104, PT 51)

museum exhibit production (pkg. 104, PT 52)

acquisition of artifacts and graphics (pkg. 104, PT 57)

historic structure preservation guide (pkg. 104, PT 39)

To provide efficient park operations, the park staff would have to open and close the building daily, but continuous staffing might not be provided. The commissary would also have to be operated and maintained by the National Park Service under its current policy.

LIST OF CLASSIFIED STRUCTURES (LCS)

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IDLCS:00376     ORGCODE:7320     PARK:FORT SMITH NATIONAL HISTORIC SITE
STRC#:HB-04        NAME:COMMISSARY
    NPS LEGAL INTEREST:FEE SIMPLE
    STRUCTURE  -  TYPE:BUILDING                        COMPOSITION:STONE
PERIOD OF CONSTRUCTION:HISTORIC
  NAT. REGISTER STATUS:ENTERED - UNDOCUMENTED                DATE:101566
   MANAGEMENT CATEGORY:A    MUST BE PRESERVED                 DATE:030181
  MANAGEMENT AGREEMENT:NO MGMT AGREEMENT
              TREATMENT:                STABILIZATION:NPS RESPONSIBILITY
                                     ROUTINE MAINTENANCE:NPS RESPONSIBILITY
                                      CYCLIC MAINTENANCE:NPS RESPONSIBILITY
                         APPROVED ULTIMATE TREATMENT:NPS RESPONSIBILITY
  CURRENT INTERIOR USE:VACANT
     STRUCTURE REMOVED:                                          DATE:
APPROVED ULT.TREATMENT:RESTORATION
     APPROVAL DOCUMENT:GMP                                       DATE:051481
    STABILIZATION COST:       $20,000                            DATE:0176
  APPROVED TREAT. COST:       $75,000                            DATE:0176
     LEVEL OF ESTIMATE:C                                  ESTIMATOR:REGION
COMMENT:2-STORY,TRAPEZOIDAL,NATIVE RUBBLE WALLS;1845-46

WOULD YOU LIKE ANOTHER LCS STRUCTURE(Y/N)?>
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HISTORICAL DATA

HISTORICAL AND ARCHEOLOGICAL BACKGROUND

HISTORY

The Fort Smith commissary has had a relatively simple physical history. The building was begun as a bastion for Fort Smith in 1838 and was altered and finished as the commissary in 1845-46. Few changes to the building occurred from 1846 to 1866. In 1866-67, the commissary was renovated and converted to a barracks, which involved a number of structural changes and additions. The building became part of the property of the Federal Court of the Western District of Arkansas on November 18, 1872, and was altered further during the period of federal ownership from 1872 to 1898. The commissary was purchased by the city of Fort Smith in 1898 and leased to the Old Commissary Building Association in 1910. In 1961 it was transferred to the National Park Service as part of Fort Smith National Historic Site.

Historical documents and the evidence of change preserved in the building's fabric gave a consistent physical history. The principal difficulty in assessing the physical history of the commissary building was that the historical data and the results of some archeological work differed. As a result, the first step in preparing a narrative of the building's construction was to evaluate the differences between the evidence offered by the archeologist and that offered by the fabric analysis and historical documents.

ARCHEOLOGY

The National Park Service has sponsored several archeological studies of the commissary area. Roger Coleman has evaluated the studies in the "Archeological Data" section of this report. However, when the author carried out the research for this physical history, only Clyde Dollar's excavations around the commissary were available. Because the author's conclusions differ markedly from Dollar's, a discussion of the differences is included here rather than in Coleman's chapter.

Dollar conducted an archeological investigation of the commissary in 1982 as part of the documentation of its physical history. Dollar reported his findings and conclusions in 1983.[1] Much of the physical evidence reported by Dollar appeared to be consistent with the conclusions reached from an examination of the building and the historical record, but his interpretation of that evidence presented a very different picture.

The source of most of the disagreement centered around a single assumption made by Dollar--the date of deposition of the soil layer he calls B1.[2] He considered it to be the throw-out dirt from the excavation of the foundation trenches of the bastion and walls of the fort, and that it was deposited in the period from 1839 to 1842.[3] From this assumption, Dollar concluded that any structures in place at the time of deposition of soil B1 must have been built during or before the construction of the bastion foundations. This conclusion directly affected the dating and therefore the supposed purpose or use of several other associated foundations. All of Dollar's subsequent reasoning about the use of these additional foundations followed from the assumption that soil layer B1 dates from 1839 to 1842.

There was, however, no compelling reason presented in Dollar's discussion of the strata for the acceptance of this dating for the soil layer called B1. In fact, the information was presented as an "interpretation,"[4] or suggested date, rather than a certainty. In the absence of compelling stratigraphic or artifactual evidence, the date of the deposition of soil layer B1 must be determined by other evidence. Such evidence was available in the form of the fabric analysis of the building and historical information. This evidence indicated that the additional foundations associated with the commissary building were constructed as porch foundations in 1866-67, and that layer B1 must therefore date from or after that construction. By using this date and purpose of the foundations to interpret Dollar's findings--and discarding his conclusions--a coherent physical history resulted.

Roger Coleman carried out further archeological investigations in an around the commissary (see "Archeological Data" section). His excavations supplied important information about the construction episodes of bastion 1 on which the commissary was built, the construction of the commissary itself, and alterations during the federally owned period after 1872. Equally informative was his careful reevaluation of the stratigraphy around the commissary, which revealed a far more complex depositional history than Dollar had recognized. Coleman's conclusions confirmed the author's reappraisal of Dollar's evidence.

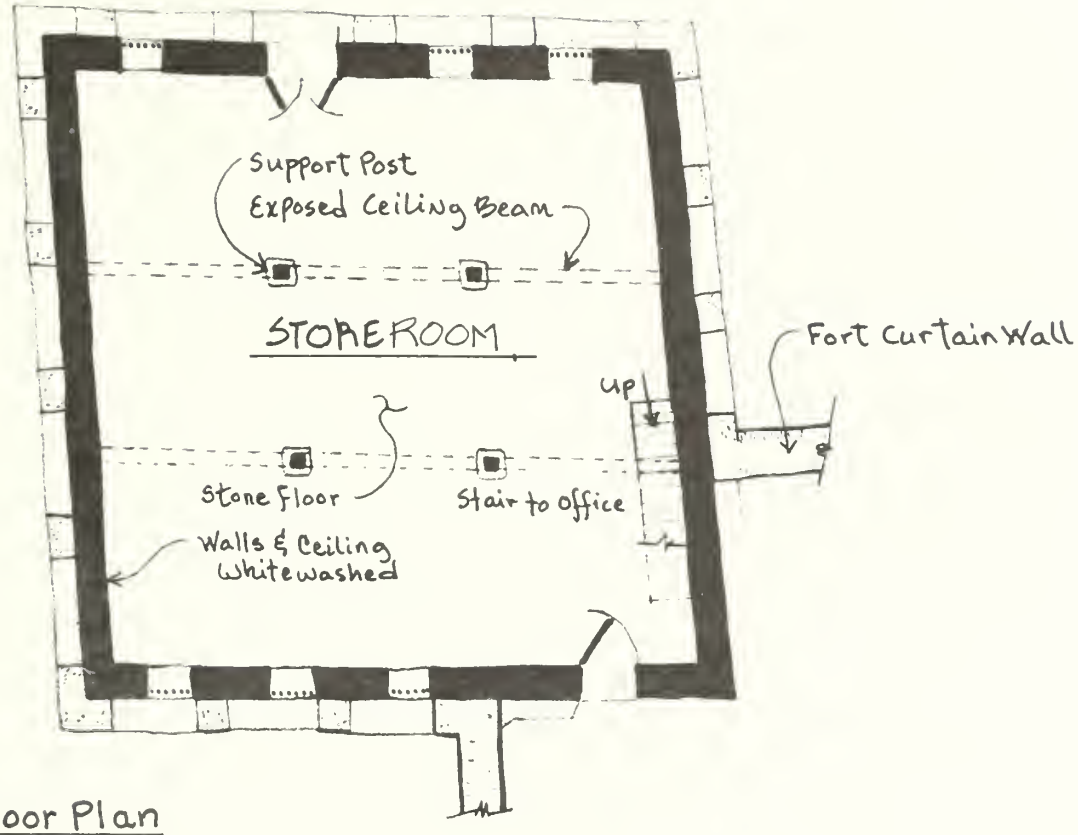
PHYSICAL HISTORY OF THE COMMISSARY

Second Fort to Civil War, 1838-61

Construction of the foundations of bastion 1, which eventually became the commissary, began in March, 1839.[5] Work on the bastion and walls effectively ended in 1842.[6] At this point the bastion was already a substantial structure. The foundation alone was 9 feet high and 5 feet thick, exposed by the slope of the ground towards the river on one side. The interior of the bastion foundation was filled with earth from within the walls of the fort so that the surface here was level with that of the rest of the fort. Above the foundation, 7 feet of bastion wall was built. All construction used a soft, orange, sandy lime mortar.

The conversion of bastion 1 into the commissary began in September 1845, and primary construction was completed by February 1846[7] (see fig. 3). A hard, off-white limestone mortar was used. Minor changes to the commissary occurred from its completion through the Civil War to 1866--the addition of partitions and doorways in the summer of 1846 and the construction of a second-story doorway and exterior stairs about 1849. Before these changes can be discussed, the appearance of the commissary at the time of its completion in 1846 must be determined. The fabric of the building offers enough evidence to accomplish this.

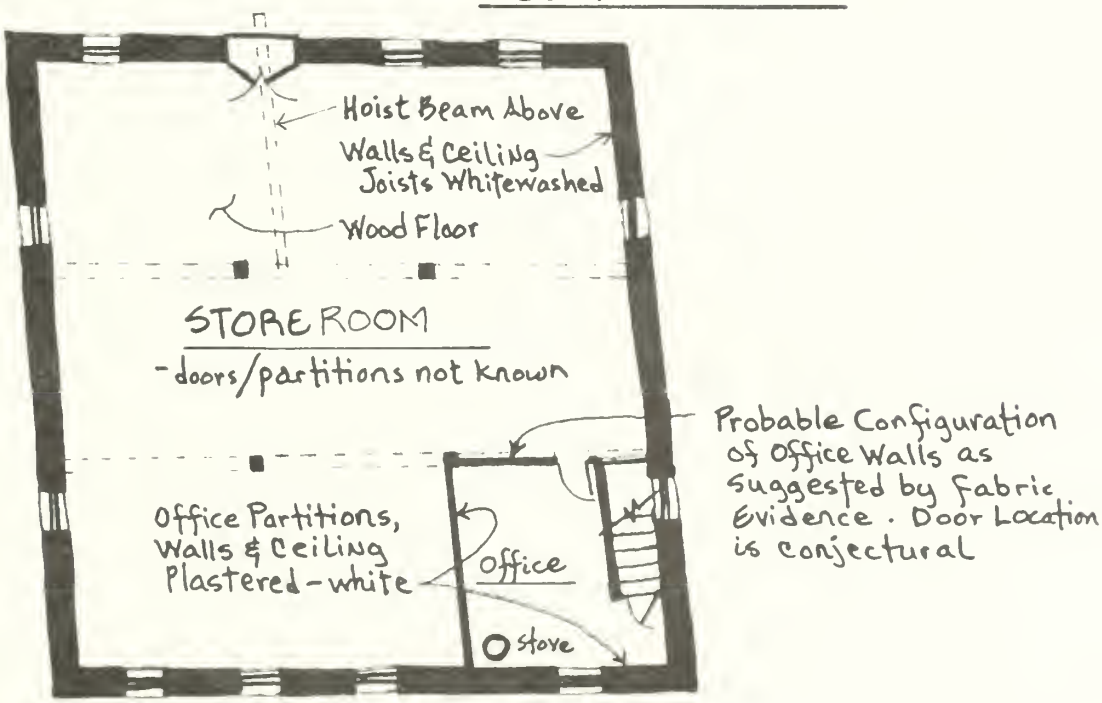
Figure 3. Commissary as Completed - 1846



First-Floor Plan

Second-Floor Plan

CCF '85



Window and Door Openings. All window and door openings with arched brick lintels were built between September 1845 and February 1846; all openings with other lintels are later additions. Second-story windows were constructed with sills of white limestone, the external faces of which were finished with flat-dressed edges and diagonal chisel marks. The second-story cargo door had a sill of tan sandstone with irregular chisel marks. All other second-story sills were added later, or were moved from original windows.

Stairs. There were no external stairs in the original construction. Interior stairs were built as an integral part of the building. Evidence of the structure of these stairs is well preserved. The ghost of the stairway is still recorded in the whitewash on the interior surface of the east wall and on the first joist west of this wall; the ghost of the handrail is also visible on this joist.[8] The joist section to which the head of the stairs was attached in still available. The section was removed in the early 20th century when the stairs were rebuilt. Two sections of the side stringer to which the steps of the stairway were nailed are part of the present stair header--visible in the ceiling of the area currently in use as the restroom enclosure (see further discussion of interior stairs later in this section).

Second-Floor Plan. The stair led to a second-floor office with white-plastered outside walls, a lathed and plastered ceiling, and inside partition walls probably of lathe and plaster. The office had a stove (probably of cast iron) connected by a stovepipe to the small chimney near the center of the south side of the roof. That this office was part of the original design is shown by the wider spacing between the third and fourth window (now a door). The original white wall mortar is still present in the area of the office,[9] and the seams on both the south and east interior wall surfaces marking the locations of the partition walls are clearly visible, as is the seam in the ceiling marking the juncture between early and later ceiling construction. The partition wall ran from the seam on the southern wall to the southeastern pillar, and then along a main ceiling beam to another post at the northwestern corner of the stairwell.

Nails are still in place that fastened this post to the beam. From this post a partition apparently extended along the west side of the stairwell to its southwest corner. Here it turned and ran across the head of the stairs to the seam on the east wall of the building. There was probably a doorway at the head of the stairs. The stairwell was apparently open to the north and was probably guarded by a banister or railing. The existing baseboards in the area of this office are later additions,[10] and without removing them it cannot be determined whether earlier baseboards were installed when the building was constructed. The existing wooden floor of the second story is a recent addition, prior to the 1930s, and covers the original wooden floor.[11] The original floor probably retains the marks of all partition walls earlier than the present partitions and should be examined carefully if the upper floor surface is ever removed. The remainder of the second-floor interior was either open space or had some partitioning for four storerooms. A coating of whitewash covered all walls, joists (including the joists of the attic floor; see figure 85), and the interior stairs.

First-Floor Plan. There is no evidence to indicate that the first floor contained any partitioning or subdivisions at the time the commissary was completed in early 1846. The entire area was apparently open, and all interior surfaces were whitewashed except the stone floor.

Additions of Mid-1846. In the summer of 1846 a few additions were made to the building.[12] The additions included partitions, shelves, and four door frames, sashes, and doors in the four storerooms. The actual locations of these storerooms and doorways are not known but might be determined by examination of the original second-floor surface, as indicated above. Later descriptions of the building hint that the partitions may have been added to the second floor to make only three storerooms in addition to the office, with the first floor left open as a single storage area.[13]

First Structural Changes. The first alteration detectable on the commissary building was the conversion of the southern window on the

east wall of the second story to a door (see fig. 4). Because the new door opened over the stairwell, the interior stair had to be floored over and may have been removed entirely.[14] Such an alteration accomplished two things: 1) it permitted continuing use of the earlier office door with no change other than that access was from the exterior of the building rather than the interior, and 2) it also accessed the room north of the stairwell. The sill of the new doorway through the wall is still in place and is of a yellow-tan sandstone with a coarse-pecked outer face, unlike any other sill on the building. An exterior stairway led to this doorway from the ground. Filled sockets on the east wall face indicate that a porch about 7 feet long formed the landing outside the doorway. The porch was not centered on the new door but offset somewhat to the north.

Evidence for a flight of stairs running towards the south against the wall is noted on the HABS drawings (see "Historical Data" section) of the commissary in 1936.[15]

The most likely date for the addition of the new door and exterior stairs was soon after April 9, 1849, when the enlisted men's barracks burned. Sheire states that the displaced troops were housed in the commissary and quartermaster storehouses after the fire.[16] The doorway and exterior stairs were probably alterations prompted by this use. The exterior stairs accessed the second story of the commissary. This could indicate that the first floor continued as commissary storage, and the second floor became the temporary barracks. Use of the first floor as the storage area was desirable because it meant less hoisting and storage on the second floor. The separation of the two functions was also desirable because it prevented pilferage.

The use of the commissary as a barracks did not last long. The description of the process of replacing the barracks from April 1849 through mid-1851[17] implies that the troops remained housed in the commissary and quartermaster storehouses through at least May 1850, at which time the garrison of the fort was reduced by half. One of the two

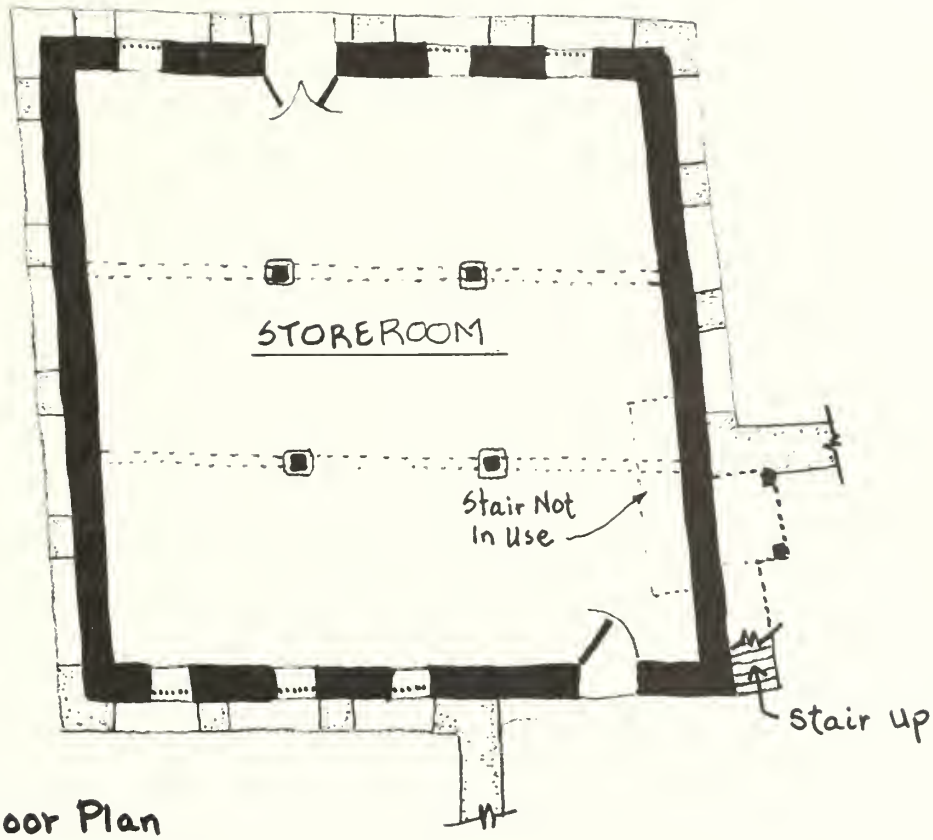
temporary barracks was probably emptied in that month. The remainder of the troops were withdrawn from the fort in July 1850, leaving only a very few men at the post.[18] No troops would have been housed in the commissary after July 1850. Regarrisoning occurred in March 1851,[19] possibly implying a reoccupation of the commissary at that time. Work on the new barracks began in November 1850[20] and was virtually completed by June 1851,[21] when all troops must have been out of the commissary building.

The use of the commissary as a barracks was ended, but the second story may not have returned to storage space. In October 1851, the commissary building was described as having a single ground-floor room used for storage, and the rooms of the second story were "offices for the commissary and the paymaster details."[22] The distribution of these rooms is indicated by a report of June 1853, when the building had one room on the ground floor and three rooms on the first floor.[23]

By June 1857 the building needed "new steps leading to 2d floor." The reference to "steps leading to 2d floor" has usually been interpreted to refer to stairs from the ground floor to the second level.[24] The phrase, however, very likely refers to new steps leading up to what we would consider the attic where the hoist equipment was. In all the references to the commissary building, the first level or ground floor is spoken of as the basement and the second level as the first floor. This level probably had only a partial floor or service platform. The "steps" may not have been more than a ladder. The remark, therefore, should not be used to infer changes to either the interior or exterior stairs leading to the second level. It is probable that the exterior stairs continued in use until the major renovation of the commissary in 1866.[25]

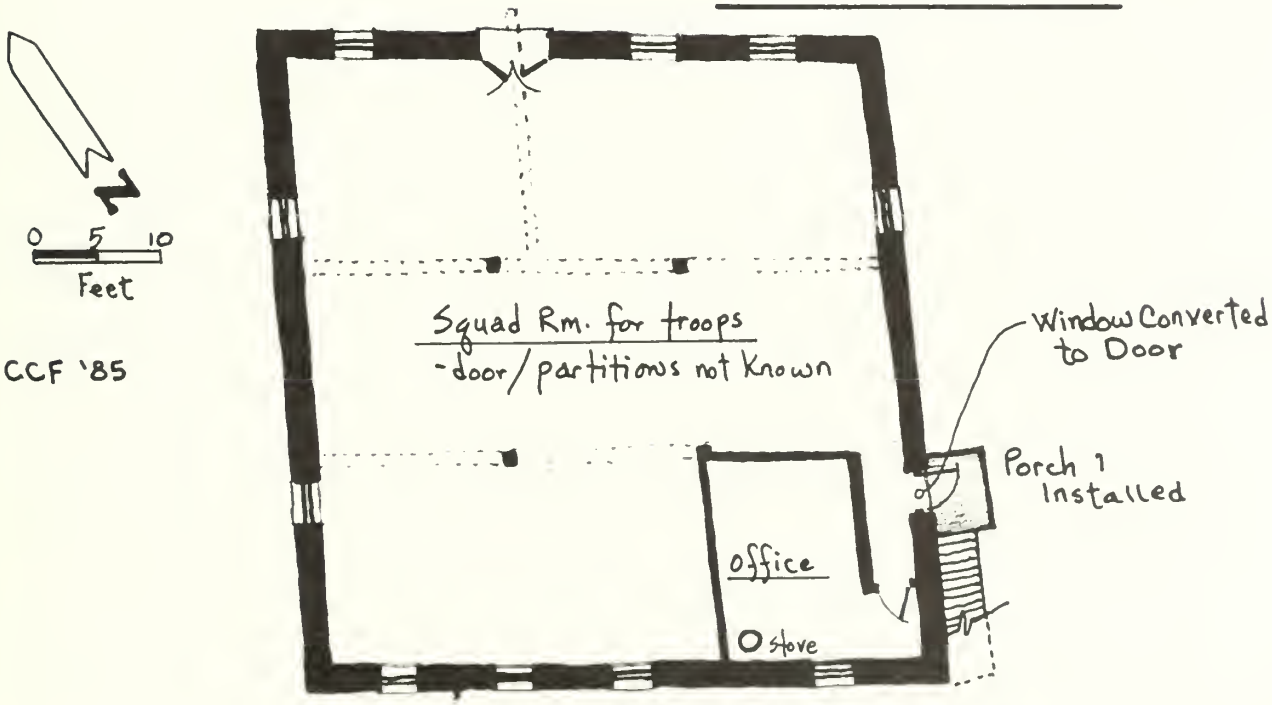
Sheire states that the roof was replaced in slate in 1857.[26] This is apparently an inference based on the statement in the "Report on Conditions" of 1857 that the commissary needed a new roof, along with several other buildings. Most of these roofs were recommended to be made of slate.[27] An examination of later reports show no reference to a

Figure 4. First Change to Commissary - 1849



First-Floor Plan

Second-Floor Plan



need for new roofs on any structures, although other repairs recommended in 1857 were still being sought. The wood shingle roof was, therefore, very likely replaced with slate in 1857.

There is no record of any changes to the building from 1857 through the Civil War to 1866.

Post-Civil War, 1866-71

In late 1866 General EOC Ord ordered that the commissary and quartermaster buildings be converted to barracks. By the end of December 1866, much construction had been done on the two buildings. The work was probably completed in 1867. A description in 1869 indicated that the commissary building was in use as a troop barracks and had a "porch in front and rear."[28]

Structural evidence and documented construction allows a fairly complete statement of the alterations of 1866-67. Dollar's archeological results supply further details (see "Archeological Data" section).

Window and Doorway Changes. Remodeling the commissary involved several window and doorway alterations. Two chimneys, each with a fireplace on the ground floor and the second floor, were built, which covered the filled original interior west face second-story windows. New window openings, with stone-arched lintels rather than brick-arched lintels, were cut beside the chimneys. The white limestone sills were apparently removed from the old windows and placed in the new ones. On the second floor of the east face, a new doorway was cut into the approximate center of the wall, with a header and sill of a yellow limestone slab with vertical finishing chisel marks. The south doorway on the east face was converted back to a window, leaving the doorsill in place. An original white limestone sill was placed in this window, and two fragments of a similar sill were used as part of the wall patch above the old doorsill.

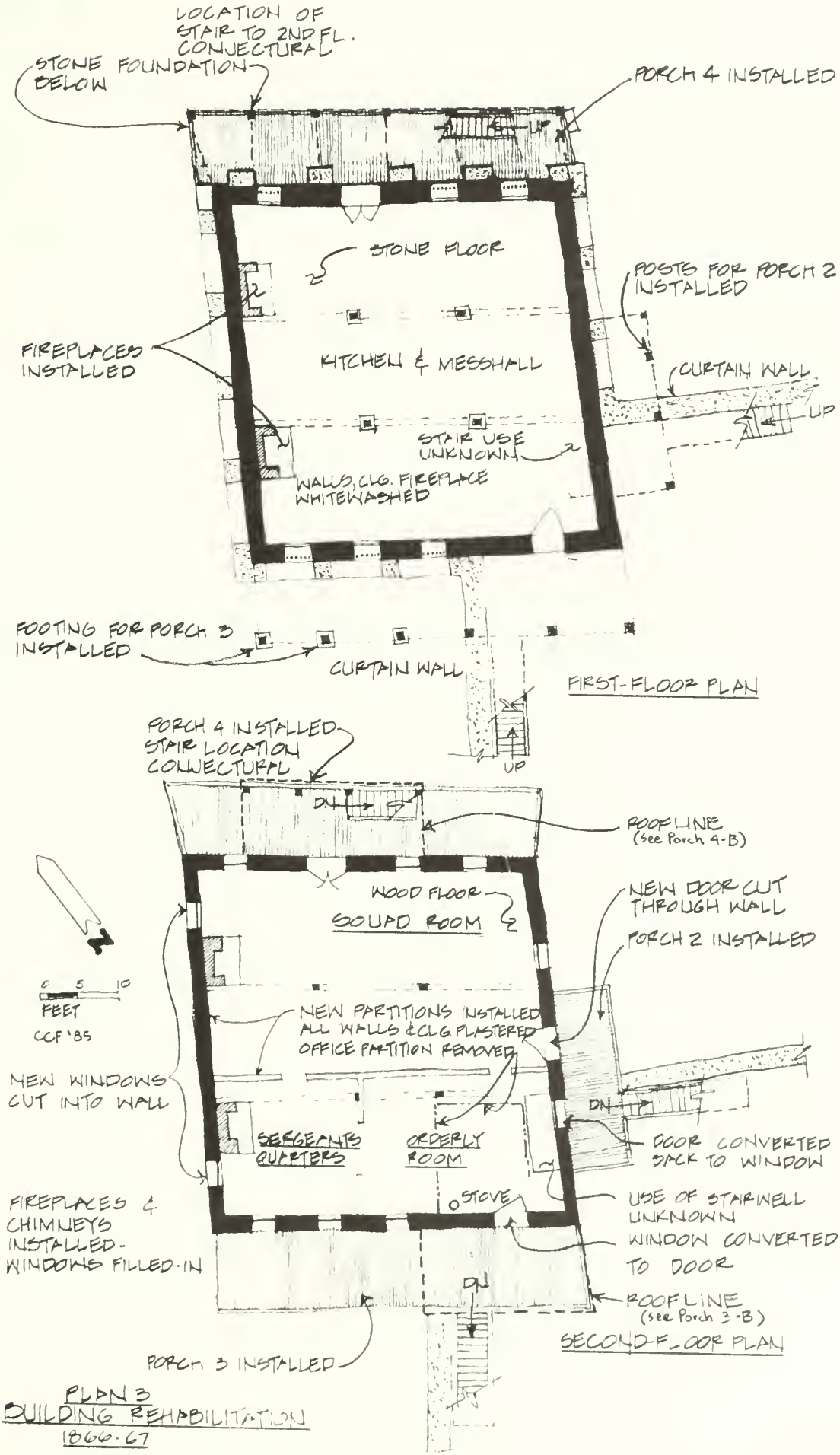
On the south face of the second story, the easternmost window was converted to a door. The white limestone sill removed from this window may have formed the sill of the window made from the southern doorway on the east face or may be the broken sill in the wall patch beneath it. In either case, the old sill for the south window on the east face must have been saved after the conversion of the window to a door in ca. 1849 and then reused in 1866-67.

The Orange Mortar. The changes to windows and doors discussed above can be associated with the reconstruction of 1866-67 without any doubt, based on the documentation of the work done at the time.[29] These openings were all filled, repaired, or finished using an orange sandy mortar very similar to that used in the construction of the original bastion and wall foundations and distinctly different from the hard, off-white mortar used for the original commissary construction. The edges of the new doorway and the converted window on the east face of the second story were all finished with orange mortar. The surviving eastern edge of the east window on the south face of the second floor was coated with this mortar, and the socket from which the sill was removed was patched with it. The west edge of the window was knocked out, as was the wall below it to floor level, and then finished on the interior using the same orange mortar to make a new 4-foot-wide doorway. The use of this mortar for other changes strongly suggests that these changes were also part of the same remodeling effort.

Chimneys. The two chimneys installed in 1866-67 may not have been finished to the same height although this cannot be confirmed by available information. The northern chimney was perhaps 3 or 4 feet shorter than the one on the south as indicated by the 1894 photograph (figure 31). The different height may be a result of a Federal Court period modification. Both had a simple brick cornice but are of two different designs.[30]

Roofing. The commissary may have been reroofed in 1866-67, although there was no reference to this action. The Sanborn Insurance Maps (see

Figure 5. Building Rehabilitation - 1866-67



PLAN 3
BUILDING REHABILITATION
1866-67

"Historical Chronology" section) which began recording the commissary in 1886, indicate that the building had a wood-shingled roof. The historical documents indicate that the roof of the commissary was wood shingle from its original construction through at least 1857, at which time it was probably reroofed in slate. If so, the slate roof may have been removed in 1866-67 and replaced with shingle again.

Interior Changes to the Second Floor. A major alteration of the plan for the second floor was carried out in 1866-67. The office and other interior partition walls were removed, and the entire wall surface of the second floor was coated over the original whitewash with orange plaster, and then finished in fine white plaster (lime putty). A lathe and plaster ceiling covering the entire second floor was built. The new wall mortar and ceiling were butted against the original mortared wall and ceiling of the office, leaving visible seams. New baseboards were added. In the original office, the wall mortar was broken out on the west side of the new eastern door on the south face and along the floor to a height sufficient to accommodate the new baseboards. After the baseboards were added, the old white plaster was patched with new orange plaster. A new stair railing (the present railing) and new partition walls were then built. All evidence indicates that the present partition walls are those built in 1866-67. The second-story ceiling apparently sealed off the hoist machine, for which there was no longer any use. The present openings in this ceiling were added to permit a later reuse of the hoist. Such a change does not seem likely during the Army Barracks period and was therefore probably made during the Federal Court period after 1871.[31]

Changes to the First Floor. The first floor was left open and used as a kitchen[32] and probably a mess hall. It was intended in 1866 to place a plank floor above the original flagstone, but some of the fort staff opposed this, and the floor was probably never added.[33] The construction of the ground-floor fireplace hearths flush with the flagstone floor indicates that the plan for a wooden floor was rejected before the hearths were added.

Exterior Additions on the North Side. The historical references to the remodeling mention that porches were added to the front and rear of the building. Structural traces and Dollar's archeology supplies enough evidence to relocate them. A porch was built across the entire north front of the building. The earth on this side was cut down to below the 1838-42 construction level and onto this was built the present retaining wall to form the foundation for the porch.[34] Dollar found indications of a stone stairway on the east end of this wall, probably forming one access to the porch. Dollar's contention that the porch wall was altered in ca. 1911 by the addition of another facing of stone, onto which the top row of stones from the earlier wall were moved, does not seem to be warranted by a study of the available photographs.[35] They show no significant changes in the pattern of stones other than rather heavy repointing in the early 1900s.

Joists for the ground floor of the porch probably had their southern ends resting on the lip of the bastion foundation (the present building sill) and their northern ends on the retaining wall. The pillars that supported the second story of the porch also rested on this wall. The joists for the second story had their southern ends set into sockets cut into the north face of the building at the level of the heads of the first-floor windows, and their northern ends probably rested on beams running from pillar to pillar. Sockets were cut for a roof over the porch at the level of the heads of the second-story windows, but these sockets were later patched with orange mortar very similar to that used for the remainder of the 1866-67 construction. This indicates that the porch roof above the second story may never have been built, although one had been planned. This may have been dropped from the construction plans at the same time that the proposal for an interior wooden floor over the flagstone was rejected. A small section of the second-floor porch roof is shown over the cargo door on the 1886 Sanborn Insurance Map (see figure 28).[36] This may mean that the plan for the complete roof was abandoned, but a small protective roof was built over the door, as on the south side porch.

Access to the porch from the building was through the cargo doors of the first and second floors. From outside, the ground-floor porch was probably reached by the stairs on the east end located by Dollar, and very likely had another, main set of stone or wooden stairs built against the north face of the retaining wall in front of the cargo doors. The use of space within the building implies the possibility that there was a stairway from the second to the first level of the north porch, to give troops access to the main entrance of the mess hall. There is no structural or documentary evidence for such a stairway, however.

Exterior Additions on the South Side. On the south side a porch was also built, but it had no first-floor section. At ground level west of the fort wall were three stone bases on which rested the pillars supporting a full-width porch at the second-story level.[37] No access to the area under this second-story porch was cut through the fort wall or the wall of the commissary. The presence of three stone pillars instead of a continuous supporting wall indicates that there were no joists to support at ground level; therefore, there was no porch here. The area of the south wall around the main door, from the fort wall to the east corner beneath the second-story porch, probably received a coat of whitewash at this time.[38] Access to the second-story porch was created by the construction of the new doorway made from the converted window at the eastern end of the south face. It is likely that a stairway was built to the second-floor porch in front of the doorway at the same time, perhaps the stairs seen in figure 40.

Again, sockets were cut for a roof over the second-story porch and the socket filled with orange mortar. The evidence seems to indicate that no continuous roof was built over either the north or south porches. It is, however, likely that a smaller roof of lighter construction was built over the east end of the south porch.

The first photograph of the south side was made in ca. 1894.[39] The porch construction visible in the photograph[40] is very likely to be the eastern half of the south porch built by the army in 1866-67. The light

roof and the stairs in front of the second-story door are also probably army construction. The small section of roof may have been intended as a protected area in front of the door for the noncommissioned officers (NCOs), similar to the covered area over the main door on the north side second-level porch. There is no evidence to indicate that the Federal Court carried out any such construction after acquisition of the building in 1871.

Exterior Additions on the East Side. The sockets into which the 1849 porch beams had fit were patched with orange mortar, and a new porch was added on the east side in 1866-67, giving access to the second floor through the new doorway. The doorway opened into the larger of the three new second-floor rooms. The porch was about 22½ feet long, about 7½ feet wide, and had a stairway running down towards the east against the southern face of the fort wall.[41] It still stood in 1894, when R.H. Mohler drew a sketch of the north and east faces of the commissary.[42] The porch was fastened to the wall by only two beam sockets, at its north and south ends.

Use of Space within the New Barracks. An examination of the final plan of the building after this remodeling had taken place allows some hypotheses of the use of the new spaces created (see figure 5). The large room on the north side of the second story would have been the barracks, with troop access through the eastern exterior stairs and porch. One large fireplace warmed this area, and the troops had access to the second-story north porch through the cargo door. The two smaller rooms on the south side of the second story would probably have been the sergeant's quarters and the orderly room. The sergeant's quarters would probably have been the western of the two rooms, with a large fireplace. The sergeant would then have had access through a set of double doors to the orderly room, and through a single door to the barracks area. The orderly room would have still had the small iron stove and would have connected to the barracks area and the sergeant's quarters. It also opened onto the south porch, which was probably for the use of NCOs only. A flight of stairs from the south to this porch

would have given NCOs access to the orderly room and sergeant's quarters without the necessity of going through the troop's entrance, the east porch.

The kitchen and mess hall had a main entrance and exit to the north porch through the north cargo door at ground level and probably a mess staff and supplies entrance through the south door. Two large fireplaces heated the first floor and were probably used for cooking.

These modifications were the last carried out by the army. Soon after, the troops began to be removed from the fort, and by 1871 only a small caretaker group remained. In that year the land and buildings were turned over to the Justice Department to be used by the Federal Court of the Western District of Arkansas.

Federal Court Period, 1871-97

The army transferred the fort to the court in November 1871.[43] The courtroom itself was moved to one of the officers' quarters buildings within the fort in November 1872 after the leased courtroom and judge's chambers in the city of Fort Smith burned.[44] The judge's chambers was moved to another location in the city at the same time.[45] In 1873 the buildings of the fort were appraised, and the commissary was referred to as "occupied by Mr. Berry, Keeper of the prison."[46] The text of the description implies that the building had a stone floor on the first story and three rocms on the second story, similar to that of the quartermaster building.[47] No reference was made in the description to porches or roofing material.

The jailor was an employee of the court and was subject to frequent change. It is likely that Mr. Berry and later jailors had offices in the federally owned buildings but probably lived elsewhere. It is reasonable to assume that the jailor's office was in the commissary from at least 1873 to 1880.

In 1875 Isaac C. Parker was appointed as federal judge.[48] He moved his chambers to the commissary building from another structure within the fort in July 1880, but carried out no physical changes at that time.[49]

In April 1886, he had some repairs and repainting done in the commissary:

> . . . repairing the plastering, white washing ceiling, papering walls, of the two rooms, furnishing six window shades, painting one coat six windows, three doors, two double doors, mantle board and base of rooms. . . . My chambers are in a stone government building and one of the rooms is in very bad condition, so bad it can't be occupied.[50]

The text of his request for these repairs indicates that only the two southern rooms--the former sergeant's quarters and the former orderly room--were in use by the Federal Court.[51]

The photographic record of the building effectively began ca. 1894, and the Sanborn Insurance Maps coverage began in 1886. The evidence from historical documents, photographs, and the Sanborn Insurance Maps allows a reconstruction of the sequence of changes to the building during the Federal Court period.

North Porch. As of 1886, the Sanborn Insurance Map shows a porch on the north side of the building, of which the portion in front of the cargo doors was two stories high.[52] It is likely that this is the porch built in 1866-67. The probable reopening of holes in the second-floor ceiling to permit use of the hoist machine and the lack of any recorded use by officers of the court of the large north room on the second floor of the commissary imply that the court may have been leasing this space as a storage area to some private business. If this was the case, the second-story porch probably had its flooring removed in the section immediately in front of the cargo doors to permit the use of the hoist. All but the foundations of the north porch was removed between 1886 and 1892, when it no longer appears on the Sanborn Insurance Maps.[53]

East and South Porches. The east porch constructed in 1866-67 continued until some date between 1901 and 1911, but the stairway was lost between 1894, when Mohler's drawing shows it as still present, and 1897, when the 1897 Sanborn Insurance Map shows it absent. The portion of the south porch west of the fort wall was removed at some time between 1866 and 67 and the first photograph of this area ca. 1894,[54] but the eastern portion survived until it was removed between 1896, when J.A. Hammersley, a court official, was living with his family in the building, and June 1897, when the Sanborn Insurance Map shows it gone.[55]

The decision to sell the buildings of the fort was made in February 1897, and the commissary was bought by the city of Fort Smith in March 1898.[56]

CHANGES TO THE COMMISSARY BUILDING AFTER 1897

For several years the building was "leased to local business firms for use as a warehouse."[57] The hoist machine in the attic may have been returned to use by the businesses, but by this time it was about 50 years old and may not have been strong enough to handle heavy work.

On December 28, 1910, the city of Fort Smith leased the commissary to the Old Commissary Museum Association, which converted the building to a museum.[58] In 1911, repairs to the roof of the building were carried out, although the extent of these repairs is not known.[59] Photographs in the collection at Fort Smith National Historic Site and later newspaper articles indicate that the building was roofed in slate. The chimneys were repaired at the same time, altering the caps of the two main chimneys.[60] Between 1911 and 1913 the concrete stairs to the doorway on the south face of the second story were built, and a concrete floor was poured onto the flagstones of the first level.[61] The chimney for the second-floor iron stove fell between 1918 and 1923.[62]

The building was examined and recorded by the Historic American Buildings Survey (HABS) in 1936.[63] (See HABS drawings in the "Historical Chronology" section.) Many of the details noted on the HABS drawings have been referred to above. In 1938 the slate roof was removed and a new asbestos-shingled roof constructed. Probably at the same time the old interior stairwell opening was enlarged, a new flight of wooden stairs was built, and a restroom was added under the stairs.[64]

NATIONAL PARK SERVICE OWNERSHIP

The National Park Service acquired the commissary building in 1961.[65] Significant alterations to the building during NPS management are outlined in the "Historical Chronology" and "Administrative Data" sections.

RECOMMENDATIONS

Several areas of the physical history of the commissary are still vague. Much of the uncertainty concerns the upper levels of the building: the history of changes to the second level room partitions, ceilings, and roof.

If the recent layer of flooring is removed from the second floor, the opportunity should be taken to examine the older flooring for traces of the plan of the room partitions installed at various times. A precise mapping of these traces should be made, if they are found.

The attic floor should be examined in detail. The construction should preserve a record of changes and additions to the attic, especially ca. 1866-67 and ca. 1872-85. Such changes and additions could supply more information about the periods and kinds of use of the hoist machine.

The roof interior should receive a thorough examination. Any indication of a sequence of changes and additions to the bracing of

the roof, and of the date of such changes, should be noted. It is likely that the bracing was altered and added to when the slate roof was put on the building. A detailed examination of the roof structure could answer the difficult question of when this occurred.

The Fort Smith commissary is a fascinating building, and it preserves, in easily visible form, a record of its various uses in the past. It can readily be made to convey its history to the visitor. Such an interesting and remarkably self-expressive building should receive careful attention. In return, it will create a rewarding experience for all who see it.

STAIRS AND PORCHES OF THE COMMISSARY

INTERIOR STAIRS

It is possible that the commissary had no usable interior stairway between 1849 and about 1936. Connection between the floors was achieved by way of exterior porches. There is, on the other hand, unmistakable evidence that the building had an internal stairway as originally built in 1846. This stair (stair 1) was very likely closed off in 1849 when porch 1 was built, and the window above the stairwell opened up as a doorway. Whether or not the stair was reopened after the doorway was converted to a window (probably in 1866) is unknown. The HABS drawings of ca. 1936 illustrate the original stairwell opening but show no stairs. Evidence for stair 1 is shown in the following photographs and drawings.

Stair 2 was built about 1936 (apparently after the HABS drawings) and removed in 1984 because it was an unnecessary modern intrusion. It is described in Souder's HSR and documented by the photographs that follow.

Reconstruction of the historic stair was considered in 1984 but not undertaken for three reasons: There was no interpretive use or need to have a stair to the second floor; reconstruction of stair 1 would have involved unjustifiable conjecture; and the inclination directed by the "Interpretive Prospectus" (see the "Administrative Data" section) is to preserve feature ghosts--such as the ghost of stair risers--rather than to reconstruct features.

EXTERIOR PORCHES

When the commissary was completed in 1846, it had no attached porches or external stairways. They were not necessary to facilitate the commissary functions--basically, storage on the first and second floors

Figure 6. Stair 1 and 2 - Plans and Profiles

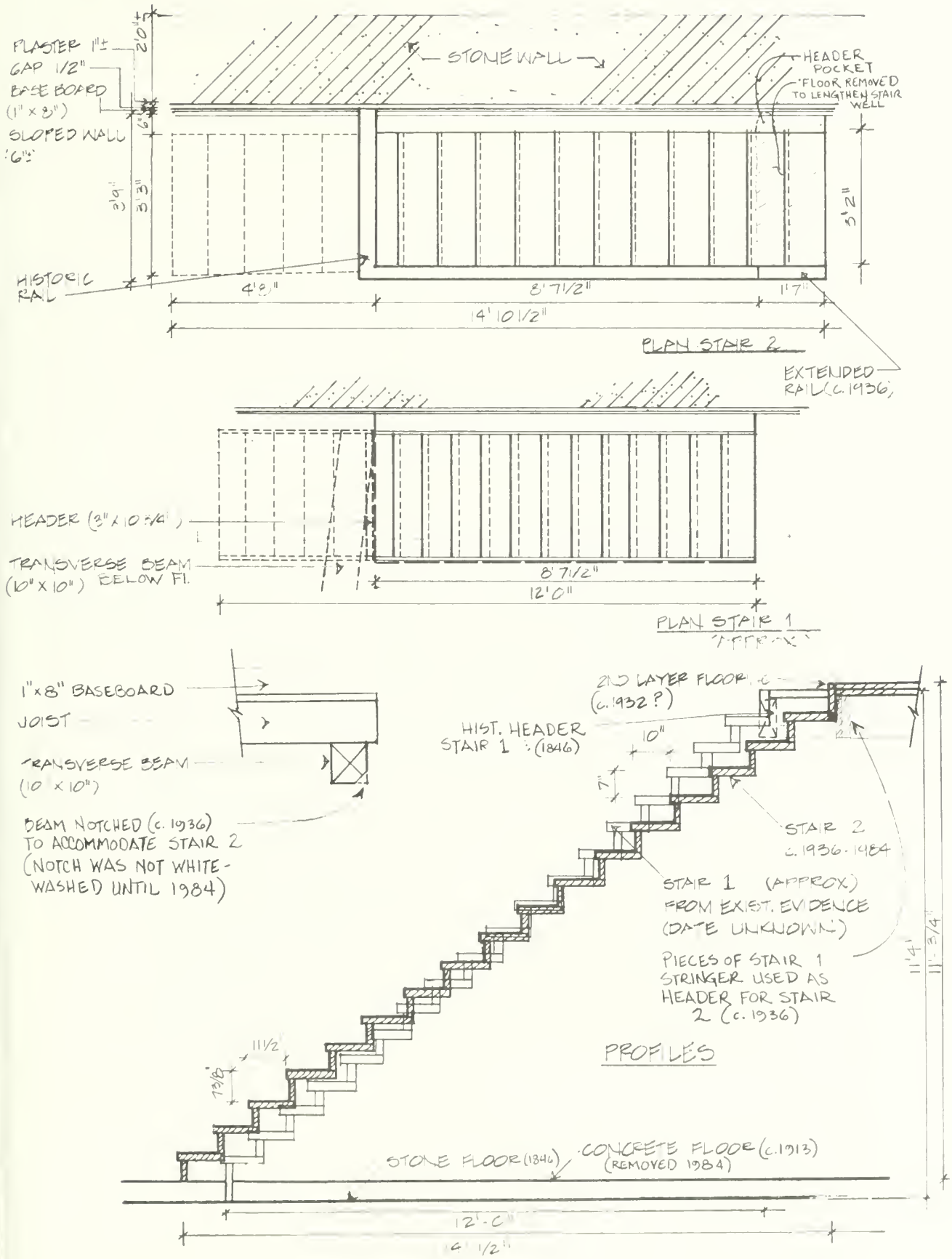


FIGURE D-1: STAIR 1 AND 2 - PLANS & PROFILES

Figure 7. Stair 2 (5/18/82): Built about 1936 to serve the museum function, this stairway enlarged the historic stairwell opening but utilized salvaged material from a former stair in the new stairwell header (see figure 10). This stair was removed along with the washroom and concrete floor below it in 1984.

Figure 8. Stair 2 (5/18/82): This stair was 18' long, including the washroom, and 39" wide at the foot. Treads were 3/4"x11-1/2" with 1" nose, and eighteen 7-3/8" risers totalled 11'-3/4", with a total run of 14'-10 1/2". Its structure of 2x4 stock was infested with termites.

Figure 9. Stairwell Handrail (1/3/85): Undisturbed by the 1983-84 work, the railing shown here is historic--possibly installed in 1866 or during the Judge Parker era (1886). It was extended 19" in length--in photo at right--by two balusters and a new 2x4 end post similar to the original. This extension was done about 1936 when the stairwell was enlarged and new stair installed. The rail appears to have been built contemporaneously with the installation of the 1"x8" baseboard on the east wall--referred to by Parker in 1886, but probably installed earlier (perhaps 1866).

Figure 10. Historic Stairwell Header (5/18/82): Most of the original stairwell header--an architectural relic--is in the possession of the park and shown here in its historic position. The header was notched to rest in the masonry pocket at one side, and a tenon on the other fit into a socket in the first continuous ceiling joist. The two holes in the header received tenons of ceiling joists which ran back to the wall. In the plan view (lower photo) it is clear where the handrailing ended historically and where the floor has been removed to lengthen the stairwell.

Figure 11: North Header of Stairwell (5/18/82 and 1/3/85). These views of the north end of the stairwell were taken before (above) and after (below) restoration of whitewash. In the upper view it is clear that the transverse beam was notched--probably about 1936--to facilitate stair 2; the notch had never been whitewashed over. The implication is that stair 2 had a longer and/or less steep run than the original stair, requiring additional head clearance. Note, also, the ledger board attached to the joist at the left, which may have been part of a historic stairwell cover when it was not in use.

Figure 12. Header of Stair 2 (1/3/85 and 1/31/84): Fragments of a former stair stringer were used by the builder of stair 2 as the new header of the enlarged stairwell. There is no guarantee that these fragments were part of the stair 1 carriage or of some earlier commissary stair; however, they are old, rough sawn lumber with square nail holes. The effort could very well have been made to preserve fragments of a historic stair within the 1936 construction of a new one. Notice, also, ghosts of former handrails in upper photo at right--these were not covered over by the whitewash restoration and could be useful to understanding historic stairs.

Figure 13. Stair Ghost (9/21/84): After stair 2 was removed, but prior to the repointing and crack repair on the east wall, the ghost of stair 2 was very distinct. Evidence of earlier stairs was less distinct but still visible.

and a small office space at the south corner of the second floor. The office was reached by way of the internal stairway.

Porch 1

The first porch was basically a stairway with a large (approximately 5 feet x 7 feet) landing at the top at the south end of the east wall. The window at this location was temporarily altered to become a door. This was done soon after April 9, 1849, to accommodate troop housing on the second floor of the commissary after their barracks burned down. The evidence for this feature is the door in-fill and sill stone (still in place below the window), two beam pockets, the notation on the 1936 HABS drawings ("evidence of stair down this side, but now removed"), and conjecture based on historical records. An approximately 9-inch diameter post mold, discovered by Clyde Dollar in 1982, in special area 13 may also be the remains associated with this feature, although Dollar did not make this hypothesis (see fig. 14).

Porch 2

Porch 2 was erected in 1866-67 after porch 1 was removed and when the commissary was converted to a barracks. Porch 2, actually a stairway with a large upper landing, that replaced porch 1 (or at least was located in its place), was built on the east wall; but, this time it was built in front of a new doorway cut through the center of the wall at the second floor (see fig. 15). It permitted troop access directly to their squad room in the north half of the second floor from within the curtain walls of the second fort. This may be the porch illustrated by Mohler (see fig. 32), although it may have been modified during the 28-year interval between 1866 and 1894. Other significant evidence for this porch are the post molds located in the ground by Dollar in 1982 and the filled beam pockets discernible in the east wall. This porch was 23 feet x 8 feet at one time, based on the filled socket and support post locations, and may

have been longer, actually wrapping around the south corner of the building and connecting with porch 3. The larger configuration is postulated by Dollar (he called it porch 2) based on additional post molds located by him at the south corner of the building (see fig. 16).

Porch 3

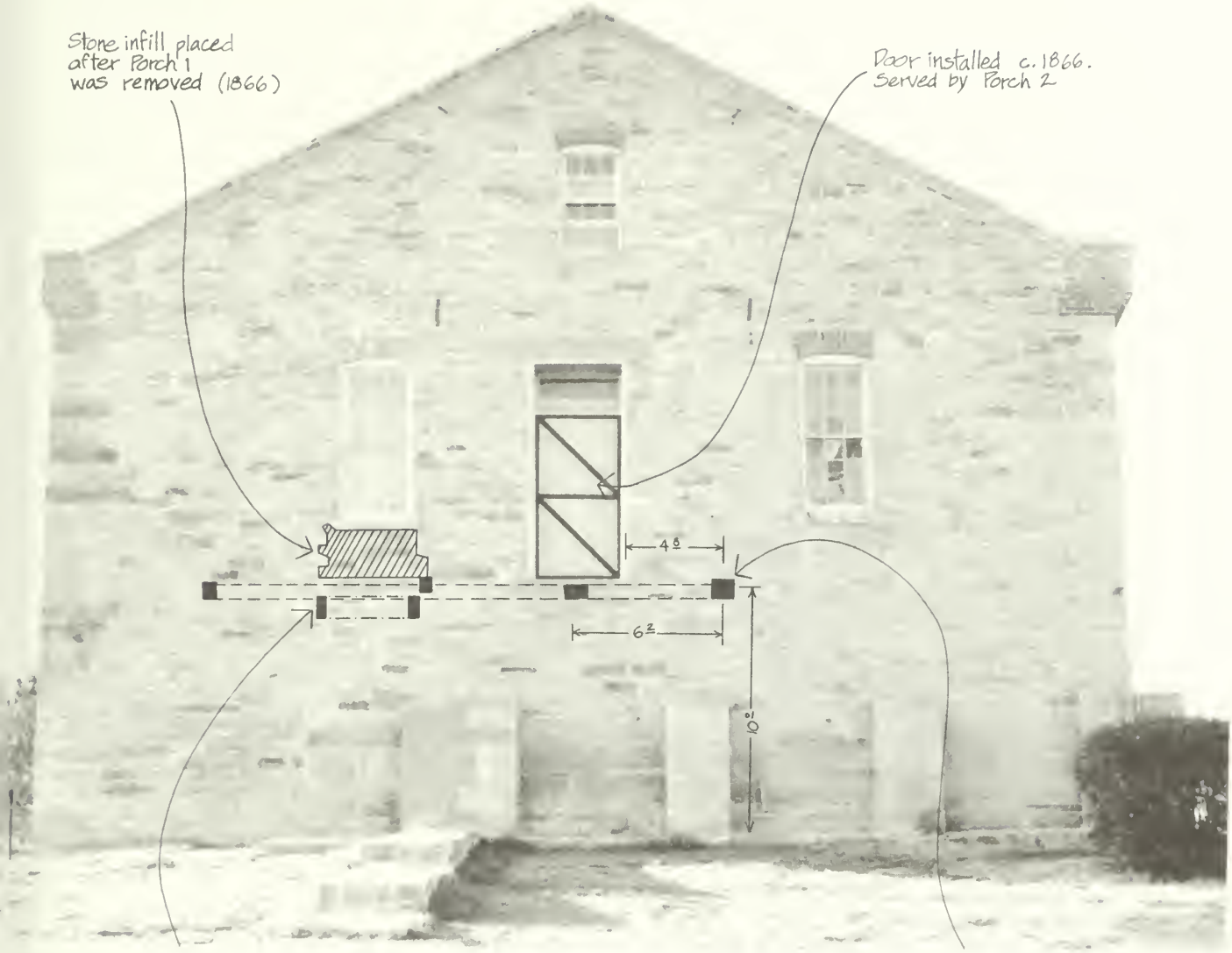
Porch 3, also erected in 1866-67, extended across the south wall of the building. It was supported by wooden posts at its east end and upon stone piers on the western two-thirds. It was a second-story porch, having no floor at the first-story level. Filled beam pockets, level with the first-floor window arches, locate the level of the porch floor. Dollar located the stone piers and at least one of the wooden support post molds. The porch straddled the fort wall and probably used the wall as a support for one of its posts as shown in figure 31. There is no physical evidence that this porch was roofed over its entire length, but that only the part east of the curtain wall had a roof--where wooden nailers for a rafter header are extant. The eastern third of this porch became, in time, porch 5.

Porch 3 apparently served the NCOs' noncommissioned officer's quarters of the south half of the second floor. It included a stairway to the ground level perpendicular to the south wall. It is missing from the 1897 Sanborn Insurance Map so was probably removed by then (see figs. 17 and 20).

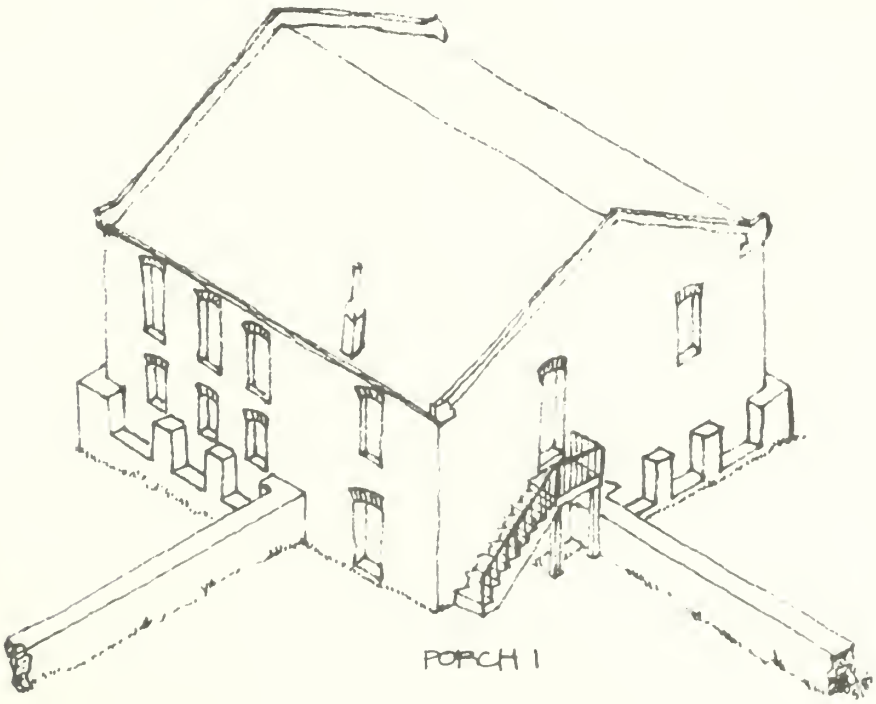
Porch 4

Porch 4, contemporaneous with porches 2 and 3, was built across the full length of the north wall. It was two stories, with joists and floor at each level. The lower level was supported by the continuous stone foundation (retaining) wall still standing and the building's stone sill. Beams of the second level were set into wall pockets as were the roof beams. These

Figure 14. Porch 1 (ca. 1849-1857 or 1866): Evidence on east facade and conjectural bird's-eye view. Porch 1 and 2 beam pockets.

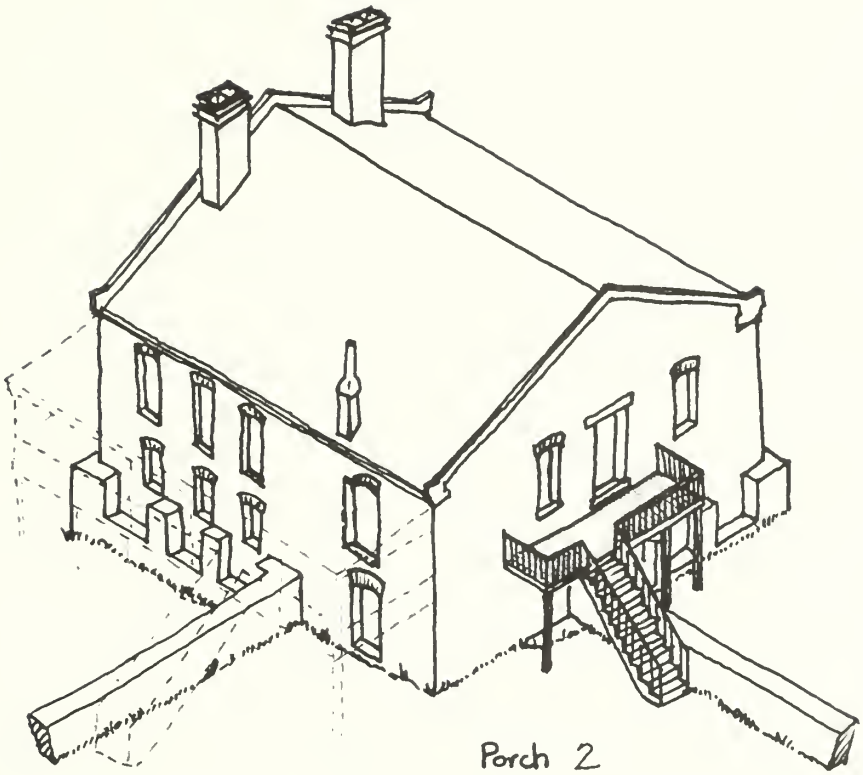


EAST FACADE

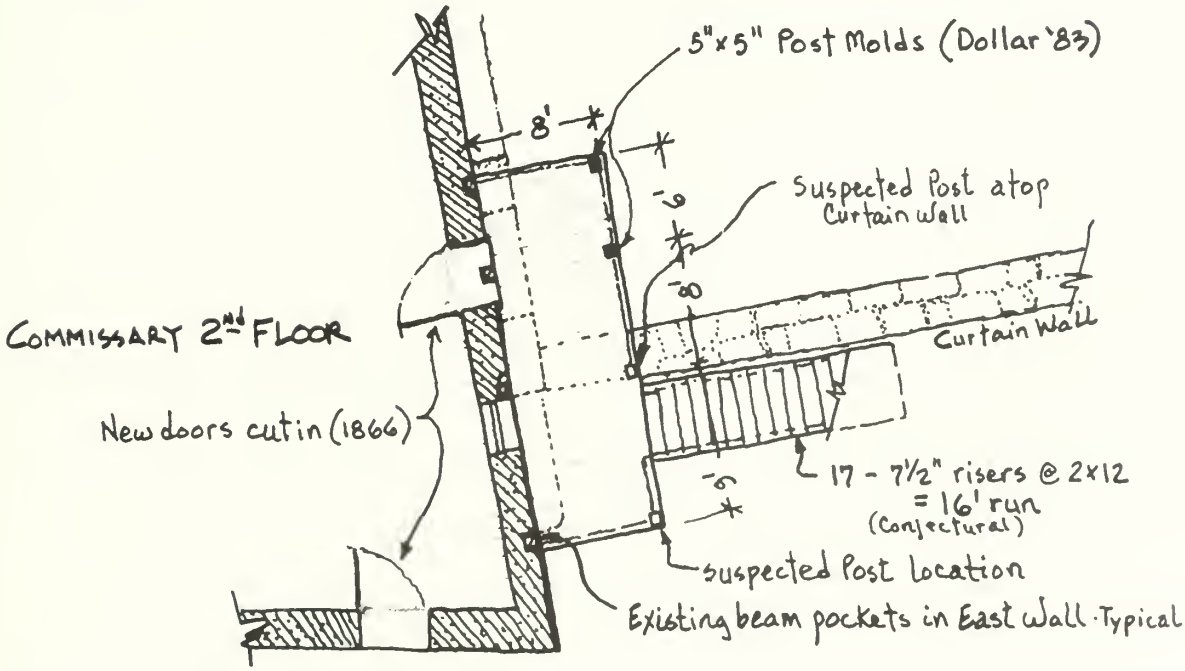


PORCH 1

Figure 15. Porch 2 (1866-ca. 1902): Bird's-eye view and plan. Refer to figure 14 for facade evidence, figure 41 (Mohler sketch), and Sanborn maps - 1886, 1892, 1897, and 1901 (figures 37, 39, 43, and 44).



Porch 2



Porch 2 · Plan

Figure 16. Dollar's Porch 2 (Porch 2-B): Analysis of hypothetical wraparound porch plan, Dollar (May 1983) p. 93.

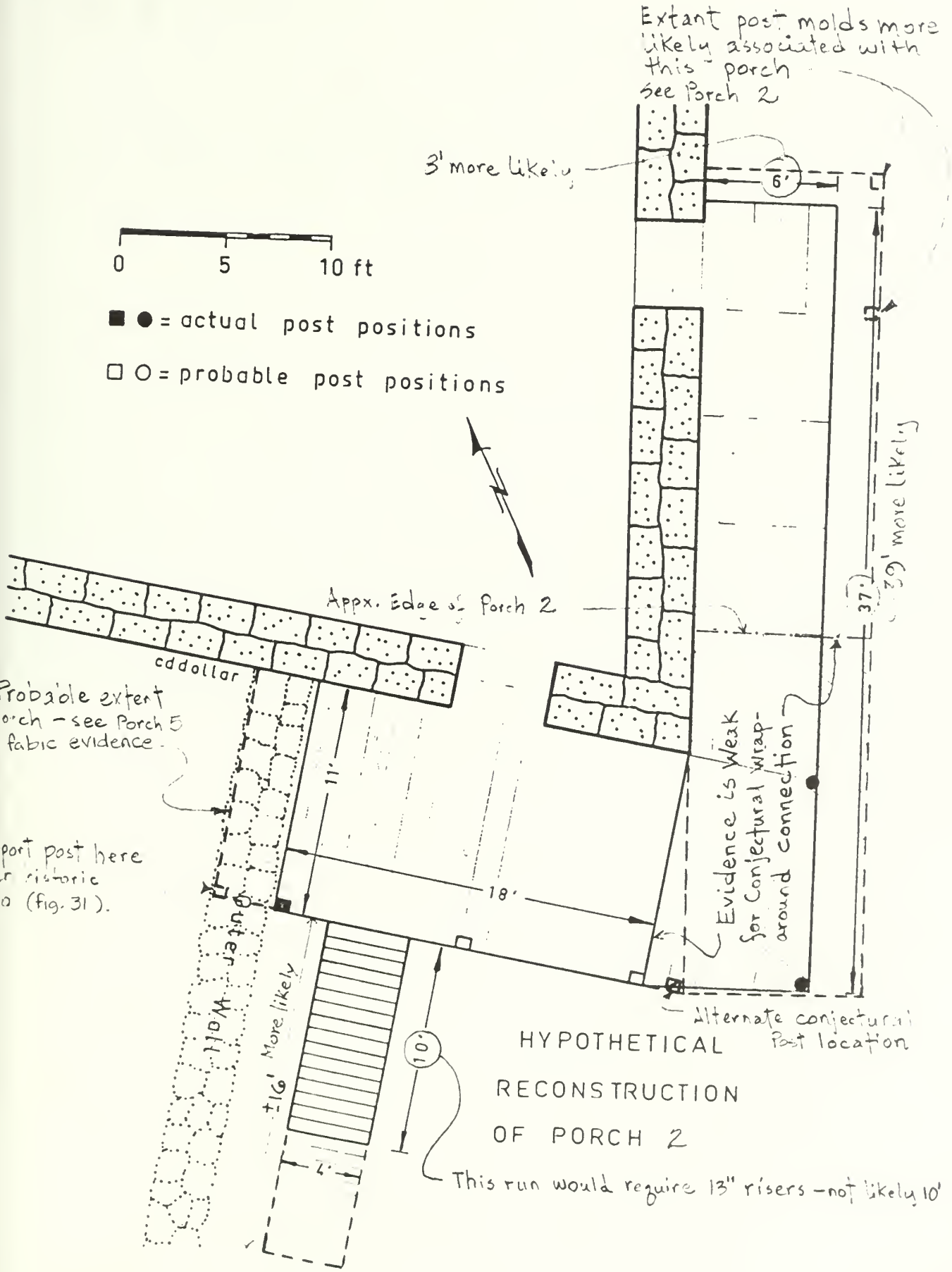

Extant post molds more likely associated with this porch see Porch 2
3' more likely
6'
0 5 10 ft
■ ● = actual post positions
□ O = probable post positions
39' more likely
37'
Appx. Edge of Porch 2
cddollar
Probable extent porch - see Porch 5 fabic evidence
11'
18'
Evidence is weak for conjectural wrap-around connection
Alternate conjectural post location
HYPOTHETICAL RECONSTRUCTION OF PORCH 2
10'
This run would require 13" risers - not likely 10'
4'

Figure 17. Porch 3-A as Proposed (1866): Evidence on south facade and conjectural bird's-eye view. This porch, as proposed, may not have been built - see "Historical Data" section.

Proposed roofline · Porch 3

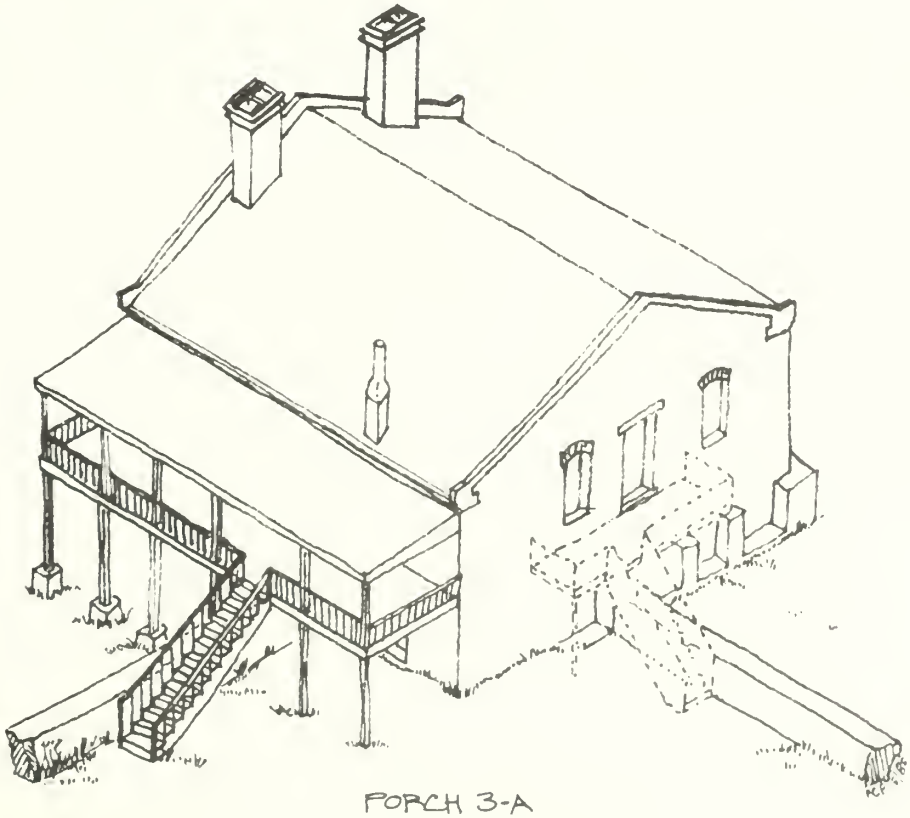
Actual roofline · Porch 5

Line of pilaster · Porch 5

Possible baseboard

Floor level · Porch 3 and 5

SOUTH FACADE

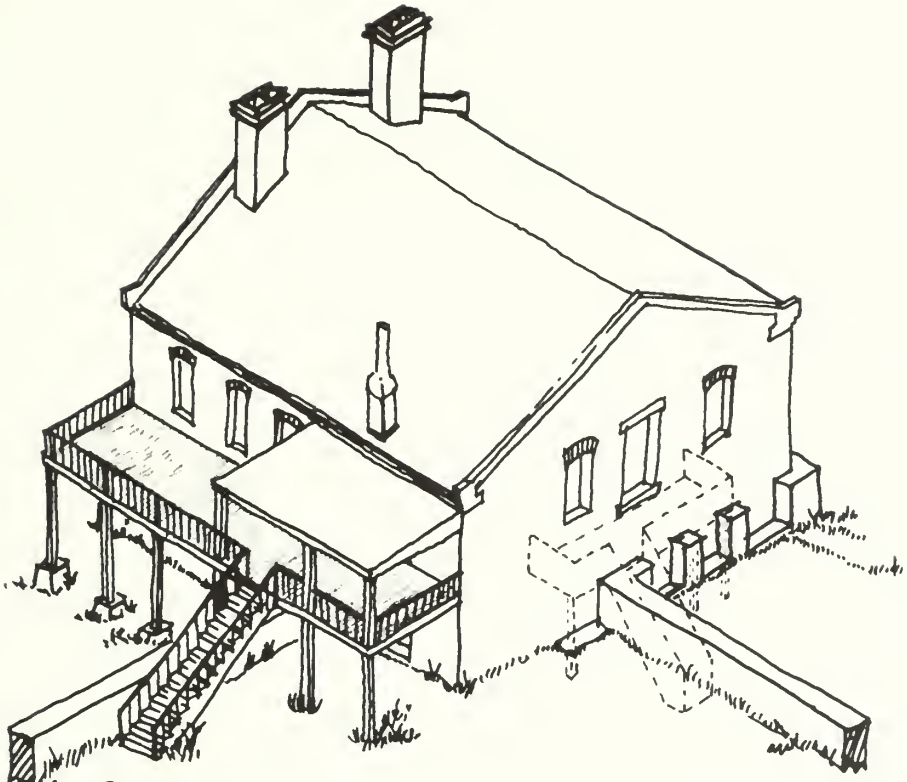


PORCH 3-A

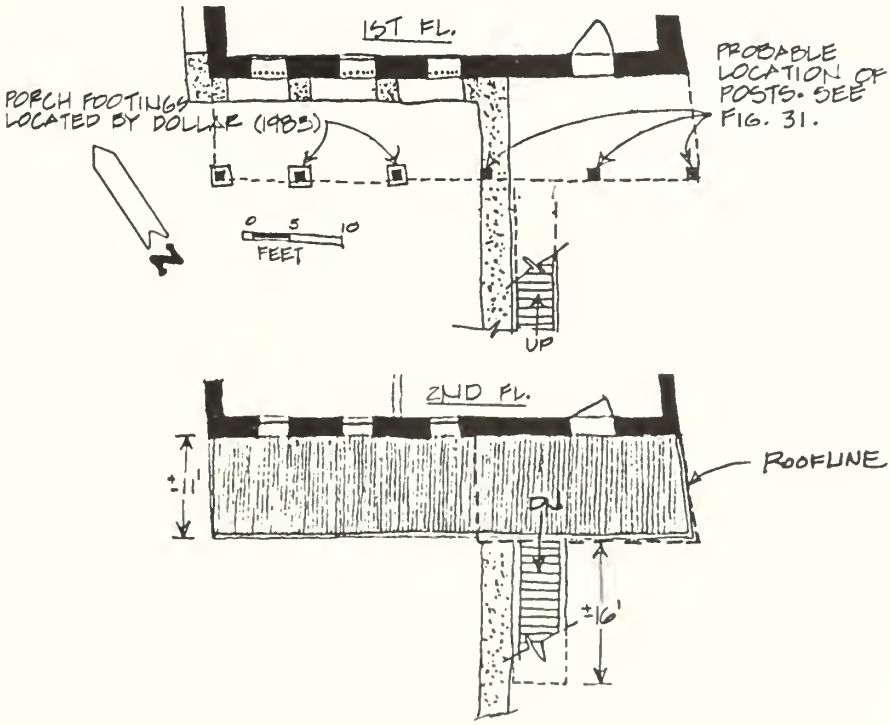
Figure 18. Beam Pocket (6/25/83): Typical upper beam pocket on south facade before restoration. Fragment of wood remains in place. Pocket was filled about 1913 with cement mortar, generously applied. The fragment is a remnant of the roof structure for porches 3 and 5, which hung here from 1866 to approximately 1896.

Figure 19. Beam Pocket (6/25/83): The beam pocket at left, filled in about 1913, was scribed to blend with the masonry pattern of the wall. Four smaller cement fills are visible at the level of the door sill stone (at far right). These fills cover up wooden nailers, probably used to attach a porch baseboard or floor header board for porch 5. All of these features were rehabilitated for interpretation.

Figure 20. Porch 3-B as Probably Built (1866-67 to ca. 1886): Conjectural plans and bird's-eye view. See facade evidence, figure 19.



Porch 3·B


1ST FL.
PROBABLE LOCATION OF POSTS. SEE FIG. 31.
PORCH FOOTINGS LOCATED BY DOLLAR (1985)
0 5 10
FEET
N
UP
2ND FL.
ROOFLINE
±11'
±16'

pockets are filled but clearly discernible today. It is possible, as Ivey discusses, that the roof of this porch as well as that of porch 3 was not constructed as intended, but that only the short section above the doorways were actually built (see fig. 21 and 22).

Porch 5

Actually a vestige of porch 3, porch 5 is the only historic porch for which a photograph is available (see fig. 40). It served the court period occupants as the primary entrance to the second floor residence (ca. 1873-80 and 1890-96) and entrance to Judge Parker's chambers (1880-89). Because of physical evidence--both architectural and archeological--and the extant photographs, reconstruction of this feature would rely very little on conjecture. Built in 1866-67 it is on the verge of collapse in the 1894 photograph, which shows temporary braces or props. It was removed before 1897 (see figs. 23 and 43).

Porch 6

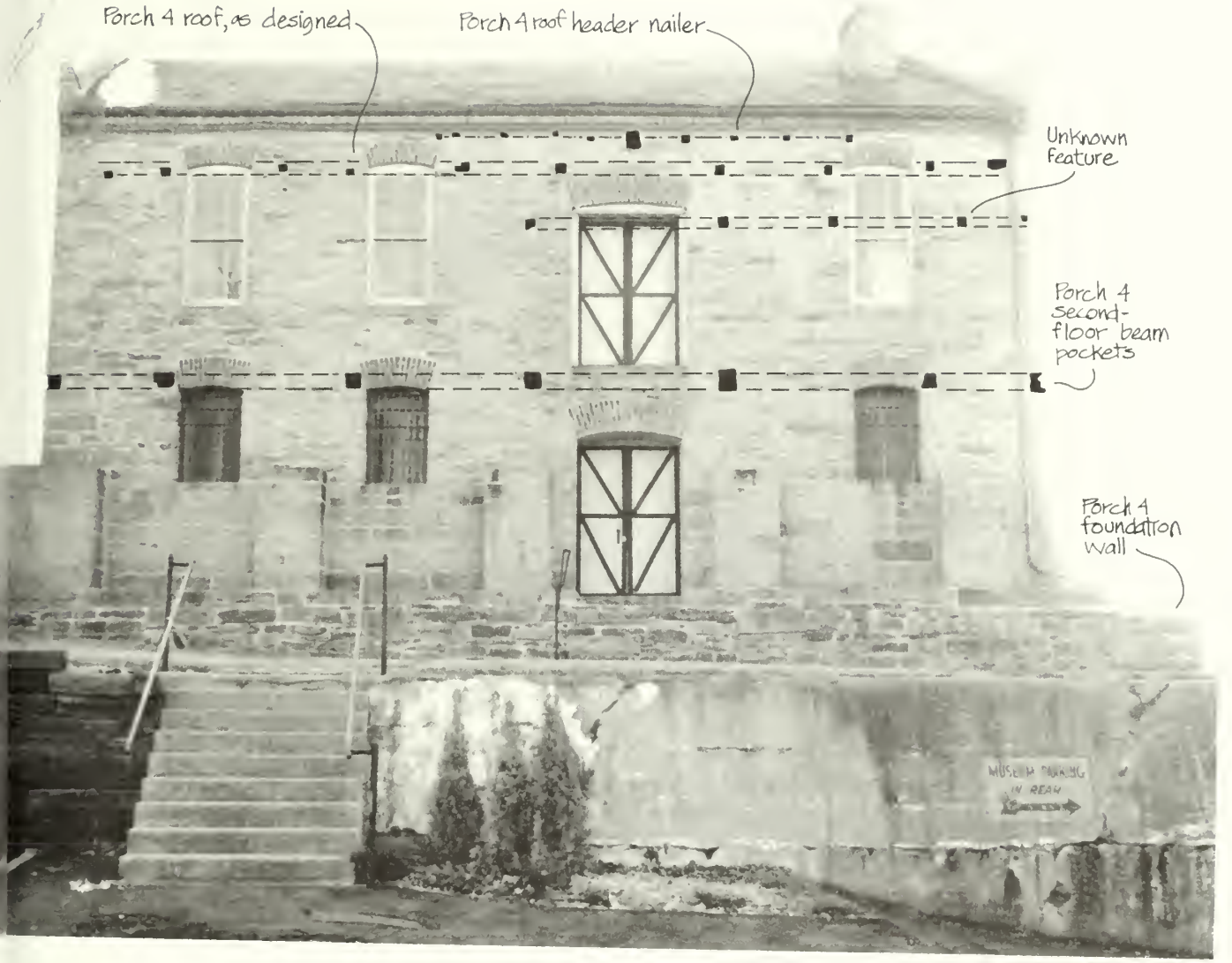
All historic porches were gone by the early 20th century (Sanborn shows porch 2 in 1901 but no porches in 1908). In photograph FOSM-IV-177 (fig. 37), which was probably taken about 1910, a stair appears (porch 6) on the east going up to the central door. It has no handrail and may have been temporary. No other evidence for this porch exists. It served during the warehouse period.

Porch 7

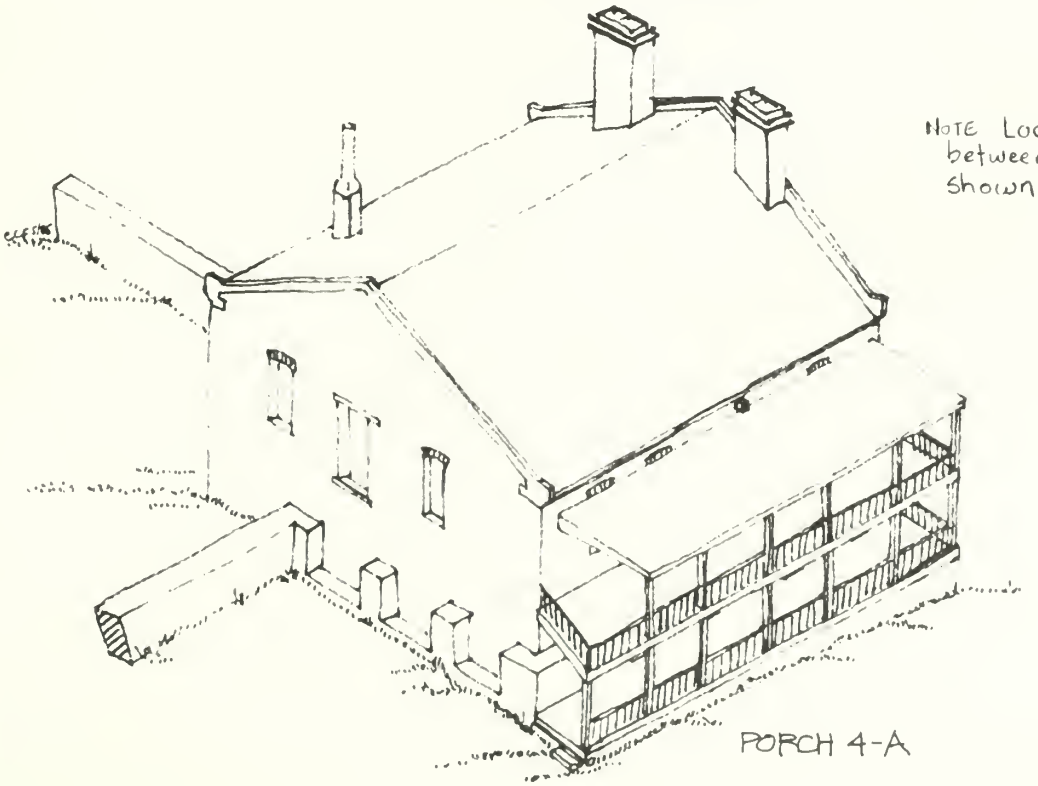
Porch 7 was built in 1913 on the south facade of the commissary when it served as a museum. It was removed in 1984 because it was a modern and unnecessary intrusion and had become a safety hazard. It was really a stairway with a mid-rise landing and a landing in front of the

second-story door it served. It was built of concrete and rested on two stone piers. The lower pier somewhat imitated the fort curtain wall that once existed at that location. This porch was not mechanically fastened or keyed into the building and has left no ghost or discernible physical trace (see fig. 24).

Figure 21. Porch 4-A as Proposed (1866): Evidence on north facade and conjectural bird's-eye view. This porch, as proposed, may not have been built - see Dollar (1983) "The North Side" pp. 67-76 and the "Historical Data" section, this document.



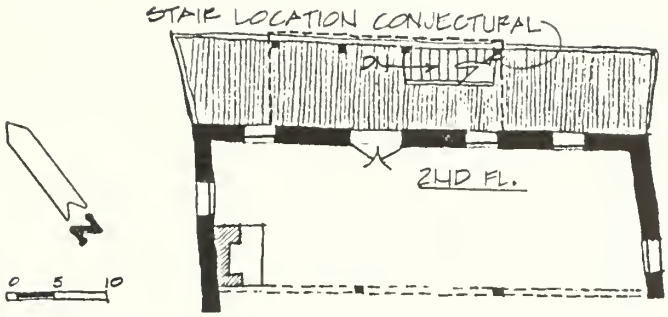
NORTH FACADE

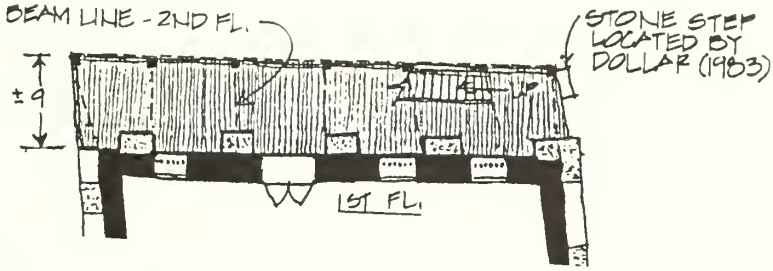


NOTE Location of stairs between floors not shown (unknown)

PORCH 4-A

Figure 22. Porch 4-B as Probably Built (1866-67 to ca. 1886): Conjectural plans and bird's-eye view. See facade evidence, figure 21 and 1886 Sanborn Insurance Map (figure 28).


STAIR LOCATION CONJECTURAL
2ND FL.
N
0 5 10


BEAM LINE - 2ND FL.
STONE STEP LOCATED BY DOLLAR (1983)
±9
1ST FL.

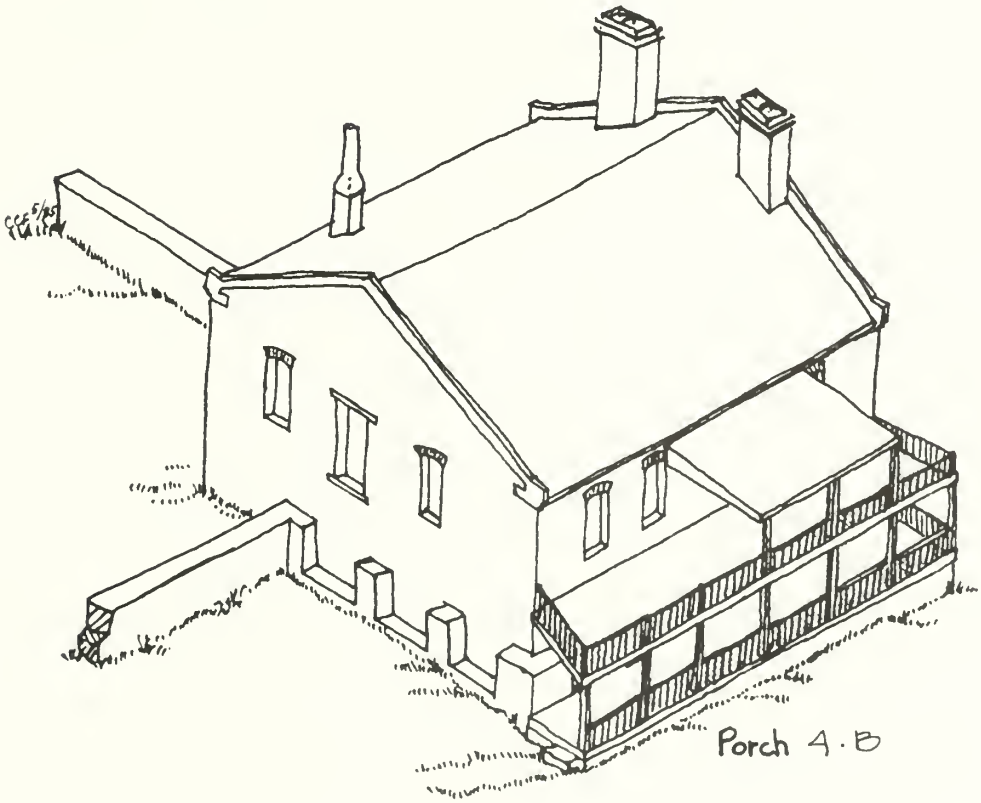
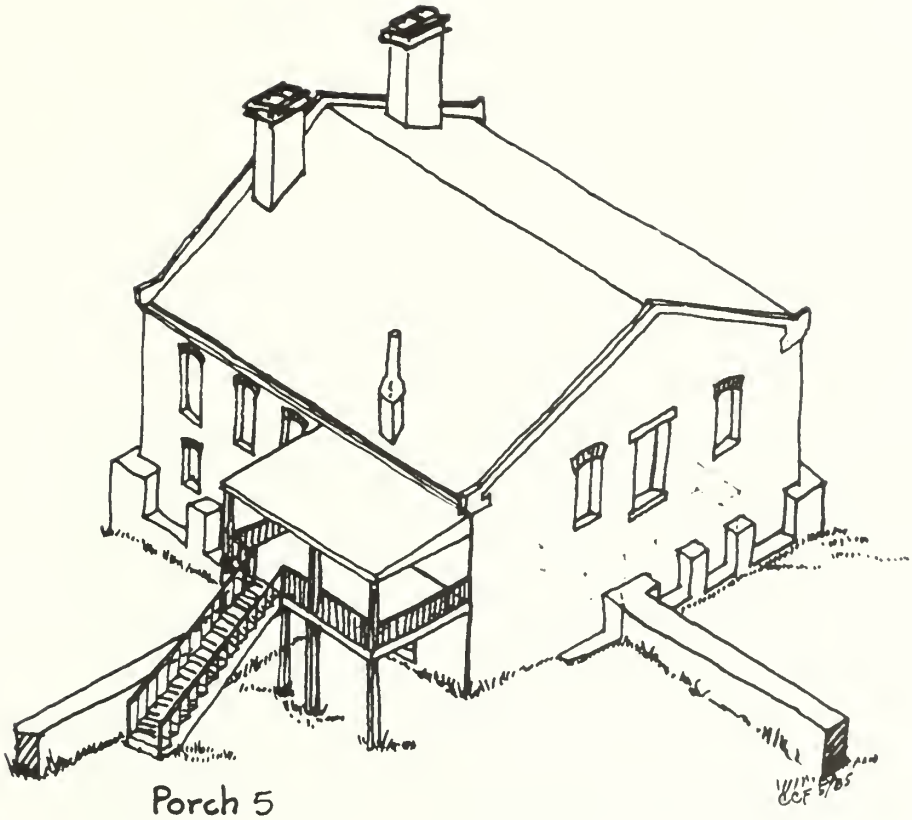
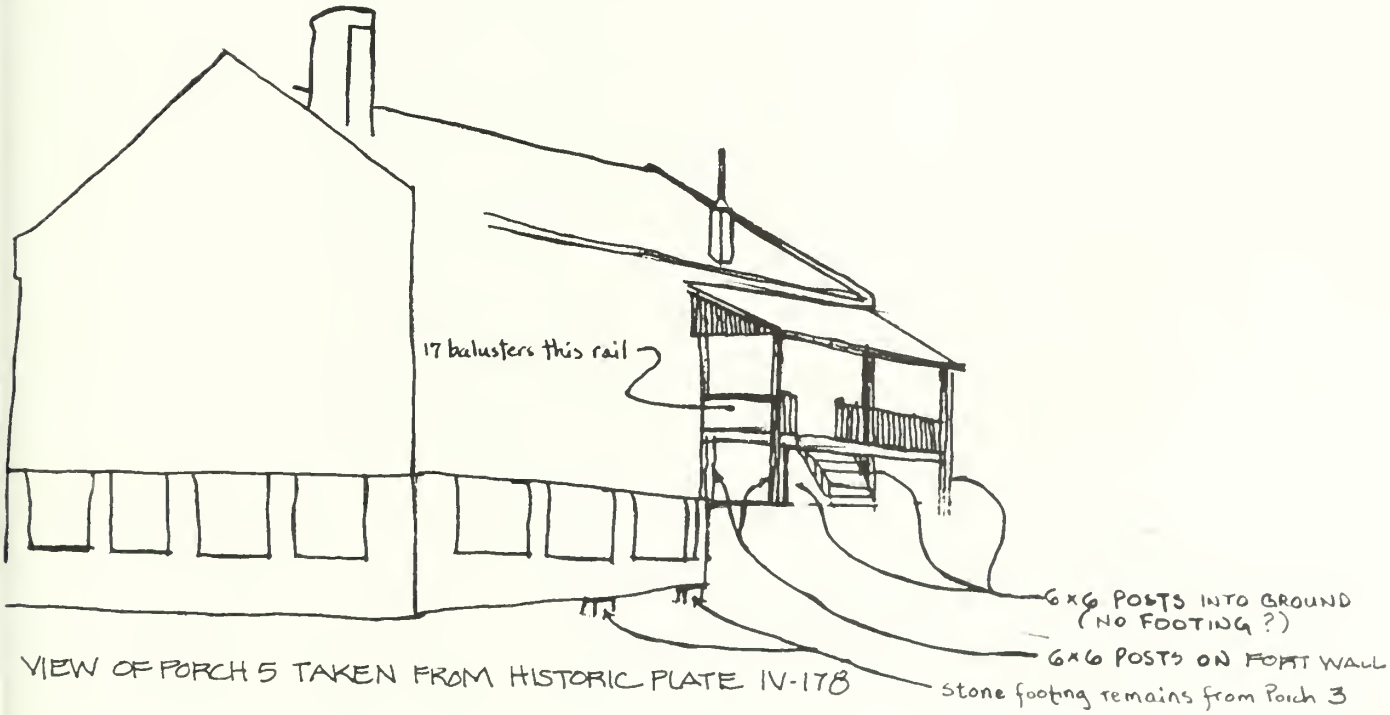

SEE 5/25
Porch 4.B

Figure 23. Porch 5 (ca. 1886 to ca. 1896): Sketch views. (See facade evidence, fig. 17).



Porch 5



VIEW OF PORCH 5 TAKEN FROM HISTORIC PLATE IV-178

Figure 24. Porch 7 (5/18/82): This porch was built about 1913 to serve the museum functions. It was removed--being an unjustifiable modern intrusion--in 1984.

HISTORICAL CHRONOLOGY 1838-1984

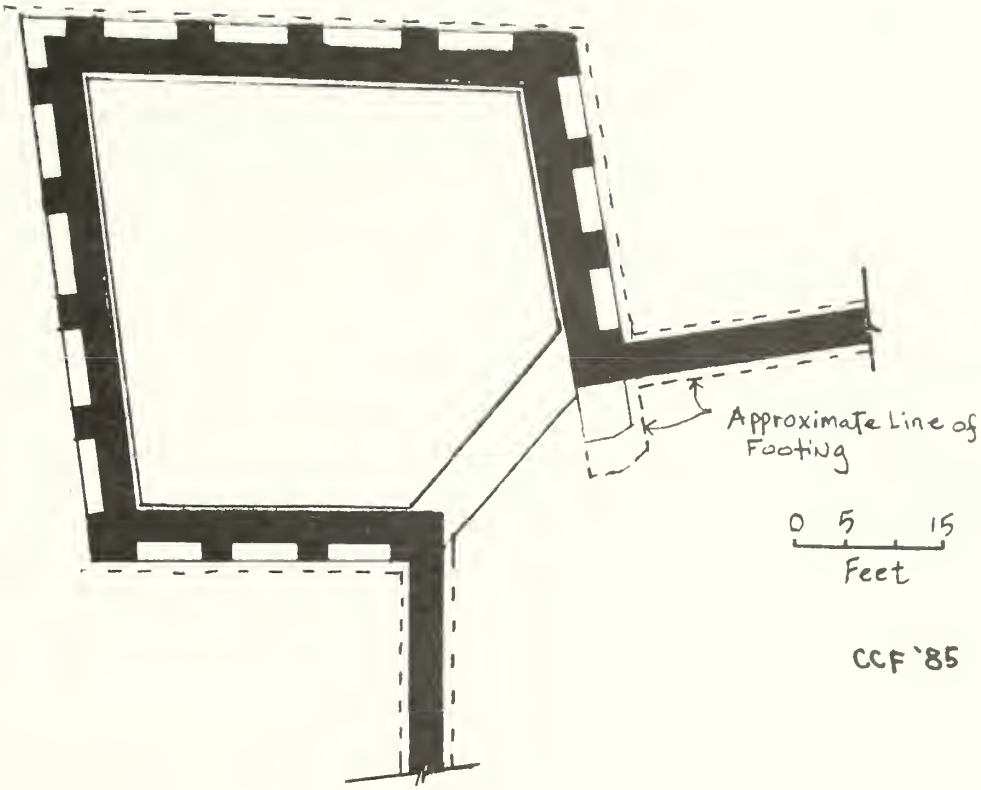
U.S. ARMY PERIOD (1838-71)

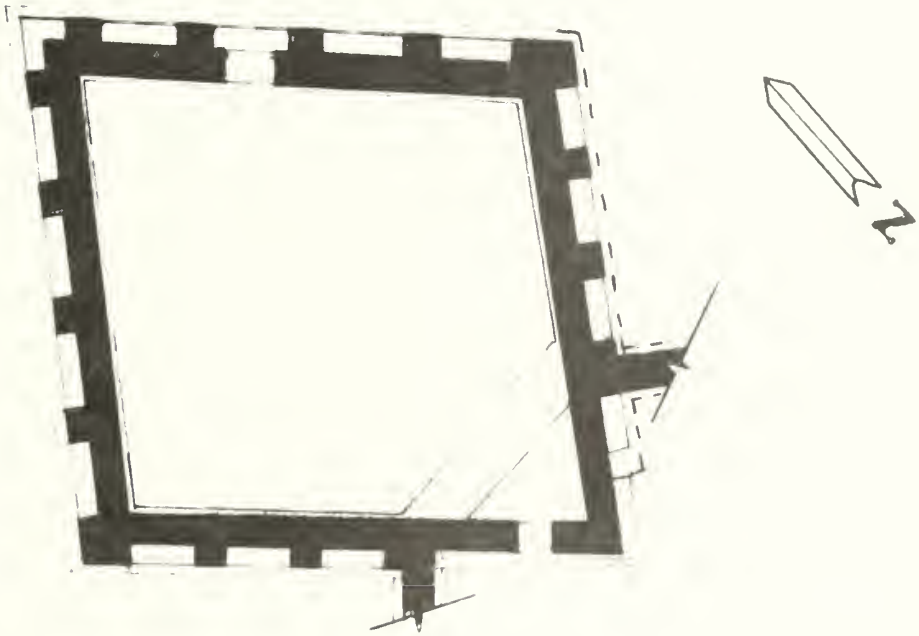
1839	Construction of foundation of bastion 1 begins.
Spring 1839-Sept. 6, 1840	Foundation and fort walls said to be up 7 feet.
Oct. 11, 1841 - Summer 1845	Construction progress slow, walls said to be up 12 feet.
Summer 1845	Quartermaster General Thomas S. Jesup decided on supply post function for the fort and "directed the Quartermaster to finish one of the Block Houses . . . to be used as a store house for the supplies for both the Quartermaster and Commissary departments . . . foundation of which had been laid, and the walls of masonry carried up about 8 feet." The budget was $1,050.
Aug. 1845 - Feb. 2, 1846	Construction contract with Augustus A. Blumenthal, a St. Louis "artisan" and "builder." (He also built officers' quarters and barracks, completed May 15, 1846.)
Sept. 1845 - Feb. 1846	Rehabilitation of bastion 1 foundation and walls and construction of commissary building. Window and door openings built had rowlock brick arches. The second-story sills were white limestone. First floor was without partitions. All interior surfaces whitewashed. Stairs built in south corner led to second-floor office. Seams on both south and east interior wall surfaces (today) mark location of the office partitions. In the office, walls and ceiling were plastered white, and office contained a heating stove to a brick chimney with metal flue near center of the south side.
May 15, 1846	Fort officially occupied. Commissary store's inventory May 1846: 178 barrels pork, 40 barrels flour, 10 pounds hard bread, 4,335 pounds rice, 226 bushels beans, 234 gallons whiskey, 1,074 pounds candles, 5,255 pounds soap, 32 bushels salt, 661 gallons vinegar, 4,630 pounds coffee, 7,423 pounds sugar.
Summer 1846	Blumenthal built "shelves and partitions in 4 [3 up, 1 down] storerooms and 4 doorframes with sash and doors in 4 storerooms."

Sept. 30, 1846	Completion of quartermaster storehouse at bastion 2. Stone was taken from unfinished commandants' quarters and second barracks foundations.
Oct. 31, 1846	Two companies of 5th Infantry stationed at fort.
April 9, 1849	First modification of commissary undertaken because soldiers' barracks burned. Troops were housed in commissary temporarily, probably through winter, which was without adequate heat. Alterations made sometime after fire, probably prompted by the temporary use of the second floor as a barracks: The south window on the east wall of the second floor was converted to a door. The interior stairs were either floored over or removed. An exterior stair was added with a 7-foot-long landing, and stairs ran down towards south. Function as barracks discontinued by July 2, 1850.
Sept. 9, 1849	Captain Alexander Montgomery, quartermaster of the 7th Military Department came to Fort Smith and, except for 1854-55, (Captain Samuel G. French) served as quartermaster until confederate arrival in 1861.
May 9, 1850	Co. B, 5th Infantry troops left Fort Smith--commissary probably no longer occupied by troops. Commissary store's inventory, June 1851: 312 barrels pork, 319 barrels flour, 2,781 pounds hard bread, 5,968 pounds rice, 197 bushels beans, 8 gallons whiskey, 1,295 pounds candles, 4,561 pounds soap, 61 bushels salt, 1,736 gallons vinegar, 6,304 pounds coffee, 17,746 pounds sugar, and 7,022 pounds bacon.
July 2, 1850	Co. E, 5th Infantry troops left Fort Smith--no significant troop strength now stationed at fort until March 14, 1851, when Co. E returned.
Fall 1851	Barracks that burned was rebuilt on original stone foundation and reoccupied by Co. E, 5th Infantry.
Oct. 4, 1851	Quartermaster Captain Montgomery description: "44' x 43'; first floor used as storehouse; second floor used as offices for commissary and pay master detail."

Figure 25. Foundation Wall of Bastion 1: Plan section cut at 4' (ca. 1844).

Figure 26. Foundation Wall of Commissary: Plan section cut at 4' (1846). Note - see also Dollar, 1983, figures 33 and 34, and figure 52, this report.


Approximate Line of Footing
0 5 15
Feet
CCF '85


N

May 1851- Dec. 1855	Zackary Taylor shut down fort, and it was abandoned except for a small detachment of Co. F, 7th Infantry, who arrived early July 1851.
July 1, 1857	Captain Montgomery requested funds for new roof and new steps leading to second floor. Slate roof may have been installed, and presumably new steps were also installed (original interior stair may have been repaired/rebuilt and opened up for use).
Feb. 1861	U.S. troops left fort.
April 23, 1861 - Sept. 1, 1863	Confederate occupancy. Possible uses as hospital and/or prison.
Sept. 1, 1863 - May 9, 1866	Reoccupied by volunteer detachment U.S. troops. Use of commissary 1861-1866 is undocumented.
1865-66	General Ord, department commander, decided to move his headquarters to Fort Smith.
May 9, 1866	First U.S. regulars (Co. F, 3rd Battalion, 19th Infantry) arrive at fort.
1866-1867	Conversion of commissary building to barracks: two windows on west wall filled in for installation of two brick chimneys and four fireplaces, new window openings cut beside new chimneys on second floor, sills reused in new windows, converted east window of south wall to doorway, south doorway on east wall converted back to window, installed new door near center of east wall. In second floor, partitions relocated and walls plastered with orange plaster, lathe and plaster ceiling installed over entire second floor. Porches built at north, south, and east fronts. Retaining wall built for north porch foundation. Stone stairway built at east end of north porch. Porch built across south, second floor. Stairway built from exterior of door converted from window, roofs built over doorways at both porches. Porch built on east side of second floor with stairs built down toward east along fort curtain wall. All reconstruction used orange sandy mortar. Installation of wooden planking over stone first floor requested, but no evidence that it was done.

Dec. 1867 - April 10, 1869	Fort fully occupied by six companies of 19th Infantry, commissary building was obviously one of the troop quarters. By April 10, 1869, all six companies were transferred away from Fort Smith, being replaced for four months by two companies.
Mid-May 1869-July 18, 1871	One company of troops (Co. D, 6th Infantry) at Fort Smith.
1870	Officers' quarters burned, very likely that officer moved into commissary building. Lt. Fredrick W. Thibault, post commander (1870-71), with wife and family, occupied second floor of commissary until about Nov. 10, 1871.
Nov. 10, 1871	Last detachment of Co. D, 6th Infantry departed. Commissary building vacant until Federal Court occupation.

Figure 27. FOSM-11-22 (between 1846 and 1866): This view of the city of Fort Smith, apparently from the roof of the north officer's quarters, shows the south corner and east wall of the commissary. It has been touched up in such a way as to cover up information about the south window (or door) on the east wall. This is the oldest photographic view of the commissary.

VIEW OF THE CITY OF FORT SMITH FROM THE FORT

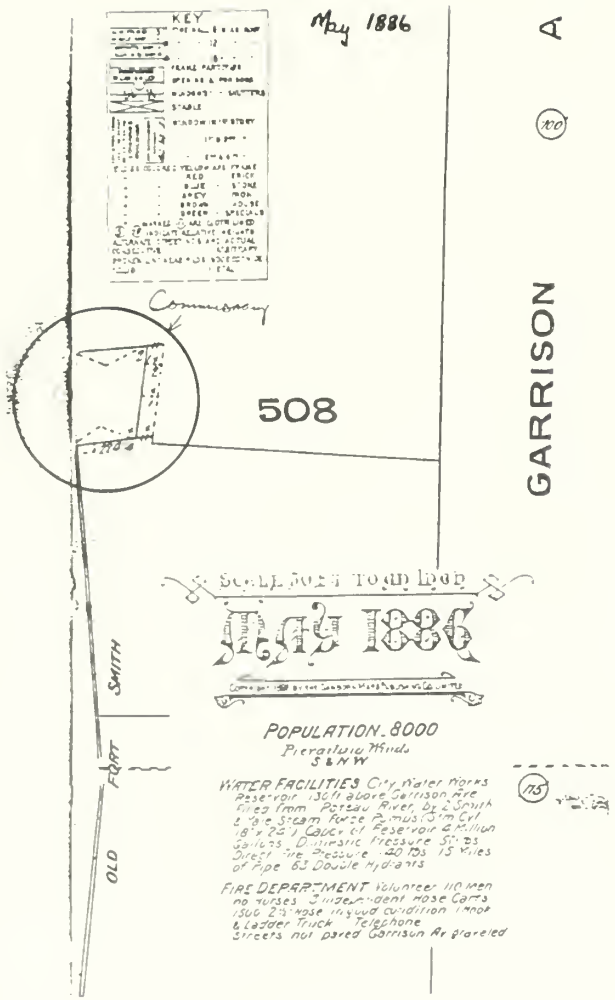
U.S. FEDERAL COURT PERIOD (1871-97)

Nov. 10, 1871	Army transferred fort to Interior Department.
Nov. 1872	Courtroom transferred to barracks building after courtroom and judge's chambers in city of Fort Smith burned.
End of 1872-80	Utilized (as living quarters) by persons associated with court. Occupant appointed by U.S. Marshall. Mr. Charles F. Berry, keeper of the prison, was one of the occupants (he probably had a family).
1873	Report: Occupied [by Mr. Berry]; value $3,000, 48' x 50' with 2'-6" thick walls; not in good repair; "floor of basement rough stone"; "Two small and one large room on first floor."
Summer 1880-90	Used as chambers of Judge Parker who informed attorney general that he moved into safe accommodation, used two of three upper rooms as quarters and government book storage/office. He also requested furniture.
April 14, 1886	Parker requested repairs in the two rooms of his chambers in use: repairing and replastering, whitewashing ceiling, papering wall (not done), furnishing six window shades, painting one coat--six windows, painting one coat--three doors, two double doors, painting one coat--mantle board and base of rooms. Also, Parker noted that the third room of the second floor is "in very bad condition, so bad it can't be occupied."
After May 1886 and before Feb. 1889	Except for stone foundation, north porch removed (Sanborn Insurance maps). Possibly Parker had porch removed to facilitate reactivation of hoist and use of cargo doors; or porch, being 20 years old, had become decayed. Probably removed decayed (west) portion of south porch at that time, also.

1890-96	J.A. Hammersly and family occupancy of commissary.
Sept. 1896	End Territorial Court period - as new courts opened in the territory, Parker's jurisdiction shrank until it ended Sept. 1896. He died a few weeks later.
Sept. 1896 - April 14, 1898	Vacant until sold to city. Declared surplus property, February 1897.

Figure 28. Sanborn Insurance Map - 1886

Figure 29. Sanborn Insurance Map - 1889


May 1886
KEY
Commissary
508
GARRISON
A
(100)
SMITH
FORT
OLD
(115)
POPULATION 8000
Prevailing Winds
S & N W
WATER FACILITIES City Water Works
Reservoir 150 ft above Garrison Ave
Pipes from Poteau River, by 2 Smith
& Vale Steam Force Pumps (Sim Cyl
18" x 24") Capacity Reservoir 6 Million
Gallons Domestic Pressure 50 lbs
Direct Fire Pressure 120 lbs 15 Miles
of Pipe 63 Double Hydrants
FIRE DEPARTMENT Volunteer 110 men
no horses 3 Independent Hose Carts
1500 2" Hose in good condition 1 hook
& Ladder Truck Telephone
Streets not paved Garrison Av graveled

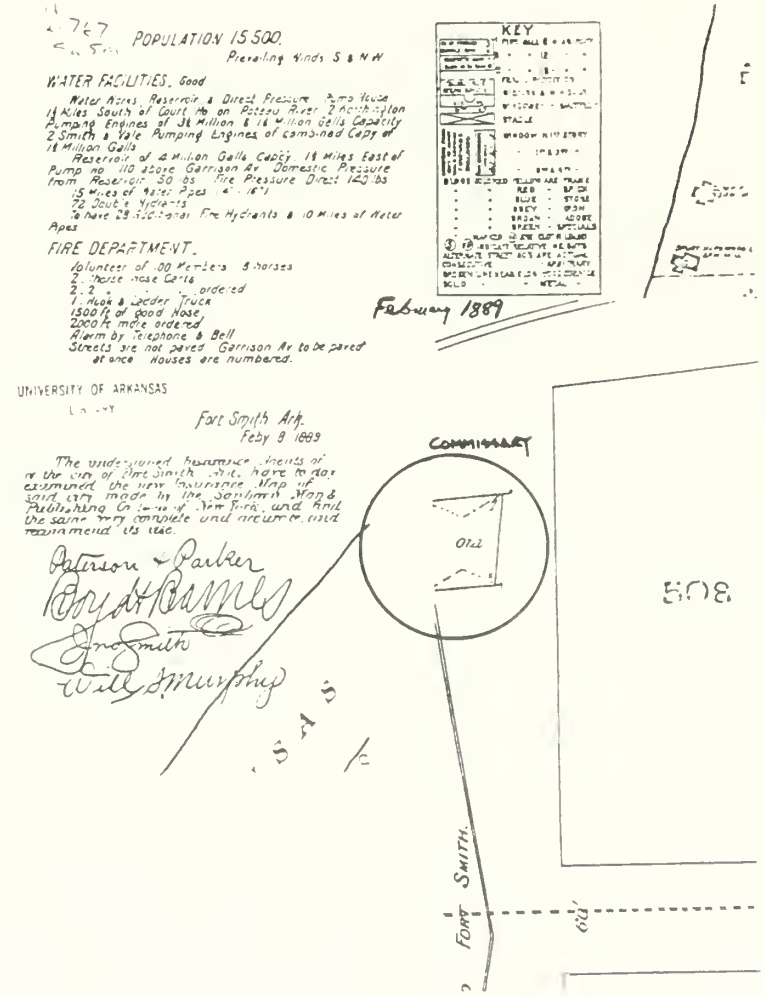
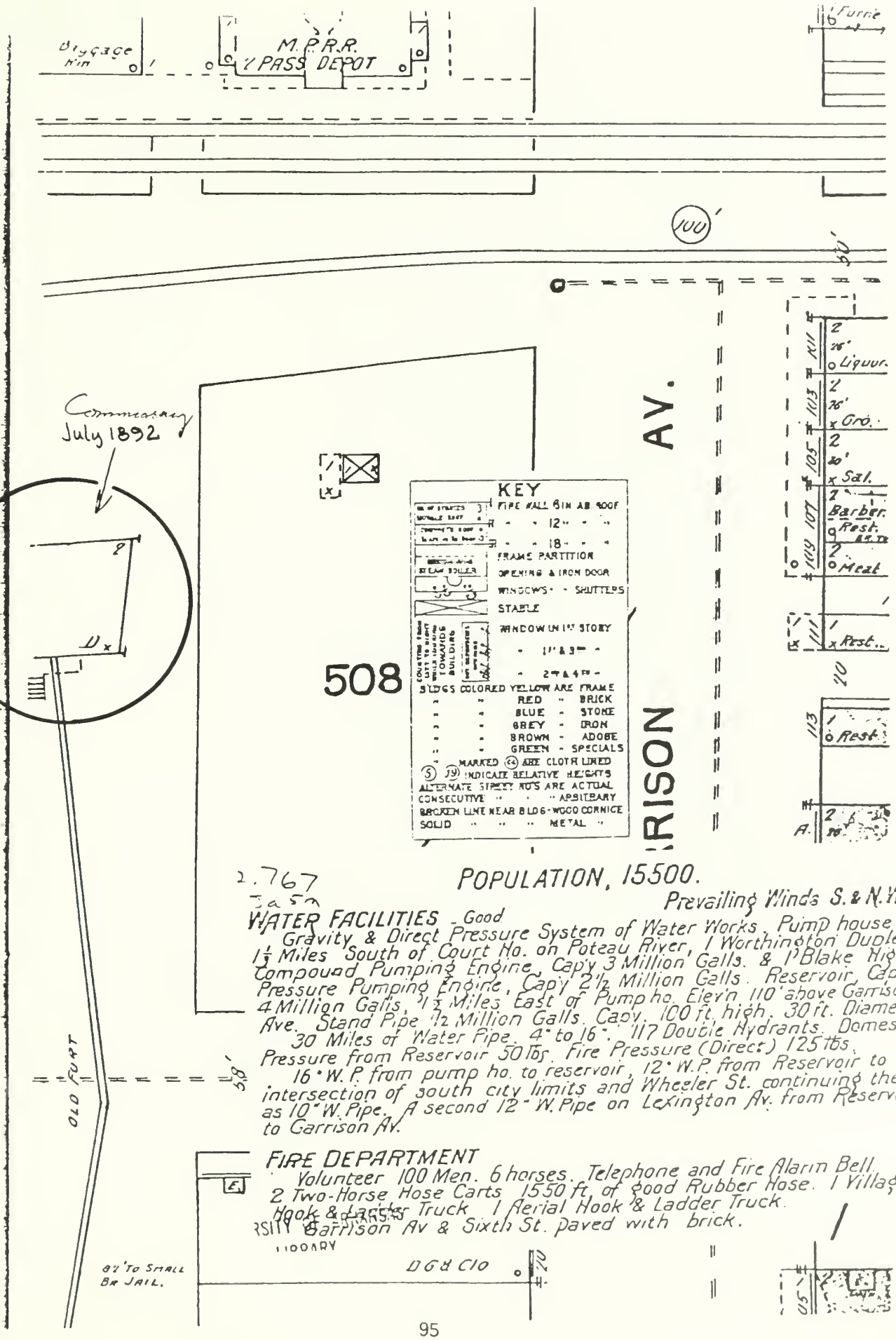

POPULATION 15 500.
Prevailing Winds S & N W
WATER FACILITIES. Good
Water Works Reservoir & Direct Pressure Pump House
1½ Miles South of Court Ho on Poteau River 2 Northington
Pumping Engines of 3½ Million & 1½ Million Gells Capacity
2 Smith & Vale Pumping Engines of combined Capy of
1½ Million Galls
Reservoir of 4 Million Galls Capcy 1½ Miles East of
Pump no 110 above Garrison Av Domestic Pressure
from Reservoir 50 lbs Fire Pressure Direct 120 lbs
15 Miles of Water Pipes
72 Double Hydrants
To have 29 additional Fire Hydrants & 10 Miles of Water
Pipes
FIRE DEPARTMENT.
Volunteer of 100 Members 8 horses
2 Horse Hose Carts
2 " " ordered
1 Hook & Ladder Truck
1500 ft of good Hose
2000 ft more ordered
Alarm by Telephone & Bell
Streets are not paved Garrison Av to be paved
at once Houses are numbered.
KEY
February 1889
UNIVERSITY OF ARKANSAS
Library
Fort Smith Ark.
Feby 9 1889
The undersigned insurance agents of
in the city of Fort Smith Ark. have to day
examined the new Insurance Map of
said city made by the Sanborn Map &
Publishing Co of New York and find
the same very complete and accurate and
recommend its use.
Patterson & Parker
Boyd & Barnes
Jno Smith
Will Murphy
COMMISSARY
0122
508
FORT SMITH

Figure 30. Sanborn map 1892



2.767
Jasn

POPULATION, 15500.

Prevailing Winds S. & N.W.

WATER FACILITIES - Good

Gravity & Direct Pressure System of Water Works. Pump house 1½ Miles South of Court Ho. on Poteau River, 1 Worthington Duplex Compound Pumping Engine, Cap'y 3 Million Galls. & 1 Blake High Pressure Pumping Engine, Cap'y 2½ Million Galls. Reservoir, Cap'y 4 Million Galls, 1½ Miles East of Pump ho. Elev'n 110' above Garrison Ave. Stand Pipe ½ Million Galls. Cap'y. 100 ft. high. 30 ft. Diameter. 30 Miles of Water Pipe. 4" to 16". 117 Double Hydrants. Domestic Pressure from Reservoir 50 lbs. Fire Pressure (Direct) 125 lbs. 16" W.P. from pump ho. to reservoir, 12" W.P. from Reservoir to intersection of south city limits and Wheeler St. continuing thence as 10" W. Pipe. A second 12" W. Pipe on Lexington Av. from Reservoir to Garrison Av.

FIRE DEPARTMENT

Volunteer 100 Men. 6 horses. Telephone and Fire Alarm Bell. 2 Two-Horse Hose Carts 1550 ft. of good Rubber Hose. 1 Village Hook & Ladder Truck. 1 Aerial Hook & Ladder Truck. Garrison Av & Sixth St. paved with brick.

Figure 31. FOSM-IV-178 (ca. 1894): This photograph was taken about the same time as figures 32 and 33. Taken from the west, it shows the presence and condition of the chimneys, the west curtain wall of the fort, support blocks for porch 3, the dilapidated porch 5, and the extent of vine growth which was allowed to cover the structure during its occupation as quarters by the Federal Court period personnel.

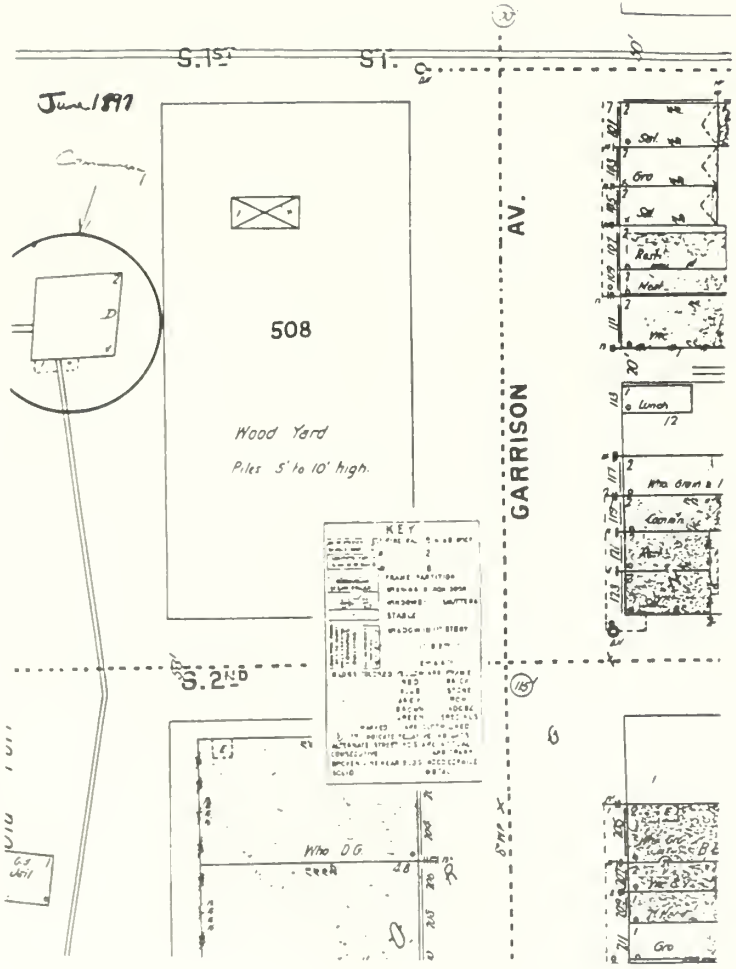
Figure 32. FOSM-II-99 (1894): This sketch, viewing from the east, was made by R.H. Mohler (signed and dated at lower left). It shows the last historic east porch 2 and south porch 5; suggests dilapidated wood shingles, excessive vine coverage, and provides good evidence for chimney, door, and window design and the historic shape of the landscape near the end of the Federal Court period.

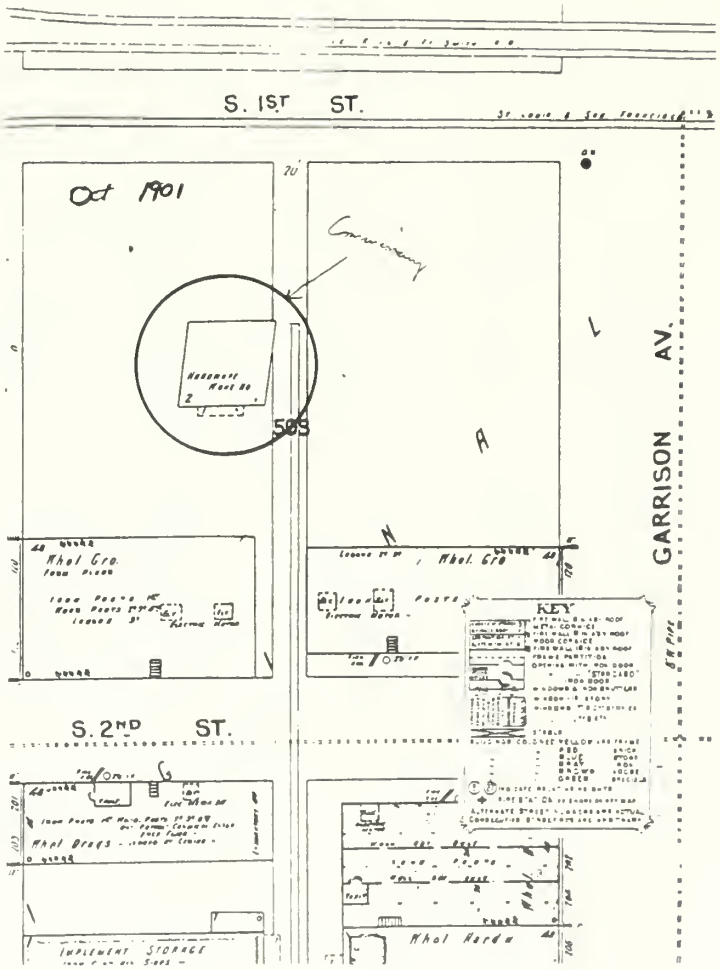
OLD COMMISSARY BUILDING FORT SMITH ARK

Figure 33. FOSM-III-64 (1894): This view reinforces the accuracy (and lack thereof) in the Mohler sketch being contemporaneous. The absence of metal gutters and downspouts strongly supports the suspicion that the first ones ever installed were placed in 1911 by the city. Figures 31, 32, and 33 clearly illustrate that the historic grade outside the fort curtain walls was much lower than today.

Figure 34. Sanborn Insurance Map - 1897

Figure 35. Sanborn Insurance Map - 1901


S. 1ST ST.
June 1897
Cemetery
508
Wood Yard
Piles 5' to 10' high.
GARRISON AV.
S. 2ND
KEY
Lunch
Who DG.


S. 1ST ST.
Oct 1901
Cemetery
508
GARRISON AV.
Whol Grs.
KEY
S. 2ND ST.
Whol Drugs
IMPLEMENT STORAGE
Whol Hardw

CITY OF FORT SMITH, OWNERSHIP (1898-1961)

April 14, 1898	City purchases for $800. 1897 legislation called for surplus of all but 300' x 290' courthouse/jail block.
1898-Dec. 10, 1910	Warehouse lease period - on-and-off occupation (Sanborn Insurance Maps 1897, 1901, 1908).
1901	Frisco Railroad built a spur to the building at its north side. The railroad grade required construction of massive concrete retaining wall.
After 1901-before 1908	East porch 2 removed.
Dec. 28, 1910	Old Commissary Museum Association signed a lease with the city to rejuvenate the building and use it as a museum. According to a July 20, 1930, news clipping, they raised $500 and initiated significant preservation and renovation. The museum function continued for 69 years (until 1979).
Early 1911-13	Restoration by Museum Association under architect J.T.W. Jennings and contractor G.E. Zimmerman.
Feb. 8, 1911	News clipping indicates that roofing "being done" is nearly finished (including removal of metal chimney flue, removal of top half of south and stabilization of both north and south chimney caps, repairs to parapet, installation of gutters and downspout, probable replacement of wood shingles with new roof--slate most likely, as reported in July 20, 1930, news clipping--including new roof hatch); ground floor and attic were thoroughly cleaned, removing rubbish; and "the temporary partition of second floor removed."
May 1, 1911	News clipping indicates that grading the grounds "has begun", including retaining walls and steps (concrete), and "planned" is replacement of sash and lights (glass), "but the old patterns of woodwork are to be reproduced in the repairs." About this time or earlier in 1911, two field cannons were placed on the west yard.

Feb. 21, 1913	News clipping indicates that repointing was accomplished, including crack repairs, and that at a cost of $487, three new single doors and frames, two new heavy double doors and frames, 12 new upper windows and frames, complete, and two new attic sash and frames had been installed. All had received two coats of "lead and oil" and the doors had been "ironed" as directed (by Jennings); an exterior stair (probably the concrete and stone porch 7 at south) was installed; "if sash are to be put in basement windows . . . add $60" (this was probably done within the year); restated that "grounds were graded," shrubs planted, refuse removed, that they had completed walls and steps; that they had "put in water"; that they had employed a caretaker for summer; and that they had "placed a descriptive sign upon the building that all the world may know what it is . . ." Also probably within 1913 or so, a concrete slab was placed in the first floor. After this was done (according to July 20, 1930, clipping), the association installed the lower windows.
Dec. 19, 1915	News clipping indicates that in November 1915, the commissary was recognized as a "National Museum" and that another fund-raising drive was under way.
Oct. 3, 1918	The Fort Smith commission building adjacent to the commissary (seen in figure 39 (FOSM-IV-24), 40 (FOSM-IV-149), and 43 (FOSM-IV-161) burned down. Some have said that when it burned, a wooden stair or porch on the east side of the commissary was destroyed (porch 6, or maybe there was a porch 8, undocumented).
May 24, 1922	News clipping indicates that general cleanup and beautification was undertaken, including mounting two cannons on concrete bases (the field carriages had obviously decayed).
Before 1923	Sometime between about 1918 and 1923 the small southern brick chimney was removed from above the roofline.

Figure 36. Sanborn Insurance Map - 1908

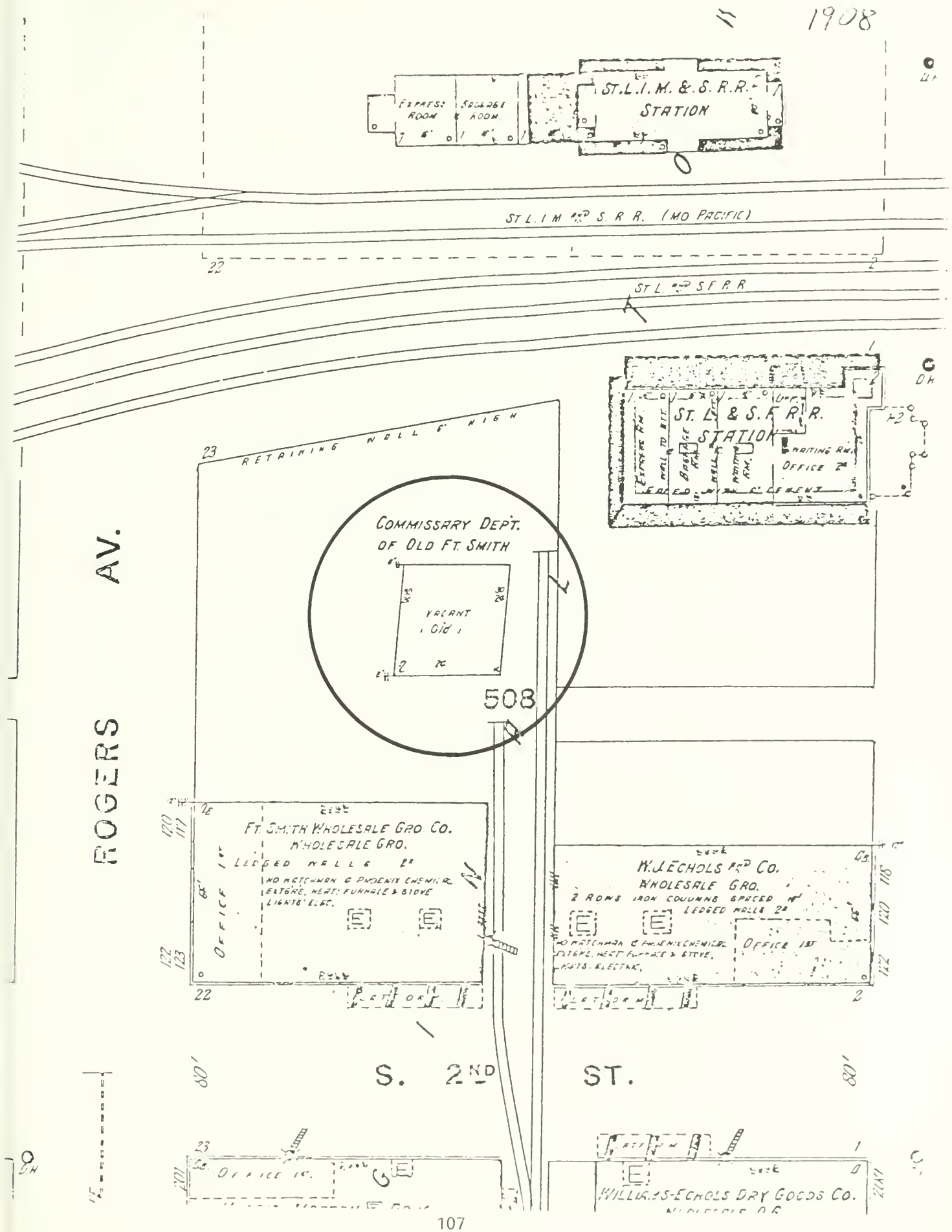

1908
ST. L. I. M. & S. R. R.
STATION
EXPRESS ROOM
BAGGAGE ROOM
ST L. I M AND S. R R. (MO PACIFIC)
ST L. AND S F R R
ST. L. & S. F. R. R.
STATION
EXPRESS RM.
MAIL TO BTT.
BAGGAGE RM.
WELL
WAITING RM.
WAITING RM.
OFFICE 2ND
RETAINING WALL 6' HIGH
COMMISSARY DEPT.
OF OLD FT. SMITH
VACANT
(OLD)
508
ROGERS AV.
FT. SMITH WHOLESALE GRO. CO.
WHOLESALE GRO.
LEDGED WALLS 2ND
NO MATCHMAN & PHOENIX CHEMICAL EXTGRS. HEAT: FURNACE & STOVE LIGHTS: ELEC.
OFFICE 1ST
W. J. ECHOLS AND CO.
WHOLESALE GRO.
2 ROWS IRON COLUMNS SPACED W/ LEDGED WALLS 2ND
NO MATCHMAN & PHOENIX CHEMICAL EXTGRS. HEAT: FURNACE & STOVE. LIGHTS: ELECTRIC.
OFFICE 1ST
S. 2ND ST.
80'
80'
OFFICE 1ST.
WILLIAMS-ECHOLS DRY GOODS CO.

Figure 37. FOSM-IV-177 (between 1901 and 1910): This photograph, taken from the northeast, shows the concrete retaining wall placed by the Frisco Railroad to protect the spur track. The extent of vegetation growth (vines and trees), compared to figure 42, inclines the date of this picture toward 1910 rather than 1901, perhaps about the time the Women's Association was becoming interested in the acquisition of the old building. Porch 6 (the stair) at left is shown here. This photo has been touched-up at all windows obscuring details--an undoctored version of the photo is printed in Reflections of Fort Smith, 1976, page 2 on file at Fort Smith.

Officers Headquarters, built 1840,
Fort Smith, Ark.

Figure 38. FOSM-IV-81 (ca. March 1911): This view documents the new roof, gutters, downspouts, and repairs (lighter mortar) to the chimneys and parapet walls accomplished in the winter of 1911--the first measures undertaken by the Museum Association. Neither doors nor windows have been repaired nor has repointing been undertaken. The field cannon shown here on the lawn would later (1922) be placed on concrete bases.


OLD COMMISSARY BUILDING, FT. SMITH, ARK.
3108

Figure 39. FOSM-IV-24 (summer 1911 or 1912): This view, from the west, is similar to the previous except that the museum sign has been installed on the west facade. Note clear evidence that the door area below porch 5 had historically been whitewashed. The new (1911) roof strongly suggests slate shingles.

Figure 40. FOSM-IV-149 (ca. 1912): Little has changed in this view from figure 39, except that the vines have grown.

Figure 41. FOSM-IV-191 (ca. 1912): Taken about the same time as figure 40, the view from the north shows the luxuriant success of the 1911-12 beautification and the recently installed concrete stairs at the Frisco Railroad retaining wall. Restoration of windows/doors and masonry repairs have yet to be undertaken.

Figure 42. FOSM-IV-168 (ca. summer 1913 or 1914): This view from the south was taken after the final phase of initial restoration (winter 1911-13) when doors and windows were reconstructed and porch 7 was built.

Figure 43. FOSM-IV-161 (ca. 1914 or before 1918): This view is similar to figure 42, except there are more vines.

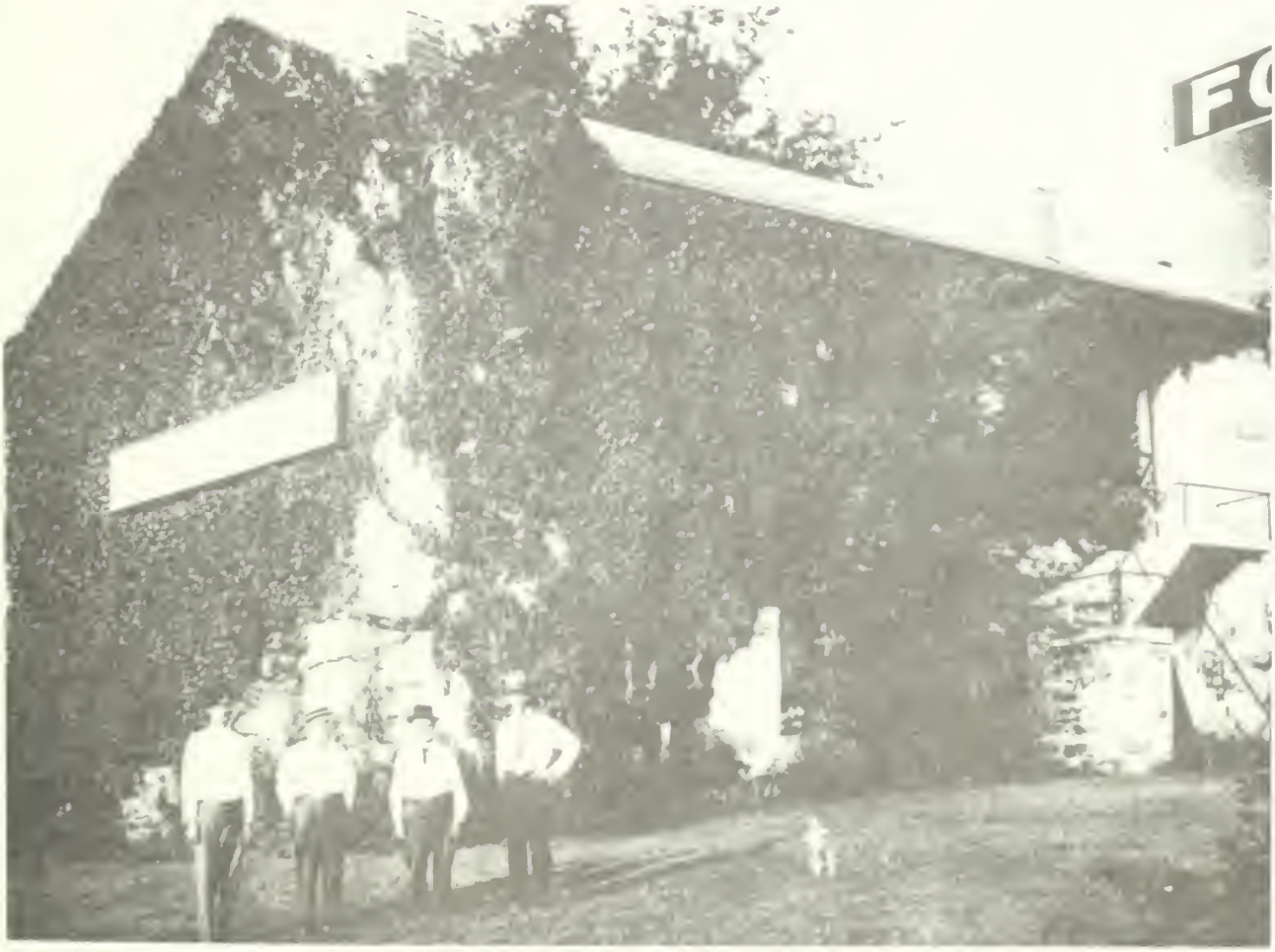
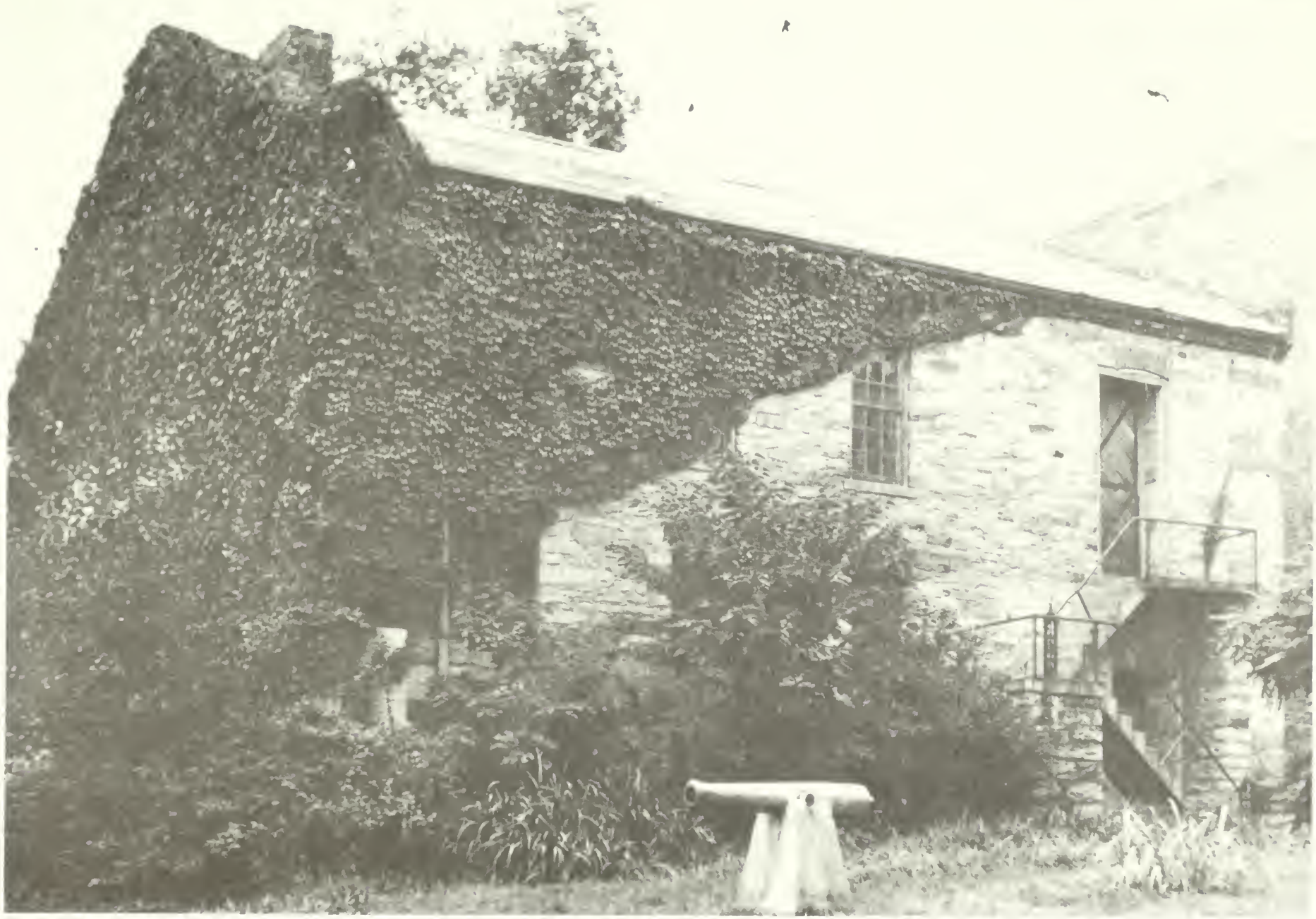


Figure 44. FOSM-IV-168a (1923): In this view from the west, vines have been cut back exposing the walls and windows clearly. The landscaping of the day includes the cannons mounted on concrete bases (1922) and a former field carriage decaying in the foreground. Notice, too, that the Fort Smith Commission Building (burned 10/3/18) has been replaced by W.J. . . . Wholesale Warehouse and that the small south chimney has been removed and the hole temporarily filled over.


COMMISSARY BUILDING
OF OLD FORT SMITH
WHO
OLD COMMISSARY BUILDING Built in 1839
Was A Part of Origional Fort Smith

Figure 45. FOSM-IV-203 (ca. early 1930s): This view postdates the previous plate by several years as evidenced by extensive vegetation growth, but predates 1938 when the asbestos roof was installed (it did not have a ridgeboard as this one does).



July 20, 1930	News clipping indicates that the concrete floor was "about the only repair that has been made that has not restored it to its original condition . . . the former floor was [said to be] of wide planks and these could not have been procured without great expense"; the Frisco Railroad did the beautification (retaining walls and steps in 1911); the Light and Traction Co. placed the sign (in 1913); funds ran low because of W.W.I; and after the war a new group formed. The new group obtained $25 per month, for a few years, from the city to perform repairs and maintenance, and a new floor had been installed over the second-level flooring, new exhibit cases built, and gas [stove] connections installed.
April 30, 1932	Inscription date written on attic cross-bracing member. Possible date for installation of cross-bracing and/or electrical conduit.
May 7, 1932	News clipping reports that museum has installed electrical lights and that they still use fireplaces in winter (probably in conjunction with gas heaters).
1936	Historic American Building Survey crew documents building. Shortly thereafter interior stairs are built to second floor and stairwell enlarged--washroom, too, was probably enclosed at this time.
June 1937	Leroy W. Hagey "Special Report on Old Commissary Building, Fort Smith, Arkansas," typed manuscript, FOSM files.
July 29, 1938	News clipping reporting inspection of new work that included a new roof [asbestos] and ceiling and wall repairs.

NATIONAL PARK SERVICE PERIOD (1961-present)

Sept. 13, 1961	Fort Smith National Historic Site established and city donated commissary building to federal government.
ca. 1963	Edwin C. Bearss prepares history for new park, including commissary basic data.
ca. 1964-65	Park maintenance staff performs repairs, including repointing of cracks and repairs to gutters and downspouts and installation of screens on second-floor windows for "hail protection and to prevent vandalism" (P. Schriver, 1982 oral report).
May 1965	James N. Haskett "HSR, Part I, Commissary," typed manuscript, FOSM files.
1967-1968	James W. Sheire and Norman M. Souder investigate structure and respectively prepare HSR, Part II, "Historical Data" section (2/68) and "Architectural Data" section (5/73).
1973	Storm resulted in loss of trees and damage to parapet followed by NPS masonry repairs, including patching east wall crack by a mason and repair of brick parapets.
1979	Museum Association moved out.
1981	Moisture problem in lower level led to investigations by regional personnel and removal of some sections of concrete at base of support posts was undertaken.
1982	Initiation of HSR to restore building to 1897 and to address moisture and crack problems.
1983-84	Restoration project by NPS preservation crew.

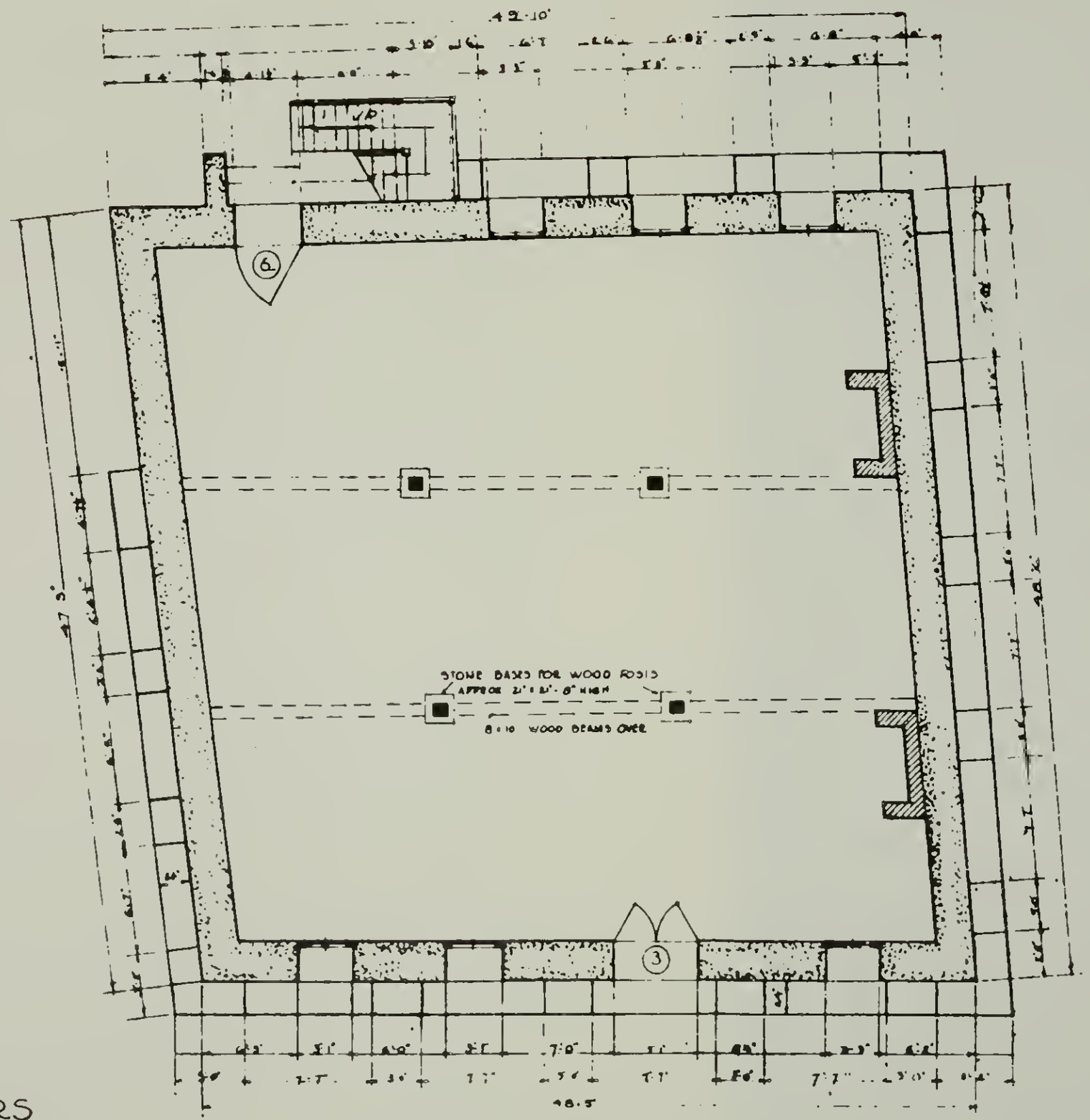
HABS DRAWINGS (8 sheets)

3 5'-6" x 6" x 0'-2½"
6 4'-0" x 7'-0" x 0'-2½"

FRED HOLDER JR.
J.E. CLIFFORD

WORKS PROJ.
O.P. 26

UNDER DIRECTION OF UNITED STATES
NATIONAL PARK SERVICE



DOORS

3 5'-6" x 7'-6" x 0'-2½" - BUILT UP - DIAGONAL - CAR SIDING
6 4'-0" x 7'-0" x 0'-2½" - BUILT UP - DIAGONAL - BD CEILING

FIRST FLOOR PLAN

SCALE 3/16" = 1'-0"

PRESENT FLOOR CONCRETE - NOT ORIGINAL FLOOR
INTERIOR WALLS ROUGH STONE SURFACE PAINTED

SCALE IN FEET

SCALE IN METERS

421/27,000

1 OF 8

FRED HOLDER JR.
S.E. CLIFFORD

WORKS PROGRESS ADMINISTRATION
O.P. 265-6907
UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE BRANCH OF PLANS AND DESIGN

NAME OF STRUCTURE
THE COMMISSARY BUILDING

FORT SMITH SEBASTIAN COUNTY ARKANSAS

District No. ARK - 14

HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 1 OF 8 SHEETS

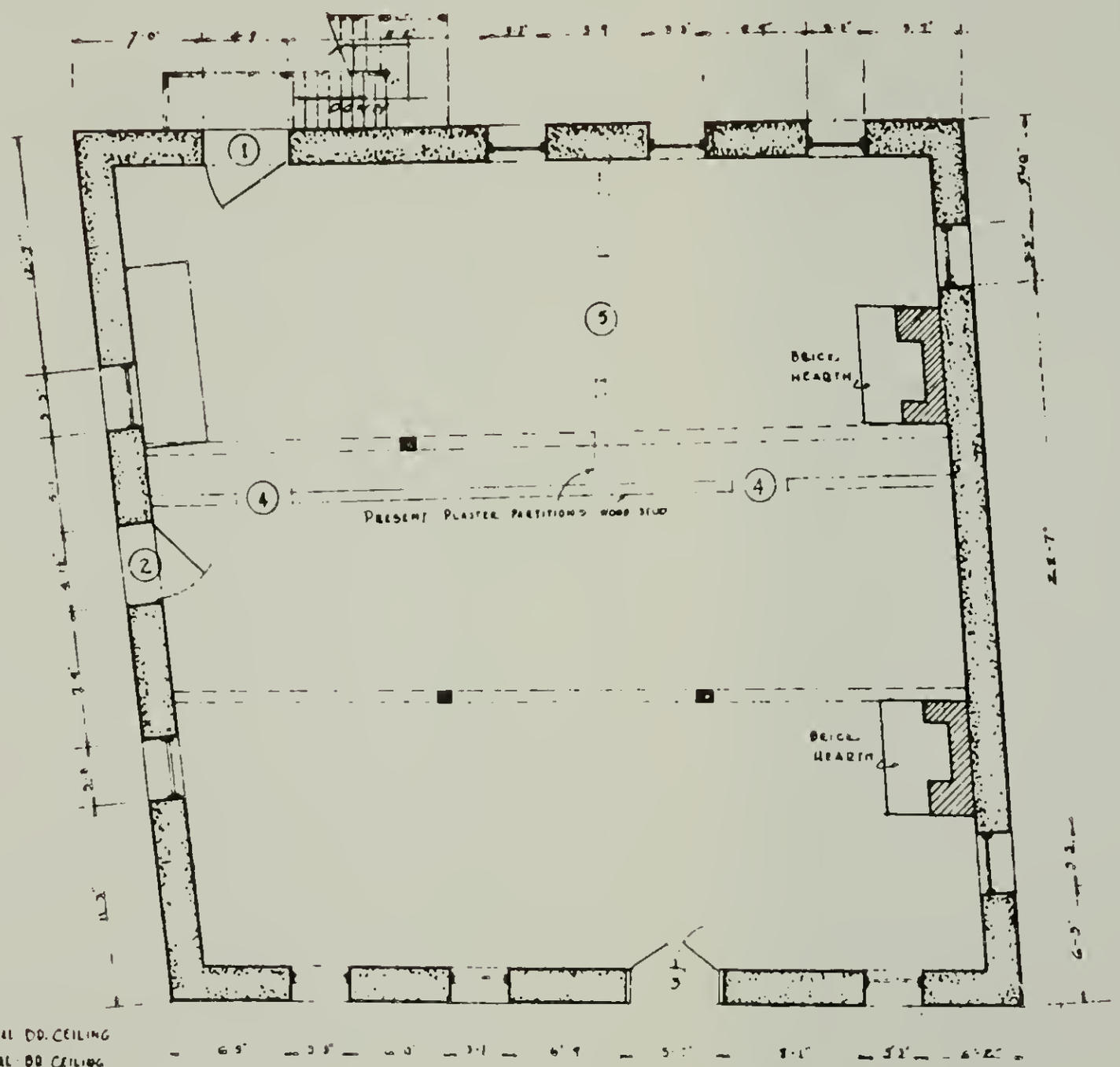
~ DO

1	4'0"	x	9'6"	= 2½"
2	4'-0"	x	7'0"	= 2½"
3	3'0"	x	7'6"	= 2½
4	2'8"	x	6'7"	= 1⅞"
5	2'-10"	x	6'-11"	= 1⅞"

FRED HOLDER, JR
J.E. CLIPPARD

WORKS PROGRES
O.P.

UNDER DIRECTION OF UNITED S
NATIONAL PARK SERVICE



~ DOORS ~

1	4'0" x 9'6"	2¼"	BUILT UP - DIAGONAL DD. CEILING
2	4'0" x 7'0"	2¼"	BUILT UP - DIAGONAL DD CEILING
3	3'6" x 7'6"	1¾"	BUILT UP - DIAGONAL CAR SIDING
4	2'8" x 6'7"	1⅜"	4 PANEL
5	2'4" x 6'11"	1⅜"	4 PANEL - EACH

SECOND FLOOR PLAN

SCALE 3/16" = 1'-0"

WOOD FLOOR 13/16" PINE OVER ORIGINAL 1" TONGUED & GROOVED
PLASTER WALLS AND CEILING - PARTITIONS ADDED OR CHANGED
DURING LATER USE OF BUILDING AS A GENERAL'S RESIDENCE

SCALE IN FEET

SCALE IN METERS

421/27,000
2 OF 8

FRED HOLDER, JR
J.E. CLIPPARD

WORKS PROGRESS ADMINISTRATION
O.P. 265-6907
UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE, DIVISION OF PLANNING AND DESIGN

NAME OF STRUCTURE
THE COMMISSARY BUILDING
FORT SMITH SEBASTIAN COUNTY ARKANSAS

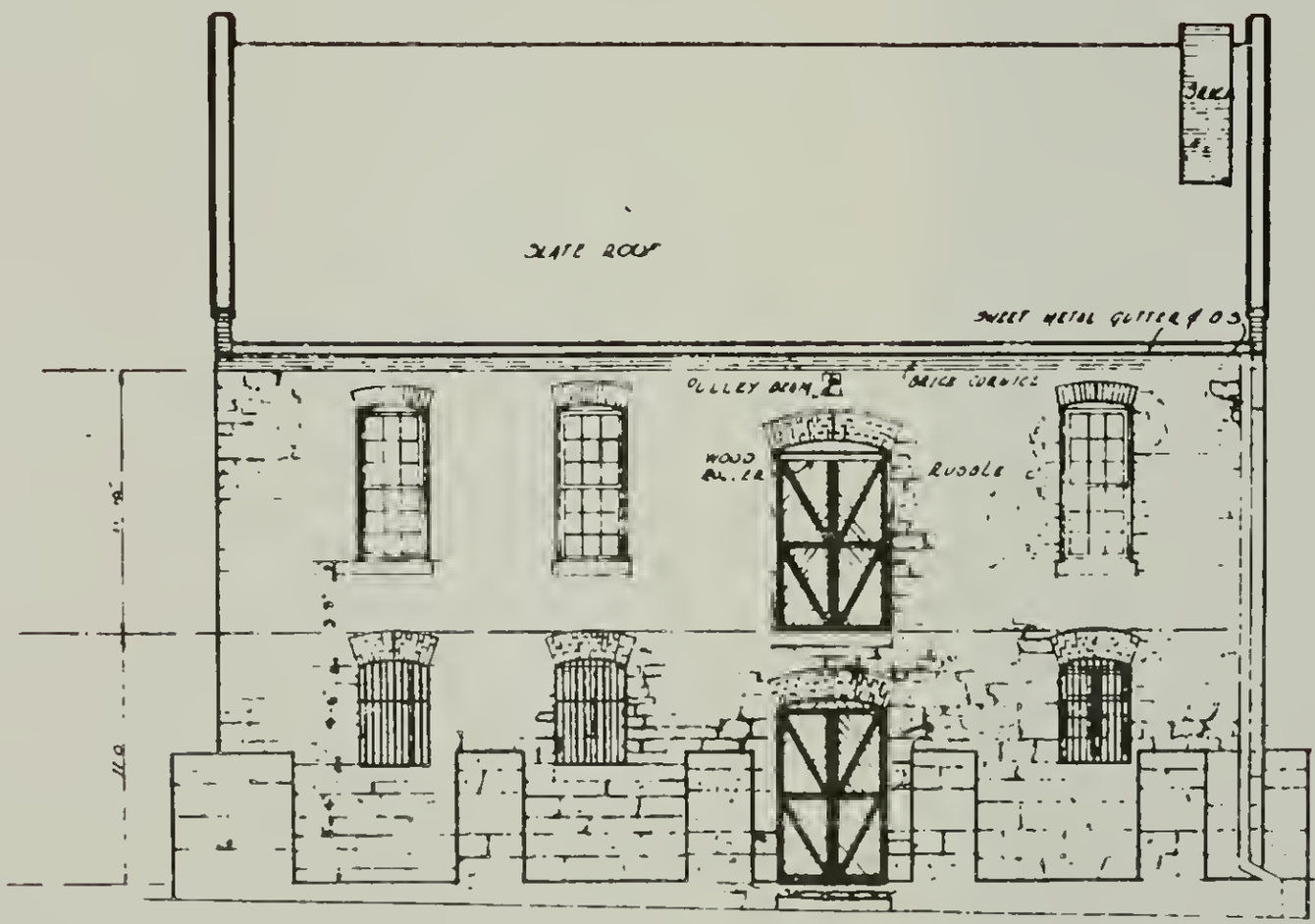
ARK-16

HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 2 OF 8

FRED HOLDEN, JR.
J. E. CLIFFARD

WORKS PROGRESS
O.P. 26

UNDER DIRECTION OF UNITED STATES
NATIONAL PARK SERVICE



· NORTH · ELEVATION ·

SCALE 3/16" = 1'-0"

FRED HOLDER, JR.
S. E. CLIFFORD

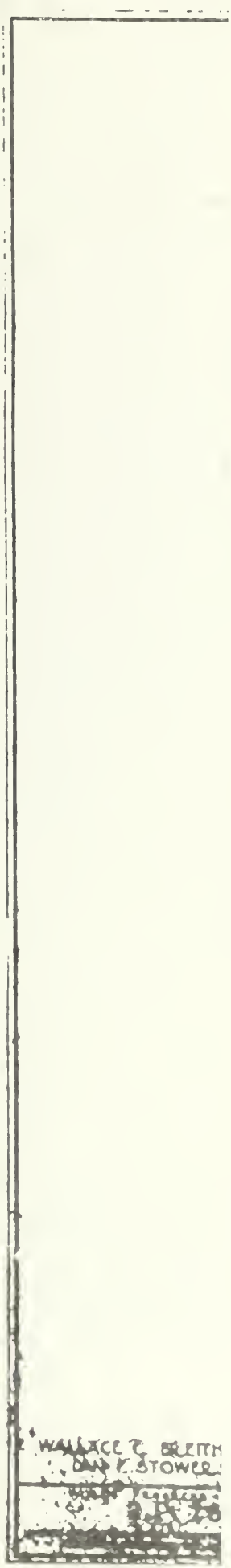
3 of 8

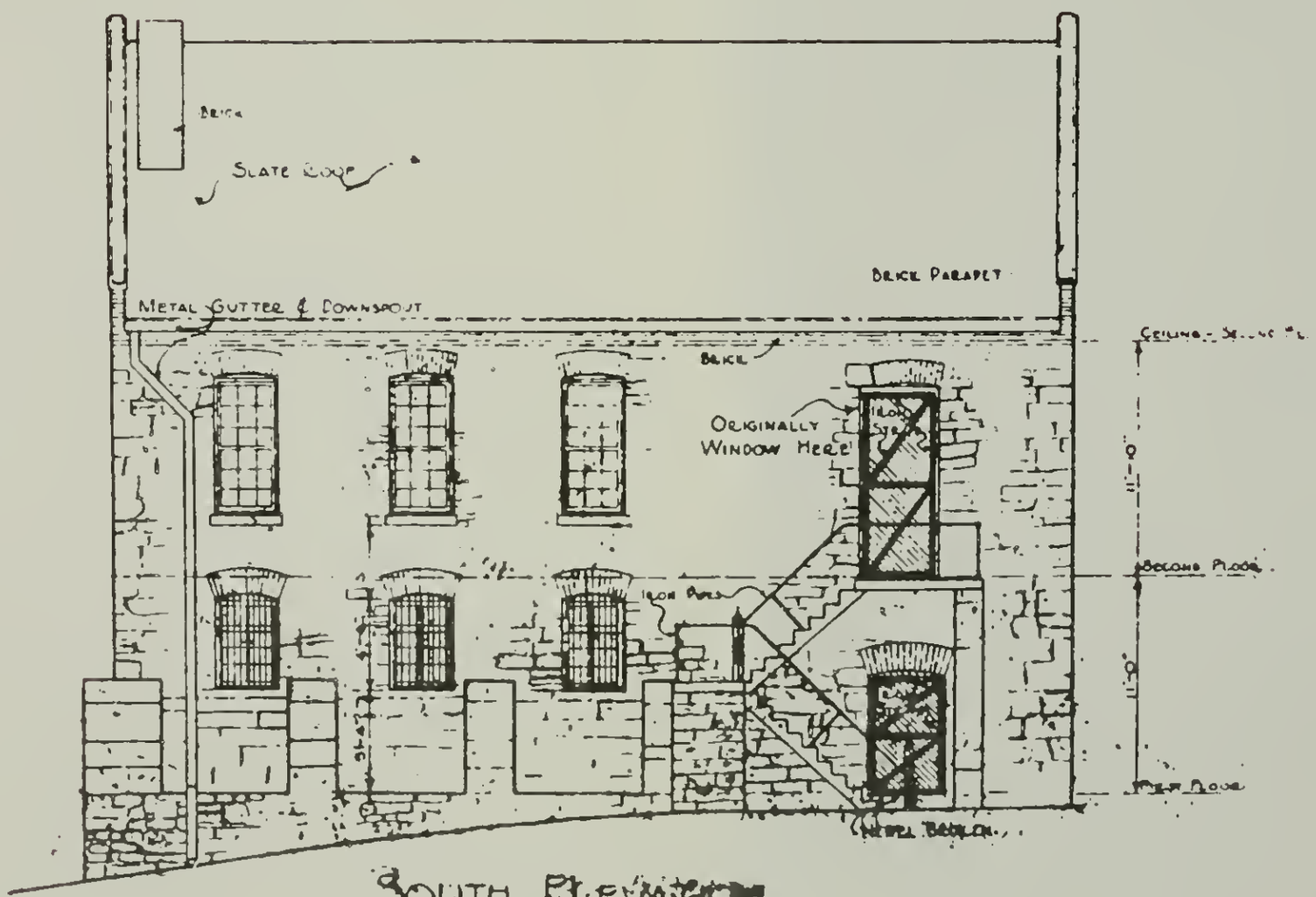
421/27,000

SCALE IN FEET

SCALE IN METERS

WORKS PROGRESS ADMINISTRATION O.P. 265-6907 UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE BRANCH OF PLANS AND DESIGN	NAME OF STRUCTURE THE COMMISSARY BUILDING FORT SMITH SEBASTIAN COUNTY ARKANSAS	SURVEY NO. ARK-16	HISTORIC AMERICAN BUILDINGS SURVEY SHEET 3 OF 8 SHEETS	


WALLACE C. BREITH
DAN K. STOWER



South Elevation

Scale 1/8"=1'-0"

421/27,000

4 of 8

Scale in feet

Scale in meters

Wallace C. Breithaupt
Dan F. Stowers

U.S.D.A.-SCS-6807

THE COMMERCIAL BUILDING

NOTE "A"

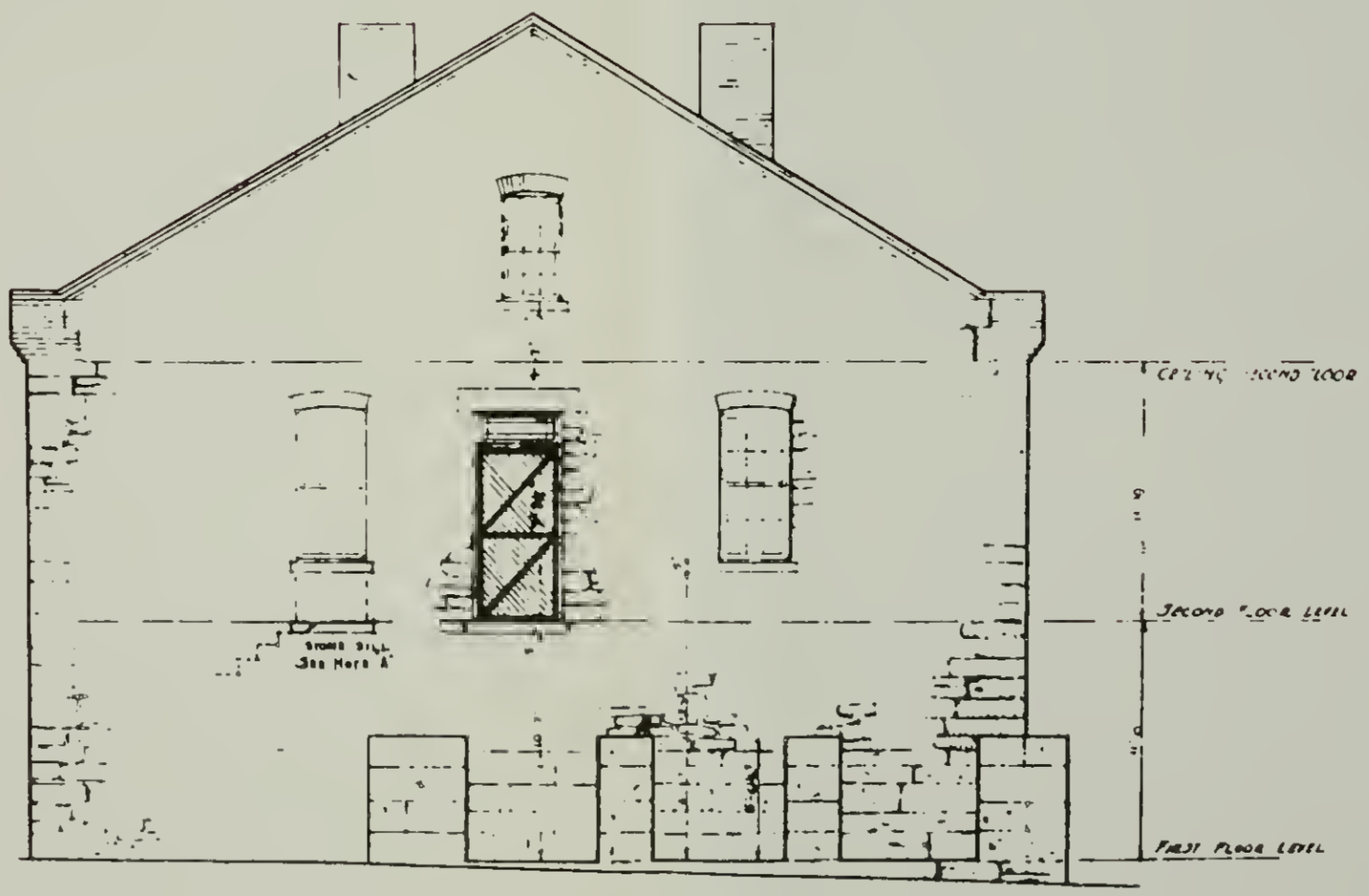
STONE SILL STILL IN
ORIGINALLY A DOOR AND
STAIR DOWN THIS SIDE
REMOVED – ORIGINAL PL
IN OFFICE OF ARMY ENG
THAT COMMISSARY BUILDING
OF A BASTION AND THAT
JOINED BUILDING AT TH
INDICATED BY PATCHING
AT THIS POINT

FRED HOLDER, U.S.
AS CLIPPARD

HOLD . . . PRESS

O.P. 28

UNDER DIRECTION OF UNITED STATES
NATIONAL PARK SERVICE BRA



EAST · ELEVATION ·

SCALE 3/16" = 1'-0"

NOTE "A"

STONE SILL STILL IN PLACE WHERE ORIGINALLY A DOOR AND EVIDENCE OF STAIR DOWN THIS SIDE BUT NOW REMOVED — ORIGINAL PLANS OF FORT IN OFFICE OF ARMY ENGINEERS SHOWS THAT COMMISSARY BUILDING WAS IN NATURE OF A BASTION AND THAT WALL OF FORT JOINED BUILDING AT THIS POINT. ALSO INDICATED BY PATCHING OF BRICK WORK AT THIS POINT.

SCALE IN FEET

SCALE IN METERS

421/27,000

5 OF 8

FRED HOLDER, U.S.
J. S. CLIFFORD

HABS
O.P. 265-6907
UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE BRANCH OF PLANS AND DESIGN

NAME OF STRUCTURE
THE COMMISSARY BUILDING
FORT SMITH SEBASTIAN COUNTY ARKANSAS

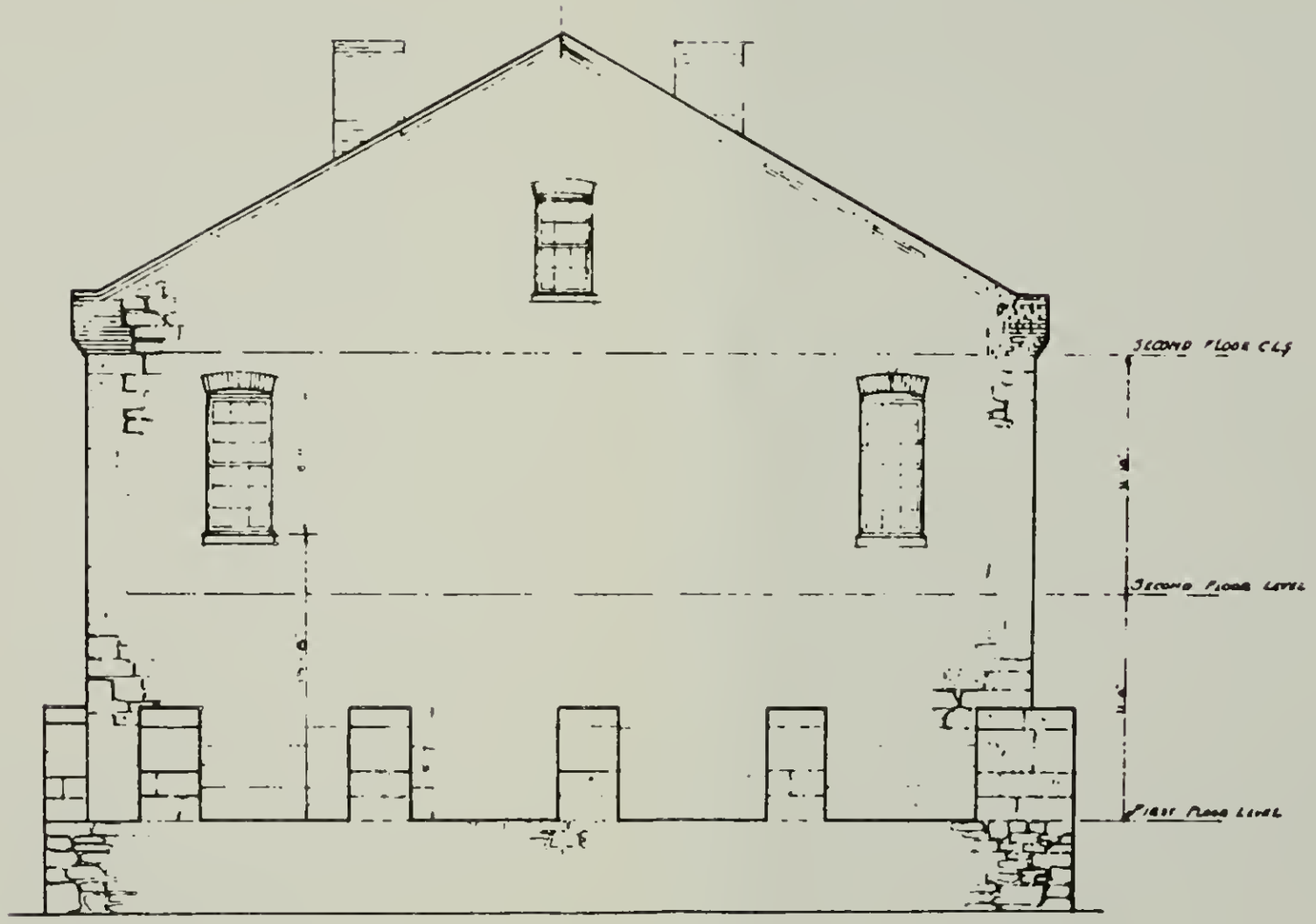
SURVEY NO. ARK-16

HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 5 OF 6 SHEETS

FRED HOLDER.
J E CUPPARD

WORKS DIVISION
O.P. 2

UNDER DIRECTION OF UNITED ST
NATIONAL PARK SERVICE.



WEST · ELEVATION

SCALE 3/16" = 1'-0"

421/27,000

6 OF 8

SCALE IN FEET

SCALE IN METERS

FRED HOLDER, JR.
J. E. CUPPARD

HOLDER & CUPPARD ARCHITECTS

O.P. 265-8907

UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE, BRANCH OF PLANS AND DESIGN

FORT SMITH

NAME OF STRUCTURE

THE COMMISSARY BUILDING

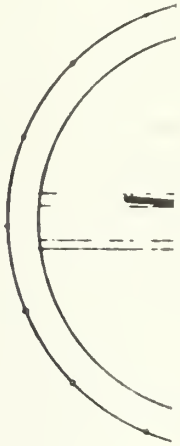
SEBASTIAN COUNTY

ARKANSAS.

ARK-16

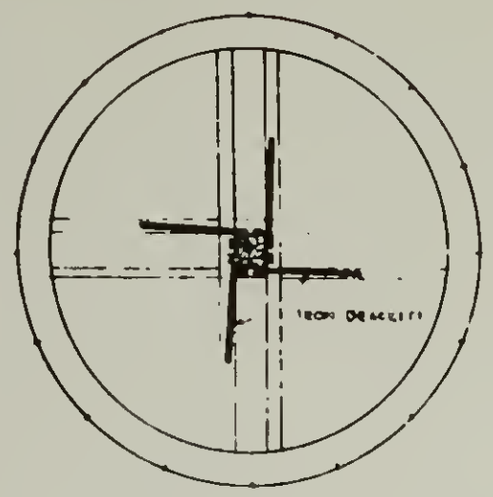
HISTORIC AMERICAN BUILDINGS SURVEY

SHEET 6 OF 8 SHEETS

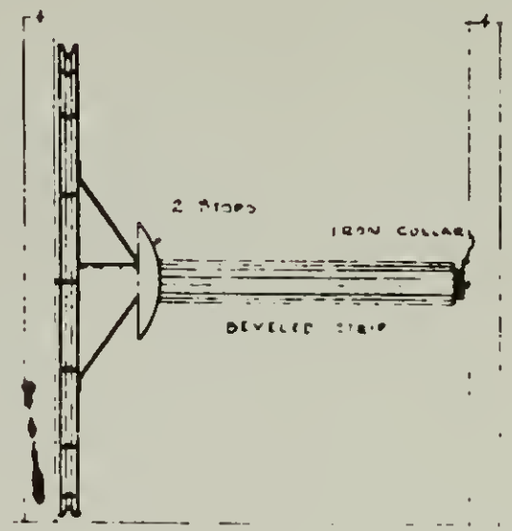


SIDE

SECTIO

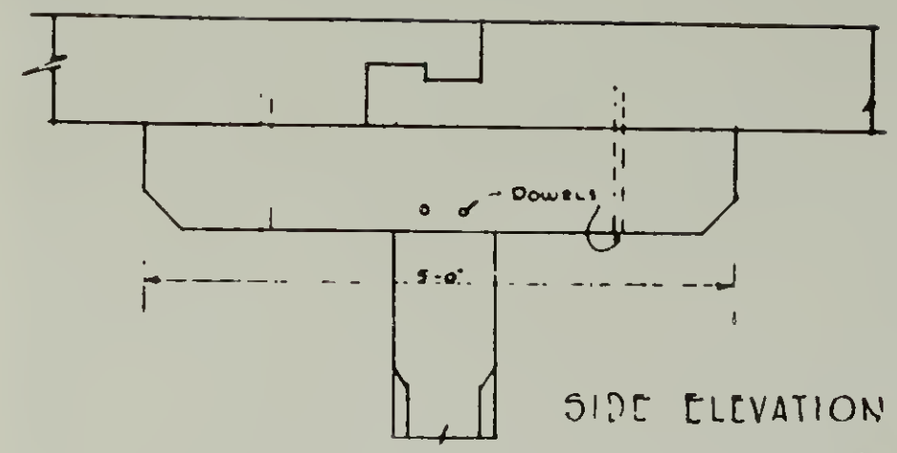


SIDE OF WHEEL



EDGE OF WHEEL & HOISTING DRUM

SCALE 1/2" = 1'-0"

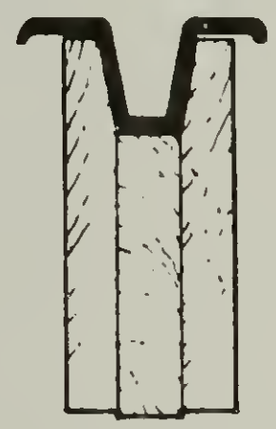


SIDE ELEVATION COLUMNS, BEAMS & SPREADERS

SCALE 1" = 1'-0"

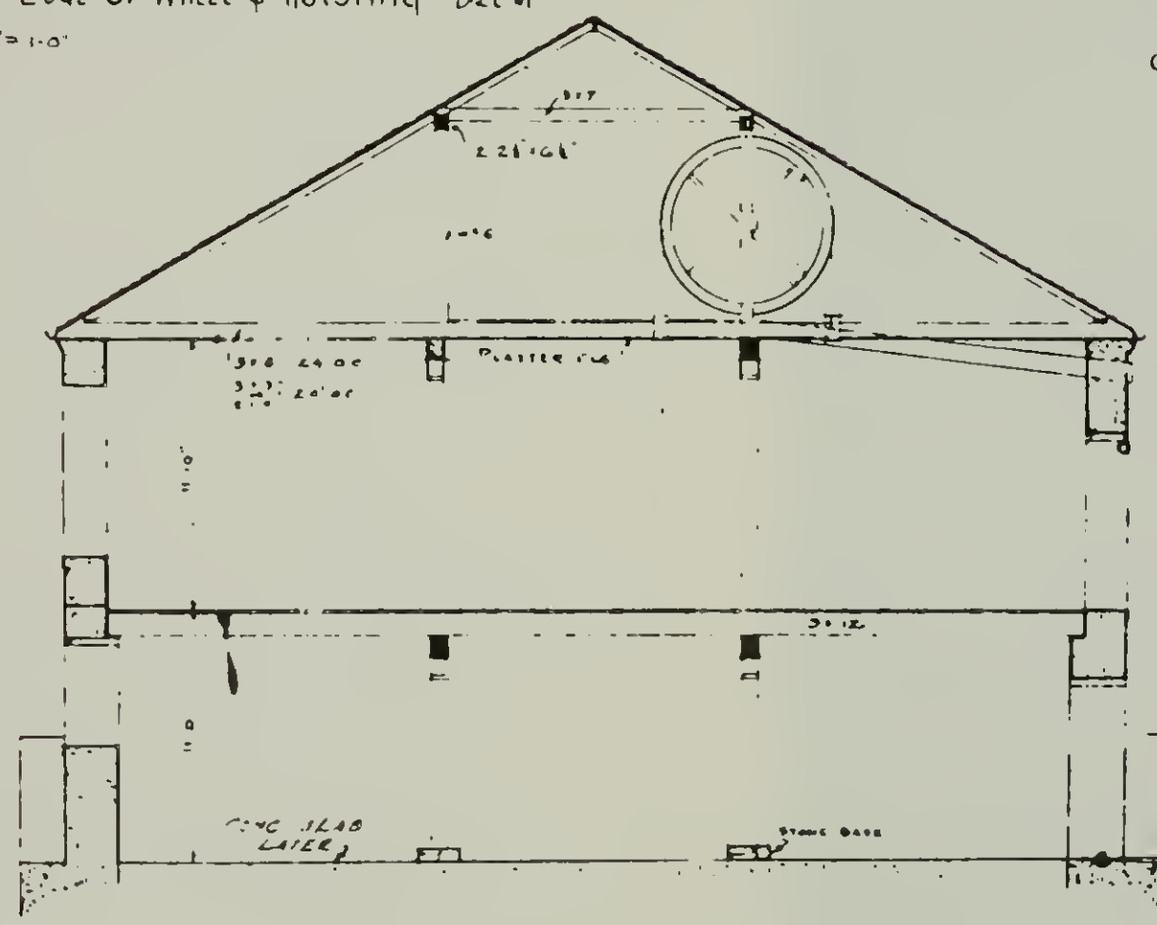
SECTION COLUMN

SIXTEEN IRON ROPE CATCHES



SECTION DRUM OF WHEEL

HALF ACTUAL SIZE



CROSS SECTION "A-A"

SCALE 3/16" = 1'-0"

7 OF 8

421/27,000

WORKS PROGRESS ADMINISTRATION
O.P. 265-6807
UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE, BRANCH OF PLANS AND DESIGN

FORT SMITH

NAME OF STRUCTURE
THE COMMISSARY BUILDING

SEBASTIAN COUNTY ARKANSAS

SURVEY NO. ARA-16

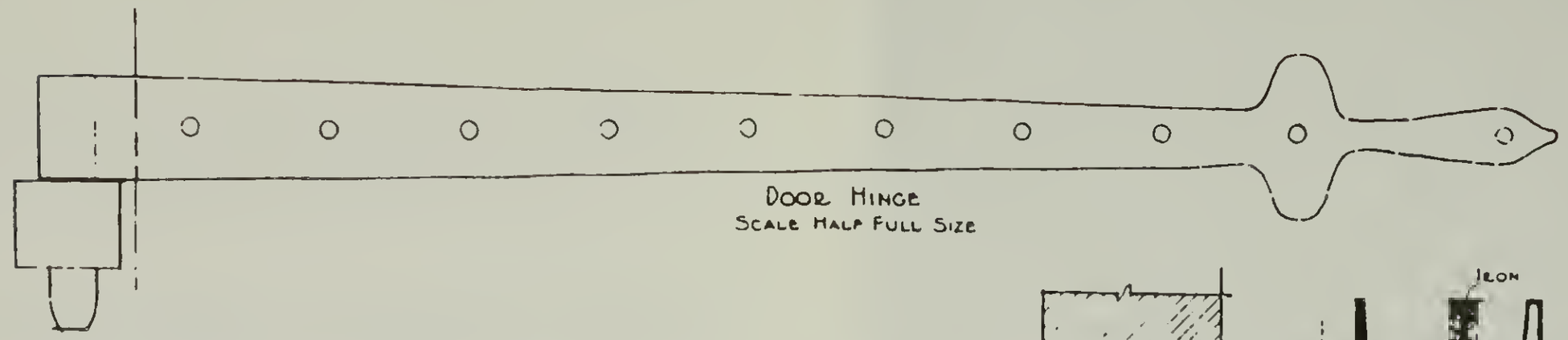
HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 7 OF 8 SHEETS

S. E. CLIMARD

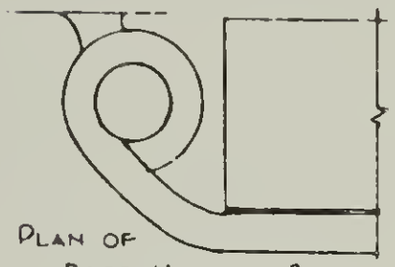
WORKS PROGRESS

O. P. 2

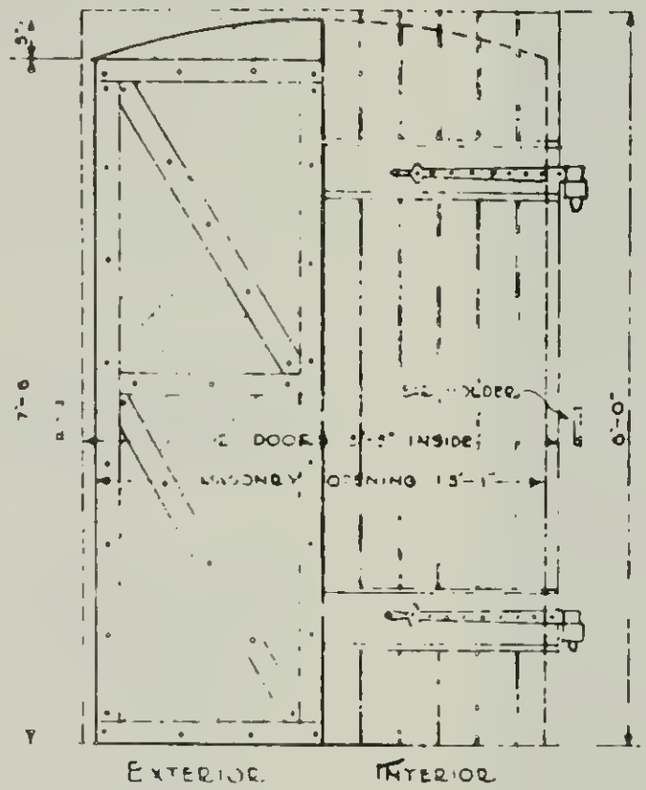
UNDER DIRECTION OF



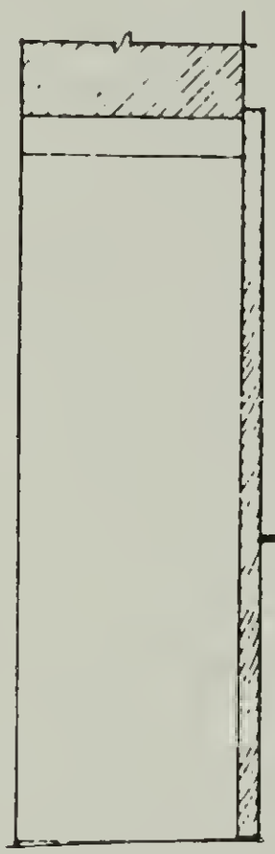
DOOR HINGE
SCALE HALF FULL SIZE



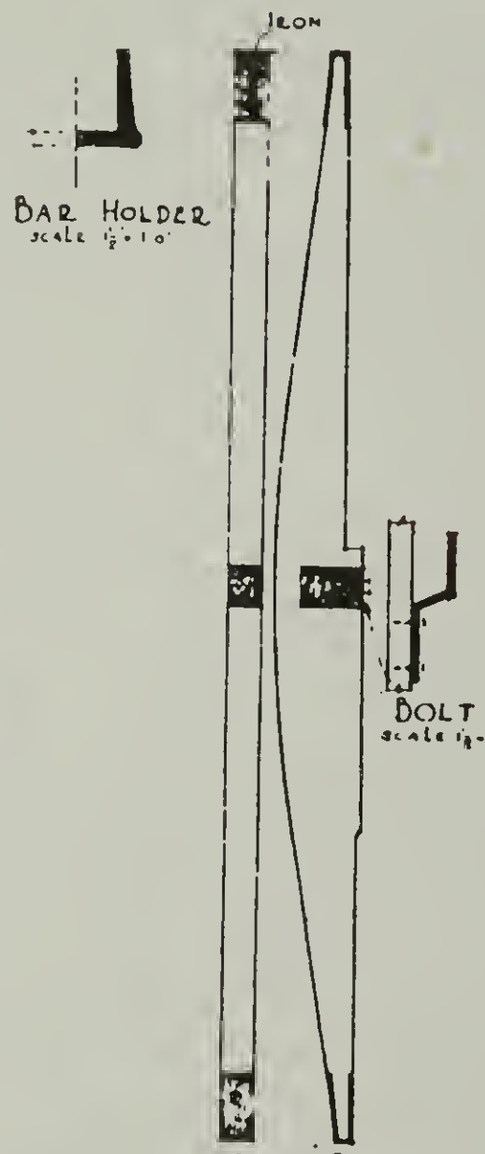
PLAN OF
DOOR HINGE AT BUTT
SCALE HALF FULL SIZE



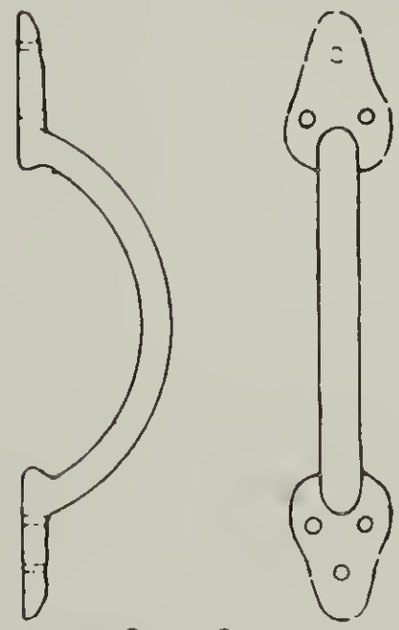
DOORS ON NORTH FRONT
FIRST FLOOR
SCALE 3/4" = 1'-0"



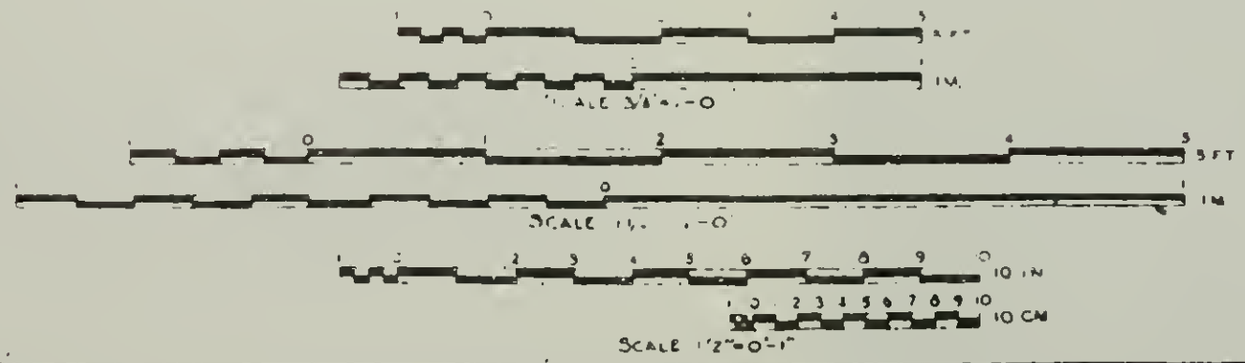
SECTION
SCALE 3/4" = 1'-0"



DOOR BAR
SCALE 1 1/2" = 1'-0"



DOOR PULL
SCALE HALF FULL SIZE



421/27,000
8 OF 8

S. E. CLIFFORD
WORKS PROGRESS ADMINISTRATION
O.P. 265-6907
UNDER DIRECTION OF OLIVER E. STONE, DIRECTOR OF THE INTERIOR NATIONAL PARK SERVICE, DEPARTMENT OF PLANS AND DESIGNS

FORT SMITH

NAME OF STRUCTURE
THE COMMISSARY BUILDING
SEBASTIAN COUNTY

ARKANSAS

DRAWING NO. ARK-16

HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 8 OF 8 SHEETS

NOTES

1. Clyde D. Dollar, Historical Archeology at the Old Commissary Building, Fort Smith National Historic Site, Fort Smith, Arkansas (Fayetteville, Arkansas: Historic Preservation Associates, 1983).

2. Ibid., p. 46.

3. In the textual presentation of this idea, the two soils, B1 and B2, were reversed, so that Dollar referred in the text to the soil B2 as throw-out and B1 as in situ, whereas in all figures and subsequent discussion B2 was indicated as in situ, while B1 was throw-out.

4. Ibid.

5. Edwin C. Bearss, Fort Smith, 1838-1871 (Washington, D.C.: National Park Service, 1963), p. 48.

6. Ibid., pp. 142, 147. Captain Edmund B. Alexander stopped work on the fortifications at Fort Smith on August 31, 1842, at the order of Quartermaster General Jesup.

7. James W. Sheire, Old Commissary Building, Fort Smith, 1838-1871, Fort Smith National Historic Site, Arkansas. Historic Structure Report, Part II. History Data Section (Washington, D.C.: National Park Service, Office of Archeology and Historic Preservation, 1968), p. 3.

8. Dollar's convention of calling the actual northeastern side the north side of the building, the southeastern side the east side, and so on will be used throughout this report.

9. This mortar is easily distinguishable from later, orange mortar by judicious probing.

10. These were the alterations of 1866-67, discussed below.

11. Historic American Building Survey, the Commissary Building, Fort Smith, Sebastian County, Arkansas, 1936; hereinafter referred to as HABS. On sheet 2 of these drawings is the note: "Wood floor 15/16" pine over original 1" tongued and grooved." A copy of the HABS drawings is included in this section.

12. Sheire, Old Commissary Building, p. 3.

13. Sheire quotes a U.S. Army report that states that the number of rooms in the commissary was "one basement [the present ground floor], three first floor," p. 5. This description was made in 1853 after the temporary conversion of the commissary to a barracks. The 1846 statement of alterations indicated that there were four storerooms in the building. The 1853 description, by showing the existence of two other rooms, in addition to the office on the second floor, implies that the first

floor had been constructed as a single open room, and the second floor had originally been divided into the office and three other storerooms. The conditions in 1853 could be the result of the removal of one partition wall on the second floor in 1849 to make barracks space sufficient for one company. A similar arrangement of space was again made during the major renovation of 1866-67 (discussed below). There would have been no reason to remove a partition wall on the first floor to make barracks space on the second floor.

14. The HABS drawings show the opening for the stairway in 1936 but indicate that there were no stairs actually in place. The presence of some fragments from the stairway in later construction must indicate that the stairs were dismantled and the material stored for later use, or that the stairwell was closed in 1849, but the stairs were left in place until sometime prior to 1936.

15. HABS, sheet 5: "Stone sill still in place where originally a door and evidence of stair down this side but now removed. . . ."

16. Sheire, Old Commissary Building, p. 4.

17. Bearss, Fort Smith, pp. 251-312.

18. Ibid., pp. 268-73.

19. Ibid., p. 279.

20. Ibid., p. 278.

21. Ibid., p. 312.

22. Sheire, Old Commissary Building, p. 4.

23. Ibid., p. 5.

24. Bearss, Fort Smith, Appendix T.

25. Dollar presents a photograph as figure 6 in his report that shows the east end of the commissary building without an exterior stairway. This is the "View of the City of Fort Smith from the Fort," (see fig. 27) and is dated by Dollar as between the late 1840s and 1868. No closer dating is possible without research into the dates of various businesses of the city that may be identified in the photograph. If the sequence of construction given here is correct, the date of the photograph must be between April 1846, when the north officers' quarters were completed (Bearss, Fort Smith, p. 193), and late 1849 when the exterior stairs to the second level of the commissary were probably built.

26. Sheire, Old Commissary Building, p. 5.

27. In fact, the discussion of the new roof needed on the magazine states: "roof (Cypress shingles) decayed, should be recovered with

slate, of which there is a large quantity being brought down from Fort Gibson. . . ." (Bearss, Fort Smith, Appendix T). Additionally, fragments of slate tiling were found in the attic of the commissary at the time of its stabilization in the 1980s (see fig. 75). These could date from a slate roof built in the 1850s or from a slate roof built in 1911 and removed in 1938 (see "Historical Chronology" section).

28. Sheire, Old Commissary Building, p. 7.

29. Bearss, Fort Smith, p. 504.

30. This is contrary to Norman Souder's statement in his Historic Structure Report, Commissary Building, Architectural Data Section, Fort Smith National Historic Site, Arkansas (Denver: National Park Service, Denver Service Center, Historic Preservation Team, 1973), p. 7, that the "chimneys were of the simplest design, having no decorative brick coursing or projecting caps." Souder's remarks were based on a photograph taken ca. 1911, after the roof and chimneys were repaired. For the "Administrative Data" section, it should be noted that Souder's report was actually prepared in September 1968 (Souder, Historic Structure Report, p. 2).

31. The presence of the hoist-rope openings argues for a period of reuse of the second level of the commissary building as a storage area. Such a use could have been reestablished by either the Federal Court, by private interests to whom the court leased this space, or during a later period.

32. Bearss, Fort Smith, p. 504.

33. Ibid.

34. Ibid, p. 504; Sheire, Old Commissary, p. 7; Dollar, Historical Archeology, pp. 67-77.

35. Dollar, Historical Archeology, p. 73. In his discussion, Dollar mentions that the interior edge of the retaining wall was lower than the exterior edge, a feature that would be expected of a wall built to support floor joists.

36. Insurance Maps of Fort Smith, Arkansas (New York: Sanborn Map Company, 1886). See figures 28-30 and figures 34-36 for copies of Sanborn Insurance Maps.

37. Remains of these stone bases were located by Dollar, Historical Archeology, pp. 48-50 and fig. 14.

38. This is visible in photographs made after the removal of the eastern section of this porch, FOSM photograph, 0001-14 (new catalog number) for example.

39. There are three illustrations that give details about the porches standing in the 1890s. These are figure 31 (photographs IV-178, new catalog no. 0001-1) and figure 33 (III-64, no new catalog number available), and the pen and ink drawing by R.H. Mohler, figure 32 (II-99 new catalog no. 0001-3). An examination of the Mohler drawing shows a signature and the date "--94" in the lower left-hand corner. Comparison of the Mohler drawing with figure 33 shows that the vines on the commissary building, the trees, the windows, the doors and the condition of the roof are virtually identical in both. In addition, Mohler shows a barrel on its side against the north wall near the east corner of the building which is also visible in figure 33. The vines visible on the west face of the building in figures 31 and 33 indicate that no appreciable time had elapsed between them. The three illustrations are therefore considered to be made within months of each other. The two photographs are hereafter considered to date from ca. 1894. See the "Historical Chronology" section for all photography cited.

40. FOSM photograph IV-178, new catalog no. 0001-1.

41. Insurance Map of Fort Smith, 1892 - figure 30.

42. FOSM drawing 000-3 (II-99).

43. Sheire, Old Commissary, p. 8.

44. Marshall W.A. Britton to U.S. Attorney General, November 20, 1872, Box 152, Record Group (RG) 60, Records of the Department of Justice (DOJ), National Archives (NA).

45. Ibid.

46. Commissioners to Secretary of the Interior Columbus Delano, October 21, 1873, Box 21, RG 49, Division K: Abandoned Military Reservations File, General Land Office, Records of the Bureau of Land Management, NA.

47. The description of the structural details of the commissary, such as wall thickness, floor construction, and room arrangement, are all referred to as the "Same as No. 2," the quartermaster building. There is no direct statement of these details under the heading "No. 3 Commissary Storehouse."

48. Sheire, Old Commissary, p. 9.

49. Ibid., p. 10.

50. Ibid.

51. The window and door count and the reference to a mantle board all fit these two rooms, with the exception that there are only five windows in the two rooms. The sixth window may have been in the exterior door. The "two double doors" are taken to mean the two doors making up a

single set of double doors, and to refer to the double doors between the former sergeant's quarters and the former orderly room. The room is in such bad condition that "it can't be occupied" is probably a reference to the large north room of the second level. The ground floor was probably abandoned altogether when military use ended in 1872.

52. Insurance Map of Fort Smith, 1886, figure 28.

53. Insurance Map of Fort Smith, 1892, figure 30.

54. Photograph IV-178, FOSM files, figure 31.

55. James M. Haskett. "Historic Structures Report, Part I, Commissary (No. 4), Classification AAA, Fort Smith National Historic Site" (Washington, D.C.: National Park Service, 1965), p. 4. Since it appears that the only access to the second floor for Federal Court use was the south porch and stairs, the presence of Hammersly in the building implies the existence of the south porch through 1896. Sanborn maps prior to 1897 show only the north half of the building and give no information about porches on the south side.

56. Sheire, Old Commissary, p. 11.

57. Ibid.

58. Ibid.

59. Dollar, Historical Archeology, p. 22.

60. FOSM Photographs IV-177 (fig. 37), IV-191 (fig. 41), and "Historical Chronology" section.

61. Dollar, Historical Archeology, p. 24.

62. FOSM photographs IV-161 (fig. 43), and IV-168a (fig. 44).

63. Dollar, Historical Archeology, p. 4.

64. Sheire, Old Commissary, pp. 11-12. See also the "Historical Chronology" section.

65. Haskett, "Historic Structures Report, Part I", p. 4.

ARCHEOLOGICAL DATA

ARCHEOLOGICAL INVESTIGATIONS IN THE VICINITY OF THE COMMISSARY BUILDING

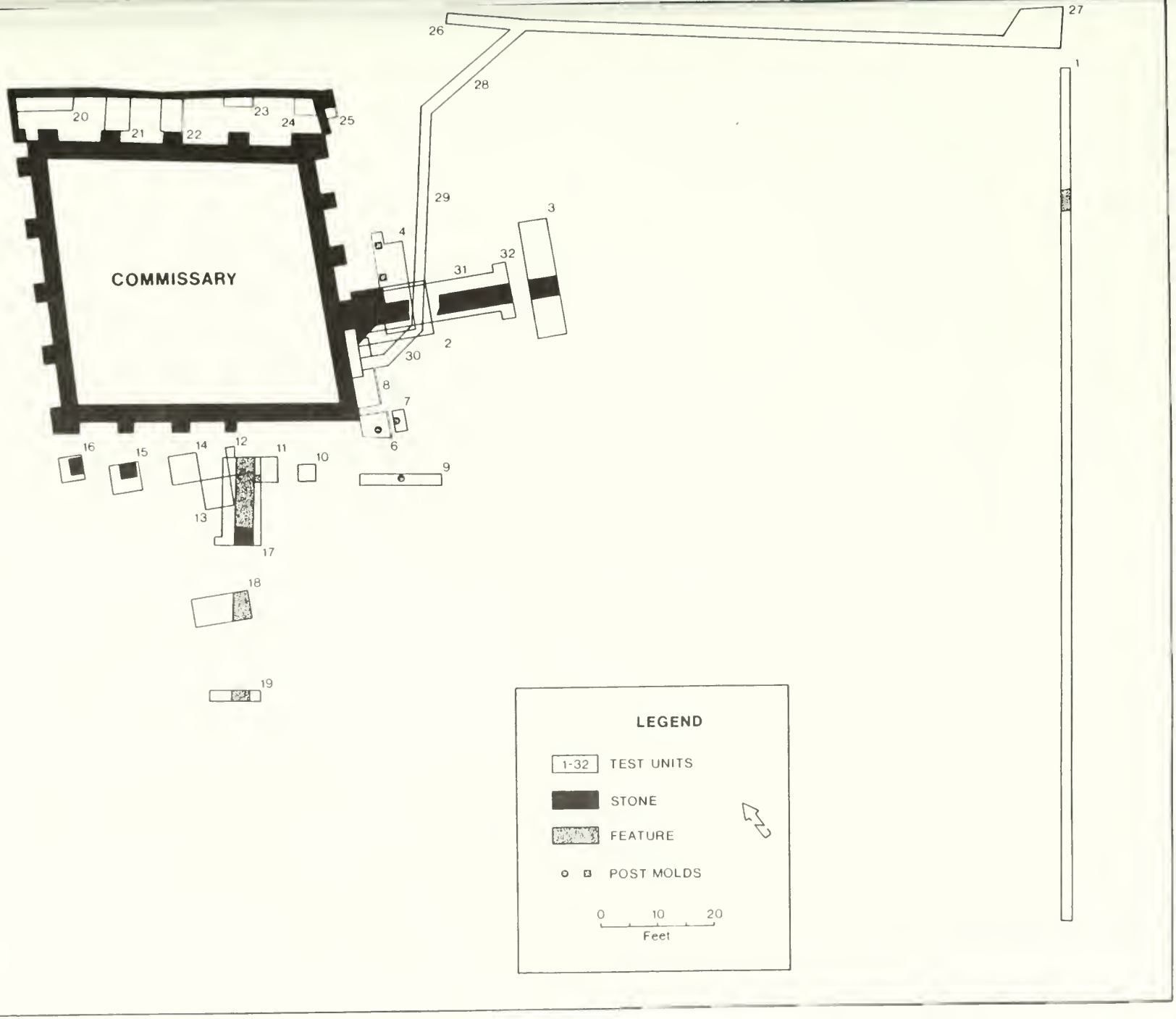
Archeological investigations in the vicinity of the second Fort Smith commissary building reveal stratigraphic and structural data that complement James Ivey's assessment of the "Physical History of the Fort Smith Commissary."[1] In several instances, information not available from historic documentation or architectural analysis has been gleaned from the archeological record. The following discussion summarizes this information.

Public awareness of the commissary building as an archeological site began soon after the Old Fort Museum Association acquired the structure. Sometime before May 1, 1911, in an effort to beautify the museum grounds, the city of Fort Smith graded the lawn on the south side of the building, "bringing to light many relics of the old commissary days."[2] Sixty-nine years passed, however, before the first, controlled, problem-oriented investigation was initiated.

In 1980 NPS Archeologist Bruce Anderson conducted limited testing on the commissary lawn to locate the curtain walls of the fort for park planning needs. Under Anderson's direction, two backhoe trenches (tests 1 and 2, fig. 47) were excavated. Both revealed evidence of sections of the former curtain wall.[3]

Two years after Anderson's work, more extensive testing was undertaken to derive information about the commissary's exterior features for this historic structure report. This 1982 investigation was accomplished by Historic Preservation Associates of Fayetteville, Arkansas. Clyde D. Dollar of Fayetteville, Arkansas, conducted the excavation and prepared the final report. Under Dollar's guidance, 20 test units (nos. 3-4, 6-16, 18, and 20-25, fig. 47) were hand-excavated within a 30-foot radius of the north, east, and south sides of the commissary. The investigation revealed evidence for three of four historically documented porches and

Figure 47. Excavation in the Vicinity of the Commissary


COMMISSARY
1
2
3
4
6
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8
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15
16
17
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21
22
23
24
25
26
27
28
29
30
31
32
LEGEND
1-32 TEST UNITS
STONE
FEATURE
POST MOLDS
0 10 20
Feet

the locations where two curtain walls of the fort once intersected the building.[4]

The most recent archeological investigation occurred in 1984 in conjunction with rehabilitation of the historic building. Archeologist Roger E. Coleman monitored the insertion of subsurface utility lines from Second Street to the commissary (tests 26-30, fig. 47). Because plans included capping both curtain wall sections with stone for a distance of 20 feet from their juncture with the commissary, test units were opened to expose these foundations (tests 17, 19, 31-32, fig. 47).[5]

RESULTS OF ARCHEOLOGICAL INVESTIGATIONS

The results of archeological investigations at the Fort Smith commissary are summarized below. Stratigraphic data from the 1984 excavation has prompted a reanalysis of former studies, and explanations of the archeological record presented herein are not necessarily derived from the original field reports.

STRATIGRAPHY AND HISTORIC GROUND LEVEL

Fort Smith is on a soil member of the Leadvale-Taft association, Muskogee silt loam. Soils of the Muskogee series are formed in stratified loamy and clayey sediments on old stream terraces bordering the Arkansas River. For comparative purposes, a representative soil profile is included (table 1). Muskogee silt loam reflects a relatively well-developed solum with distinctive A and B horizons.[6] At the Fort Smith National Historic Site, the C horizon is composed of fine sands that vary from 11-19 feet in thickness and exhibit a yellowish red coloration.[7]

Table 1: Representative Profile of Muskogee Silt Loam

Level	Depth	Color	Texture	Structure
Ap	0-0.3'	dark brown	silt loam	granular
A2	0.3-0.7'	brown	silt loam	fine blocky
B1	0.7-1.4'	yellowish brown	silt loam	medium blocky
B21t	1.4-2.2'	yellowish brown	silty clay loam	medium blocky
B22t	2.2-3.3'	light brownish gray	silty clay	medium blocky
B23t	3.3-4.6'	yellowish red	silty clay	medium blocky
B3	4.6-6.0'	reddish yellow	silty clay	medium blocky

Alteration of this natural soil profile began in 1839 when, in preparation to construct the second Fort Smith, the entire site was graded. Historical documentation indicates that as much as 9.0 feet of soil were removed from the highest area of the site, scarcely 200 feet east of the commissary.[8] As a result, some cutting is expected to have taken place in the vicinity of the commissary. Additional changes in the landscape undoubtedly occurred during the historic occupation of the site. The next documented alteration, however, happened just before May 1, 1911. The city of Fort Smith graded the lawn south of the old commissary building. The whole operation may have been little more than removing rubbish that had accumulated during use of the building as a private warehouse facility.[9]

The stratigraphic history of the commissary grounds is even more complex than documentation indicates. Archeological investigations reveal the presence of 11 distinctive soil zones, most of which are fill episodes. Four soil zones occur within the area originally enclosed by the curtain walls. Historically, the area beyond the curtain walls was much lower than the interior of the fort. As a result, this lower ground received more fill over time. In this area, 10 soil zones are evident. Table 2 describes and correlates the soil zones in both localities. Utilizing these data, the following historical summary may be extrapolated.

Stratigraphy Within the Fort

On the south commissary lawn (the interior of the fort), the lowest zone in the sequence of soil layers is a natural, *in situ*, soil (zone 11) that correlates well with B22t of the Muskogee silt loam. In the representative profile in table 1, horizon B22t occurs between 2.2-3.3 feet below ground surface. All overlying soils on the commissary lawn, however, are fill episodes. Therefore, it may be surmised that preconstruction cutting in this area removed from 2.0-3.0 feet of topsoil. Within the interior of the fort, this cut surface served as historic ground level, and in at least one test unit grass roots were found to substantiate this conclusion.

Table 2: Profile Description of Fort Interior and Exterior

Zone	Description--Interior
1	0-1.5'; dark brown silt loam; weak, fine granular structure. This is the Ap horizon or sod level. Abundance of early 20th century artifacts in this atypically thick topsoil indicates extensive disturbance and mixing. Boundary is abrupt.
2	1.5-2.0'; tan to brown silty loam; weak, fine, subangular, blocky structure. Ferrous concretions common--small size. Red clay mottles, few; small to medium size. Boundary is abrupt.
8	2.0-2.1'; former Ap horizon identified by the presence of preserved grass roots.
11	2.1'; light brownish grey silt loam; medium, subangular, blocky structure. Small ferrous concretions abundant. Correlates well with soil B22t of Muskogee silt loam.

Zone	Description--Exterior
1	0-0.3'; dark brown silt loam; weak, fine granular structure. This is the Ap horizon or sod level. Boundary is gradual.
2	0.3-0.7'; tan sand. Boundary is abrupt.
3	0.7-1.1'; limestone and chert gravel, small to medium sized, abundant. Matrix, dark gray to black silt, friable. Hard-fired brick fragments and recent machine-made bottle fragments occur in this zone. Boundary is distinct but wavy.
4	1.1-1.3'; limestone and chert gravel, small to medium sized, abundant. Matrix, white limestone powder. Zone 4 may be differentiated from zone 3 only in terms of color, zone 3 apparently reflecting greater disturbance from the surface. Both zones are directly associated with railroad ties, spikes, and spike plates and are undoubtedly a prepared surface for a railroad track. Boundary is abrupt.
5	1.3-1.8'; red silty clay; moderate, medium subangular blocky structure. Hard-fired brick and hard white mortar and sandstone are common. Brick fragments, small to medium sized. Sandstone fragments, small to medium sized. Charcoal mottles few, small size and crisp when broken.
6	1.8-2.0'; dark gray silty loam; weak, fine subangular blocky structure. Zone 6 is interpreted as an old Ap horizon or buried ground surface. Boundary is distinct but gradual.
7	2.0-2.4'; tan to brown silty loam; weak, fine subangular blocky structure. Ferrous concretions common, small size. Red clay mottles, few, small to medium size. Boundary is abrupt.
8	2.4-2.5'; dark grey silt loam; weak, fine subangular blocky structure. Brick mottles, few, small size. Sandstone chips, few, small size. One plain whiteware rimsherd was discovered. Zone 8 is interpreted as an old Ap horizon or buried ground surface. Boundary is distinct but gradual.
9	2.5-3.4'; brown silty loam; weak, fine subangular blocky structure. Sandstone, abundant, medium to large sized. Brick common, small to medium size. Charcoal mottles common, small and not crisp when snapped. Artifacts found in zone 9 include plain and shell-edge white wares, square cut nails, fort period mortar, and bone. Boundary is abrupt.
10	3.4'; yellowish brown silt loam; medium subangular blocky structure. Small ferrous concretions abundant. Correlates well with soil B1 of Muskogee silt loam.

The next soil zone resembles horizon B21t of Muskogee silt loam (zone 7). Its position in the profile, however, as well as the presence of red clay mottles, indicates a filling episode. Although artifacts suggesting date of deposition were not recovered, an estimate of age may be ascertained through cross-correlation of soil types. A more recent excavation site revealed the same distinctive fill episode near the southwestern end of the second fort. In this vicinity, a fill identical to zone 7 seals an historic ground level. Datable artifacts and structural evidence indicates that this deposit occurred between 1898-1899 and in all probability originated from the nearby, developing, old fort reserve addition.[10] The fill episode around the commissary was probably also deposited sometime in 1898-1899. The top of zone 7 became the new ground surface and remained so for many years.

Zone 7 is in turn covered by a 1.5-foot-thick topsoil, thoroughly mixed with artifacts of an early 20th century vintage. This zone may be attributed to the 1911 grading that apparently disturbed the topsoil to a depth of 1.5 feet.

Stratigraphy Outside the Fort

Soil stratification outside the curtain wall of the fort is more complex. The lowest zone in the sequence of soil layers is a natural *in situ* B21t horizon (zone 10). In a representative profile of Muskogee silt loam, horizon B21t is found between 1.4 to 2.2 feet below ground surface. Since all overylying soil zones are fill episodes, it appears that at least 1.4 feet of soil was cut from this area during initial construction. This conclusion is further supported by the engineer's statement that the ground beyond this section of the wall was "reduced . . . nearly as far as the public ground extends."[11] Debris rapidly accumulated on this cut surface, forming a 1.0-foot-thick fill layer.

Period artifacts, including plain and shell-edge whitewares, mortar, and sandstone rubble, suggest that zone 9 probably accumulated as curtain

wall construction progressed. The surface of zone 9 must have served as historic ground level for some time because it is capped by a 1-inch-thick buried Ap horizon (zone 8). Soft orange flecks of brick, small sandstone chips, and a single whiteware rimsherd were recovered from this former ground surface.

Zone 8 is covered by the same fill episode identified on the interior of the fort and deposited sometime between 1898-1899. A second 1-inch-thick Ap horizon (zone 6) overlies this fill, representing the historic ground level for most of the post-judicial occupation of the site.

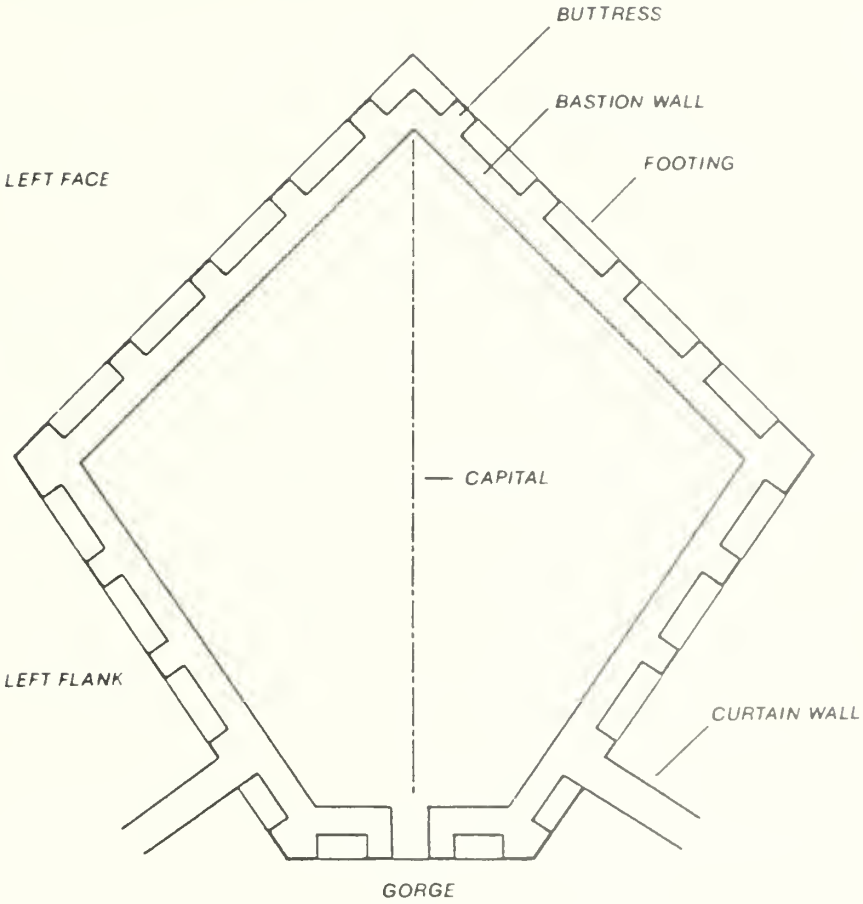
Above the second Ap horizon is a layer of fill, probably locally derived from the natural B23t or B3 horizons. A likely candidate for the source would be basement excavations for nearby warehouses built around 1900. This assignment is partially supported by the presence of nonhistoric, hard-fired brick, hard white mortar, and a few crisp pieces of charcoal that indicate a relatively recent date of deposition.

Two more overlying fill episodes (zones 3 and 4) are definitely prepared gravel surfaces that once supported a spur of the St. Louis and San Francisco Railroad built before 1901. The uppermost soil zone in this vicinity is a thin, sandy fill deposited by the National Park Service in 1961.[12]

CURTAIN WALLS AND BASTION FOUNDATION

As originally planned, the second Fort Smith was a 7-acre, five-sided stone fort with a bastion at each angle. The foundation of the commissary building was initially bastion 1 of this defensive fortification (fig. 48). Major Charles Thomas, project engineer, reported that prior to October 1840 the foundation of bastion 1 had been raised to the level of the buttresses--about 7.9 feet--as were the adjoining curtain walls.

Figure 48. Bastion 1 and descriptive nomenclature--after an original plan


BUTTRESS
BASTION WALL
FOOTING
LEFT FACE
CAPITAL
LEFT FLANK
CURTAIN WALL
GORGE

The gorge was entirely enclosed, but not built as high as the rest of the work.[13] Apparently, little effort was expended at bastion 1 over the next four years. In 1845, however, the fort was redesignated as a supply depot, and bastion 1 was finished along much different lines. As a result, much of the early construction detail was masked or obliterated.

Archeological investigations reveal evidence for curtain wall and bastion construction. In several cases structural details not specified in the original planning documents have been identified.

The precise juncture of two curtain wall sections with the foundation of bastion 1 or the commissary has been identified. At least 29.2 feet of surviving wall foundation extends east from the commissary footing (tests 2-3, 31-32, fig. 49). Possibly, the wall remains intact here for a much greater distance, although it has been removed on the eastern end of the commissary lot. In test 1, the curtain wall is represented only by a trench filled with sandstone rubble (fig. 50). Test units excavated south of the commissary yielded further evidence of the curtain wall. At least 4.0 feet of intact foundation was identified in test 17 (fig. 51). However, in test 18, only 8.0 feet to the south, the stone had been entirely removed. Fill in the resulting cavity is a profuse assortment of debris dating to the early 20th century. This material probably provides a good cross section of the rubbish the city once graded from the commissary lawn.

In undisturbed areas, an original builder's trench is evident. Visible at 1.0-1.5 feet below ground surface, this feature appears as a light gray fill with abundant, medium-sized, angular sandstone inclusions. These probably originated from "spot-dressing" of stone by the builders.[14] The surrounding matrix is a tan-to-yellow silt loam with numerous ferrous concretions. The boundary between fill and matrix, although diffuse, is easily discerned by the presence of sandstone inclusions. In outline, the builder's trench is irregular and varies between 4.0 and 5.0 feet in width. In cross section, this feature is about 3.5 feet deep with a flat bottom and vertical to slightly expanding sides.

Foundation stones are first encountered at 0.8 feet below ground surface. In appearance, curtain wall footings are constructed of sandstone blocks cemented together with ample amounts of friable, orange-colored mortar.[15] As specified in historic construction plans, the width of the foundation is uniformly 3.0 feet.[16] The maximum depth of the surviving wall foundation is 3.5 feet below the present ground surface.

Curtain wall foundations join the footing of bastion 1, or the commissary building, at 90-degree angles. The gorge of the bastion projects from both curtain walls at a 149-degree angle perpendicular to the capital of the bastion. Stone at the juncture interweaves, indicating that the gorge and curtain walls were laid as a single unit. Because the bastion was finished in 1845 as the commissary building by contractor August A. Blumenthal, some original construction details have been obscured or obliterated. These must be inferred.

The 1985 excavation at bastion 5 has revealed a wealth of early construction detail no longer evident at bastion 1. Because all bastions were intended to have identical functions, construction details may be inferred. At bastion 5, a 6.4-foot extension or platform was added to the gorge so that it projected within the interior of the fort (fig. 52).[17] Presumably, such an inverted gorge was constructed at bastion 1.

The existence of another early construction feature, a parados foundation, may be posited (fig. 52). Such a foundation was discovered at bastions 4 and 5. In appearance, the parados is an interior sandstone block foundation, shaped much like the bastion that encloses it but of smaller dimensions. Had the fort been completed as originally planned, the parados would have supported a second-story terreplein for the emplacement of guns.[18]

The inverted gorge and the parados, if they existed at bastion 1, were destroyed in 1845 by Blumenthal. Before building the commissary atop the foundations of bastion 1, the contractor added a fourth corner to the gorge. The 7.5+-foot-wide builder's trench revealed in test 6 would have

Figure 49: Section of the curtain wall foundation on the east side of the commissary building.

Figure 50: Sandstone rubble marking location of the former curtain wall in test 1.

Figure 51. Section of the curtain wall foundation on the south side of the commissary building in test 17.

destroyed any trace of the inverted gorge. The original gorge of the bastion, however, remains intact beneath the added corner. Structurally, it is joined to the bastion foundation and curtain walls and therefore was left intact. The gorge is 5.4 feet wide at the point measured, but was probably intended to be 5.5 feet wide like the rest of the bastion foundation (fig. 53). This verified width deviates by 0.5 feet from that specified in historic planning documents.[19]

Directly under the flagstone floor of the commissary is a prepared surface or bedding of reddish sand--probably locally excavated from the C horizon--and sandstone rubble. The rubble constitutes about 80 percent of the fill and ranges from medium to large in size. This bedding is found on both sides of the gorge, including the corner added in 1845. Therefore, it may be assumed that the prepared surface in question was deposited in this year by Blumenthal, and the quantity of sandstone rubble observed is probably a by-product of his construction activity.

RELATED ADJACENT STRUCTURES

Historical documentation reveals that five historic period porches were built on the commissary building. The first of these was constructed in 1849 on the east side of the building to provide second-floor access during a brief occupation by troops. In 1866-67, the commissary was renovated to house troops once again, and a new porch was added to the east side of the building. Full-length porches on the north and south sides were also constructed.[20] Archeological investigations document three of four historic porches and a previously unknown flagstone walk that parallels the east or right flank of the commissary.

South Porch

The 1866-67 porch constructed on the south side of the commissary has been archeologically verified. Two stone piers and possibly one post mold

survive (tests 11, 15 and 16). The stone piers consist of several courses of sandstone mortared in place. Both are square in shape, 2.5 feet to a side (fig. 54). Because mortar adheres to their surfaces, it may be assumed that one or more courses of stone were removed in the past, perhaps during the 1911 grading. The piers align perfectly with the beam pockets cut into the southern facade of the building. A third stone pier, visible in a period photograph, was removed sometime in the past.[21] It would have been located in test 14. A fourth support post should have rested on the curtain wall, but may in fact have been offset. A 1.0-foot-square post mold is situated in line with the two surviving piers, immediately adjacent to the curtain wall (test 11). Although evidence of the two easternmost support posts was not discovered, the beam pockets are still in place. A full-length porch, 8.0 x 48.0 feet, is indicated. Both surviving piers are enveloped but not covered by the 1898-1899 fill, suggesting that the porch may have been full-length at the time the fill was deposited.

North Porch

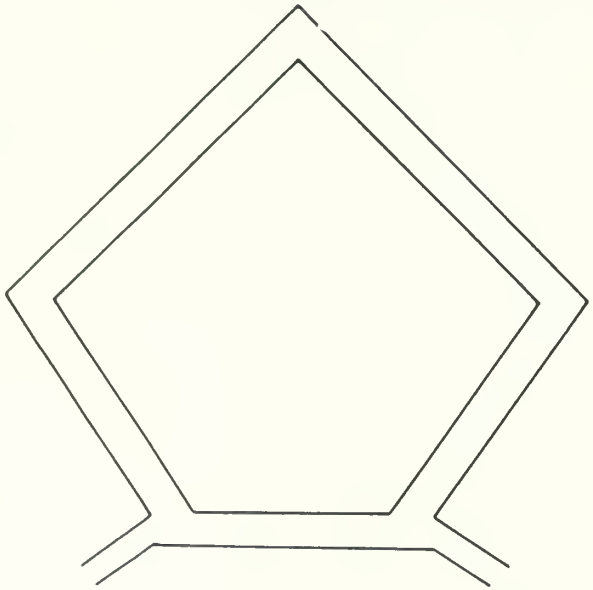
A retaining wall abuts the commissary foundation on the building's north side of the building (fig. 47). Historic documentation and Ivey's structural analysis indicates that this feature was constructed in 1866-67 to support a porch much like the one on the south side of the building. Archeological evidence supports this conclusion.

The retaining wall is built of several successive courses of undressed sandstone blocks, cemented with the typical orange-colored, fort period mortar. The width of the retaining wall foundation varies between 1.0 to 2.5 feet. Exactly 2.5 feet of wall projects above the present ground surface. The retaining wall is clearly an added element and not an original extension of the commissary foundation. Stones at the foundation/retaining wall intersection do not interweave.

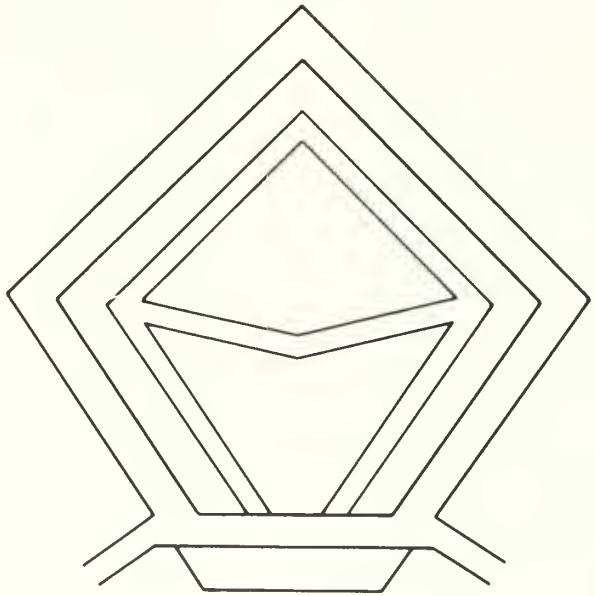
Figure 52. Early Stages of Bastion Construction. In stage 1, bastion foundations and adjacent curtain walls were laid as a single unit. During stage 2, a platform or inverted gorge is believed to have been added, as was a parados or interior foundation, to support the terreplein or gun platform. Both additions would have been completed before October 1840. By stage 3, a corner was added and the bastion became the commissary foundation. The inverted gorge and possibly the parados foundation was removed in 1845 when these changes occurred.

EARLY STAGES OF BASTION CONSTRUCTION

STAGE 1



STAGE 2



STAGE 3

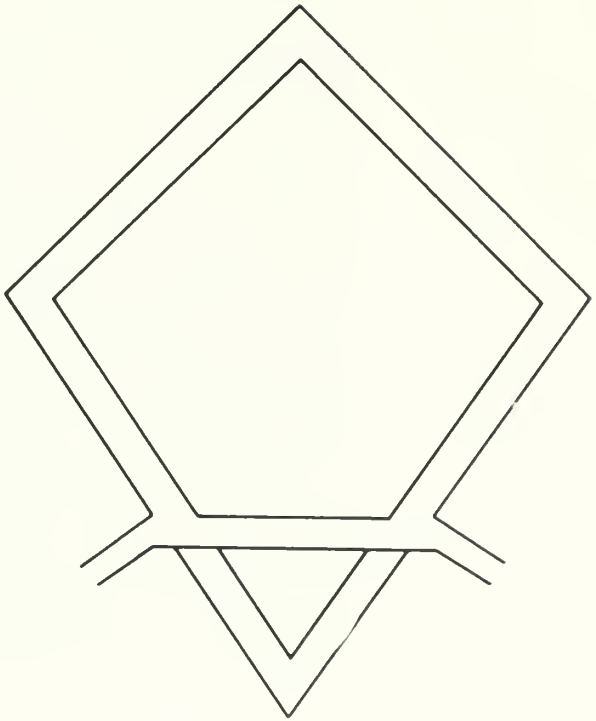


Figure 53. Gorge of bastion 1, after lifting flagstones from the ground floor of the commissary to insert utility lines.

Figure 54. Stone Pier: This pier was used for a support beam of the south porch in test 15.

Archeological investigation has revealed that the space enclosed by the retaining wall was filled to a depth of 4.6 feet, probably over a short period of time. Artifacts in the fill are mostly nondiagnostic construction materials that could have been generated during the general 1866-67 remodeling activities. The retaining wall base was not excavated, but it is probable that a builder's trench was dug for the foundation.

Present-day access to this former porch is by a set of steps on the north side of the retaining wall. Archeological evidence indicates, however, that access was originally on the east side of the retaining wall. Possible stone steps were revealed in test 25 (fig. 56). Although the area is disturbed and the steps collapsed, it appears that several steps--the number of risers is unknown--once emerged from the east end of the retaining wall and led to a small landing of flagstones set in orange-colored mortar. The landing is 2.6 feet below the top of the retaining wall and near the military ground level. Presumably, a similar set of steps accessed the porch from the west end. This possibility, however, has not been archeologically investigated.

The earth-filled retaining wall formed the lowest gallery of a two-story porch. Measurements indicate a full-length porch, with 8- by 48-foot dimensions identical to the south porch. Support beams would have rested on the retaining wall foundation in alignment with beam pockets cut into the north facade of the building.

East Porch

Two porches once existed on the east wall of the commissary building. The first was constructed in 1849 to provide second-floor access for troops who were temporarily housed there. The second porch was built during the 1866-67 remodeling of the building and permitted second-floor access through a new doorway. Archeological investigation has only revealed remains of the second porch.

Two post molds, probably related to the 1866-67 porch on the east side of the commissary, were identified in test 4 (fig. 47). The first post mold is 0.4 foot or 5 inches square (fig. 55). It extends 2.0 feet below ground surface into the sterile B22t horizon of Muskogee silt loam. The second post mold is only 4.5 feet to the north. This feature is much disturbed, however, as if a post had been "levered out" of the ground.[22] The second post mold is directly under a beam pocket cut into the east facade of the commissary building and, therefore, is probably the remains of a support post. Both post molds are 8.0 feet from the wall of the building, suggesting a porch width identical to that for the north and south porches constructed the same year.

Three additional post molds were found in tests at the southeast corner of the commissary building.[23] These are not directly in line with any of the documented porches. At least one of these post molds is the remains of a former National Park Service interpretive marker.[24]

Flagstone Walk

A flagstone walk has been identified on the east side of the commissary (fig. 56). The feature abuts the east curtain wall and parallels the commissary foundation for an unknown distance. The walk is exactly 5.8 feet wide and is approximately 1.5 feet below the surface, placing this feature near the military ground surface. Mortar used in walk construction could shed additional light on the affiliation of this feature, but, unfortunately, this information was not recorded. It is entirely possible that the walk is related to one of the two porches that existed on the east side of the building. Conceivably, the flagstones may have led to the steps on the east end of the north porch. Additional investigation is warranted, however, before making a conclusion.

Figure 55. Square Post Mold: One of the post molds marking a former support beam for the 1866-67 porch on the east side of the commissary.

Figure 56. Flagstone Walk: This feature abuts the curtain wall on the east or right flank of the commissary. Presumably, the walk is associated with one of the historic porches.


OLD
COMMISSARY
8 10 82
0 9
PM 1
HPA NPS

Roofing

The presence of slate shingle fragments in the attic of the commissary indicates that the building had a slate roof at one time. Historical documentation suggests that the slate roof was installed in 1911. Apparently, the commissary had a slate roof in 1936 but was resurfaced with asbestos shingles between 1936-1968.[25]

Archeological evidence supports the position that the commissary had a slate roof during post-historic times. A total of 51 pieces of slate were recovered from 12 test units during the 1982 investigation. Over half (55 percent) of all slate came from the sod level of the commissary lawn. This would seem to indicate that the commissary supported a slate roof sometime after the 1911 grading, or the slate would have been uniformly incorporated in the 1.5-foot layer of disturbed topsoil. The slate fragments in the sod level probably originated when the roof was removed after 1936.[26]

SUMMARY

Based on the information acquired from archeological testing, it is possible to refine our knowledge of the construction history of the Fort Smith commissary.

In 1839, 2.0 to 3.0 feet of soil was cut from the site where bastion 1 was to be constructed.

On this cut surface, a builder's trench for bastion and curtain wall foundations was excavated. The wall trench is at least 3.5 feet deep.

The bastion footing and curtain wall foundations were laid simultaneously.

Final dressing of stones was finished on location as construction progressed. A lens of rubble accumulated beyond the curtain wall of the fort. The top of this fill became the historic ground level. Within the fort interior the cut surface of 1839 continued the historic ground level. Both remained as such for the entire military occupation of the site.

Upon completion, curtain walls intersected the flanks of bastion 1 at 90-degree angles. The gorge met both curtain walls at a 149-degree angle perpendicular to the capital of the bastion. To achieve the inverted gorge specified in the plans, a 6.4-foot platform was probably added to the gorge before October 1840. A parados or interior foundation to support the terreplein may also have been constructed at this time.

When August A. Blumenthal built the commissary on the foundation of bastion 1, he made several immediate changes. A corner was added to the bastion, making it a four-sided foundation. The

7.5+-foot-wide builder's trench for the corner obliterated all traces of the inverted gorge. Likewise, the hypothesized parados may have been removed. Before placing flagstones on the first floor, a bedding of sand and rubble was put in place. The rubble may have been a by-product of Blumenthal's stone masons.

The next archeologically verifiable change occurred during the 1866-67 renovation when three porches were constructed on the building. Two stone piers (2.5 x 2.5 feet) and possibly a square post mold (1.0 x 1.0 foot) are remains of the south porch. A full-length porch (8.0 x 48.0 feet) is indicated. On the north side of the commissary, a retaining wall supported a porch of identical dimensions. At least one set of stone steps provided access to the lower gallery of this porch from the east side. Presumably, a similar set of steps existed on the west end. Two post molds (0.4 foot or 5 inches square) on the east side of the commissary are remains of a third porch. Like the other two porches, width is 8.0 feet. Length has not been archeologically determined.

A flagstone walk abuts the east curtain wall and parallels the east flank of the commissary. This feature could be associated with one of two historic porches that once existed on the east side of the commissary. The flagstones might extend to the base of the steps that provided access to the north porch.

Sometime between 1898-1899, a layer of fill was deposited over much of the western end of the second fort. In the vicinity of the commissary, this fill raised the ground surface by as much as 2.0 feet. The surface of this fill episode became the new ground level and remained so until 1911.

Before 1911, in conjunction with establishment of the Old Fort Museum, the city of Fort Smith graded the south commissary lawn. Archeological evidence indicates that this activity was more for cleaning up rubbish but greatly disturbed the upper 1.5 feet of soil.

Archeological evidence lends support to the belief that the commissary had a slate roof during post-historic times.

RECOMMENDATIONS

Much information may yet be gained from archeological investigations at the commissary. Monitoring and testing done in conjunction with future rehabilitation or utility-related work should focus on the following topics:

Determine if a second set of steps provided access to the north porch.

If the flagstones inside the commissary are ever lifted, an effort should be made to determine if the parados foundation still exists. Depth and artifactual content of the flagstone bedding should be ascertained.

More of the commissary lawn should be investigated and outbuildings (sinks or privies, etc.) and activity areas should be identified.

Artifacts should be collected by culturally relevant strata to identify building use and functional change. All artifacts should be collected from historic ground levels, making it possible to address historical/behavioral issues.

NOTES

1. Ivey's report is in the "Physical History of the Commissary" in this section.

2. Southwest Times Record, May 1, 1911.

3. National Park Service, United States Department of the Interior, Archeological Investigation of the Old Commissary Building, Fort Smith National Historic Site, Fort Smith, Arkansas, by Bruce Anderson (Southwest Cultural Resources Center, 1981).

4. Clyde D. Dollar, Historical Archeology at the Old Commissary Building, Fort Smith National Historic Site, Fort Smith, Arkansas (Fayetteville, Arkansas, Historic Preservation Associates, 1983).

5. National Park Service, United States Department of the Interior, Archeological Monitoring at the Old Commissary Building, Fort Smith National Historic Site, Fort Smith, Arkansas, by Roger E. Coleman (Fort Smith National Historic Site, 1984).

6. Soil Conservation Service and the Arkansas Agricultural Experiment Station, U.S. Department of Agriculture, Soil Survey of Sebastian County, Arkansas (Fort Smith, Arkansas, 1975), pp. 5, 19.

7. Report of Subsurface Soil Investigations and Foundation Recommendations for the Proposed Pedestrian Bridge, Fort Smith National Historic Site, Fort Smith, Arkansas (Fort Smith, Arkansas: Arkansas Laboratories, Inc., n.d.), p. 1.

8. National Park Service, United States Department of the Interior, Fort Smith, 1838-1871, Resume and Illustrations, Appendix D, p. 30, by Edwin C. Bearss (Washington, D.C., 1963).

9. Southwest Times Record, May 1, 1911.

10. National Park Service, United States Department of the Interior, "Interim Report, Archeological Investigation for Construction of a Pedestrian Trail at Fort Smith National Historic Site, Fort Smith, Arkansas," by Roger E. Coleman (Southwest Cultural Resources Center, 1987), p. 13.

11. National Park Service, Bearss, p. 31.

12. Paul Schriver to Roger E. Coleman, 1984. Paul Schriver is the maintenance foreman (retired) for Fort Smith National Historic Site.

13. National Park Service, Bearss, pp. 30-33.

14. Dollar, p. 60.

15. Orange-colored mortar is typical of military construction at Fort Smith.

16. Plan of the second Fort Smith prepared by project engineer Major Charles Thomas, FOSM file no. II-40.

17. Archeological testing at the sites of bastions 4 and 5 was conducted in 1985 by archeologist Roger E. Coleman. Report in preparation.

18. Edwin C. Bearss to Roger E. Coleman, Aug. 20, 1985. Edwin C. Bearss is chief historian of the National Park Service, Washington, D.C.

19. Plan of the second Fort Smith prepared by project engineer Major Charles Thomas, FOSM file no. II-40.

20. Ivey's report is under the "Physical History of the Commissary" in this section.

21. Ibid.

22. Dollar, p. 58.

23. Dollar relies on these post molds to reconstruct a wrap-around porch incorporating both the east and south porches. This interpretation is not acceptable in light of historical and archeological information.

24. Guy Nichols to Roger E. Coleman, July 21, 1986. Guy Nichols is a park ranger at the Fort Smith National Historic Site.

25. Discussions of historic shingles may be found elsewhere in this report on pages 27,

26. Although Dollar recovered slate from underlying levels, it is not possible to suggest with certainty if the commissary supported a slate roof before 1911. Artifacts were collected by arbitrary 6-inch levels, ignoring culturally relevant strata.

ARCHITECTURAL DATA

ARCHITECTURAL BACKGROUND ON THE COMMISSARY

This "Architectural Data" section updates Souder's previous information about the physical condition of the commissary, and it documents the physical changes that have occurred over the past several years.

Initial research focused on establishing an image of the commissary's appearance at the target restoration date, 1898 (later changed to 1897). The purpose was to determine which features postdated 1897 (these were considered to be modern accretions which were removed) and which features should be preserved and restored, or reconstructed. Ultimately, the treatment scope involved removing a few modern features and preserving all other fabric, with minimal restoration and/or reconstruction.

This section discusses the treatment decision-making process by presenting a documentation of existing conditions as described by Souder, compared to a 1983 inspection and an inspection at the conclusion of construction work in January 1985, and then documents the implementation of the two-phase treatment. Supporting the discussion is a fabric investigation report (trip report, October 1983) and two engineering assessment reports. These reports and copies of the Existing Conditions drawings from 1985 are at the end of the section.

The "Architectural Data" section was perceived, at first, as an amendment to Souder's architectural data. Souder recommended the restoration of the commissary to the 1840s when it functioned as the fort commissary. The amendment approach was intended to draw upon Souder's work and that of the history data by Sheire. However, the amendment was to focus on a restoration target date which would not require removal of features and reversal of modifications that served later historic periods (1866-97), as the preferred approach, consistent with current "Management Policies" (NPS-28). It was assumed that Souder's work was generally accurate and comprehensive and that the only limitation was its

focus on the proposed restoration to the period between 1846 and 1865. The amendment approach did not prove to be satisfactory because an extensive amount of additional information was required to fill the gaps, especially between 1865 and 1897.

Besides the major thrust of redressing the scope of restoration to 1897 instead of the 1840s, the project involved two specific areas of preservation concern: the structural integrity of the building, which exhibited some severe cracks in masonry walls, and a problem of excessive moisture because rising damp was causing decay in the first-floor support posts. The structural question was particularly critical to the proposed reroofing with slate shingles, because they would increase the static loads. The excessive moisture question involved the concrete slab trapping groundwater and the need to accelerate dehumidification within the building. Solutions to these problems are discussed in association with the photographs on the following pages.

The task directive adopted for this project (approved 1/4/83), included in the appendix, recommended a multiphase program spanning from FY 83 to FY 89, and called for architectural data in FY 83, stabilization actions in FY 84, preservation treatments in FY 85, and the major restoration and furnishing in FY 88. However, shortly after the task directive was approved and before Existing Conditions drawings were completed, (see drawings at the end of section) Jobs Bill funding became available which had to be used by the end of 1983. This money was to be used to replace the asbestos shingle roof with slate shingles and could be used to conduct some of the stabilization phase of treatments.

Before the Jobs Bill (phase I) effort was completed, funding became available (FY 84) to undertake phase II. Again the research, construction drawings, and day labor construction effort were fast-tracked. The approach to the project intended by the task directive completely changed and a revised approach was developed (see the trip report outlining a fabric investigation and proposed schedule changes at the end of this section).

To place the first phase of work into the overall context of the restoration project, an expanded "Administrative Data" section was drafted and a treatment plan developed and discussed with region and park personnel in the spring of 1983. The scope of work was categorized as follows:

> Treatments that may be implemented (based on present assumptions and limited data)
>
> Treatments that may be implemented upon completion of construction drawings (which would resolve some design issues based on information contained in existing fabric evidence)
>
> Treatments, generally proposed, but that must await more extensive investigation and planning decision-making (including a structural analysis and an "Interpretive Prospectus")

In the summer of 1983, the Existing Conditions drawings--only partially completed--were adapted to illustrate the entire scope of work and to guide the day-labor construction crew, which included notations prioritizing the work based on the above categories of information limitations (Drawing No. 421/25,001).

It is appropriate, in retrospect, to discuss some of the assumptions and limitations in knowledge which directed the first phase of the restoration as the resulting treatments affected the cultural resource.

Before the author became involved in the project, the decision had been made to restore the slate roof of the commissary. This treatment was justified first by the fact that the existing asbestos roof had become less than adequate because of age/decay. The decision to replace it by restoring the suspected slate shingles was based on (a) samples of slate shingle fragments found throughout the attic, (b) the designation of a slate roof indicated on the 1936 HABS drawings, (c) the assumption that during the building's rehabilitation (1866-67), to accommodate the

barracks function, reroofing would traditionally have been accomplished with slate shingles as the contemporary fireproofing approach, (d) the knowledge, from historical records, that the original roof had been replaced (or its replacement requested) in 1857 after only 11 years, and (e) the reasonable assumption that the wood shingle roof had not proven adequate and therefore, that the replacement could probably best have been accomplished with slate shingles (this conjecture is developed in the early "Historical Data" section by Sheire (1968, p. 5). The replacement of the roof with slate shingles proceeded, unquestioned, until additional historical information surfaced. (The Sanborn Insurance Maps were acquired September/October 1983 and presented strong evidence that the commissary had a wood shingle roof between 1886 and 1901.) In early 1984, James Ivey, after piecing together additional bits of historical data, concluded that the building may have had a slate roof, but probably not during the historical period (see the "Historical Data" section). By this time, however, the slate roof was installed. A hundred years from now--the expected life of the new roof--consideration could again be given to installation of a wood shingle roof.

In the meantime, structural investigation and analysis was conducted by Terry Wong, structural engineer, DSC. A system was designed and installed (fall 1983) to reestablish the structural integrity of the building's interior structural system, and to reinforce it to carry the slate shingle roof using steel channel beams and a uniform pattern of wooden braces.

An earlier assumption about the second floor and attic treatment deserves some discussion in retrospect. It was assumed that the second floor plan had been modified during the Federal Court period (or at least after the primary commissary period) and that visitor access to the second floor was a difficult problem involving the need to reconstruct porches/stairways and to consider handicapped accessibility. Therefore, it was decided to designate the second floor a nonuse area and to not restore it. In addition, it made sense to concentrate commissary function interpretation on the first floor, which was the main storage space. This

decision led to the need for minimal second-floor treatment. Although a significant asset of the building, the hoist machine in the attic would not be viewed by the general visitor. Its preservation, however, was meticulously ensured by oiling and applying a wood preservative and linseed oil.

The above discussion identifies another area that occupied a great deal of concern during the initial analysis phase of this project: the question of porches and their possible reconstruction. There were at least five, and as many as nine, porch configurations attached to the commissary building at various points during the historic period (plus two or three more during the 20th century). The intention at the outset was to reconstruct the appropriate porches extant in 1897 (based on one photograph and one sketch of the period), believing these porches were germane to the significant historic (commissary function) period. The two porches depicted in figure 31 (FOSM-IV-178) and figure 32 (FOSM-II-99) as it turned out, were remnants or later versions of earlier porch structures, none of which supported the commissary function per se (they were built after the Civil War). (See the "Historical Data" section for a summary of porch data.) An important decision resulted from the resolution of the porch question: First, the porches were added after the main commissary period ended. (The fort commissary period ran from 1846 to the Civil War. After the Civil War, the building was converted to serve as troop barracks and later to office space and quarters to serve the Federal Court functions). It was decided to not reconstruct porches that did not reinforce the second fort interpretive thrust--that of a supply depot. In addition, as it turned out, according to meticulous historical research, apparently, all historic porches had been removed or fallen away by the restoration target date of 1897. Finally, it should be pointed out that the underlying factor that led to the decision to not reconstruct was the argument that any porch reconstruction effort would have involved more conjecture than appropriate under NPS policy.

For interpretive reasons, the decision was made to partially reconstruct segments of the second fort curtain wall as they intersected the

commissary building. The curtain walls were dismantled after the historical period but had been an environmentally defining feature of the commissary--the building being one of the corners (originally one of the bastions) of the fort. Rather than reconstructing the walls to their original 8-foot height, it was decided to merely cap them with stone, enough to define their location and leave the larger imagery in the mind of the viewer.

It can be noted that fire detection and security systems were installed in the building as part of the 1984 work. This was accomplished unobtrusively per NPS policy. Technical information on these systems has not been included in this document.

The issue of gutters was debated before phase I implementation. It was fairly well confirmed, based on the early photographs, that gutters were not part of the historic design. The first gutters that were installed were done about 1911. These same gutters were removed in 1983. The decision to install new gutters (although of a slightly smaller dimension) was based on the justifiable need to control rainwater runoff although the result is an intrusion. The new gutters and downspouts follow the lines of those placed in 1911 and will prevent excessive moisture at the roof eave and at the adjacent building grade.

SIGNIFICANCE OF THE COMMISSARY

ARCHITECTURAL SIGNIFICANCE

Norman Souder's "Architectural Data" section does not contain a statement of the significance of the subject structure. The following statement of significance is offered:

The significance of the commissary building has been derived from the following facts: It possesses integrity of location, design, material, workmanship, feeling, association, and partial integrity of setting; it is the most intact of the two remaining buildings from the second Fort Smith, which is associated with events and persons that have made a significant contribution to American history related to American Indian relations, political and military affairs, and westward expansion; the building embodies the distinctive characteristics of the frontier utilitarian style with military-federal influences with its articulated brick cornices, corbeled parapet walls, rowlock aperture arches and stone corner quoins; it is unique in plan because the design is derived from being built over the top of the bastion foundation, and is therefore trapezoidal; finally, the commissary has been a source of, and is likely to yield additional information, important in understanding the building practices, functional organization of spaces, and lifeways of the past.

HISTORICAL SIGNIFICANCE

The commissary is one of several structures at Fort Smith National Historic Site. The site meets criteria A for listing on the National Register of Historic Places. The first Fort Smith was established to keep peace on an uneasy frontier. The second Fort Smith, including the commissary building, served as a supply depot for other forts farther west and as a departure point for expeditions. When it was no longer needed as a military fort, Fort Smith became the seat of the U.S. Court for the Western District of Arkansas. During this period the commissary served as chambers for Judge Parker and later as a residence for court employees. The significant life of the building spans over fifty years. (See National Register nomination form by Scott, Pitchaithley, and Webb, December 1986 and the "Historical Data" section in this report.)

EXISTING CONDITIONS OF COMMISSARY

The "Architectural Data" section of Souder's 1973 Historic Structure Report was written in the summer of 1968. It includes a description of the existing conditions, and a discussion, in detail, of the proposed restoration (to the period between 1846-65) along with preliminary cost estimates and supporting photographs and drawings. The historical assumptions are based on earlier work by James W. Sheire (February 1968), various reports prepared by James Haskett, and Bearss' HSR (1963). Souder's fabric investigation was limited by the physical clutter of museum exhibitry which remained in the building until late 1979.

The following excerpts from Souder are complemented by Frazier's additions to, and corrections of, his existing conditions description. This updating is possible, thanks to: additional fabric examinations by historical architect, Craig Frazier and historian James Ivey, not hindered by museum exhibitry and storage which obscured walls and features in 1968, archeological investigations conducted by Clyde Dollar and contract archeologist Roger Coleman, and additional historical records and the resulting updated historical data by James Ivey.

EXTERIOR OF COMMISSARY

Walls

Souder: The ashlar crenelations of the former fort bastion encompasses the building on the northeast and northwest faces and three quarters of the wall lengths of the other two elevations.

The walls of the commissary are constructed of native rubble limestone with ashlar cut-corner quoins. They are in basically good condition, except for a long-standing severe crack on the northwest (actually southeast) face. Additional cracking is noted on the arch of the single-entrance door on the southwest facade.

The cornices and copings are brick, as are the corbeled brackets that finish off the gables at the parapet ends. The rowlock arches over the windows and doors are two soldier courses high at the first-floor level and one-and one-half courses high at the second-floor level. It should be noted that the courses of rowlocks are now shown correctly on the HABS drawings.

Frazier: Souder's description is good; however, the condition of the lime mortar joints was decayed and leached-out in many places as of the 1983 inspection, and repointing was accomplished in 1984; also the historic stone masonry mortar joints are of the bevel or chisel type, which was duplicated in the restoration work. Further, there were two distinct historic mortars used, the original white and the 1866 remodeling/repair mortar which was orange. The location of these and the difference in types of sill and lintel stones used in 1845 vs 1866 is thoroughly discussed in the "Historical Data" section. Also, it should be noted that an extensive repointing conducted in 1913 used cement mortar which was applied with little sensitivity to historic precedent. (The date "1913" was scratched in wet mortar just below the eave on the north facade.) This cement repointing and smear was removed in 1984.

One of the most significant features of the walls is the pattern of filled beam pockets and wooden nailers. These were mentioned by Souder and restored as exhibits in the 1984 work to accent the evolution of ghosts of porches and stairs that once existed. Finally, Souder omitted the fact that there are four iron anchor plates on each gable end of the building. These tie the attic structural system at the transverse beam and purlin level to the masonry gable walls.

Roof

Souder: The present roofing is asbestos shingles that resemble slate because of aging. It has been noted in the "Historical Data" section (Sheire 1968) that the original wood shingle roofing was replaced with

Figure 57. Southwest Exterior View (5/18/82): This view shows the painted metal downspout that was replaced in 1983 and the condition of stone masonry mortar joints that were thoroughly repointed in 1984.

Figure 58. Attic (6/25/83): Detailed views of attic floor area showing scatters of slate and wood shingles installed before the asbestos roof. Also, detail of typical knob and tube wiring which was removed.

Figure 59. Roof Features (5/20/82): This detail documents the condition of asbestos shingles, galvanized steel flashing, and the roof scuttle cover that was removed in the fall of 1983. Note, too, the west chimney as it looked before 1983 when it was restored to its ca. 1897 height. The restoration was based on the number of brick courses and design detailing in figures 31 and 33.

slate. Apparently the slate roof was later replaced with asbestos shingles. During the architectural investigation, some of the original wood shingles were found under the eaves. The old shingles are 16½ inches long with 1/4- to 3/8-inch butts and show a 4½-inch exposure to the weather. The wood is cedar and probably of local or nearby origin.

The current gutters and downspouts appear to be in the original locations. The earlier photographs show the downspouts in the present locations.

Frazier: The asbestos roof and metal gutters and downspouts examined by Souder are the same as those documented before the 1983 roof replacement. In that replacement, slate replaced asbestos, copper replaced galvanized steel flashing, and 4-inch copper replaced the 5-inch painted steel gutters and downspouts. The gutters and downspouts installed in 1984 are acknowledged as justifiable intrusions in the same location as those removed which date only to the early 1900s. Evidence does not support the notion that the commissary had gutters and downspouts originally. The earlier photographs mentioned by Souder probably postdate the restoration work of the early 1900s. In addition to the old wooden shingles, fragments of slate shingles were found in the attic in 1983; however, the size of these fragments were not adequate to document all original design characteristics. Samples of each were placed on file in the park collections. The slate roof installed in 1983 was designed based on information from the courthouse/jail/barracks slate roof.

Doors

Souder: The two pairs of doors and the two single doors are not original. The hardware, however, is largely original, with the long, wrought-iron strap hinges hung on interior pintles. The strap hinges are tapered, and the ornamental endings are in the form of an oval cusp with an inverted tapered finial. The wrought-iron grasps are a simplified

version of those found in the eastern areas. The double doors are held in the closed position, with bars placed in L-shaped wrought holders driven into the stone wall.

Except for the later second-floor door openings, the doors are hung from pintles on the interior faces of the walls, and the openings are without the usual frames. The doors are widened to extend beyond the masonry openings.

The present doors are board-and-batten variations constructed of narrow tongue-and-groove stock applied diagonally. Surface treatment was applied to the exterior surface in the form of narrow stiles, rails, and braces. The early drawing of the northeast face of the commissary shows the pairs of doors constructed with diagonal boarding but without the super-imposed stiles, rails, and braces. The doors on the HABS drawings are the earlier form and more in keeping with the period than the present replacements.

Frazier: The doors described adequately by Souder are still extant. According to newspaper articles, these were installed in early 1913 and the implication is that they were similar to, or duplicates of, the original.

The doors were refinished in 1984, and new locking systems and intrusion devices were installed on the ground-floor doors.

Windows

Souder: The windows at the second-floor level are double-hung sash composed of nine-over-nine lights. The smaller barred windows at the first-floor level are fitted with casement sash. The loft windows in the northeast and northwest gables have double-hung, six-over-six light sash.

None of the existing window frames and sash are original. The frames are composed of poorly assembled, modern cut wood. The smaller, high, first-floor windows probably were originally fitted casement sash because the iron bars are set on the exterior window openings and the interior window frames. The dimensions of the masonry openings will preclude any standard double-hung sash. The present casement sash and frames are modern replacements.

The restoration of the structure will include restoration of all window frames and sash.

The insertion of the two fireplace stacks on the northwest wall caused the blocking-out of the two original window openings and the cutting-in of two others nearer the corners of that side of the building at the second-floor level. The brick rowlock arches remain in the wall over the filled-in openings. The newer window openings do not have the rowlock heads of the original construction. This is not shown correctly on the HABS drawings but can be noted on the photographs.

Frazier: The windows described adequately by Souder are still extant. These too were reproductions installed in 1913. They were taken out, stripped, and refinished in 1984. Not mentioned by Souder, but installed about 1965, are the wire fabric screens that were installed on all second-floor windows for hail protection and to keep birds out when the windows were opened. These were removed in 1983-84 and not reinstalled. Instead, a louver system for uninterrupted natural ventilation was installed, eliminating the need to open the windows. Four pair of louvered panels were affixed to four of the six ground-floor casemate windows--the glass was removed from the sash and stored. In both of the two attic windows, louvered panels were set in the opened windows.

Chimneys

Souder: The two brick chimneys on the northwest end are the projections of the two fireplace stacks added ca. 1866. An early chimney, which was located near the door on the second-floor facade and extended only from the second floor, is now cut off below the roofline. The flue is set into the wall and probably was a part of the original construction. The stove it served was not adequate for heating the second floor, and the fireplaces were then installed. Since the application of the present roofing, the chimney has not been visible from the exterior and can be seen only at the attic level.

A photograph (figure 75) taken in the early 20th century shows the building in a poor state of repair and at that time the fireplace chimneys and the chimney on the southwest front were in place.

All the chimneys shown were of the simplest design, having no decorative brick coursing or projecting caps.

Frazier: Souder's discussion of the commissary chimneys is not accurate because of limited photographic records available to him in 1968. The first (original) chimney description should include the data of its sheet metal flue, which was found in the attic and documented on the HSR drawings. The chimney is pictured clearly in figure 40 (1894); the metal flue was removed about 1911 when the roof was repaired/replaced. The brickwork was taken down to below roofline by the time the 1923 photograph (figure 53) was taken. It was reconstructed in 1983.

The two west chimneys, as built in 1866, may have been identical, very tall--supporting the argument that the roof was wood shingled at that time--and did have articulated brick projecting caps (see figures 40 and 41). The historical data suggests, on the other hand, that the north chimney was built to a shorter height based on existing photographs (see fig. 33). No conclusion on the 1866 chimney height can be made. If they were built to the same height, apparently the chimneys weathered

badly, or were struck by lightening and knocked down, or partially taken down by the early 1890s. Probably in 1911--when the city repaired/replaced the roof--both chimneys were stabilized at equally short heights (16 to 17 courses above roofline) as simple nondecorative designs. This form provided the basis of Souder's description. The 1983 restoration reestablished their configuration as of 1897, based on the four or five photographs taken before 1911.

Stairs

Souder: When the building was adapted for use as a museum, a stone and concrete stair was erected on the southwest front to reach the door at the second-floor level. The stairway has an intermediate concrete landng platform and a concrete platform at the second-floor level. Simple iron pipe railings with two former cast-iron fence posts acting as newels are placed at the outer edge of the stairs. The stair is now barricaded to prevent the public from using it.

The history of the building,[1] architectural evidence, and the early drawing indicate porches on the southwest front and a second-floor platform with a picket railing and stairway on the northeast end. Apparently these features were added in 1869 when the building was used as a residence.[2] The stair and platform at the northeast end replaced the earlier one near the south corner of the same facade that has been previously mentioned. The original stone door sill remains in place. The marks on the stone left by the ends of the stairtreads of the first stairway were clearly visible when the HABS drawings were made and are still discernible under close examination.

Frazier: A more complete story of the exterior stairs and porches has been included in the "Historical Data" section.

Intrusions

Frazier: Souder did not discuss the array of exterior features added to the building since the early 1900s (see fig. 60). The flagpole on the southeast lawn predates the establishment of the park. The washroom vent stack probably dates from the initial museum rehabilitation, rejuvenation of 1910-13, or about 1936. The gas meter and piping passing through the north window sill on the east front probably dates from about 1930, as does the electrical masthead, meter, and array of conduit on the east end of the north elevation (see fig. 61). All of these accretions were removed in 1984.

INTERIOR OF COMMISSARY

First Floor

Flooring. Souder: The first floor is one large area, except for the corner occupied by the stairway and the washroom under the stairs.

The present flooring is concrete and is at the level of the original flooring. The stone door sills are early and determine the floor height. The original floor was rough, flat stone similar to the early flooring in the basement of the barracks. The stone flooring has been documented, but it has not been determined if the stone was ever covered by planking under Montgomery's orders.[3] What was called the "basement" in the records of the commissary will be termed "first floor" in this report and on the drawings. By our present-day standards, this floor is above the historic grade level and hence is designated as the first floor.

Frazier: Because the concrete slab was removed in 1983-84, a better understanding of the first floor has evolved. The slab of about 4 inches went down in 1913 and was "about the only repair that has been made that has not restored it (the commissary) to its original condition" (news clipping July 20, 1930, FOSM files). Although requested, there is no

Figure 60. East Front Intrusions (5/20/82): In 1984 the modern intrusive washroom vent stack and gas meter and piping were removed from the east facade of the building. In addition, the flagpole, signs, the tree pushing up against the building on the north, and electrical equipment, meter, and masthead (not visible) on the north were removed in 1983-84.

Figure 61. East Corner Detail (10/8/83): The intrusive electrical and telephone entry equipment shown here were removed in 1984, and service entered underground below floor level.

Figure 62. First Floor (6/26/83): Detail shows octopus arrangement of electrical conduit entering the commissary at its east corner. The 200 amp panel box was relocated in 1984 to an enclosed panel cabinet, and all lines and fixtures shown here were removed.


SECOND FORT WALL

Figure 63. First Floor (6/26/83): General view of first-floor condition before restoration. Note light fixtures, gas stove heaters, and concrete slab floor that were removed, and deteriorated support posts and whitewash that were restored.

evidence that planking was ever installed over the now exposed, original stone slab floor. The concrete slab buried the original fireplace hearth stones which are generally flush at the level of the stone floor. A wooden floor would have required stepping down to the hearth or building up of the hearth level--no sign of this has been revealed (see fig. 64).

The concrete slab tended to act as a moisture barrier. Because groundwater tends to rise, it was forced to rise up the walls or through the stone bases of the main support posts. A rising damp problem and accelerated decay in the lower posts resulted. Removing the slab permits a more generalized release of groundwater vapor, which leaves the building more easily, now that natural ventilation is facilitated by the louvered panels installed at the windows.

The stone floor had settled and or heaved in places, resulting in an uneven surface. Such a surface could be treacherous to general visitation so it was decided to limit interpretive traffic to a visitor platform in the south corner of the room (see Phase II Treatments-1984).

Walls. Souder: The walls of the first floor are thin rough plaster over stone masonry. The interior stairway partition is of board construction. The partition under the stair conceals the lavatory. The lower floor appears to have had no interior partitions in its original form and was not divided into rooms as was the second floor. Before the addition of the interior stairs, the upper floor was approached by means of the exterior stairs at the southeast end of the building.

The interior of the stone walls are in sound condition, except for the area over the southwest entrance where cracking and slippage of stone has taken place.

Frazier: The walls of the first floor were not plastered but have received several brush applications of whitewash. Because a pattern of ghosts had evolved on the walls, it was decided not to restore the whitewash and thus permit the viewing and possible interpretation of the

shadowy wall patterns, stairway impressions, and the like. Repointing was conducted in 1984, addressing the lower 1 to 4 feet of the walls that suffered damage due to rising damp. The repointing was done with white lime mortar so that it blended well with the wall, yet at close examination, would be clearly discernible from the historic mortar and whitewash.

The stairway and partition enclosing the washroom and lavatory were entirely removed in 1984. These features were of modern construction; however, contrary to Souder's observation, the stairway opening to the second floor--the stair well-- is of original construction (see discussion about interior stairs in the "Historical Data" section).

Ceiling. Souder: The joist and beam construction is exposed on the first floor. The entire ceiling area, including the joists and the underside of the second-floor flooring are, and have been, whitewashed. The joists are 3 inches by 11 inches and are placed on approximately 16-inch centers.

Frazier: Two aspects of the first-floor ceiling should be added to Souder's description. First, the condition of the whitewash coatings was very deteriorated before scraping, sanding, and whitewash restoration in 1984. Second, the ceiling was covered by an array of electrical conduit, wiring, and mixture of lighting fixtures, and an intrusive panel box was installed on the east wall. This system was removed in 1984 and a less noticeable system was installed.

Posts. Souder: The two transverse second-floor beams are supported by four 9-inch-square oak posts that rest on square stone bases. Bolsters measuring 9 inches by 9 inches, which are 5 feet long, are placed at the top of the posts to carry the splices in the beams. The posts have chamfer stops located 10 inches from the bottom of the posts and 9 inches from the top. Wood pins are used to attach the bolster to the beam and to the posts that are tenoned into the bolster.

Figure 64. Fireplace Hearth (10/7/83): Upon removal of the 1913 concrete slab from around the fireplace, it was clear that whitewashing was historically applied all the way down to the exposed stone floor; that the brick hearth was probably part of a later addition in conjunction with the concrete slab floor, matching it in elevation; that the original stone hearth was installed flush with the stone flooring and; therefore, that there is little likelihood that a wooden floor was employed over the original stone slab floor after installation of the fireplaces (1866). It is, therefore, reasonable to assume that the stone floor was the intended historic finish during the original commissary period.

Frazier: Souder's description of the posts, bolsters, and transverse beams is good; however, he did not discuss their condition. At their lower 2 feet, the 9-inch by 9-inch oak posts were damp to the touch because of rising groundwater and some decay had occurred. The rotten areas were cut out and filled, restoring the shape of the post and then whitewashed in 1984.

Fireplaces. Souder: The two, 3-foot-deep by 8-foot-wide, brick fireplace structures were added ca. 1866. On the first floor the chimney breasts are exposed brick, with 55-inch-wide and 43-inch-high arched openings. The brick hearths are raised above the concrete floor. The hearths were elevated after the concrete floor was laid. The fireplaces are no longer functional, serving only as backgrounds for museum display material.

Frazier: A clarification of Souder's description is that the brick hearths were installed contemporaneously with the concrete slab. These were removed to permit the floor and stone hearth restoration. Both first-floor fireplaces were fitted with gas-fired heaters (installed about 1930), which, along with their piping, were removed in 1983. Both brick fireplaces were cracked and the brick-and-mortar joint had deteriorated. Repointing and minor repair was conducted in 1984.

Stairs. Souder: The wood stairs to the second floor in the south corner may have been added after the HABS drawings were made in 1936, as they are not indicated on the plans. The interior stairway is obviously an addition for the convenience of the museum staff and visitors, and it dates no earlier than the museum's occupancy of the building. They are simply constructed of unpainted wood and rise from a point near the center of the building toward the southwest wall.

Frazier: Because these stairs and washroom below were removed along with the concrete floor slab in 1984, a thorough documentation was conducted, and a better historical understanding of the stairs is contained in the "Historical Data" section.

Second Floor

General Description. Souder: The second floor is divided into three rooms. Blumenthal, the building contractor, was instructed to add "shelves and partitions in four store rooms" and "Four door frames with sash and doors in four store rooms"[4] in 1846 just after the commissary was completed. In 1851 Captain Montgomery described the first story as being used as a storehouse and the second floor as offices for the commissary and the paymaster details.[5]

Superficial architectural investigation because of museum conditions failed to reveal any other locations for the partitions than those *in situ*. The two rooms on the south could have been the two offices and the long room on the north, the storeroom. The storeroom location is determined by the location of the pair of loading doors and the hoisting machine above. It was not possible to remove all of the plaster for a thorough examination of the exterior walls. However, if more evidence is discovered on earlier locations for the interior partitions during the restoration process, the plans will be reassessed in light of the new-found evidence.

The placement of the two fireplaces in the long room and the west corner room would have provided heat for the entire second floor because the chimney on the southwest front was already in place and would have accommodated a stove. The present partition arrangement would therefore have been logical in the earlier days in that each room had a source of heat. However, this does not preclude a different partitioning before addition of the fireplaces.

Frazier: See "Historical Data" section for additional clarification concerning historic room configuration.

Flooring. Souder: The flooring throughout the second floor is unfinished wood. The present flooring of 13/16-inch tongue-and-groove stock is laid over an earlier flooring of 4½-inch-wide tongue-and-groove 1-inch-thick pine.

Frazier: Souder's description is adequate, although it should be reemphasized that if the present (modern) flooring is ever removed, this should be done under controlled conditions to maximize collection of evidence of former partitions and/or shelving/furnishings.

Walls and Partitions. Souder: The walls, partitions, and ceiling are currently plastered. Evidences of whitewashed joists were noted on the attic joists, indicating that the ceiling area was formerly exposed. The records show that the second floor was not plastered until 1866, at which time General Ord ordered the building plastered and the chimneys and fireplaces added.

The present plaster coat is recent, having been applied over the earlier plaster.

The whitewashing of the interior surfaces and some of the exterior surfaces was widely practiced in military installations until the 20th century. The posts, beams, walls, and exposed ceiling show signs of having been treated in this manner.

Frazier: Again, Ivey's "Historical Data" section sheds new insight into the evolution of partitions, plastering, etc. Briefly, it is clear that the office of the second floor, containing the original store, was partitioned, plastered, and ceiled during the earliest period, while the stone walls and exposed attic floor joists were only whitewashed. The present partition configuration appears to date from 1866 and the Parker period. It should be pointed out that two of the four main support posts were removed--perhaps in 1866, but possibly later. The resulting structural compromise was judged less than desirable; therefore, these two posts were reconstructed as part of the second floor-attic-roof structural system rehabilitation in 1983.

Doors. Souder: The four interior doors on the second floor are four-panel, late Victorian stock doors. In Blumenthal's claims for payment for additional work to the commissary, there were four doors and

frames. Currently, there are four doors--two single doors and a pair of doors in the wide opening between the two southeast rooms. The pair of doors appears to have been a later addition. The term "sash and doors" was commonly used to designate board-and-batten doors with a sash inserted in the upper portion. A similar description was found in the records for the officers' quarters basement entrance doors at Castle Clinton in New York. The sash in the doors may have been a convenience in determining the contents of the storerooms at a glance.

Frazier: There is nothing to add to Souder's description.

Fireplaces. Souder: The second-floor fireplaces have squared openings and measure 27 inches high by 39½ inches wide. The fireplace in the north room has been closed, and the fireplace in the west room has a mantel that is not original to the fireplace construction. The mantel dates from the mid-19th century and is of simple country carpenter construction.

Frazier: It can be noted that the north fireplace was equipped with a gas-fired log stove. The stove and associated gas piping were removed in 1983.

Attic. Souder: The attic is reached through a trap door in the ceiling of the second floor. The space is undivided and of exposed construction with random width flooring, ranging up to 18 inches in width. The flooring occurs only in the central area with some floorboards missing.

The posts and purlins for the roof structure are oak, cut to 6 inches by 6 inches, and the oak rafters that are spaced on 20- to 24-inch centers are 4 inches by 4 inches in size and are roughly cut from poles.

The roof sheathing is rough cut of comparatively modern material and dates to one of the later reroofings. The roof has been given additional support by diagonal temporary bracing.

Figure 65. Attic (6/25/83): This photograph shows historic construction details now covered up by new work. Brick nogging filled the space between rough cut 3/8" attic floor joists and provided a backing for the brick cornice and a base for the rafter plate. The 4" by 4" rafters were roughly hewn from poles and notched to sit on the 2" by 6" plate where they were spiked. Rough cut 3" by 3" intermediate joists were set in place in 1866 to help carry the second-floor ceiling lathe and plaster. The gable end walls, of stone, were built 6 inches thinner, as they rise above the attic-floor level. Note also, fragments of slate shingles and the obviously newer roof sheathing that was probably installed in 1938.

The hoist machine is still intact and is an excellent example of handmade wooden machinery with iron components. The large wooden pulley wheel still turns freely and is extremely well balanced. It will be a simple matter to restore the hoist machine for operation. The parts of the machine, including the drum, have been detailed on sheet 7 of the HABS drawings.

Frazier: The attic area contains much evidence of the history of the commissary. The original floor joists were whitewashed, supporting the argument that the second floor received its plaster ceiling later. In addition, between the joists are smaller intermediate ceiling joists, probably installed in 1866 to help carry the lathe-plaster ceiling. The attic floor, as Souder points out, was random width planking occurring mostly in the central area. That flooring, which occurred farther into the roof eaves, was taken up and added to the central deck area in 1983. Only the central area is floored now with the historic material. After the floor was insulated, the remaining area (under the eaves) was sheathed with 1-inch plywood to horizontally reinforce the attic level.

Some of the lap sheathing was replaced in 1983, especially at the eaves. The new material duplicated the shape of material removed. All of the diagonal bracing (at one member dated "4/30/1932") was removed and replaced with a uniform system in 1983.

The load-bearing capacity of the commissary is generally quite good. The key relationship is the need to ensure the transfer of loads to the support posts that are stacked three stories high. The joists are adequate, but the transverse beams are only minimum in size and rely heavily on the 5-foot-long bolsters to transfer the spandrel load to the posts. The majority of the weight of the new slate roof is transferred directly to the steel channel beams (bolted to the transverse beams of the second floor) through the new diagonal braces.

PHASE I TREATMENTS - 1983

The primary thrust of phase I work was the reroofing of the commissary. This included structural reinforcement and preservation in the attic and restoration of chimney features to their appearance in 1897. Secondly, as time and funding allowed, post-1897 intrusions were to be removed and restoration treatments begun according to a prioritized schedule developed by the author in consultation with regional historical architect Battle and regional historian Webb (May 10-August 16, 1983). Preliminary construction drawings were available September 27, 1983. Construction began the first of October under the supervision of exhibit specialist Earl Gillespie, Williamsport Preservation Training Center, and carpenter Gary Smith, work leader, hired by the park for this project.

A construction conference on October 7, 1983, intended to clarify questions regarding the preliminary drawings, provide the opportunity to inspect roof demolition to date, and make design approach refinements based on the conditions revealed (see the appendix). Final construction drawings (Drawing No. 421/25,002) were approved November 2, 1983, and the Jobs Bill, phase I work, was completed December 31, 1983.

Handicapped Accessibility

Accessibility issues were considered but not entirely resolved as part of the treatment program. It was recommended to gently ramp the approach walkway to the south entry door and thus eliminate the step at that location, but this recommendation was dropped in anticipation of a more comprehensive trail/landscape study. A ramp of some kind will be necessary, and accessible door hardware and an automatic door closer will be needed at the south door. To permit ease of viewing from the visitor platform area in the commissary, a modification in height of the new wooden railing will be necessary for wheelchair-dependent visitors.

Figure 66. East Parapet Roof Flashing (6/25/83): Flashing installed with the asbestos roof in 1938 had become rusted and leaked. Both the flashing and counterflashing were replaced with copper along with repairs to the brick parapet as part of the slate roof installation.

Figure 67. South Brick Cornice (6/25/83): It was recognized that the brick cornice had suffered deformation because of wall and door arch settlement, and cracks and some repointing was anticipated. The extent of the condition, however, was revealed only after the gutters and roof eave were removed (see figure 68).

Figure 68. South Brick Cornice (10/7/83): After the gutter and roofing was removed, it was clear that the cornice at the south eave was separating and the danger of its falling off was apparent. The separation was nearly two inches. It was decided to dismantle the brickwork to a sound level and rebuild the cornice, duplicating the original profile, and using metal brick ties to secure it to the brick nogging between the attic joists.

Figure 69. South Brick Cornice (10/8/83): The brick dismantled effortlessly because the lime mortar had become quite useless. Rafter tails too, were exposed to inspection, and although somewhat weathered, their condition was generally very good for their 140-year age. In some cases, sister rafters were nailed to the existing to reinforce them as had been done traditionally - note left rafter in lower photo.

Figure 70. North Eave (10/7/85): At the north, brick cornice separation and deterioration was much less than the south: no wall or arch cracking was present. Subsequently, very little brick repair was undertaken on the north.

Figure 71. North Chimney (12/14/83): In this view the new slate shingle roof with copper flashing and counterflashing is in place, and the chimneys have been restored to their ca. 1897 appearance. Notice that the chimneys are fitted with slate caps and that bricks have been left out just below the cap corbel to facilitate ventilation of the entire building. By 1894 the north chimney had fallen down to the lower height shown here, compared to the south chimney which, although damaged, was fairly intact.

Figure 72. Attic (5/20/82): Besides the reroofing itself, the major work of phase I involved the structural reinforcement and preservation of the attic. The extant hybrid system of rafter braces was removed - note difference between left (south) and right (north) sides - modern electrical and gas service lines were removed and the random sized central flooring planks were taken up, treated, and reinstalled.

Figure 73. Roof Scuttle (5/20/82): View of sheet metal roof scuttle cover from attic, which was removed and the opening resheathed as part of slate reroofing, fall 1983.

Figure 74. Attic - South Chimney (5/20/82): Existing physical evidence for the design of the south brick chimney and sheet metal flue in conjunction with a close study of figure 31 was sufficient for reconstruction. It was decided, however, not to reconstruct the flue of this chimney because of the maintenance burden it may have required. Sheet 7 of the drawings (421/25,002) document the original chimney/flue for reconstruction.

Figure 75. Attic - South Chimney (6/25/83): The original south stove chimney was built into the south stone wall. It rose beyond the wall in a simple two-brick square design which was cut off below the roof in the 1910s, or later reroofing, and before the installation of extant roof sheathing. Note both wooden and slate shingle fragments scattered near chimney as well as several bricks that were reused in the restoration.

Figure 76. Attic (6/25/83): Four points are illustrated in these photographs. At the left, the large east wall shear crack is clearly visible, but more importantly, it is an old and dormant crack whitewashed historically. In the right view, the attic floor joists appear with a whitewash coating showing that the second floor had a semiopen ceiling between 1845-1866 and was whitewashed before being plastered in 1866. The variety of modern rafter bracing is shown and the need to replace it with a uniform and reliable system is apparent. The network of dead vines suggested that the growth of vines (see historical photos) was very extensive and probably caused damage to the roof system.

Figure 77. Attic (5/20/82): General view showing condition before phase I work. The planking was taken up, the entire attic floor insulated, and then the planking reinstalled.

Figure 78. Attic (5/20/82): There were several features of the attic that required treating in the phase I work: the chimneys were stained and discolored because of roof leakage, and the brick mortar joints were eroded - daylight was visible through many joints; the hybrid system of rafter bracing was, by engineering standards, unrealiable; and the hoist was dried out and needed wood preservation. Note, also, scatter of slate shingles on floor and missing floorboards.

Figure 79. Attic at Southwest Chimney (6/25/83): The discoloration on the chimney brick, as well as the complexity of bracing and repairs, provided evidence of recurring problems in this area. Not only was rafter bracing replaced, but post-to-post cross-bracing and purlins also had to be replaced as part of the chimney stabilization. The chimney, itself, was dismantled down to floor level and rebuilt with the same and duplicate brick with lime-cement mortar in 1983.

Figure 80. Attic (12/14/83): This photograph shows the completed attic treatments looking towards the north chimney and hoist wheel. The steel double-channel beams at floor level carry most of the roof load by way of the diagonal struts as well as the intermediate attic support posts. They are in a three-bay spanning pattern, transferring loads to the masonry bearing walls and to the major support posts below.

Figure 81. Attic (12/14/83): Looking towards the south corner, in this view, attic structural systems--steel beams at floor level and wooden diagonal struts and braces--have been installed. The historic flooring has been reinstalled. Note hoist cable chase (small square box) at left. Also, light-colored roof sheathing is 1983 replacement material.

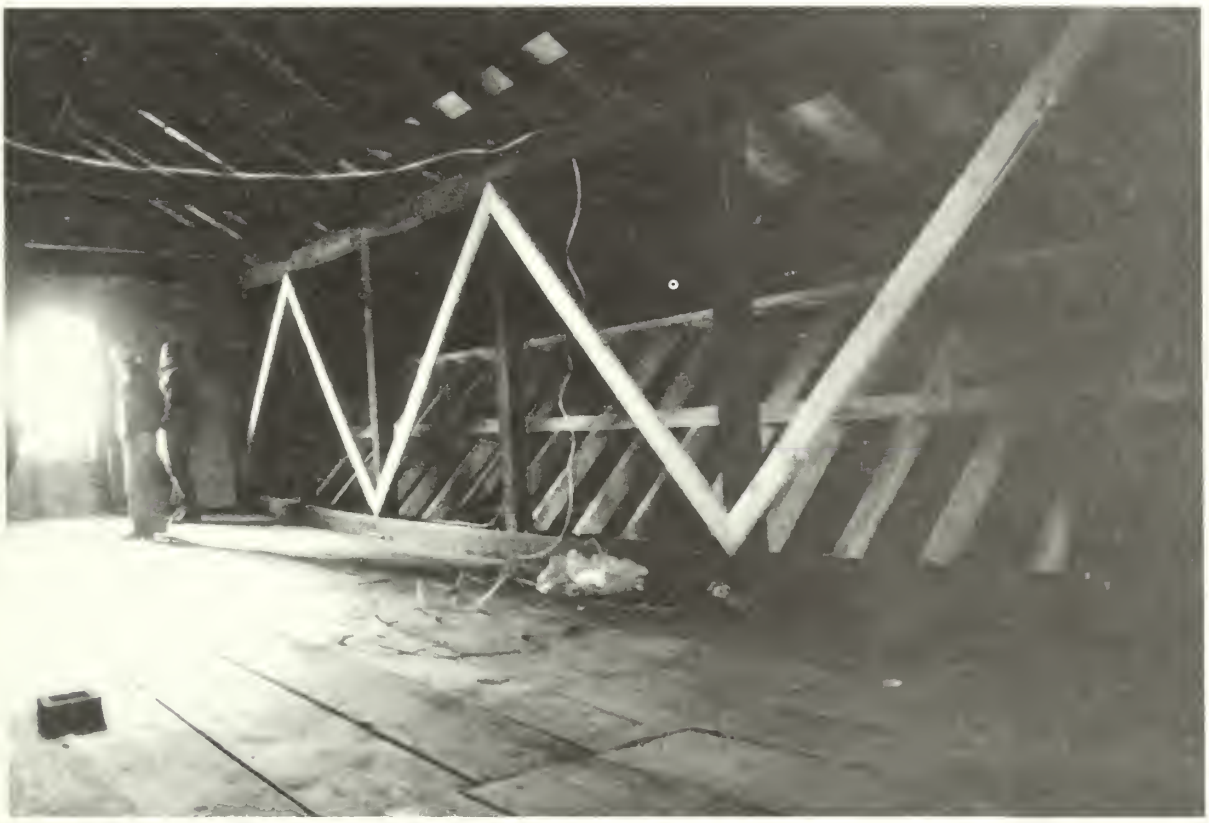


Figure 82. Southeast Room-Second Floor (5/20/82): This area of the second floor has witnessed the most extensive change over the life of the building--see "Historical Data" section. The project treatments focused on removal of intrusions (1930s electrical fixtures) and the reestablishment of structural integrity at the attic floor beam and support post. The 6 x 6 support post shown here, installed at an unknown date, was not located above the support post below and required the diagonal brace to assist in carrying the beam splice above. This had not proven totally effective as the beam has cracked and the splice has fractured.

Figure 83. South Support Post - Second Floor (1/3/85): A 9x9 post was chamfered and hewn to duplicate the original support post. It was mounted directly above the post below and a 5-foot-long bolster was shaped and pegged to the beam - across the splice - above. Electrical service to this floor and the attic was affixed inconspicuously to the backside of the post: note convenience outlet junction box near floor on post.

Figure 84. Reconstructed Support Post (12/14/83): The original support post at this location was removed, maybe as early as 1866; but, at least by the time the present partitions were installed. The 3" by 8" pilaster to the right was installed to replace the post function, an inadequate structural solution. The new post here duplicates size and design of posts in the north room and is hewn red oak.

Figure 85. First Floor (1/31/84): Detail of east corner after most of the concrete slab had been removed. Notice shadowy pattern on walls, possibly locating historic furnishing elements. Because of these ghosts, the decision was made not to restore the whitewash on walls, but rather to preserve these shadowy patterns for visitors to observe.

Figure 86. First-Floor Windows (1/31/84): Detail shows typical appearance of four of the six windows at the first-floor level, modified by removing glass and installing louvered panels. This was done to facilitate uninterrupted natural ventilation through the building. Significant drying of the wooden support posts took place within the first year after installation. Natural updraft through all fireplaces and chimneys is also part of the ventilation system.

PHASE II TREATMENTS - 1984

Phase II of the commissary restoration began at the end of January 1984, with a fabric investigation by Frazier and Ivey and meetings to refine the proposed use of the building. The investigation led to the "Historical Data" section in this report. The refinement of use was drawn up by interpretive planner Marilyn Hof as part of the administrative data. The "Administrative Data" section established the scope of the restoration effort and in some detail the specific treatments to be accomplished in phase II. It was approved April 27, 1984.

Construction drawings for implementation by the Southwest Region preservation crew were developed: Preliminary drawings no. 421/25,003 were submitted for comments June 1, 1984; conditionally approved July 3, 1984; and resubmitted July 6, 1984. A preconstruction conference was held July 12, 1984, and work began July 16, 1984. Supervisory Exhibit Specialist Douglas Hicks was in charge of the implementation with carpenter Gary Smith, the crew leader.

Repointing the exterior walls was the first order of business. About two-thirds of the original pointing was saved while deteriorated areas and removal of Portland cement repointing made up the other third. The mixture used in repointing (two parts white masonry cement, to two parts lime - type S, to 12 parts concrete sand) duplicated the texture of the original, although not the tan-buff-white color; therefore, the new mortar was colored with Hurst light buff concrete coloring. Approximately one-and-a-half to two weeks work was necessary on each facade for a masonry crew of four. The exterior masonry treatment involved restoration of rowlock arch lintels above the south window on the east and the two lower doors. The treatment included rehabilitation of beam pockets as slightly recessed areas of absent stone for interpretation. Also, the stone retaining wall--former porch 4 foundation wall--was substantially stabilized and repointed.

The south (1913) concrete and stone stair (porch 7) was removed. Two segments of the fort's curtain walls were reconstructed as exposed foundation ruins. The excavation necessary to reestablish the original and to install new footings (where the original was missing) was monitored by archeologist Roger Coleman (see "Archeological Data" section).

Modern intrusions--vent stack, gas meter and pipes, electrical meter and conduit, powerpole, flagpole, and some signs--were removed from the building facades and immediate site.

A great deal of effort and good craftsmanship went into the restoration of the first-floor room as an exhibit and the construction of a visitor interpretive and viewing platform at the south corner. The modern (ca. 1913) concrete slab was removed as well as the ca. 1936 washroom and stairway. The wooden ceiling system was gently scraped and brushed and received a fresh coating of whitewash. The lower walls and cracks in walls and fireplaces were repointed, but the walls were not whitewashed to preserve shadows (ghosts) of formerly existing furnishings and the antique ambience of the space.

The array of electrical and lighting fixtures and conduit installed periodically during the museum period (1910-79) were entirely removed and replaced by a simple functional system. Power and telephone lines were placed underground, eliminating the clutter around the building. A smoke and magnetic-type intrusion detection and alarm/phone relay system was installed.

The second-story windows were removed in phase I for rehabilitation in a shop environment. In phase II the windows were reinstalled and doors were preserved; on the lower level, doors were fitted with new locking systems.

Most of the commissary work was completed by October 1984, when the crew simultanously took on work at the first fort and windows on the jail/courthouse. A final inspection was conducted January 3, 1985.

Figure 87. Repointing North Facade (8/84): First the entire facade was raked from top down. Then the wall was repointed, again from top down. In this view the north facade has been raked - clearly exposing beam pockets and wooden nailer holes - and repointing has begun at the upper level.

Figure 88. Detail at North Door Area (8/84): This view was taken after the raking phase of masonry treatment; the cement smear has been removed from the brick rowlock arch and beam sockets (for the second floor of porch 4).

Figure 89. Detail at West Window, North Facade (8/84): In this view, raking has been completd. The texture and quality of historic masonry construction is clear. Also note pockets cut into the wall about 1866 to facilitate installation of porch 4 roof.

Figure 90. East Wall-Shear Crack (8/84): These photographs were taken after the removal of modern cement and loose mortar. Clearly exposed is the major shear crack that resulted from differential settlement of the south corner of the commissary.

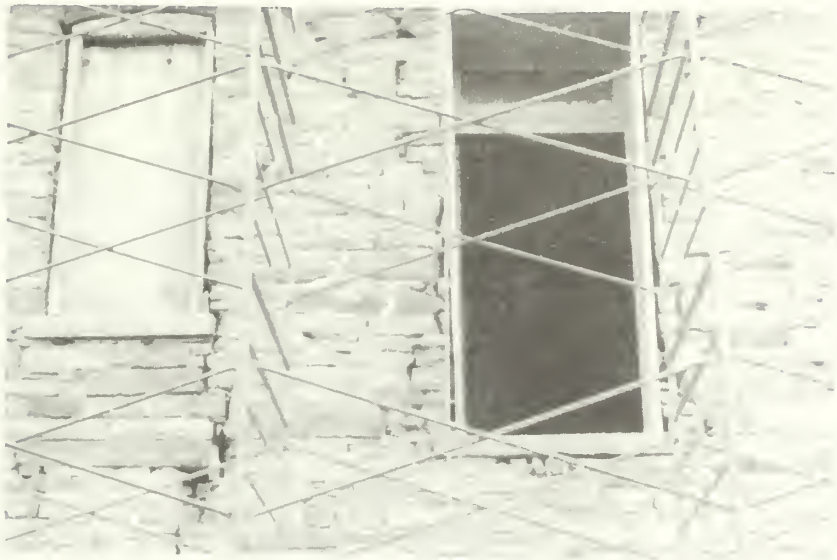


Figure 91. Wall Treatment Detail (1/3/85): In the center of the photo is a typical beam pocket after rehabilitation. Also shown are historic mortar joints and 1984 repointing that blend indistinguishably and the feather and wedge tool marks on some of the stones showing the historic stone quarrying technique employed.

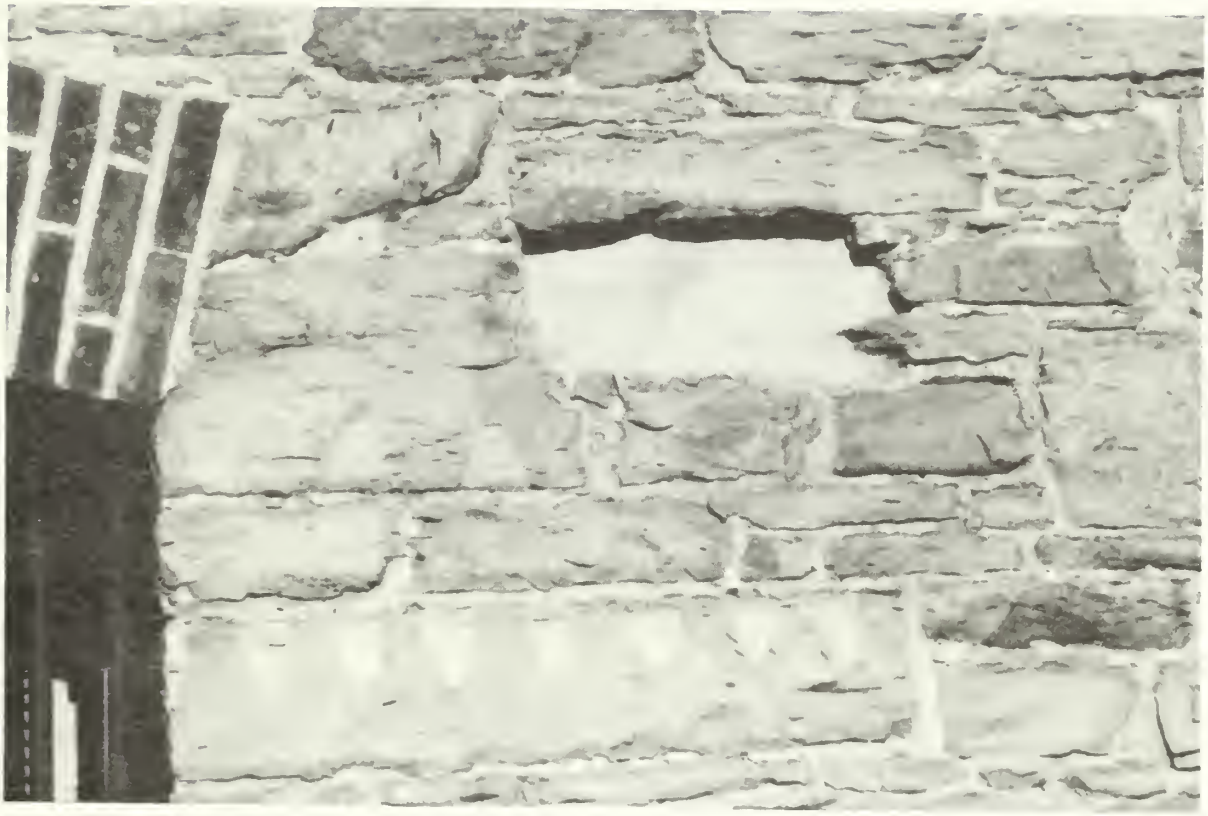


Figure 92. Fort Curtain Wall (ca. 9/8/84): Two views of extant segments of the second fort curtain wall foundation east of the commissary. The segments of wall were reconstructed on top of these footings. Where footings were absent, concrete footings were installed (see "Archeological Data" section).

Figure 93. Second Floor (1/3/85): Very little work was performed on the second floor. The array of electrical service conduit was removed and new smoke detectors installed. Some plaster repairs were performed as shown on the upper right. Notice, also, small plates at the bottom of the transverse beam at ends of bolts that tie the beam to steel channels installed in the attic above.

Figure 94. Southeast Window - Second Floor: Views show window opening with wood bracing and deterioration (6/25/83) and after masonry stabilization (1/3/85). The rowlock brick arch on the exterior of this window was taken down and reconstructed.

Figure 95. Underground Power and Phone Service (ca. 9/15/84): These photographs show installation of 3" telephone conduit and 2" electrical conduit from Second Street and underground to an entry below grade at the commissary foundation about 8 feet from its south corner.

Figure 96. Power and Phone Service (9/84): These photographs show service conduits being installed below the stone slab floor at the south corner of the first floor. In the lower picture, the stone flooring is reinstalled and the sleeper-frame of the visitor platform and panel cabinet has been installed.

Figure 97. First Floor (12/14/83): The slump and irregularity in the historic stone slab floor became visible as the concrete was removed. The uneven surface lead to the decision not to allow visitors to pass through the room for safety reasons; but, rather, to restrict their access to a modern floored visitor platform. The "Interpretive Prospectus" (see Preface and "Administrative Data" section) supported the concept of the room as a display that could be experienced from one point, the south corner.

Figure 98. South Corner of First Floor (1/3/85): The visitor interpretive platform and utility core for the commissary was located in one corner: at the south entry, in place of the modern stairs and washroom. This development includes the wooden platform from which the room, as the primary display, can be viewed as well as the wooden panel cabinet (door is open) where electrical systems are controlled. The ladder will not be present during visitation. Notice, also, the restored rowlock arch and masonry above the doorway.

Figure 99. South Corner of First Floor (1/3/85): The visitor interpretive platform is ready to receive interpretive devices. The light switch is operated with a key. All developmental intrusions are concentrated in this corner of the building. Note, the ladder at right will not be present during visitation.

Figure 100. First Floor (1/3/85): This view shows the visitor platform as seen from the restored commissary storeroom - the stone slab floor, repaired and whitewashed support posts, and whitewashed ceiling system are shown. Notice the electrical conduit and light fixtures are placed so as to be imperceivable from the point of view of the visitor platform.

Figure 101. First Floor (1/3/85): Another general view of the restored first-floor room looking towards the south wall. Two windows received the louvered panel modification. The lower wall area was raked and repointed, but walls should not be whitewashed to avoid covering historic ghosts.

Figure 102. First Floor (1/3/85): Looking at the restored commissary storeroom from the visitor platform, the space is seen as the display. Notice darker pattern on west wall - between fireplaces - that may be a historic ghost, indicating former furnishings. Restoration of the double doors (north entry), including fitting them with an iron crossbar was historic practice. Note, also, that lights, smoke detectors, magnetic intrusion detectors, and associated conduit are imperceivable from the visitor's point of view.

STRUCTURAL ENGINEERING DATA

STRUCTURAL ISSUES

The structural issues of the commissary project fell into two groups: (a) the soundness of the internal wooden structural system, especially in light of the proposed additional load that would result from a slate roof; and (b) the soundness of masonry walls and some of the aperture rowlock arches in light of the observed cracks and fractures. The internal wooden structural system was evaluated September 1983, by structural engineer Terry Wong, DSC. A copy of the computation sheets are on file at the DSC Technical Information Center. A summary of the calculations, findings, and implemented treatments is described below. Following that description is a brief summary of the soundness of masonry walls. Consulting engineer E.L. Staton performed borings adjacent to the commissary, and his observations regarding the masonry cracks (August 29, 1973) are included at the end of this section.

Internal Wooden Structural Analysis

Roof Framing (Rafters). Calculations concluded that shear is not a problem; however, moment is the governing factor with an existing load capacity of 22 psf. Calculations excluded the hybrid system of temporary bracing attributed to the 1930s or later. The existing (asbestos roof) load is 27 psf and the proposed (slate shingles) is 33 psf. Therefore, additional support for rafters was recommended--the observed sag in the roof is indicative of these findings. Because extant braces are neither in a reliable pattern nor are they of historical significance, their replacement with a mid-span (engineering-designed) system, such as a knee wall or diagonal struts, was recommended. A diagonal strut system was designed and installed in phase I.

Attic-Floor Joists. Calculations concluded that shear is not a problem while deflection is a potential hazard to the plaster ceiling, especially considering the observed long-term creep already present. Therefore, the knee wall for additional rafter support was rejected; i.e., additional loading of joists is not recommended. The joists was generally adequate.

Roof Purlins. The purlins are of an adequate size (assuming the full load of the roof) to resist both shear loads (calculated capacity of 71 psf is greater than the 33 psf proposed load) and moment loads (calculated capacity of 74 psf is greater than the proposed 33 psf load). Therefore purlins are adequate for the proposed load. Several purlins were replaced due to rot--the new members duplicated the size of those removed.

Transverse Attic Floor Beams. The beams are an adequate size in terms of shear, but moment calculations (looking at two cases of assumptions) produced the controlling loading constraint, concluding that an allowable live load of only 3 psf exists. Therefore, it was recommended to minimize loads on the attic floor; in particular, no storage loading should be permitted. Additional calculations concerning the support posts offset from the designed splice centers led to the conclusion that the south attic floor transverse beam was overstressed, and strengthening was recommended as an appropriate stabilization measure. This was accomplished by bolting the beam to new steel channels installed directly above on the attic floor. The new steel framing was designed to accommodate 20 psf live load as required by the building code. In addition, the new support posts (installed in phase I and duplicating historic size and design) were fitted with 5-foot-long bearing blocks (bolsters), as both the historic and engineering recommendations for carrying the beam splice.

Second-Floor Joists. Load capacity calculations, again controlled by moment rather than shear, concluded that a live load of 54 psf is maximum allowable. This corresponds to the current building code requirement of 50 psf live load of office use. This being adequate, no alteration was recommended nor undertaken.

Attic Support Posts. The 6-inch by 6-inch columns supporting the roof are 8 feet high and in good condition. Load capacity was calculated to be over 39,000 lb., while actual roof loading is less than 4,000 lbs. per column. Therefore, attic level posts are adequate, and no alteration was recommended nor undertaken.

Second-Story Support Posts. The calculation was based on 8-inch by 10-inch columns at 11.5 feet high. Load capacity was calculated at over 90,000 pounds, while actual roof and second-floor ceiling loading is less than 9,000 pounds at each post. Therefore, with all four posts located correctly, they are adequate; however, the offcenter location of the 6-inch by 6-inch post at the south and the 3-inch by 6-inch post at the west is unacceptable, especially because the transverse beam spliced above the 6-inch by 6-inch post is checked--relocation of posts to historic centers below beam splice centers is appropriate and was accomplished in phase I work.

First-Story Support Posts. The 9-inch by 11-inch columns, with a 20 percent reduction in effective area because of rot have a load capacity calculated at nearly 94,000 pounds each, while actual load (roof, attic floor and second floor) is less than 33,000 pounds. Therefore, these posts are structurally adequate; however, for reasons of historic appearance, restoration of decayed areas was appropriate and was accomplished in phase II.

Engineering calculations were performed to size the proposed reinforcement elements above; these are also on file in the DSC Technical Information Center.

Masonry Wall and Arch Analysis

The masonry crack issue is summarized as follows:

Most likely, because the foundation of the building was built in two periods separated by seven years and because the foundations of the two periods were different, a differential subsidence naturally followed.

The subsidence probably occurred soon after construction and resulted in shear cracking of the east wall near the building's south corner and the fracture in the lower south door rowlock arch (refer to "Report Concerning the Faults Occurring in the Southeast Corner of the Commissary . . ." prepared by James M. Gaston, Jr. in Dollar, May 1983).

The general subsidence that took place years ago is not likely to result in additional damage, i.e., cracking appears to have stabilized; however, some slight differential movement between the two masses of the building resting on two different foundations is likely to occur because of fluctuations in groundwater that would naturally occur and therefore repointing would be needed periodically.

Cracks were undoubtedly pointed in 1913 with gray Portland cement as part of general repairs and it was not a good idea because it was inflexible and hard and therefore fell out.

Around 1965, a lime-sand mortar mix was used by the park staff (Paul Schriver reported on 5/18/82), but it fell out by the early 1970s.

In 1974, the park hired a mason to point the cracks--measurements were taken and marks placed on both sides. In 1982 hairline cracks had occurred in the pointing, but discernible movement was not measureable.

Conclusion: No problems existed requiring structural treatment. To keep the crack relatively dry, mortar should be maintained in it.

Periodic pointing like that done in 1984 will be required. The observation by Staton that "insufficient lintel strength in the south window of the east wall and lower door of the south wall" is probably inaccurate and the more likely cause was the same as that discussed about the shear crack. Both rowlock arches were restored in 1984, and future failure of a structural nature is not anticipated.

rec'd 7/19/83

July 15, 1983

Memorandum

To: Dave Battle

From: Superintendent, Fort Smith National Historic Site

Subject: Commissary Building

Mr. Eugene Staton, a Consulting Engineer, came by today with a copy of the attached report on test borings around the Commissary Building. This information may be helpful in our restoration efforts.

JoAnn Kyral

JoAnn M. Kyral
Superintendent

Enclosure

cc: Craig Frazier, DSC
Doug Hicks, SWRO
Melody Webb, SWRO

TELEPHONE 501/782-5868

EUGENE L. STATON
CONSULTING ENGINEER

125 NORTH 14TH STREET
FORT SMITH, ARKANSAS 72901

August 29, 1973

Mr. Edwin F. Benton
Superintendent
Fort Smith National Historic Site
Fort Smith, Arkansas

RE: The Commissary Building
Fort Smith National Historic Site
Fort Smith, Arkansas

Dear Mr. Benton:

At your request, we have investigated the ground subsidence which occurred near the Commissary Building, have made a general investigation of the soil conditions around the building, and have made an examination of the condition of the masonry building walls.

We found that the ground subsidence was caused by the rupture of an abandoned sewer. This rupture occurred near a manhole and had permitted a loss of earth into the public sanitary sewer system. The sewer department of the City of Fort Smith has made the necessary repairs and we expect no further problem of this nature.

To investigate the soil conditions around the building, we had test borings made near each corner of the building by Arkansas Laboratories, Inc. We append a copy of the data submitted by them, showing the location and a log of soil conditions encountered for each test boring. Indications are that the building footings rest on sandy silt soils of relatively low bearing capacity. Underlying these soils are sandy soils of higher bearing capacity. We feel that these soils are not seriously overstressed by the loads imposed, since there is no evidence of excessive foundation settlement.

Some foundation movement has occurred, of course, as evidenced by cracking that has occurred in the building walls. However, insufficient lintel strength is the cause of some of the cracking. The cracks which are apparently due to foundation settlement are not of a serious nature, with the possible exception of one occurring near the southernmost window on the east wall. This crack has been repointed (as have other cracks) in the past and has reopened only a small amount. We feel that the movement which caused the crack has stabilized, but recommend that it be kept under observation to determine if additional consequential movement occurs. This could be accomplished by placing horizontal marks on the inside wall across the crack at several locations and periodically taking measurements to determine the amount of movement which occurs, if any.

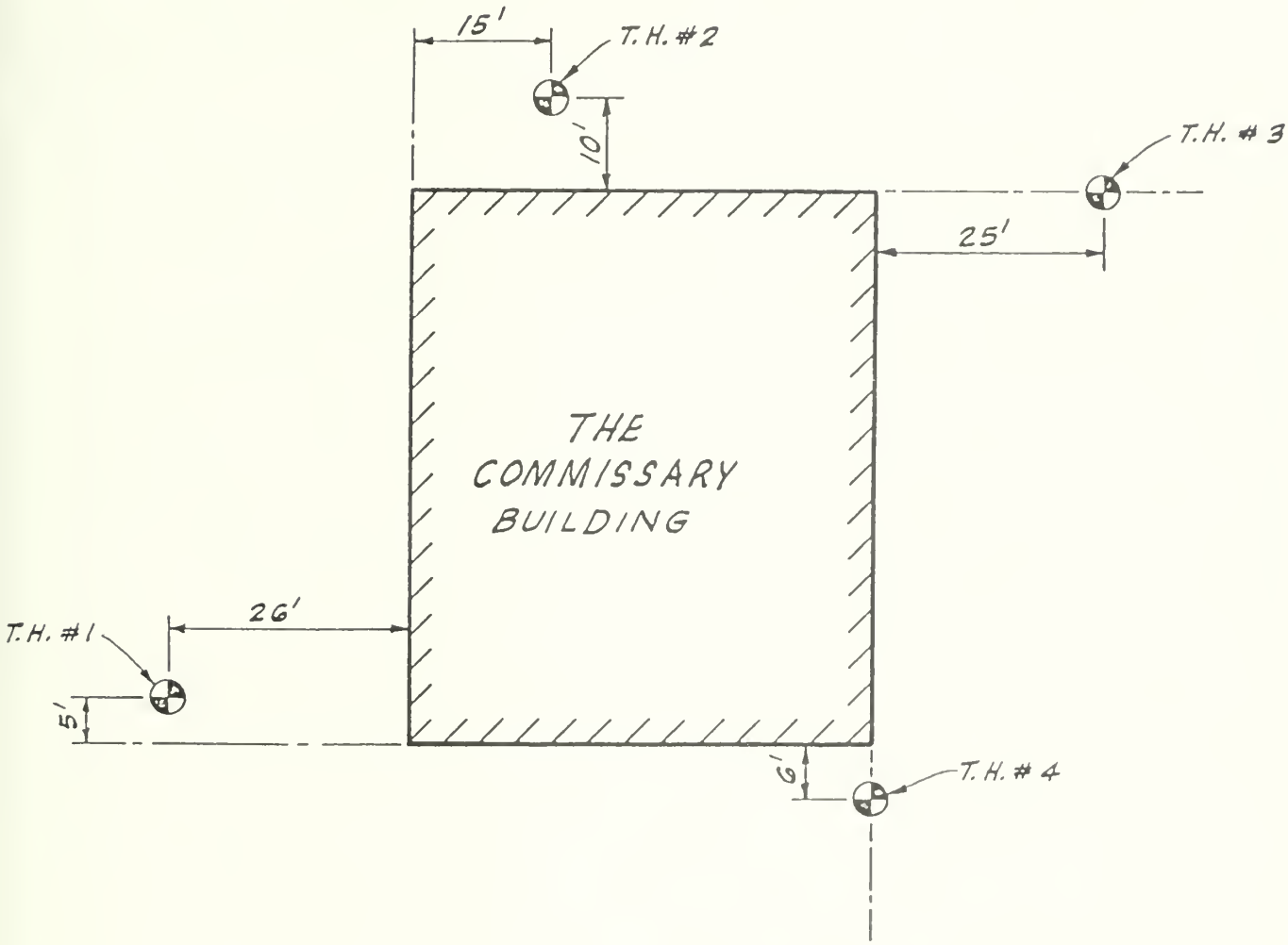
We also recommend that any future renovation of the building include strengthening of inadequate lintels and repointing of all masonry cracks.

Yours very truly,

Eugene L. Staton

Eugene L. Staton

ELS/drh
Enc.



BORING LOCATION PLAN

THE COMMISSARY BUILDING

FORT SMITH, ARKANSAS

Scale: 1" = 20'

August 10, 1973

ARKANSAS LABORATORIES INC. FORT SMITH, ARKANSAS	Date Drilled 8-9-73	Boring No. 1
Project The Commissary Building 111 Rogers Avenue Fort Smith, Arkansas	Logged by Gales	Drilled by Gillespie
	Surface Elevation 85.9	Water Table 13 ft. below surface
Boring Location: See Plan.	Termination Depth 20.0 ft.	Drilling Time Begin: End:

Symbol	Depth	Description of Material	Water Content	Penet. Test	Remarks
	0.5	Asphalt, SB-2, Rock			
		Fill Material			
	1.5	Rock and Soil			
		Medium brown sandy silt Moist, soft			
	3.0		8.8	5	
				5	
		Light tan sand, Moist Fine Grain		7	4" Auger with Air
			9.7		
		Non-Plastic			
	6.5				
		Light tan and brown sand Moist to Wet Coarse Grain			
	10.0				
				4	
		Tan Sand		11	
		Excess water in hole	23.3	14	
		Coarse grain			
	14.7				
		Red and Brown Sand with Clay Layers Moist			
			27.5		
	20.0				

ARKANSAS LABORATORIES INC. FORT SMITH, ARKANSAS	Date Drilled 8-9-73	Boring No. 2
Project The Commissary Building 111 Rogers Avenue Fort Smith, Arkansas	Logged by Gales	Drilled by Gillespie
	Surface Elevation 98.9	Water Table N.E.
Boring Location: See Plan.	Termination Depth 15.0 ft.	Drilling Time Begin: End:

Symbol	Depth	Description of Material	Water Content	Penet. Test	Remarks
	0.5	Topsoil			
		Light brown sandy silt Firm and Dry	16.5		
	2.0				
		Light Brown Sandy Silt with dark small isolated clay deposits Dry and very soft Non-Plastic	19.5	1 3 3	4" Auger with Air
	5.0				
		Brown Silt and Clay Firm			
	6.5				
		Brown Silty Clay Brown with gray streaks Firm, moderately dry	18.0 19.2		
	9.5				
		Brown Clay with Light tan sand Coarse Grain Dry to Moist	11.8	10 11 15	
	11.0				
		Medium brown sand with gravels Moist			
	12.0				
		Sandy silt, Medium brown Fine grain, dry			
	13.0				
		Tan and brown silt and sand Graded, Moderately dry	13.1		
	15.0				

DSC 15609

ARKANSAS LABORATORIES INC. FORT SMITH, ARKANSAS	Date Drilled 8-9-73	Boring No. 3
Project The Commissary Building 111 Rogers Avenue Fort Smith, Arkansas	Logged by Gales	Drilled by Gillespie
	Surface Elevation 98.2	Water Table N.E.
Boring Location See Plan.	Termination Depth 15.0 ft.	Drilling Time Begin: End:

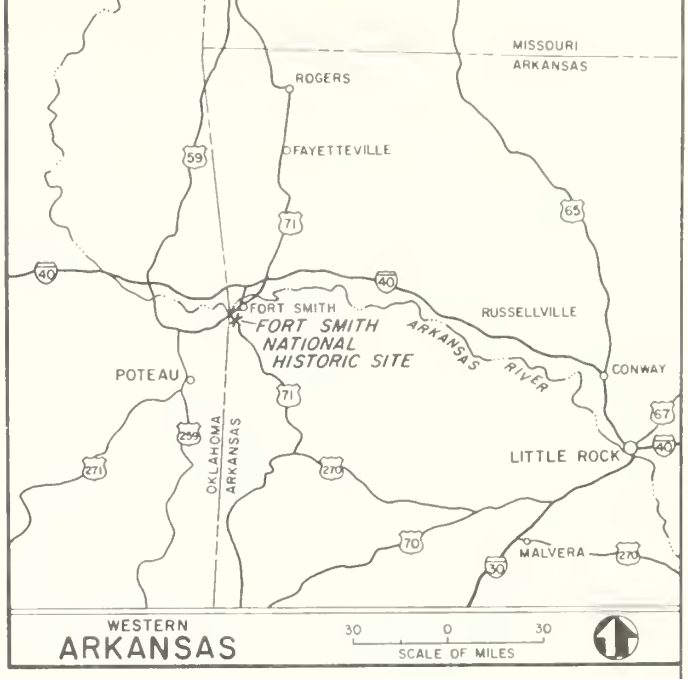
Symbol	Depth	Description of Material	Water Content	Penet. Test	Remarks
	0.5	Topsoil			
		Light tan sandy silt Soft, Moist	9.5		
	2.0	Medium Brown Sandy Silt with Dark Brown Clay Deposits Very soft and Dry	18.3	3 4 3	4" Auger with Air
	3.9	Medium Brown with Gray Streaks Silty Clay, Moist and Firm			
	6.0	Medium Brown Silty Clay Moist to Wet - Firm	21.6		
	8.0	Reddish Brown Clay with Sand, Coarse Grain Moist	17.8 13.8 17.4	7 10 13	
	11.0	Red and Tan Sand with Clay Lenses ($2\frac{1}{2}$" thick) Sand Graded Moist, Firm			
	15.0				

ARKANSAS LABORATORIES INC. FORT SMITH, ARKANSAS	Date Drilled 8-8-73	Boring No. 4
Project The Commissary Building 111 Rogers Avenue Fort Smith, Arkansas	Logged by Gales	Drilled by Gillespie
	Surface Elevation 96.4	Water Table N.E.
Boring Location See Plan.	Termination Depth 15.0 ft.	Drilling Time Begin: End:

Symbol	Depth	Description of Material	Water Content	Penet. Test	Remarks
		Medium brown sandy silt Soft and dry	10.7		
	1.5	Limestone Boulder Part of old foundation			4" Auger with Air Rock Bit
	3.5	Medium brown sandy silt Dry and Fine Grained			
	5.0	Brown Sandy Clay Moist and Soft	13.1	5 5 5	$4\frac{1}{2}$" Auger with Air Drag Bit
	6.5	Medium brown clay Soft and moist LL = 42 PI = 25	14.4		
	9.5	Reddish brown sand with clay lenses Moist and Coarse Grain	11.3		
	12.3	Light tan sand Coarse grain - Moist			
	15.0				

DSC 15609

EXISTING CONDITIONS DRAWINGS (14 sheets)



INDEX

NOTE

NUMBERS (*) ADJACENT TO TREATMENTS INDICATE TREATMENT ACCOMPLISHED IN 1983 PHASE I [1] AND IN 1984 PHASE II [2].
▲ INDICATES TREATMENTS PROPOSED BUT NOT IMPLEMENTED.
DETAIL SYMBOL: 1 ← DETAIL NUMBER, 2 ← SHEET NUMBER

THIS COVER SHEET WAS MODIFIED FROM DRAWING NO 25,003A, SHEET 1 CHANGES INCLUDE SITE DRAWING UPDATE, INDEX EXTENSION AND NOTE DELETION AND ELABORATION.
THESE DRAWINGS (421 25,001) ARE IDENTICAL TO THE AS CONSTRUCTED DRAWINGS FOR RESTORE COMMISSARY PHASE I AND PHASE II EXCEPT TITLE AND DWG NO, AND SHEET 15 & 16 ARE OMITTED FROM HSR

SCALE OF FEET
150 0 150 300
45 0 45 90
SCALE OF METERS

ORIGINAL DATE OF CONSTRUCTION 1842-46
THESE DRAWINGS ARE BASED ON RESTORATION PHASE II DRAWINGS WHICH WERE BASED ON RESTORATION PHASE I DRAWINGS 2
BASIC DATA DWG 421/20,010A & BNDRY MAP 421,41,004. COVER DRAWN

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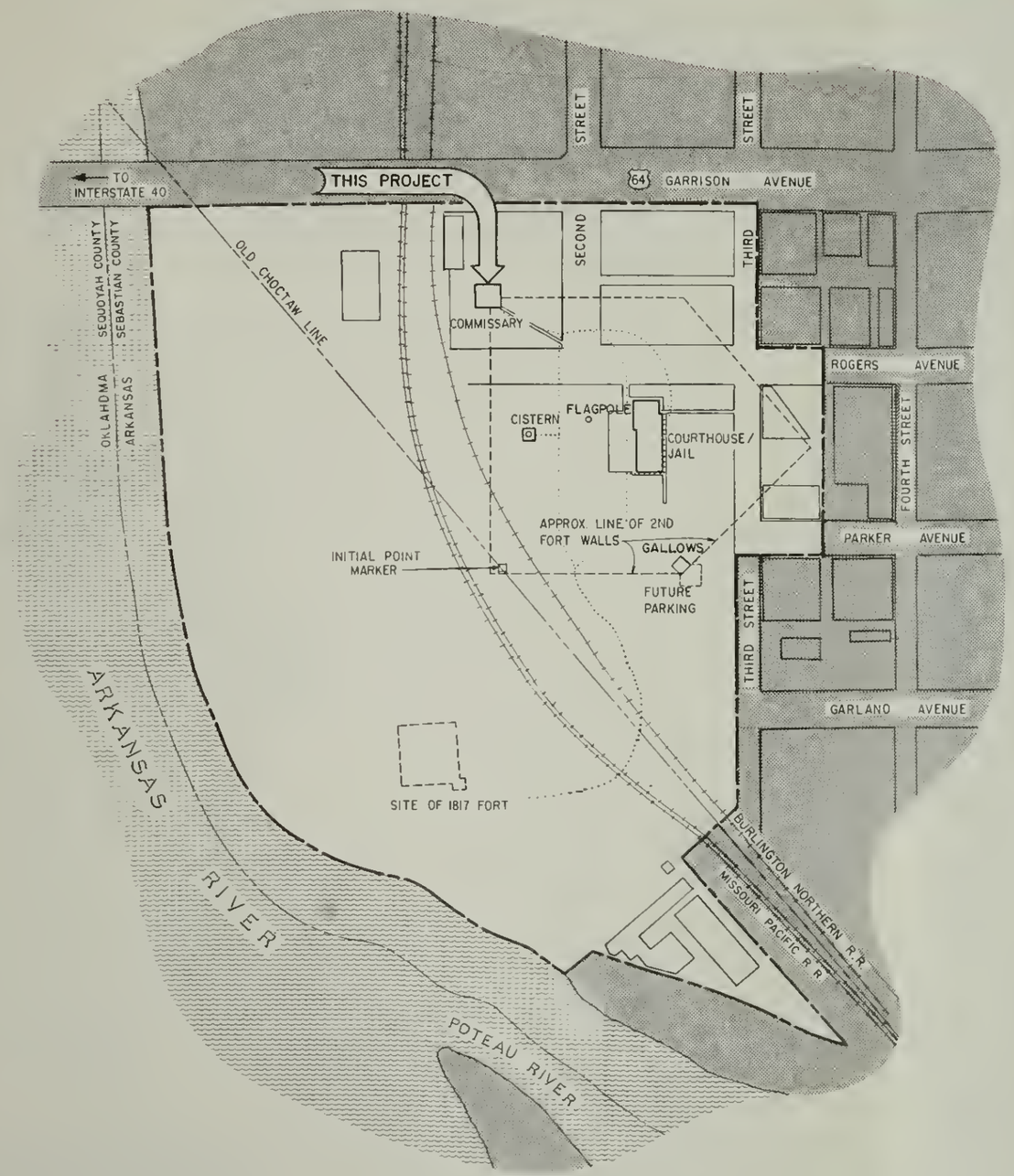
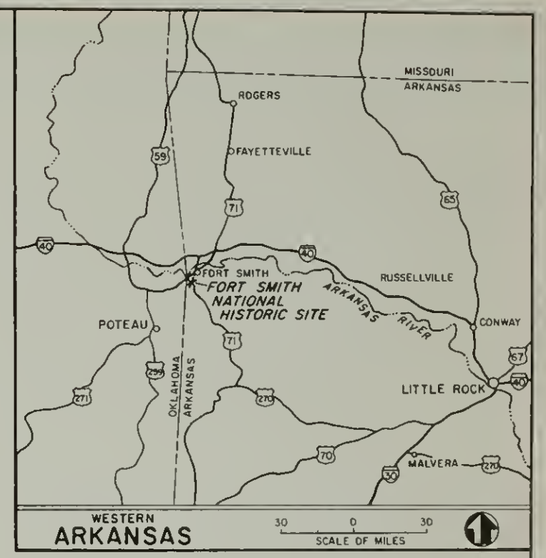
INTERIOR SERVICE CENTER	DRAWN DRAFTING BR	LOCATION WITHIN PARK SECOND FORT	PKG NO 104
	TECH REVIEW THORSON	NAME OF PARK FORT SMITH NATIONAL HISTORIC SITE	SHEET 1 OF 14
	DATE 7/85	REGION SOUTHWEST / COUNTY SEBASTIAN / STATE ARKANSAS	



LEGEND

- HISTORIC SITE BOUNDARY
- STATE LINE
- FUTURE TRAIL



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▲ INDICATES TREATMENTS PROPOSED BUT NOT IMPLEMENTED.
DETAIL SYMBOL: (1/2) — 1 DETAIL NUMBER, 2 SHEET NUMBER

THIS COVER SHEET WAS MODIFIED FROM DRAWING NO 25,003A, SHEET 1. CHANGES INCLUDE SITE DRAWING UPDATE, INDEX EXTENSION AND NOTE DELETION AND ELABORATION.
THESE DRAWINGS (421/25,001) ARE IDENTICAL TO THE AS CONSTRUCTED DRAWINGS FOR RESTORE COMMISSARY PHASE I AND PHASE II. EXCEPT TITLE AND DWG. NO., AND SHEET 15 & 16 ARE OMITTED FROM HSR.

SCALE OF FEET: 150 0 150 300
SCALE OF METERS: 45 0 45 90

FORT SMITH NATIONAL HISTORIC SITE

ORIGINAL DATE OF CONSTRUCTION: 1845-46.
THESE DRAWINGS ARE BASED ON RESTORATION PHASE II DRAWINGS 25,003A APPROVED 7/3/84, WHICH WERE BASED ON RESTORATION PHASE I DRAWINGS 25,002 APPROVED 11/12/83.
BASIC DATA: DWG 421/20,010A & BNDRY MAP 421,41,004, COVER DRAWN 9/83, W/UPDATE 7/85.

APPROVAL BLOCK FOR DRAWING 25,003A

RECOMMENDED		
ROBERT FULTZ, Assistant Manager (ACT'G)		5 JUL 84 Date
JOANN KYRAL, Superintendent		18 JUNE '84 Date
APPROVED ROBERT KERR, Director – Region		3 July '84 Date

DAY LABOR PROJECT

HISTORIC STRUCTURE DRAWINGS

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DENVER SERVICE CENTER

DESIGNED C. FRAZIER
DRAWN DRAFTING BR.
TECH REVIEW THORSON
DATE 7/85

TITLE OF DRAWING
COMMISSARY • EXISTING CONDITIONS 1/85
LOCATION WITHIN PARK
SECOND FORT
NAME OF PARK
FORT SMITH NATIONAL HISTORIC SITE

REGION SOUTHWEST | COUNTY SEBASTIAN | STATE ARKANSAS

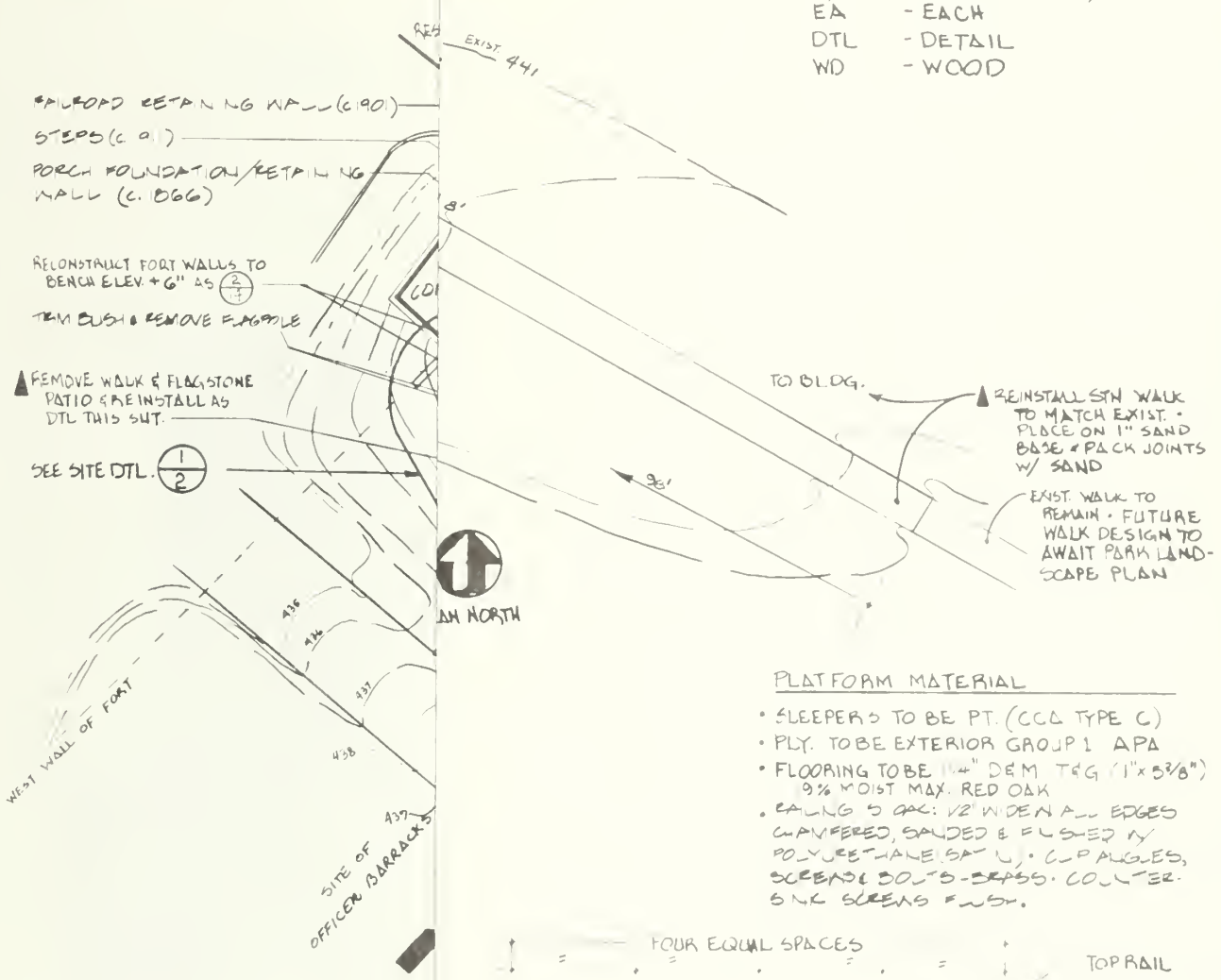
DRAWING NO. 421 / 25,001
PKG NO 104
SHEET 1 OF 14

TAR
AUCTURAL
DIB./LF
PANEL
. SEE SHT 16.

HASE BELOW
D PANEL BOX.

ABBREVIATIONS

STN	- STONE
P.T.	- PRESSURE TREATED
w/	- WITH
CTR	- CENTER
BK	- BRICK
ASB	- ASBESTOS
MAX	- MAXIMUM
T&G	- TONGUE AND GROOVE
VG	- VERTICAL GRAIN
FL	- FLOOR or FLOORING
E, S, etc.	- EAST, SOUTH, etc.
EA	- EACH
DTL	- DETAIL
WD	- WOOD



PLATFORM MATERIAL

- SLEEPERS TO BE P.T. (CCA TYPE C)
- PLY. TO BE EXTERIOR GROUP 1 APA
- FLOORING TO BE 1¼" DEM T&G (1"x 5⅜") 9% MOIST MAX. RED OAK
- RAILING 5 OAK: ½" WIDEN ALL EDGES CHAMFERED, SANDED & FINISHED W/ POLYURETHANE SATIN. • CUP ANGLES, SCREWS & BOLTS-BRASS. COUNTERSINK SCREWS FINISH.

1 SITE PLAN
1" = 40'

NOTES • TOPOGRAPHY IS APPROX. • BASED ON 1964 DATA PLUS EST. FROM CURRENT PHOTOS

• SITE MODIFICATIONS INDICATED ▲ ARE NOT TO BE IMPLEMENTED UNTIL AFTER APPROVED PARK LANDSCAPE PLAN

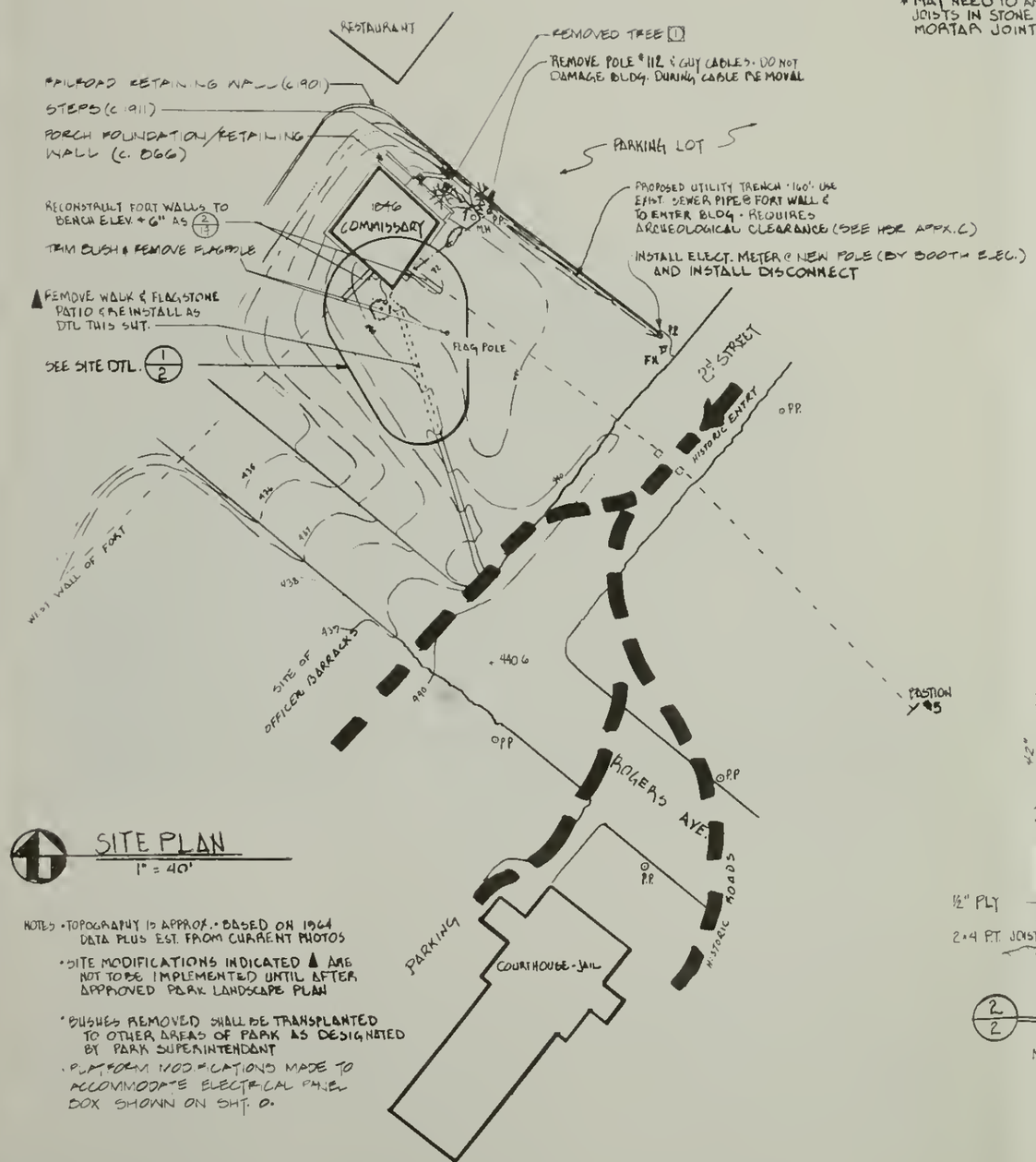
• BUSHES REMOVED SHALL BE TRANSPLANTED TO OTHER AREAS OF PARK AS DESIGNED BY PARK SUPERINTENDANT

• PLATFORM MODIFICATIONS MADE TO ACCOMMODATE ELECTRICAL PANEL BOX SHOWN ON SHT. 0.

3/2 RAILING ELEVATION FROM VISITOR SIDE
1/4" = 1'-0"

NOTE: THIS SHEET MODIFIED FROM DRAWING NO. 25003A, SHT. 2. ALL PROPOSED CHANGES COMPLETED IN PHASE II EXCEPT THOSE IN ▲ INDICATION.

DESIGNED EXISTING & FRAZIER	SUB SHEET NO	TITLE OF SHEET	DRAWING NO 421 / 25,001
DRAWN FRAZIER		COMMISSARY SITE PLAN, WALK AND VISITOR PLATFORM	PKG NO. 104
TECH. REVIEW THORSON			SHEET 2 OF 14
DATE 7/05			



SITE PLAN
1" = 40'

NOTES · TOPOGRAPHY IS APPROX. · BASED ON 1964 DATA PLUS EST. FROM CURRENT PHOTOS

· SITE MODIFICATIONS INDICATED ▲ ARE NOT TO BE IMPLEMENTED UNTIL AFTER APPROVED PARK LANDSCAPE PLAN

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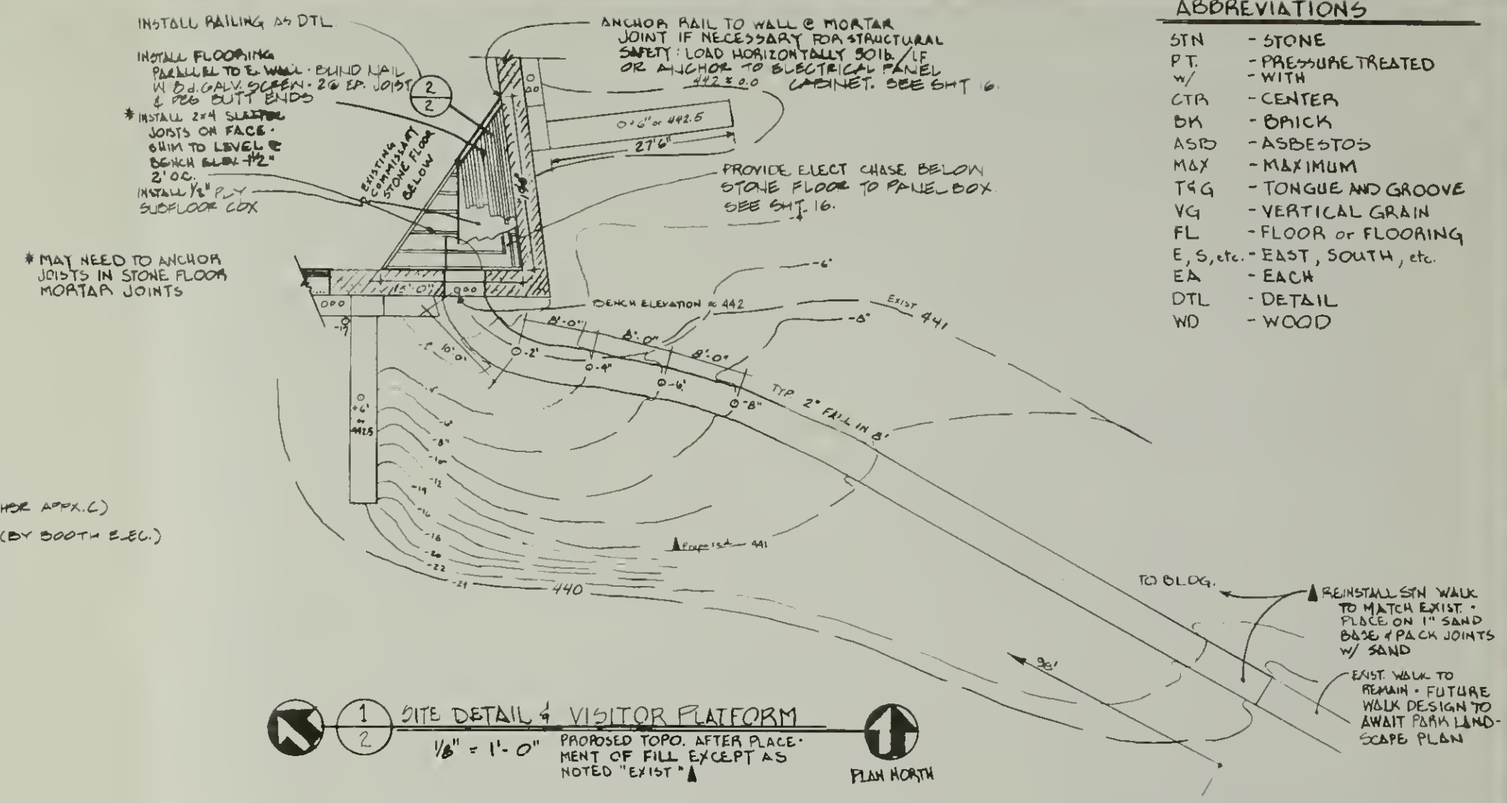
· PLATFORM MODIFICATIONS MADE TO ACCOMMODATE ELECTRICAL PANEL BOX SHOWN ON SHT. 0.



SITE DETAIL & VISITOR PLATFORM
1/8" = 1'-0"

PROPOSED TOPO. AFTER PLACEMENT OF FILL EXCEPT AS NOTED "EXIST" ▲

ABBREVIATIONS

STN	- STONE
P.T.	- PRESSURE TREATED
w/	- WITH
CTR	- CENTER
BK	- BRICK
ASB	- ASBESTOS
MAX	- MAXIMUM
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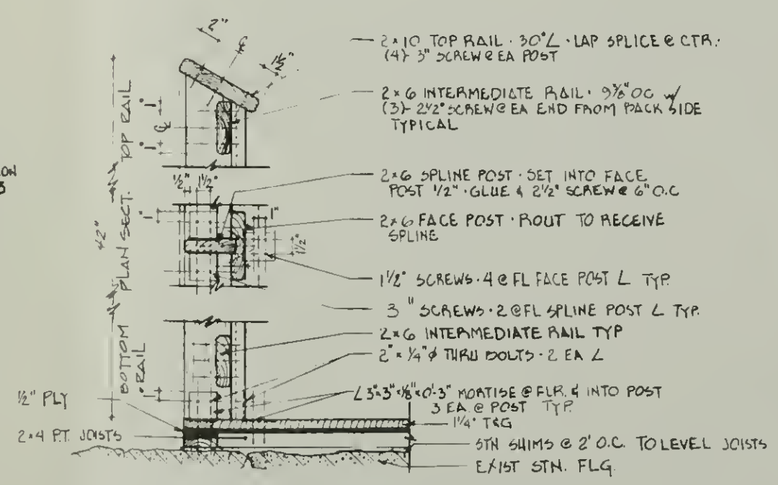
VG	- VERTICAL GRAIN
FL	- FLOOR or FLOORING
E, S, etc.	- EAST, SOUTH, etc.
EA	- EACH
DTL	- DETAIL
WD	- WOOD



RAILING POST DETAILS · TYP
1½" = 1'-0"

NOTE: SEE SHT. 6 FOR CHANGE IN RAILING PLAN

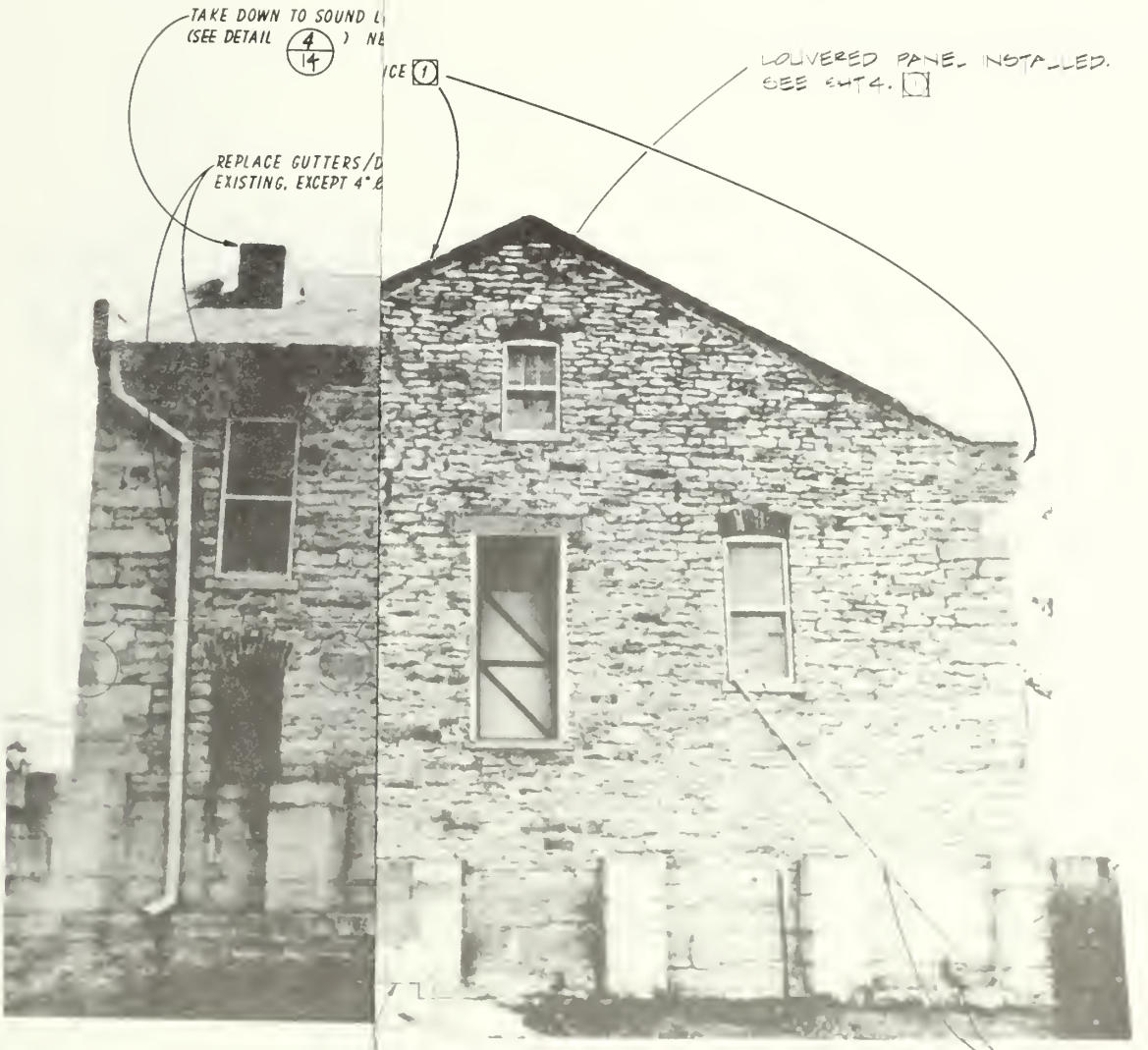
PLATFORM MATERIAL

- SLEEPERS TO BE P.T. (CCA TYPE C)
- PLY. TO BE EXTERIOR GROUP 1 APA
- FLOORING TO BE 1¼" DEM T&G (1"x5⅜") 19% MOIST MAX. RED OAK
- RAILING IS OAK: ½" WIDEN ALL EDGES CHAMFERED, SANDED & FINISHED W/ POLYURETHANE (SATIN) · CUP ANGLES, SCREWS & BOLTS - BRASS · COUNTERSINK SCREWS FLUSH.

RAILING ELEVATION FROM VISITOR SIDE
¼" = 1'-0"

NOTE: THIS SHEET MODIFIED FROM DRAWING NO. 25.003A, SHT. 2. ALL PROPOSED CHANGES COMPLETED IN PHASE II EXCEPT THOSE N/A INDICATED.

DESIGNED EXISTING & EDELL	SUB SHEET NO	TITLE OF SHEET: COMMISSARY SITE PLAN, WALK AND VISITOR PLATFORM	DRAWING NO. 421 / 25.001
DRAWN FRAZIER			PKG NO. 104 / SHEET 2
TECH. REVIEW THORSON			OF 14
DATE: 7/05			



T OR SOUTHEAST ELEVATION

NO SCALE

NOTE

TREATMENTS 1 WERE COMPLETED DURING PHASES 1 & 2. TREATMENTS 2 WERE COMPLETED DURING PHASE II, 1984. ▲ INDICATES PROPOSED TREATMENTS WHICH HAVE NOT BEEN COMPLETED. THIS SHEET WAS MODIFIED FROM DRAWING #25,002A WHICH WAS BASED ON DWG. #25,002 SHT 2.

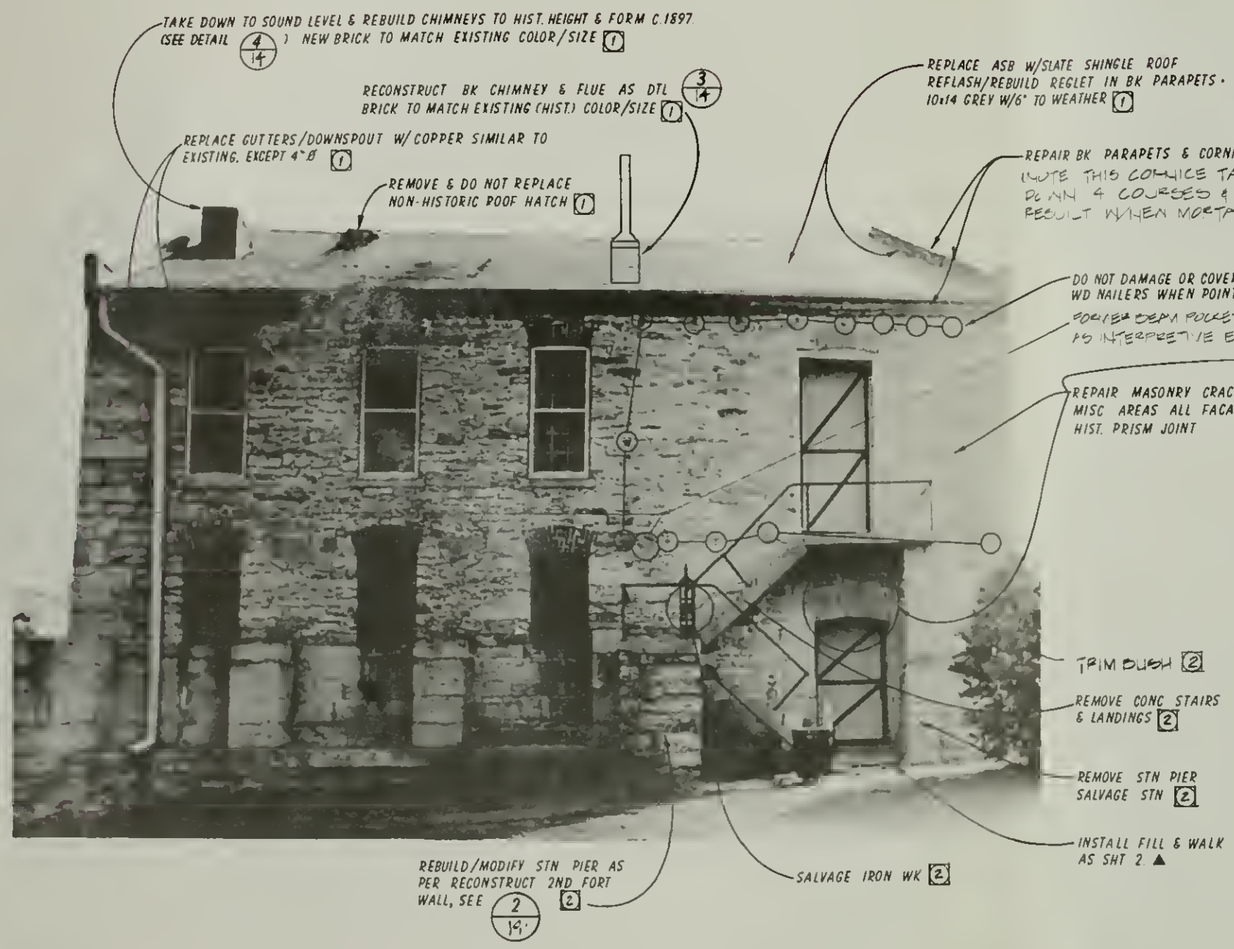
MORTAR MIXES

FOR STONE & NEW BRICK MASONRY - MAS
2 SAN
FOR HIST BRICK - 1 PORTLAND (WHITE)
HYDRATED LIME TYP
10-12 SAND (WHITE)

- APPLY WATER FOGGING SPRAY, 48 HRS
- MIX MORTAR MIN 3 MIN., MAX 20 M
- USE MIN WATER
- COLOR NEW MORTAR JOINTS TO MATCH HIST COLOR A

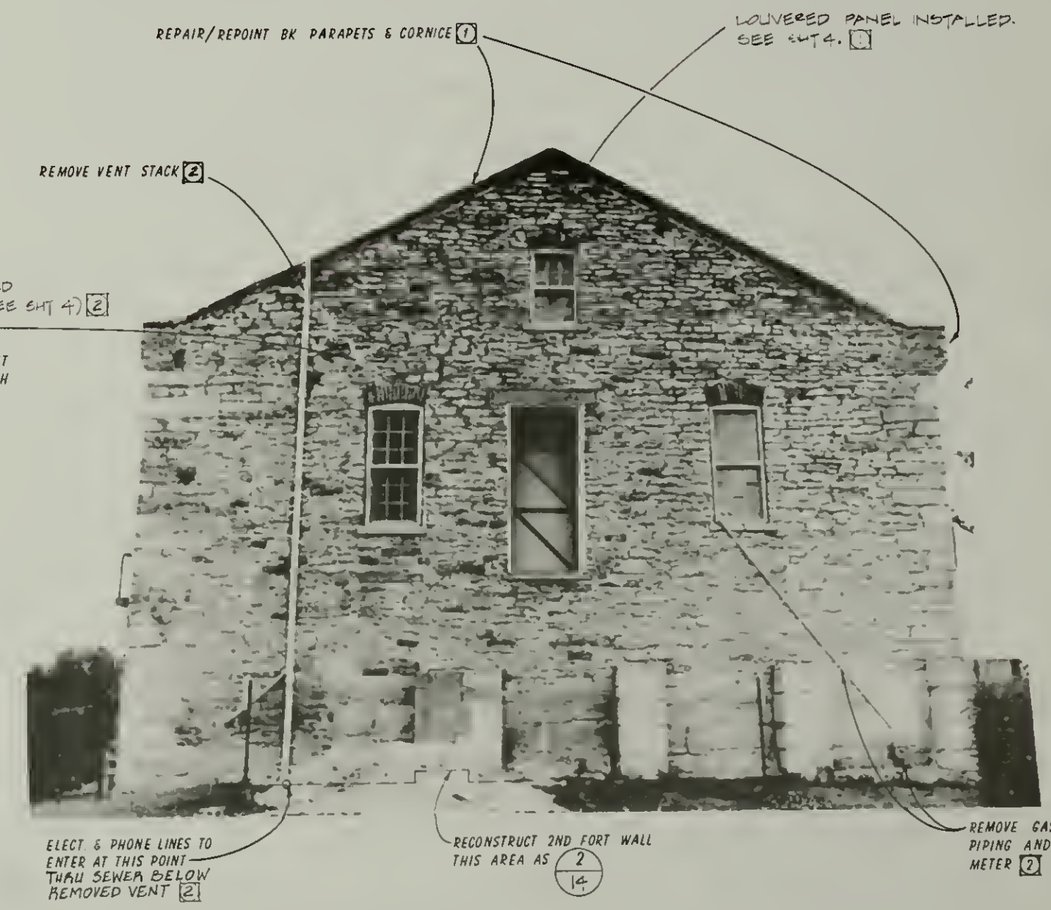
DESIGNED HISTORIC FRAZIER	SUB SHEET NO	TITLE OF SHEET	DRAWING NO 421 25,001
DRAWN DRAFTING BR		SOUTH AND EAST ELEVATION TREATMENTS	PKG. NO. 104
TECH. REVIEW THORSON 7/84		PHASE I & II	SHEET 3 OF 14
DATE 7/85			

BASIC DATA PHOTOGRAPHS TAKEN JUNE 1982 CCF



SOUTH OR SOUTHWEST ELEVATION

NO SCALE



EAST OR SOUTHEAST ELEVATION

NO SCALE

MORTAR MIXES

FOR STONE & NEW BRICK MASONRY - 2 MASONRY CEMENT TYPE I
:2 SAND (COLOR TO MATCH HIST.)

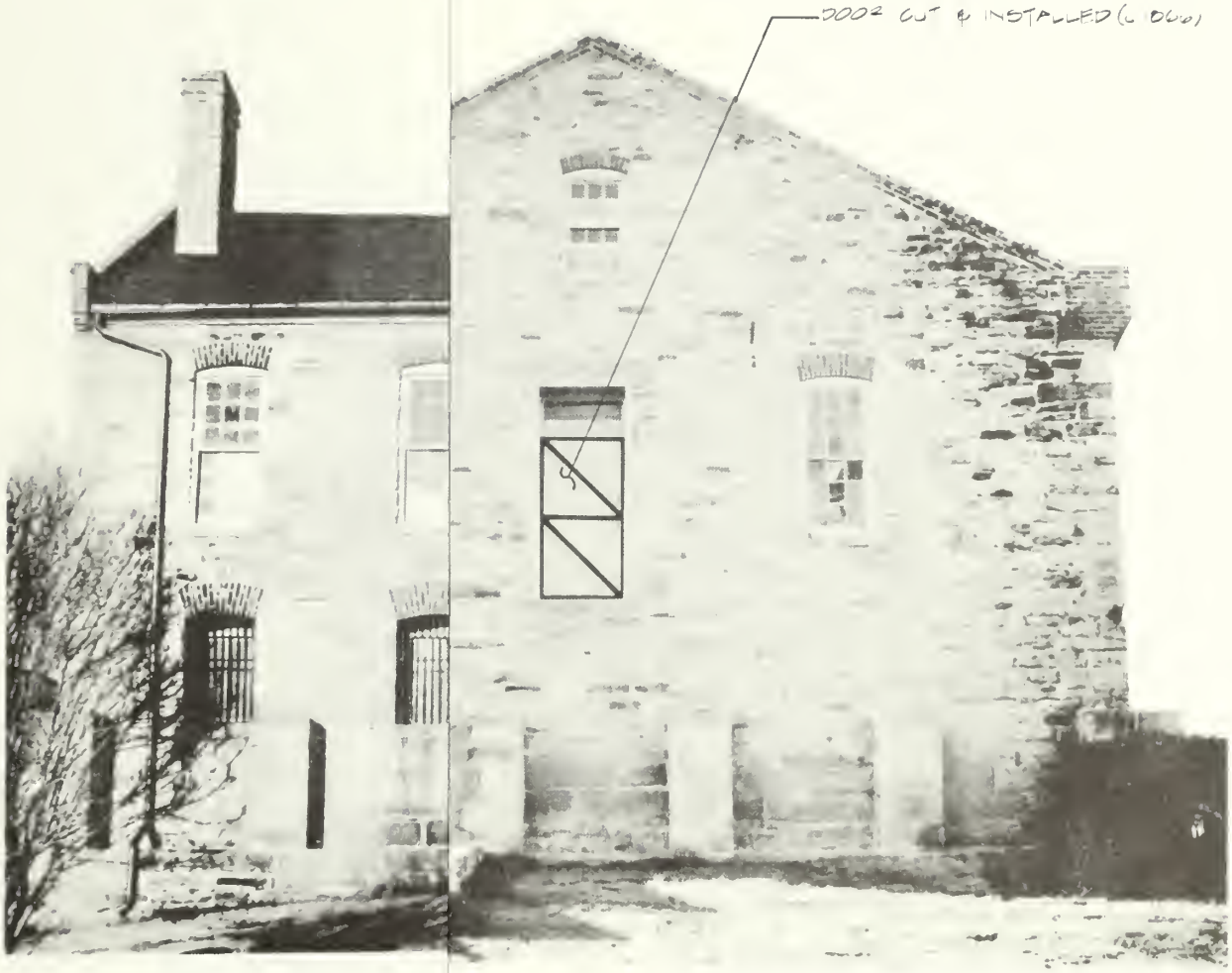
FOR HIST. BRICK - 1 PORTLAND (WHITE) TYPE II
HYDRATED LIME TYPE S
10-12 SAND (WHITE)

- APPLY WATER FOGGING SPRAY, 48 HRS TO CURE
- MIX MORTAR MIN. 3 MIN., MAX 20 MIN
- USE MIN WATER
- COLOR NEW MORTAR JOINTS W/LIGHT BUFF MASONRY TINT TO MATCH HIST. COLOR. APPROX 2 TABLESPOONS PER QT. H_2O)

NOTE
TREATMENTS 1 WERE COMPLETED DURING PHASE I, 1982. TREATMENTS 2 WERE COMPLETED DURING PHASE II, 1984. ▲ INDICATES PROPOSED TREATMENTS WHICH HAVE NOT BEEN COMPLETED. THIS SHEET WAS MODIFIED FROM DRAWING #25.002A WHICH WAS BASED ON DWG. #25.002 SHT 2.

DESIGNED: HISTORIC: FRAZIER DRAWN: DRAFTING BR TECH. REVIEW: THORSON 7/84 DATE 7/85	SUB SHEET NO	TITLE OF SHEET SOUTH AND EAST ELEVATION TREATMENTS PHASE I & II	DRAWING NO. 421 / 25,001 PKG. NO. 104 SHEET 3 OF 14

SIC DATA PHOTOGRAPHS TAKEN JUNE 1982 · CCF



SOUTHEAST ELEVATION

NO SCALE

NOTE
TREATMENT [1] COMPLETED 1985 TREATMENT [2] COMPLETED 1986 AS OVER PHOTOS TAKEN AFTER COMPLETION OF TREATMENTS.

DESIGNED FRAZER	SUB SHEET NO	TITLE OF SHEET	DRAWING NO 42 / 25 OUT
DRAWN NUMBER		SOUTH AND EAST ELEVATIONS AFTER TREATMENT	PKG. NO. 04
TECH. REVIEW			SHEET 4 OF 14
DATE 7/15			

NOTE DETAIL PHOTOGRAPHS TAKEN JAN 1986 CUT

NOTES:

[1]
- CHIMNEY REBUILT TO ORIGINAL HEIGHT & FORM. NEW BRICK MATCHED EXISTING COLOR & SIZE.
- ROOF REPLACED W/ SLATE SHINGLE: 10 X 6 GREY W.6 TO WEATHER, COPPER LAYED.* ALL NEW FLASHING & COUNTERFLASH. NO. 16 G. COPPER.
- BRICK PARAPETS & CORNICES REFACED & REPOINTED. REGLETS REBUILT.
- HOUNSTONE ROOF HATCH REMOVED & NOT REPLACED.
- GUTTERS/DOWNSPOUTS REPLACED W/COPPER SIMILAR TO EXIST. EXCEPT 4 ¢
- LOUVERED PANEL INSTALLED IN ATTIC WINDOW.

[2]
- VENT STACK REMOVED & NOT REPLACED.
- GLASS REMOVED FROM EAST & WEST LOWER WINDOW(DLR.) AND LOUVERED PANELS INSERTED FOR UNINTERRUPTED VENTILATION.
- CONCRETE STAIRS & LANDINGS REMOVED. IRON WORK SALVAGED.
- STONE PIER REMOVED. STONE SALVAGED.
- ENTIRE FACADE CAREFULLY REPOINTED TO MATCH ORIGINAL. BEAM POCKETS RESTORED AS RECESSED AREAS FOR INTERPRETATION.
- PORTIONS OF PIER(E&S. ELEVATIONS) STABILIZED AS RUINS INDICATING HIST. CURTAIN WALL FOR INTERPRETATION.
- GAS PIPING & METER REMOVED.
- ARCH AREA TAKEN DOWN & RESTORED

WINDOW CHANGED TO DOOR (C. 1866)

*SLATE FROM BUCKINGHAM, UNFADING GREY, 3/16" THICK, PRE-PUNCHED NAIL HOLES MATCHED HISTORIC SAMPLE FROM COURTHOUSE.

SOUTH/SOUTHWEST ELEVATION
NO SCALE

DOOR CUT & INSTALLED (C. 1866)

EAST/SOUTHEAST ELEVATION
NO SCALE

NOTE
TREATMENT [1] COMPLETED 1980. TREATMENT [2] COMPLETED 1984. ABOVE PHOTOS TAKEN AFTER COMPLETION OF TREATMENTS.

DESIGNED FRAZIER	SUB SHEET NO	TITLE OF SHEET	DRAWING NO. 421 / 25.001
DRAWN NIMBEM		SOUTH AND EAST ELEVATIONS AFTER TREATMENT	PKG. NO. 104
TECH. REVIEW			SHEET 4 OF 14
DATE: 7/15			

NORTHWEST ELEVATION
NO SCALE

REMOVE TREE

REMOVE/RELOCATE ELECT LINES/METER & PAN
SEE SHEET 11

REMOVED GLAZING AND INSTALLED LOUVERED PANELS THIS WDW [1]

REPOINT STONE RETAINING WALL [2]

NOTE
TREATMENTS [1] COMPLETED DURING PHASE I, 1983. TREATMENTS [2] COMPLETED DURING PHASE I, 1984. ▲ INDICATES PROPOSED TREATMENTS NOT COMPLETED. THIS SHEET WAS MODIFIED FROM DRAWING #25,003A WHICH WAS BASED ON DWG. #25,002, SHT 3.

DESIGNED HISTORIC: FRAZIER	SUB SHEET NO	TITLE OF SHEET	DRAWING NO 421 / 25,001
DRAWN DRAFTING BR.		NORTH AND WEST ELEVATION TREATMENTS PHASE I & II	PKG NO. 104
TECH. REVIEW THORSON			SHEET 5 OF 14
DATE 7/85			

BASIC DATA PHOTOGRAPHS TAKEN JUNE 1982 - CCF

REPLACE ASB W/SLATE SHINGLE ROOF AND ALL FLASHING [1]

TAKE DOWN TO SOUND LEVEL AND REBUILD CHIMNEYS TO HIST. HEIGHT AND FORM. (SEE DETAIL 4/14) NEW BRICK TO MATCH EXISTING (HIST.) COLOR AND SIZE [1]

REMOVE WIRE FABRIC COVERING OVER HOIST END & SEAL AT EDGES W/MORTAR FILL [2]

REPLACE GUTTERS/ DOWNSPOUTS WITH COPPER [1]

REMOVE GLAZING AND INSTALL LOUVERED PANEL THIS WDW [1]

MISC MASONRY REPOINTING ALL FACADES [2] MATCH HISTORIC PRISM JOINT

REMOVE BUSHES

REMOVE TREE

REMOVE/RELOCATE ELECT LINES/METER & PANEL [2] SEE SHEET 11

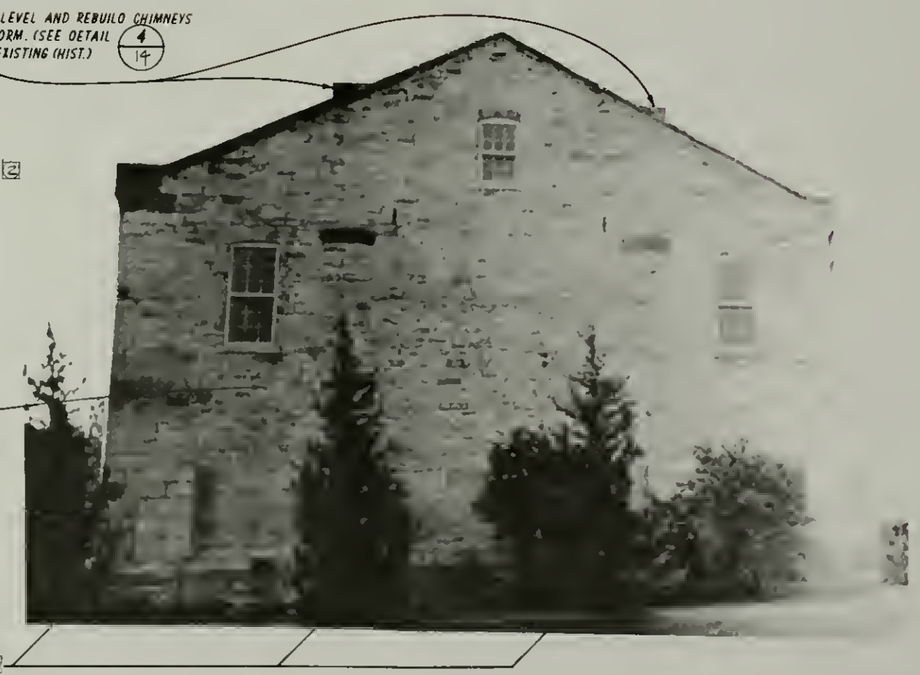
REMOVED GLAZING AND INSTALLED LOUVERED PANELS THIS WDW [1]

REPOINT STONE RETAINING WALL [2]

RELAY 4' WALL SECTION & MOVE IN APPROX. 6"

AFTER ARCH RELAY HAIRLINE CRACK APPEARED

NORTH OR NORTHEAST ELEVATION
NO SCALE



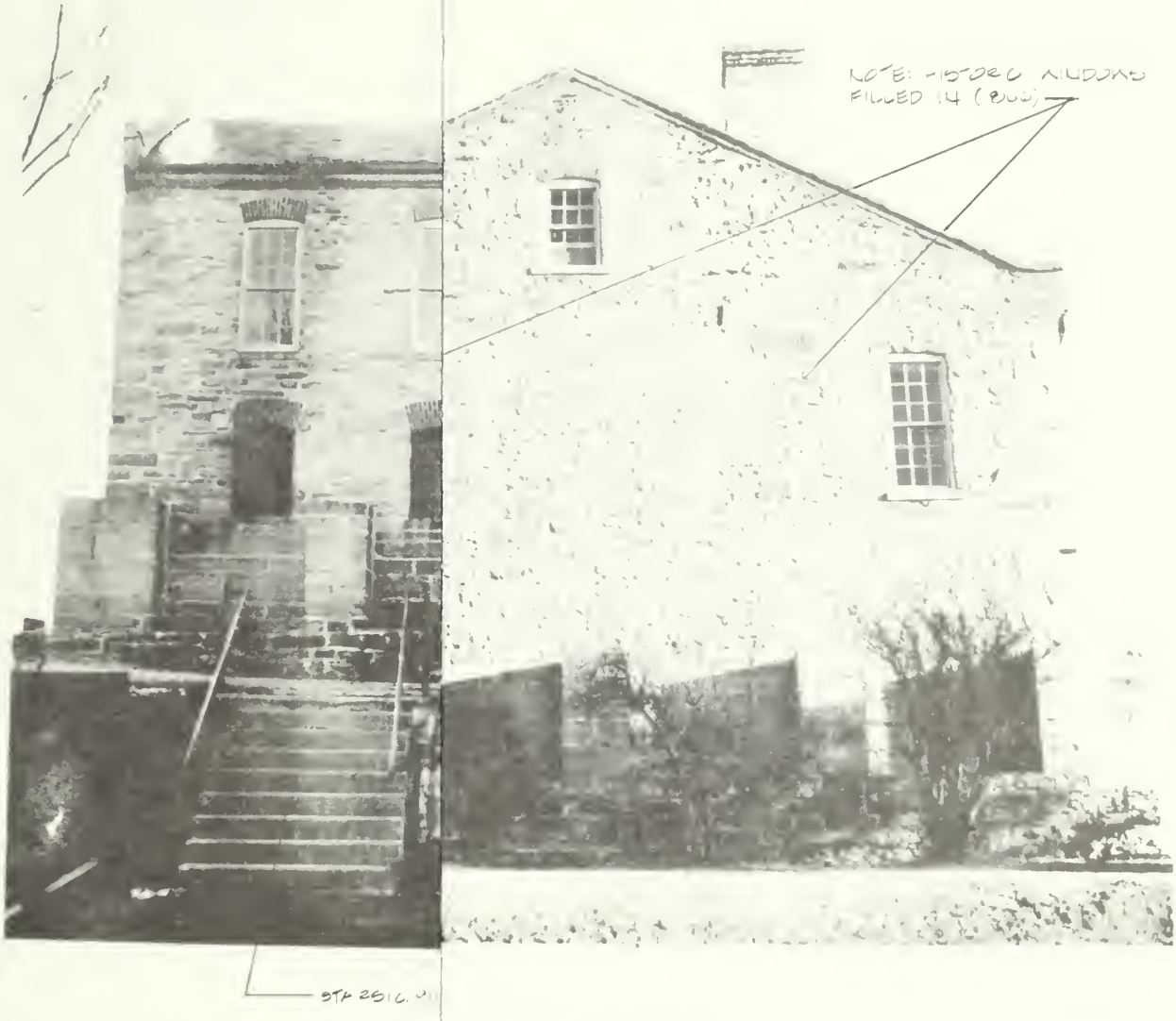
REMOVE TREES [1]

WEST OR NORTHWEST ELEVATION
NO SCALE

NOTE
TREATMENTS [1] COMPLETED DURING PHASE I, 1985. TREATMENTS [2] COMPLETED DURING PHASE II, 1984. ▲ INDICATES PROPOSED TREATMENTS NOT COMPLETED. THIS SHEET WAS MODIFIED FROM DRAWING #25,003A WHICH WAS BASED ON DWG. #25,002, SHT. 3.

DESIGNED HISTORIC: FRAZIER DRAWN DRAFTING BR. TECH. REVIEW THORSON DATE 7/85	SUB SHEET NO	TITLE OF SHEET NORTH AND WEST ELEVATION TREATMENTS PHASE I & II	DRAWING NO 421/25,001 PKG. NO. 104 SHEET 5 OF 14

BASIC DATA: PHOTOGRAPHS TAKEN JUNE 1982 - CCF



NORTH/NWEST ELEVATION

NO SCALE

NOTE
TREATMENT ☐ COMPLETED IN 982 TREATMENT (2)
COMPLETED IN 984. PHOTOS TAKEN AFTER TREATMENT
CONTINUED ON.

DESIGNED FRATER	SUB SHEET NO	TITLE OF SHEET NORTH AND WEST ELEVATIONS AFTER TREATMENT	DRAWING N 621 25.001
DRAWN RAMBER			PKG. NO. 104
TECH. REVIEW THORSON			SHEE 6 OF 1
DATE 7/85			

BASIC DATA: PHOTOGRAPHS TAKEN JAN. 1981

NOTES

1
- CHIMNEY TO C.1847 HEIGHT & FORM W/NEW BRICK MATCHING EXIST. COLOR & SIZE.
- ROOF REPLACED W/NEW SLATE SHINGLES; 9"X14" GREY 3/16" TO WEATHER, CUT NEW NAILED. (16 OZ. COPPER). *
- BRICK PARAPETS & CORNICES REPAIRED & REPOINTED FELT & REBUILT.
- DOWNSPOUTS & GUTTERS REPLACED W/COPPER.
- ATTIC WINDOW OPENED AND LOUVERED PANEL INSERTED.
- TREES AND BUSHES REMOVED.

2
- MASONRY REPOINTING DONE ON ALL FACADES USING CEMENT MORTAR REMOVED. MASONRY JOINTS MATCHED HISTORICAL. BEAM POCKETS & WOOD NAILERS REHABILITATED AS SHOWN.
- GLAZING REMOVED AND LOUVERED PANEL INSTALLED N.E. & W. LOWER WINDOWS.
- DOOR ARCH DELAYED BUT HAIRLINE CRACKS RETURNED AFTER REPAIR.
- ELECTRICAL LINES/METER & PANEL REMOVED & RELOCATED UNDERGROUND & EAST WALL.
- PORTIONS OF PORCH FOUNDATION WALL RESTORED & MOVED IN APPROX. 6.

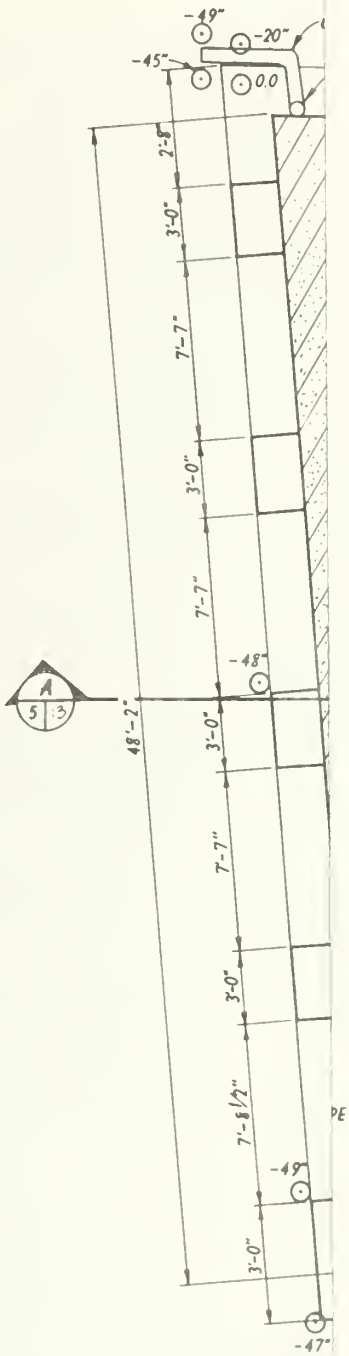
NORTH/NORTHEAST ELEVATION
NO SCALE

WEST/NORTHWEST ELEVATION
NO SCALE

NOTE
TREATMENT 1 COMPLETED IN 1983. TREATMENT 2 COMPLETED IN 1984. PHOTOS TAKEN AFTER TREATMENT COMPLETION.

DESIGNED FRAZIER	SUB SHEET NO	TITLE OF SHEET	DRAWING NO. 421 25.001
DRAWN: NAMBEM		NORTH AND WEST ELEVATIONS AFTER TREATMENT	PKG. NO. 124
TECH. REVIEW: THORSON			SHEET 6 OF 14
DATE: 7/85			

DSC DATA: PHOTOGRAPHS TAKEN JAN. 1985. CLE



NOTE

1. STONE FLOOR – CLEAN W/ BROOM AND VACUUM
2. SALVAGE ALL HISTORIC FABRIC USED IN STAIR CONSTRUCTION & DOCUMENT ALL FABRIC EVIDENCE FOR HIST STAIR CONFIGURATION & DESIGN (TO BE ACCOMPLISHED BY DSC FOR INCLUSION IN HSR. SEE HSR, APPX D)
3. REPOINT STONE WALLS AT STRATEGIC POINTS AS DIRECTED - DOCUMENT AREAS BEFORE & AFTER REPOINTING W/ PHOTOGRAPHS FOR INCLUSION IN HSR
4. SCRAPE, BRUSH & PREPARE WOODEN CEILING THIS FL TO RECEIVE WHITEWASH MIX AS FOLLOWS:
   DISSOLVE 12 POUND COMMON SALT - 6 OZ. POWERED COMMON POTASH ALUM. - 1 OT. UNSULFURED MOLASSES IN 1 1/2 GAL WATER & ADD MIX WITH 1 SACK TYPE N HYDRATED LIME (SLAKED MIN 12 HR IN 5 GAL. HOT WATER) TO HEAVY BRUSHABLE CONSISTENCY
5. DECAYED AREAS OF SUPPORT POSTS WERE CUT OUT AND FILLED W/ WOOD PUTTY PRIOR TO WHITEWASH.
6. RELATIVE ELEVATIONS DESIGNATED ⊙

NOTE

MODIFY WINDOWS (1) (2) (3) (4) - REMOVE GLAZING AND INSTALL WOOD LOUVERS AND INSECT SCREEN FOR VENTILATION. [2]
STORE GLAZING IN ATTIC

TREATMENTS [1] COMPLETED DURING PHASE I, 1983. TREATMENTS [2] COMPLETED DURING PHASE II, 1984. ▲ INDICATES PROPOSED CHANGES NOT COMPLETE. THIS SHEET MODIFIED FROM DRAWING #25,003A SHT 5 WHICH WAS BASED ON DWG. #25,002, SHT 4.

1/4" = 1'-0"

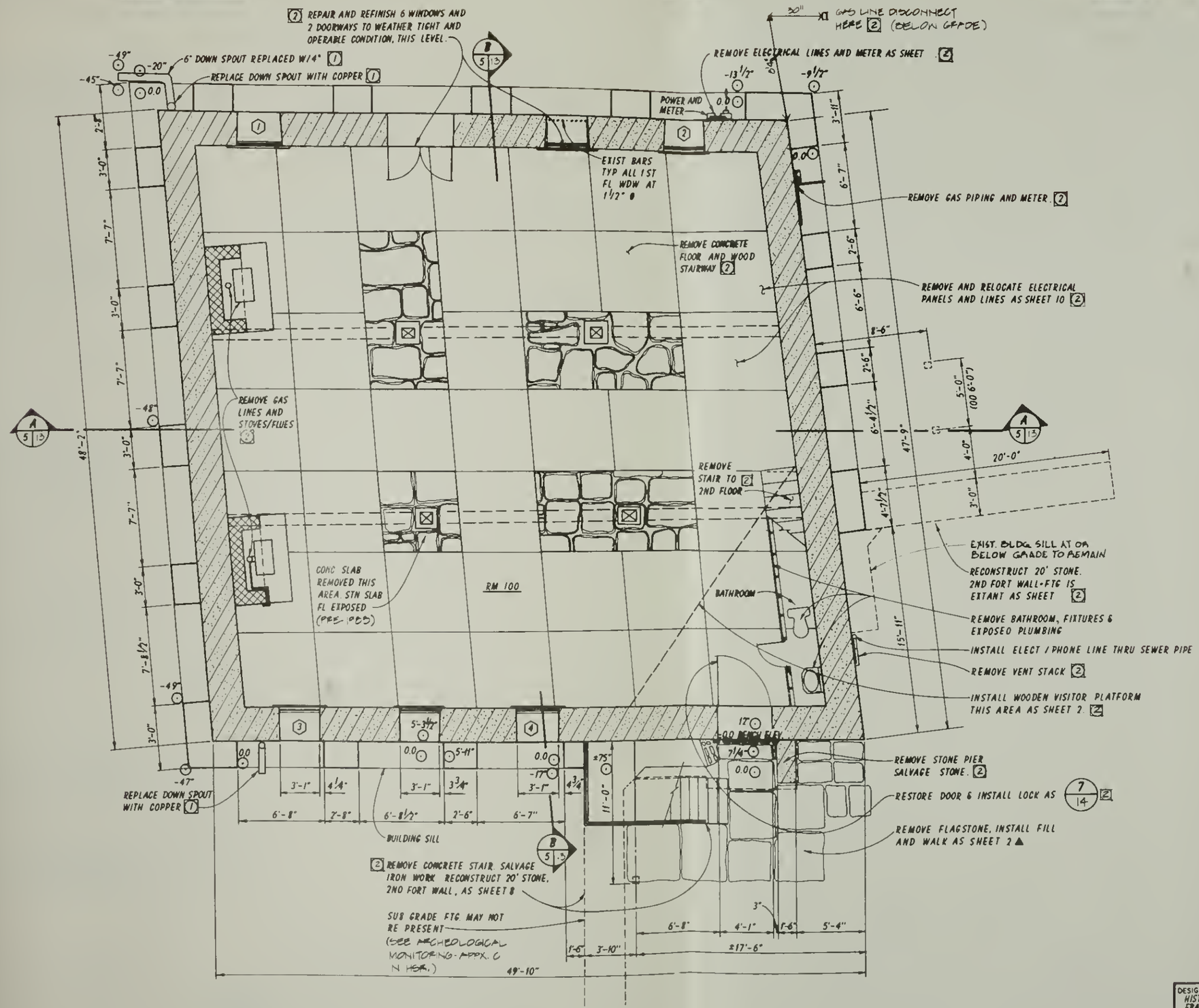
4 0 4 8

SCALE OF FEET

PLAN NORTH

SIGNED HISTORIC: FRAZIER	SUB SHEET NO	TITLE OF SHEET	DRAWING NO 421 / 25,001
DRAWN C Dell		FIRST FLOOR PLAN TREATMENTS	PKG. NO. 104
CH. REVIEW THORSON		PHASE I & II	SHEET 7 OF 14
DATE 7/85			

BASIC DATA DIMENSIONS BASED ON COMBINATION OF FIELD MEASUREMENTS



FIRST FLOOR

(PLAN CUT AT 6'-0" ABOVE SILL)

NOTE

1. STONE FLOOR - CLEAN W/BROOM AND VACUUM
2. SALVAGE ALL HISTORIC FABRIC USED IN STAIR CONSTRUCTION & DOCUMENT ALL FABRIC EVIDENCE FOR HIST STAIR CONFIGURATION & DESIGN (TO BE ACCOMPLISHED BY OSC FOR INCLUSION IN HSR. SEE HSR, APPX D)
3. REPOINT STONE WALLS AT STRATEGIC POINTS AS DIRECTED - DOCUMENT AREAS BEFORE & AFTER REPOINTING W/PHOTOGRAPHS FOR INCLUSION IN HSR
4. SCRAPE, BRUSH & PREPARE WOODEN CEILING THIS FL TO RECEIVE WHITEWASH MIX AS FOLLOWS:
   DISSOLVE 12 POUND COMMON SALT - 6 OZ. POWERED COMMON POTASH ALUM - 1 QT. UNSULFURED MOLASSES IN 1 1/2 GAL. WATER & ADD MIX WITH 1 SACK TYPE N HYDRATED LIME (SLAKED MIN 12 HR IN 5 GAL. HOT WATER) TO HEAVY BRUSHABLE CONSISTENCY
5. DELAYED AREAS OF SUPPORT POSTS WERE CUT OUT AND FILLED W/WOOD PUTTY PRIOR TO WHITEWASH.
6. RELATIVE ELEVATIONS DESIGNATED ⊙

NOTE

MODIFY WINDOWS 1 2 3 4 - REMOVE GLAZING AND INSTALL WOOD LOUVERS AND INSECT SCREEN FOR VENTILATION 2
STORE GLAZING IN ATTIC

TREATMENTS 1 COMPLETED DURING PHASE I, 1983. TREATMENTS 2 COMPLETED DURING PHASE II, 1984. ▲ INDICATES PROPOSED CHANGES NOT COMPLETE. THIS SHEET MODIFIED FROM DRAWING #25.003A, SHT 5 WHICH WAS BASED ON DWG. #25.002, SHT. 4.

1/4" = 1'-0"

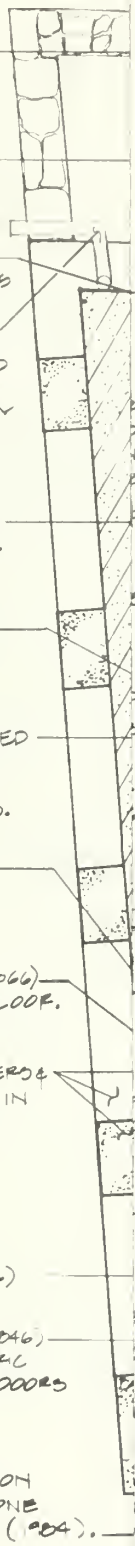
4 0 4 8

SCALE OF FEET

PLAN NORTH

DESIGNED: HISTORIC: FRAZIER DRAWN: C. Dale TECH. REVIEW: THORSON DATE: 7/05	SUB SHEET NO	TITLE OF SHEET FIRST FLOOR PLAN TREATMENTS PHASE I & II	DRAWING NO. 421 25,001 PKG. NO. 104 SHEET 7 OF 14

DATA: DIMENSIONS BASED ON COMBINATION OF FIELD MEASUREMENTS 1982/83 - CCF - AND HABS DWGS SURVEY NO ARK - 16



BRICK WALK & STONE STEPS PROBABLY BUILT ABOUT 1901 TO FACILITATE WAREHOUSE PERIOD USE.

BUILDING SILL STONE CARVED OUT FOR RAMP (PROBABLY c.1901)

DOORS INSTALLED @ 1915 SIMILAR OR DUPLICATE OF ORIGINAL. REFINISHED & NEW LOCK SYSTEMS INSTALLED 1984.

GALVANIZED STEEL GUTTERS & DOWNSPOUTS (c.1915) REPLACED W/ COPPER IN 1985. EVIDENCE DOES NOT SUPPORT COMMISSARY HAD GUTTERS & DOWNSPOUTS ORIGINALLY.

ORIGINAL STONE SLAB FLOOR (c.1846) EXPOSED IN 1983-84.

EXPOSED BEAMS SCRAPED & WHITEWASHED (1984).

INTERIOR WALLS NOT PLASTERED BUT WHITEWASHED ORIGINALLY. WHITEWASH NOT RESTORED TO PRESERVE "GHOST" ELEMENTS.

REPOINTING & MINOR REPAIRS OF FIREPLACES (c.1866) CONDUCTED 1984.

ORIGINAL STONE HEARTHS (c.1866) INSTALLED FLUSH W/STONE FLOOR.

ALL EXTERIOR STONE SILLS, PIERS & WALLS REPAIRED & REPOINTED IN 1984.

OPEN PLAN AS ORIGINAL (c.1846)

JACK ARCH BRICK LINTEL (ORIG. 1846) RESULT 1984 DUPLICATING HISTORIC COLOR & JOINT SHAPE BOTH DOORS

REPRESENTATIVE PORTIONS OF GARRISON WALL RECONSTRUCTION WITH SEGMENTS OF HISTORIC STONE FOOTINGS AND NEW CONCRETE (1984).

GENERAL NOTES:

BUILDING BEGUN AS BASTION IN 1838; ALTERED & FINISHED AS COMMISSARY IN 1845-46.

INTERIOR WALLS LOWER 1'-4 FEET REPAIRED & REPOINTED W/WHITE LIME MORTAR. WALLS NOT WHITEWASHED AS ORIGINAL.

WOODEN CEILING W/JOIST & BEAM SYSTEM EXPOSED.-SCRAPED & REWHITEWASHED.

ELECTRICAL LIGHTING, SECURITY & FIRE/SMOKE SYSTEMS INSTALLED 1984.

RESTORED TO SECOND FORT SCENE APPEARANCE IN 1983-84 W/REMOVAL OF MOST POST-1897 FEATURES & REHABILITATION TO SUPPORT VISITOR USE & INTERPRETATION.

DESIGNED: FRAZIER	SUB SHEET NO	TITLE OF SHEET	DRAWING NO 421
DRAWN: WAHBEH		FIRST FLOOR PLAN AFTER TREATMENTS	25,001
TECH REVIEW: THORSON			PKG. NO. 104 / SHEET 8
DATE: 7/85			OF 14

BRICK WALK & STONE STEPS PROBABLY BUILT ABOUT 1901 TO FACILITATE WAREHOUSE PERIOD USE.

BUILDING SILL STONE CARVED OUT FOR RAMP (PROBABLY C1901)

DOORS INSTALLED @ 1915 SIMILAR OR DUPLICATE OF ORIGINAL. REFINISHED & NEW LOCK SYSTEMS INSTALLED 1984.

GALVANIZED STEEL GUTTERS & DOWNSPOUTS (C 915) REPLACED W/COPPER IN 1983. EVIDENCE DOES NOT SUPPORT COMMISSARY HAD GUTTERS & DOWNSPOUTS ORIGINALLY.

ORIGINAL STONE SLAB FLOOR (C.1846) EXPOSED IN 1983-84.

EXPOSED BEAMS SCRAPED & WHITEWASHED (1984).

INTERIOR WALLS NOT PLASTERED BUT WHITEWASHED ORIGINALLY. WHITEWASH NOT RESTORED TO PRESERVE "GHOST" ELEMENTS.

REPOINTING & MINOR REPAIRS OF FIREPLACES (C. 1866) CONDUCTED 1984.

ORIGINAL STONE HEARTHS (C1866) INSTALLED FLUSH W/STONE FLOOR.

ALL EXTERIOR STONE SILLS, PIERS & WALLS REPAIRED & REPOINTED IN 1984.

OPEN PLAN AS ORIGINAL (C 1846)

JACK ARCH BRICK LINTEL (ORIG. 1846) REBUILT 1984 DUPLICATING HISTORIC COLOR & JOINT SHAPE BOTH DOORS

REPRESENTATIVE PORTIONS OF GARRISON WALL RECONSTRUCTION WITH SEGMENTS OF HISTORIC STONE FOOTINGS AND NEW CONCRETE (1984).

PROBABLE REMAINS OF STONE STAIR FOR 1866 PORCH.

STONE FOUNDATION FOR PORCH ACROSS ENTIRE NORTH FRONT CONSTRUCTED C. 1866 EXTANT. PORCH PROBABLY REMOVED 1886-89.

PROBABLY ORIGINAL 1 1/2" Ø IRON BARS (C. 1846).

WINDOWS THIS FLOOR PROBABLY INSTALLED C 1915 OR LATER. NOS 1, 3, 4 & 6 MODIFIED FOR VENTILATION (1983).

STONE BASE SUPPORTING POSTS & BEAMS.

5"x5" POST MOLDS LOCATED BY ARCHEOLOGY (DOLLAR 1983) PROBABLY FROM PORCH NO. 2 (C 1866).

ROTTED POST BASES (@ LOWER 2') CUT OUT & FILLED W/PUTTY RESTORING SHAPE & WHITEWASHED (1984).

200 AMP ELECTRICAL PANEL CABINET.

27'6"

REPRESENTATIVE PORTIONS OF GARRISON WALL RECONSTRUCTION W/SEGMENTS OF HISTORIC STONE FOOTINGS AS WELL AS NEW CONCRETE (1984).

STAIRWELL OPENING ORIGINAL CONSTRUCTION (C.1846).

FORMER SEWER LINE USED AS CONDUIT FOR NEW ELECTRICAL & TELEPHONE SERVICES. (1984)

GHOST OF STAIR TWO (C 1936) VISIBLE IN WHITEWASH ON EAST WALL

VISITOR PLATFORM & RAIL INSTALLED 1984. SEE (1/2/2).

DOOR INSTALLED @ 1915 SIMILAR TO OR DUPLICATE OF ORIGINAL. REFINISHED & NEW LOCK SYSTEMS & HARDWARE INSTALLED (1984).

20'0"

FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

GENERAL NOTES:

BUILDING BEGUN AS BASTION IN 1838; ALTERED & FINISHED AS COMMISSARY IN 1845-46.

INTERIOR WALLS LOWER 1-4 FEET REPAIRED & REPOINTED W/WHITE LIME MORTAR. WALLS NOT WHITEWASHED AS ORIGINAL.

WOODEN CEILING W/JOIST & BEAM SYSTEM EXPOSED.-SCRAPED & REWHITEWASHED.

ELECTRICAL LIGHTING, SECURITY & FIRE/SMOKE SYSTEMS INSTALLED 1984.

RESTORED TO SECOND PORT SCENE APPEARANCE IN 1820-24 W/REMOVAL OF MOST POST-1897 FEATURES & REHABILITATION TO SUPPORT VISITOR USE & INTERPRETATION.

DESIGNED: FRAZIER DRAWN: WAHBEH TECH. REVIEW: THORSON DATE: 7/85	SUB SHEET NO	TITLE OF SHEET FIRST FLOOR PLAN AFTER TREATMENTS	DRAWING NO. 421 / 25,001 PKG. NO. 104 SHEET 8 OF 14

NEW WINDOWS CUT (C 1866) W/STONE ARCH LINTELS.

WINDOWS FILLED IN TO ACCOMMODATE FIREPLACES IN 1866 BARRACKS CONVERSION. WHITE SANDSTONE SILLS REMOVED AND PLACED IN NEW WINDOWS.

REMOVE GAS LINES AND STOVES [1]

A
6 9

EXTANT

SUMMER BEAMS REINFORCED FROM ABOVE W/DOUBLE STEEL CHANNEL BEAMS & LEDGERS.

ATTIC FLOOR JOISTS EXPOSED & WHITEWASHED ORIGINALLY. LATH PLASTER CEILING INSTALLED IN 1866 &

WALLS PLASTERED COMPLETELY REPAIRS TO PLASTER ON CEILING WALLS REMOVED AS NEEDED (C SEE NOTE 1.

NOTES

1. PLASTER MIX DESIGN TO BE BASED ON ANALYSIS OF EXISTING HISTORIC.
   BASE COAT - SCRATCH DOUBLE-BACK METHOD
   TO <1/8" BELOW ADJACENT FINISH PROFILE: 1 AIR-ENTRAINING MASONRY CEMENT TYPE I AND ± 3% HORSEHAIR (IE., 1 1/2 lb PER SACK) PLUS 3 PART SCREENED MASONRY SAND.
   FINISH COAT - 1 GYP GAUGING TO 4 1/2 PART LIME PUTTY (FINISHING HYDRATED LIME TYPE N SLAKED MIN. 12 HR.) TROWEL FINISH TO DUPLICATE ADJACENT TEXTURE PHOTO DOCUMENT BEFORE & AFTER AT EACH LOCATION TREATED.
2. NEW AND REPLACEMENT POSTS, THIS FLOOR, TO MATCH EXISTING SIZE, DESIGN AND CONNECTION DETAILS (OAK) [1].
3. AFTER FIRST FLOOR & EXTERIOR STAIRS ARE REMOVED ACCESS TO SECOND FL. WILL BE BY LADDER [2]
4. ELEVATIONS (0) ILLUSTRATE EXISTING RELATIVE SAG IN FLOOR IN A LINE BETWEEN PAIRS OF POINTS AT EQUAL ELEVATION (0.0).
5. SMOKE DETECTORS INSTALLED 2ND FLOOR IN 1984.
6. DOOR & WINDOW CONVERSION (C 1866) UTILIZED ORANGE SANDY MORTAR DIFFERENT FROM HARD WHITE ORIG. MORTAR.

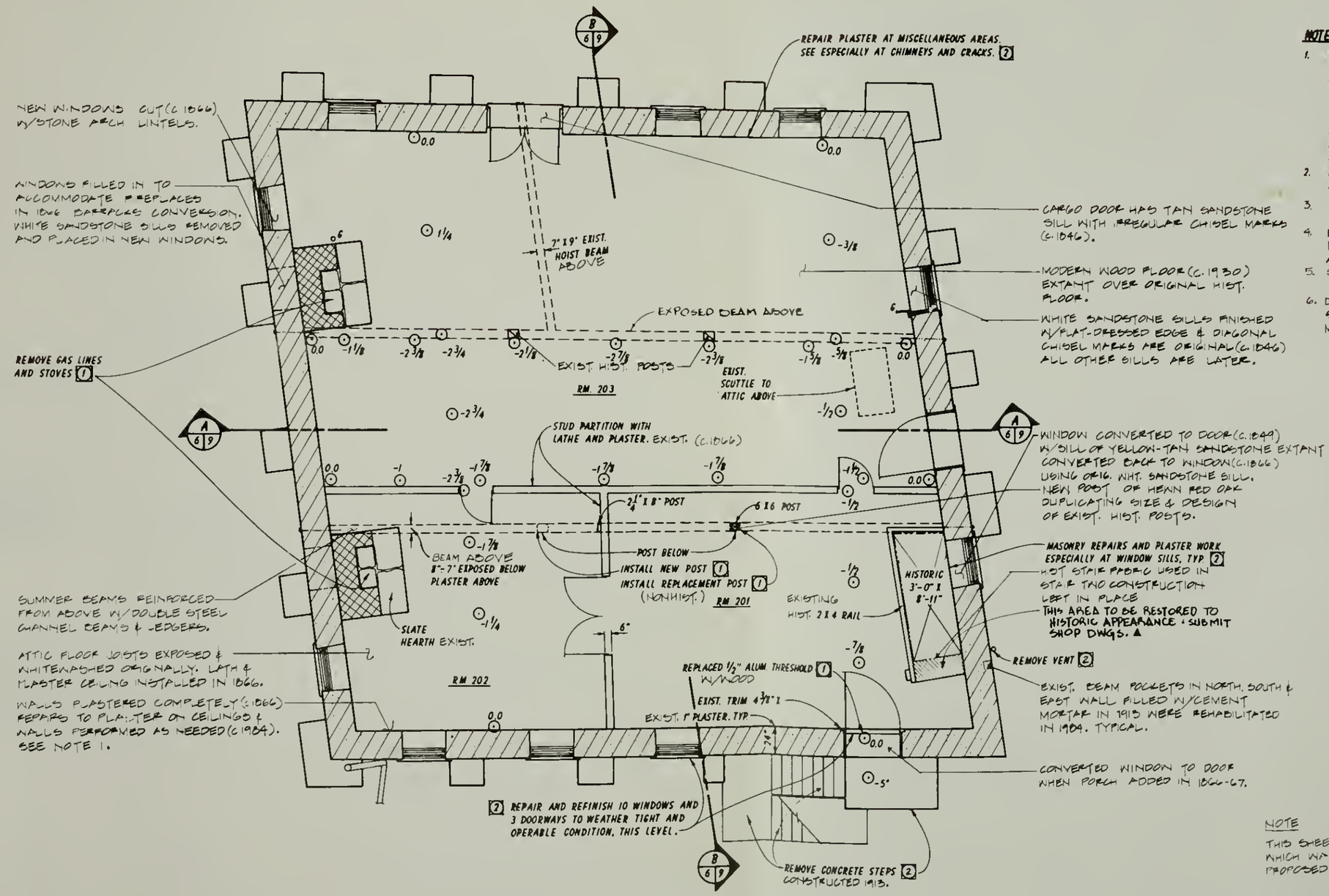
OTE

HIS SHEET MODIFIED FROM DRAWING # 25 003A, SHT. 6 HICH WAS BASED ON DWG. # 25 002, SHT 5. ALL ROPOSED CHANGES HAVE BEEN COMPLETED.

PLAN NORTH

BASIC DATA DIMENSIONS BASED ON HABS DWG SURVEY NO ARK-16. NOT

DESIGNED HISTORIC: FRAZIER	SUB SHEET NO	TITLE OF SHEET	DRAWING NO 421 / 25,001
DRAWN: C Del		SECOND FLOOR PLAN TREATMENTS	PKG. NO. 104
TECH. REVIEW THORSON		PHASE I & II	SHEET 9 OF 14
DATE 7/85			



SECOND FLOOR

1/4" = 1'-0"

NOTES

1. PLASTER MIX DESIGN TO BE BASED ON ANALYSIS OF EXISTING HISTORIC.
   BASE COAT - SCRATCH DOUBLE-BACK METHOD
   TO < 1/8" BELOW ADJACENT FINISH PROFILE: 1 AIR-ENTRAING MASONRY CEMENT TYPE I AND ± 3% HORSEHAIR (i.e., 11 1/2 lb PER SACK) PLUS 3 PART SCREENED MASONRY SAND.
   FINISH COAT - 1 GYP GAUGING TO 4 1/2 PART LIME PUTTY (FINISHING HYDRATED LIME TYPE N SLAKED MIN. 12 HR.) TROWEL FINISH TO DUPLICATE ADJACENT TEXTURE PHOTO DOCUMENT BEFORE & AFTER AT EACH LOCATION TREATED.
2. NEW AND REPLACEMENT POSTS, THIS FLOOR, TO MATCH EXISTING SIZE, DESIGN AND CONNECTION DETAILS (OAK) 1.
3. AFTER FIRST FLOOR & EXTERIOR STAIRS ARE REMOVED ACCESS TO SECOND FL. WILL BE BY LADDER 2
4. ELEVATIONS (0) ILLUSTRATE EXISTING RELATIVE SAG IN FLOOR IN A LINE BETWEEN PAIRS OF POINTS AT EQUAL ELEVATION (0.0).
5. SMOKE DETECTORS INSTALLED 2ND FLOOR IN 1984.
6. DOOR & WINDOW CONVERSION (C 1866) UTILIZED ORANGE SANDY MORTAR DIFFERENT FROM HARD WHITE ORIG MORTAR.

NOTE

THIS SHEET MODIFIED FROM DRAWING # 25.003A, SHT. 6 WHICH WAS BASED ON DWG. # 25.002, SHT 5. ALL PROPOSED CHANGES HAVE BEEN COMPLETED.

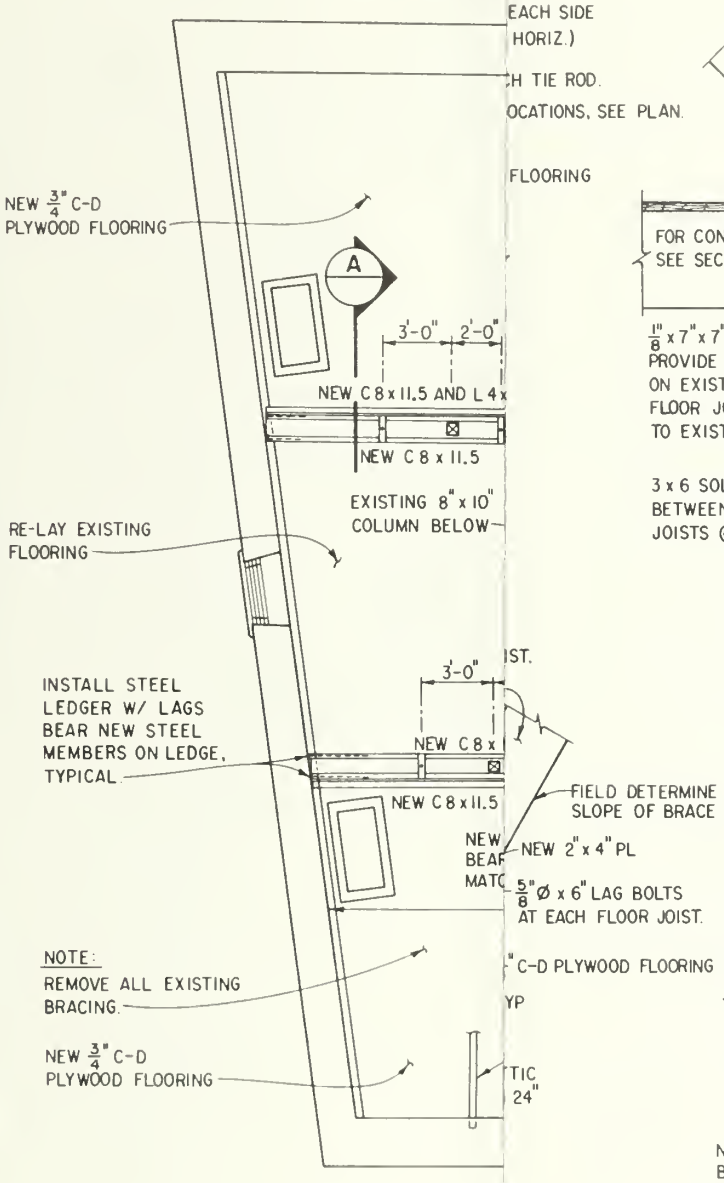
PLAN NORTH

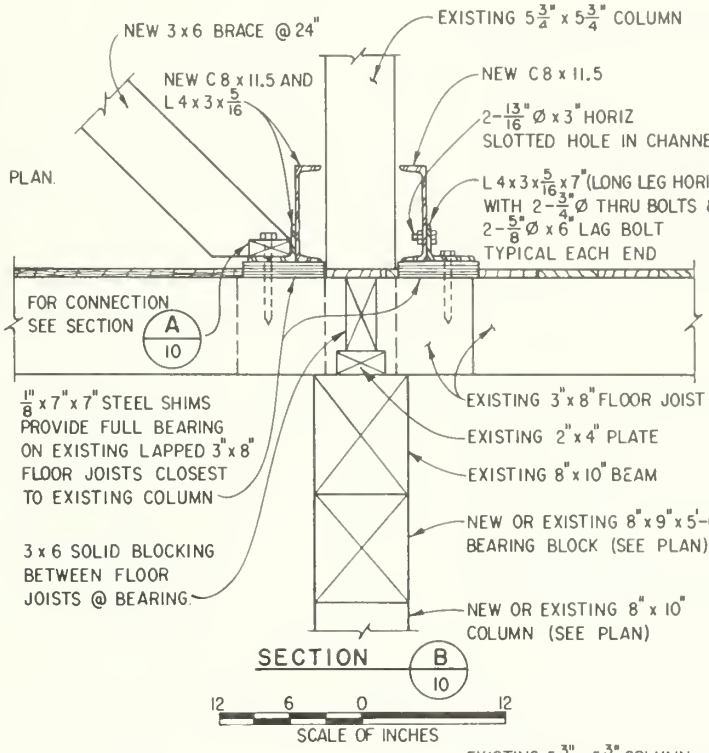
DESIGNED: HISTORIC: FRAZIER DRAWN: C Del TECH. REVIEW: THORSON DATE: 7/85	SUB SHEET NO.	TITLE OF SHEET SECOND FLOOR PLAN TREATMENTS PHASE I & II	DRAWING NO. 421 25,001 PKG. NO. 104 SHEET 9 OF 14

BASIC DATA DIMENSIONS BASED ON HABS DWG SURVEY NO ARK-16. NOT FIELD CHECKED.

GENERAL NOTES

1. FIELD DETERMINE ALL DIMENSIONS
2. LIVE LOADS USED IN DESIGN
   - A. ROOF
   - B. ATTIC FLOOR
   - C. SECOND FLOOR (EXISTING SYST
3. STEEL
   - A. STRUCTURAL STEEL – ASTM
   - B. BOLTS – ASTM A307
4. WOOD – GRADE NO. 1 SOUTHERN PIN

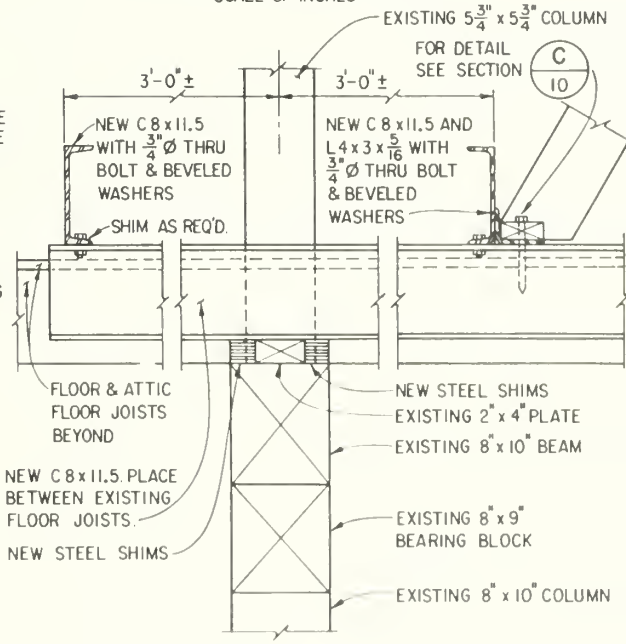




SECTION B/10

12 6 0 12

SCALE OF INCHES



SECTION D/10

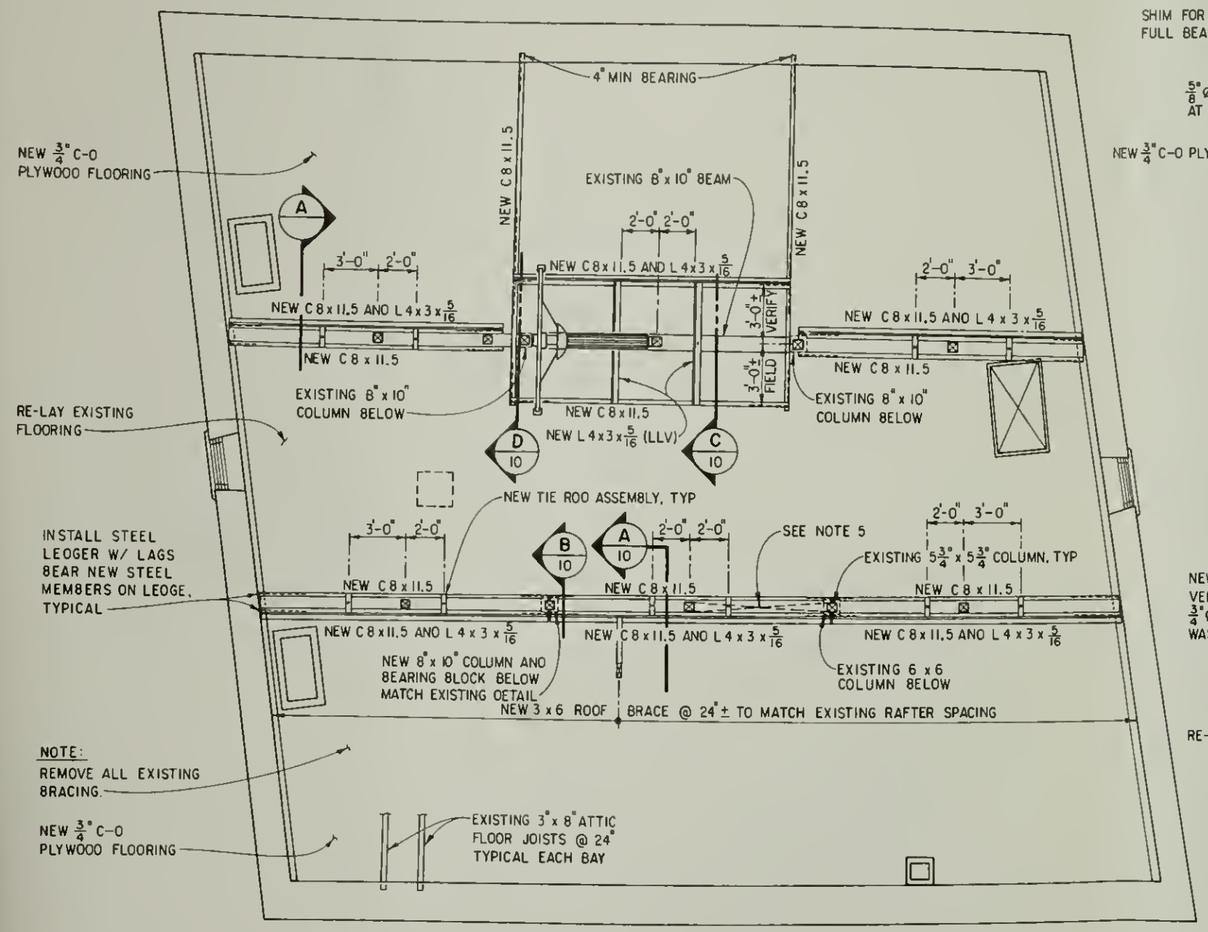
12 6 0 12

SCALE OF INCHES

DESIGNED	SUB SHEET NO	TITLE OF SHEET	DRAWING N
T WONG		ROOF AND ATTIC FLOOR STRUCTURAL MODIFICATIONS ACCOMPLISHED PHASE I	421 25,001
DRAWN C Dehn			PKG. NO. 104
TECH. REVIEW THORSON			SHEE 10 OF 1
DATE 7/85			

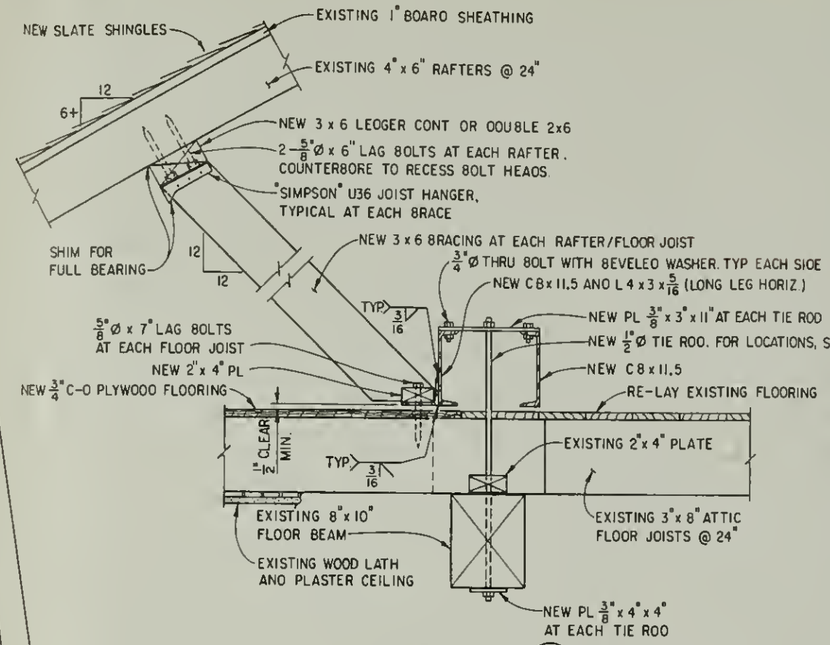
GENERAL NOTES

1. FIELD DETERMINE ALL DIMENSIONS
2. LIVE LOADS USED IN DESIGN
   - A. ROOF ..... 16 PSF
   - B. ATTIC FLOOR ..... 20 PSF
   - C. SECOND FLOOR (EXISTING SYSTEM) ..... 54 PSF
3. STEEL
   - A. STRUCTURAL STEEL – ASTM A36
   - B. BOLTS – ASTM A307
4. WOOD – GRADE NO 1 SOUTHERN PINE
5. PROVIDE NEW 2x8 X-BRACING BETWEEN ALL COLUMNS AT BOTH COLUMN LINES.



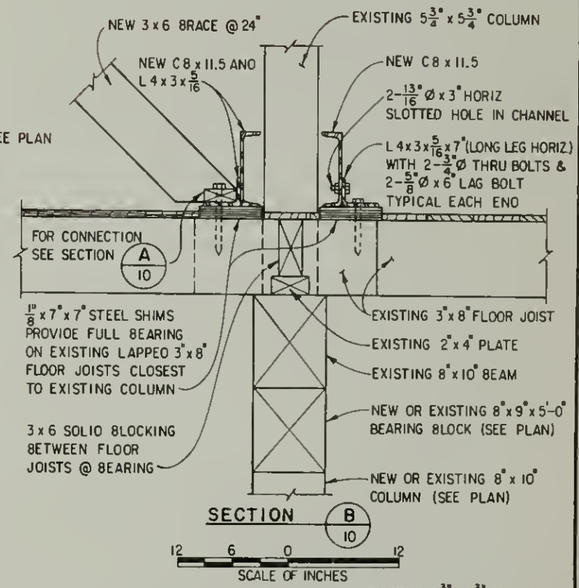
ATTIC FLOOR FRAMING PLAN

4 0 4 8
SCALE OF FEET



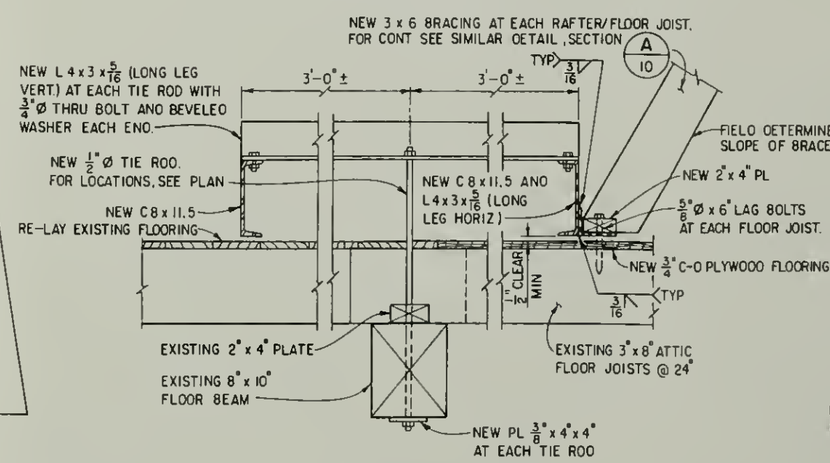
SECTION A/10

12 6 0 12
SCALE OF INCHES



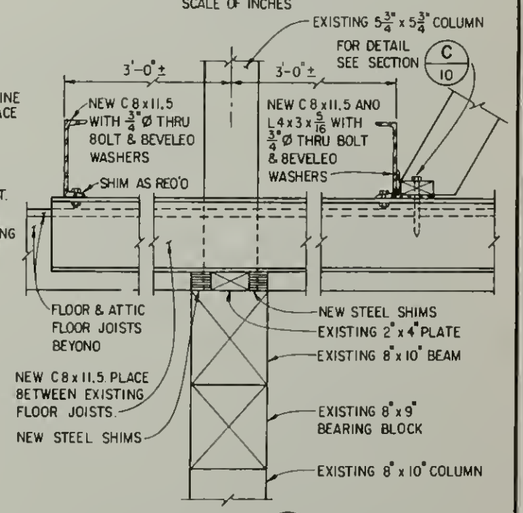
SECTION B/10

12 6 0 12
SCALE OF INCHES



SECTION C/10

12 6 0 12
SCALE OF INCHES



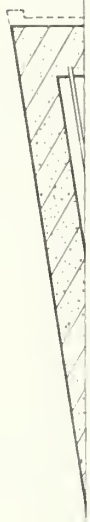
SECTION D/10

12 6 0 12
SCALE OF INCHES

NOTE

WORK OF THIS SHEET IS PRIORITY ONE (1)
THIS SHEET SAME AS MODIFIED FROM DRAWING #25,003P, SHEET 10. CONSTRUCTED AS SHOWN EXCEPT AS INDICATED ON SHT 12.

DESIGNED	SUB SHEET NO	TITLE OF SHEET	DRAWING NO.
T WONG		ROOF AND ATTIC FLOOR STRUCTURAL MODIFICATIONS ACCOMPLISHED PHASE I	421 / 25,001
DRAWN: C Dehn			PKG. NO. 104
TECH. REVIEW: THORSON			SHEET 10 OF 14
DATE: 7/85			



A
7 | 3

BUILD AND INSTALL INSULATED 2X4 AND PLYWOOD TRAP DOOR ON HINGES FOR WINTER CLOSURE

NOTES FOR ATTIC & GENERAL:

1. WOOD PRESERVATIVE RECOMMENDED: BOILED LINSEED OIL [1]
2. RELOCATE INTERIOR ELECTRICAL SYSTEM [2]
3. ACCESSION REPRESENTATIVE SAMPLES OF ALL REMOVED HISTORIC FABRIC INTO PARK ARCHIVES INCLUDE DOCUMENTATION AS TO WHAT/WHERE [1]
4. ELECTRICAL REWIRING, FIRE AND SECURITY DETECTION SYSTEMS TO AWAIT VISITOR USE AND EXHIBITRY PLAN/HSR [2]
5. DESIGN OF 2ND FORT WALL RECONSTRUCTION TO BE BASED ON FIELD CONDITIONS – EITHER BUILD ON EXISTING FOOTING OR NEW CONCRETE SYSTEM BRIDGING OVER EXISTING. [ ] SEE SHT 14
6. NEW MATERIAL TO BE PERMANENTLY STAMPED WITH DATE 1983 [1]
   NEW MATERIAL PHASE II TO BE STAMPED WITH DATE 1984 [1]

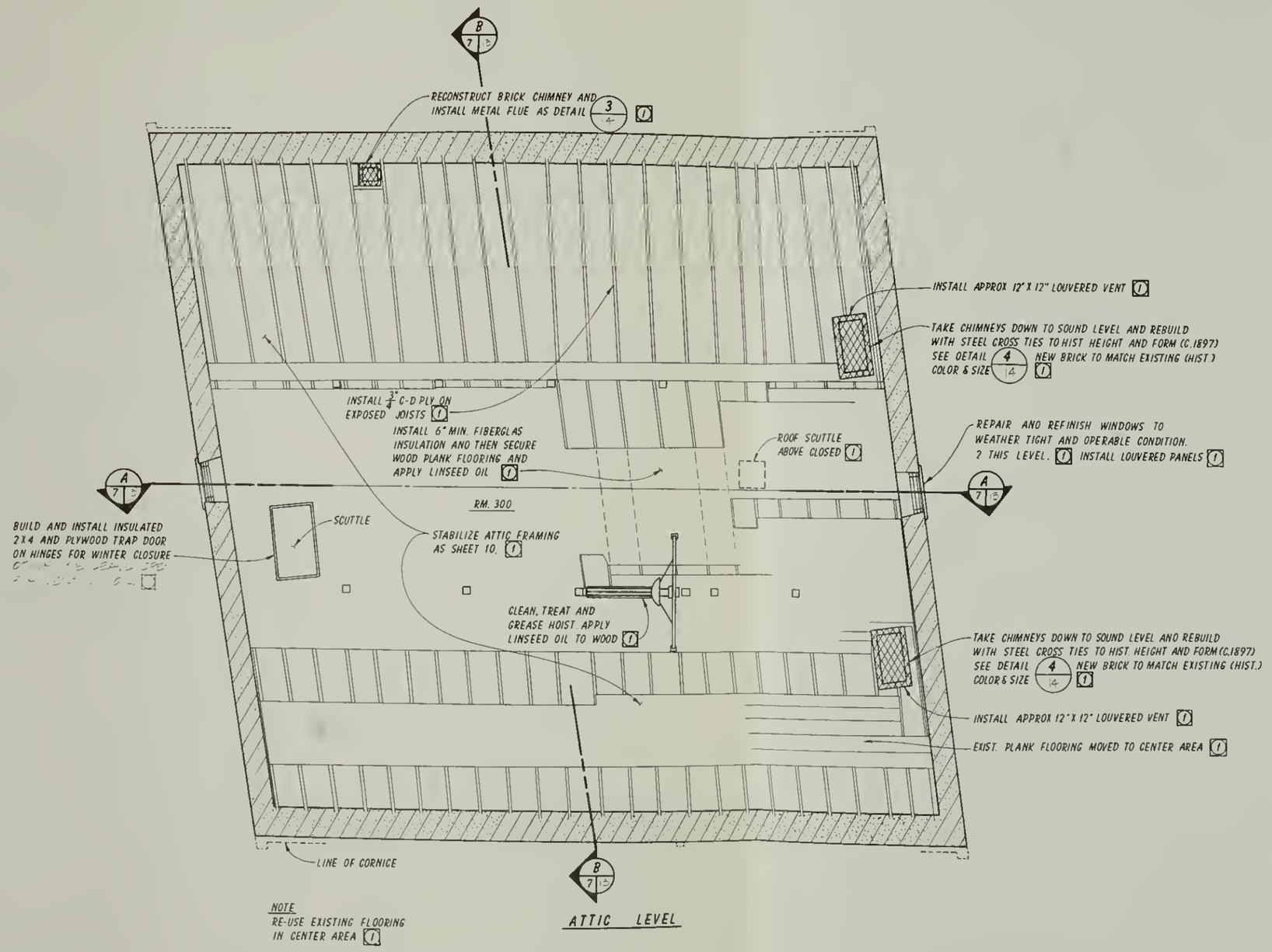
NOTE

THIS SHEET WAS [illegible] FROM DRAWING # 25,003A [illegible] WHICH WAS BASED ON DWG. # 25,002, SHT 2. ALL [illegible] CHANGES HAVE BEEN COMPLETED.

PLAN NORTH

DESIGNED HISTORIC FRAZIER	SUB SHEET NO	TITLE OF SHEET	DRAWING
DRAWN [illegible]		ATTIC FLOOR PLAN TREATMENTS	421 25,001
TECH. REVIEW THORSON			PKG NO. 104 / SHE 1 OF
DATE 7/85			

BASIC DATA. DIMENSIONS BASED ON HABS DWGS SURVEY NO ARK-16



NOTE
RE-USE EXISTING FLOORING IN CENTER AREA 1

ATTIC LEVEL

NOTES FOR ATTIC & GENERAL:

1. WOOD PRESERVATIVE RECOMMENDED: BOILED LINSEED OIL 1
2. RELOCATE INTERIOR ELECTRICAL SYSTEM 2
3. ACCESSION REPRESENTATIVE SAMPLES OF ALL REMOVED HISTORIC FABRIC INTO PARK ARCHIVES INCLUDE DOCUMENTATION AS TO WHAT/WHERE 1
4. ELECTRICAL REWIRING, FIRE AND SECURITY DETECTION SYSTEMS TO AWAIT VISITOR USE AND EXHIBITRY PLAN/HSR 2
5. DESIGN OF 2ND FORT WALL RECONSTRUCTION TO BE BASED ON FIELD CONDITIONS — EITHER BUILD ON EXISTING FOOTING OR NEW CONCRETE SYSTEM BRIDGING OVER EXISTING. 2 SEE SHT. 14.
6. NEW MATERIAL TO BE PERMANENTLY STAMPED WITH DATE 1983 1
   NEW MATERIAL PHASE II TO BE STAMPED WITH DATE 1984 1

NOTE
THIS SHEET WAS MODIFIED FROM DRAWING # 25,035A SHEET 7 WHICH WAS BASED ON DWG. # 25,002, SHT. 6. ALL PROPOSED CHANGES HAVE BEEN COMPLETED.

PLAN NORTH

DESIGNED HISTORIC FRAZIER	SUB SHEET NO	TITLE OF SHEET	DRAWING NO 421 / 25,001
DRAWN C. Dell		ATTIC FLOOR PLAN TREATMENTS	PKG. NO. 104
TECH. REVIEW THORSON			SHEET 11 OF 14
DATE 7/85			

BASIC DATA DIMENSIONS BASED ON HABS DWGS SURVEY NO ARK-16 – NOT FIELD CHECKED

GENERAL NOTES

- NO VISITOR ACCESS TO ATTIC AREA.
- PLAN CUT BEGINS AT EAVE LEVEL ON NORTH & SOUTH SIDES AND RISES TO WINDOW LEVEL IN CENTER.

ONDITION,
R UNDER-

SISTER RAFTERS ADDED & EXIST DECAYED RAFTERS ABOVE REPLACED 1905.

HISTORIC HOISTING MACHINE USED TO MOVE SUPPLIES TO & FROM 2ND FLOOR. CLEANED, PRESERVED & GREASED (1905).

ED THIS
T. TO
ATTIC LEVEL.

BRICK CHIMNEYS TAKEN DOWN TO JOIST LEVEL & REBUILT DUPLICATING APPEARANCE (C.1897) IN 1905. ALSO INSTALLED VENTS. (2 X 12)

CHANNEL
NIMAL
HELP SUPPORT
ED 1905.

RANDOM WIDTH PLANKING HISTORICAL FABRIC RELAYED IN CENTER AREA.

FITTED
R VENTILATION

WN, TYP.

YPICAL (1905)
BELOW)
D & REPLACED
'S @ 24" ± TO
ACING. (1905)

NEW STEEL MEMBERS BEAR ON STEEL LEDGER W/LAGS. TYPICAL.

GABLE END WALLS 6 THINNER AS THEY RISE ABOVE ATTIC FLOOR.

D THIS AREA
HORIZONTALLY

RECONSTRUCTED
CE WITHOUT

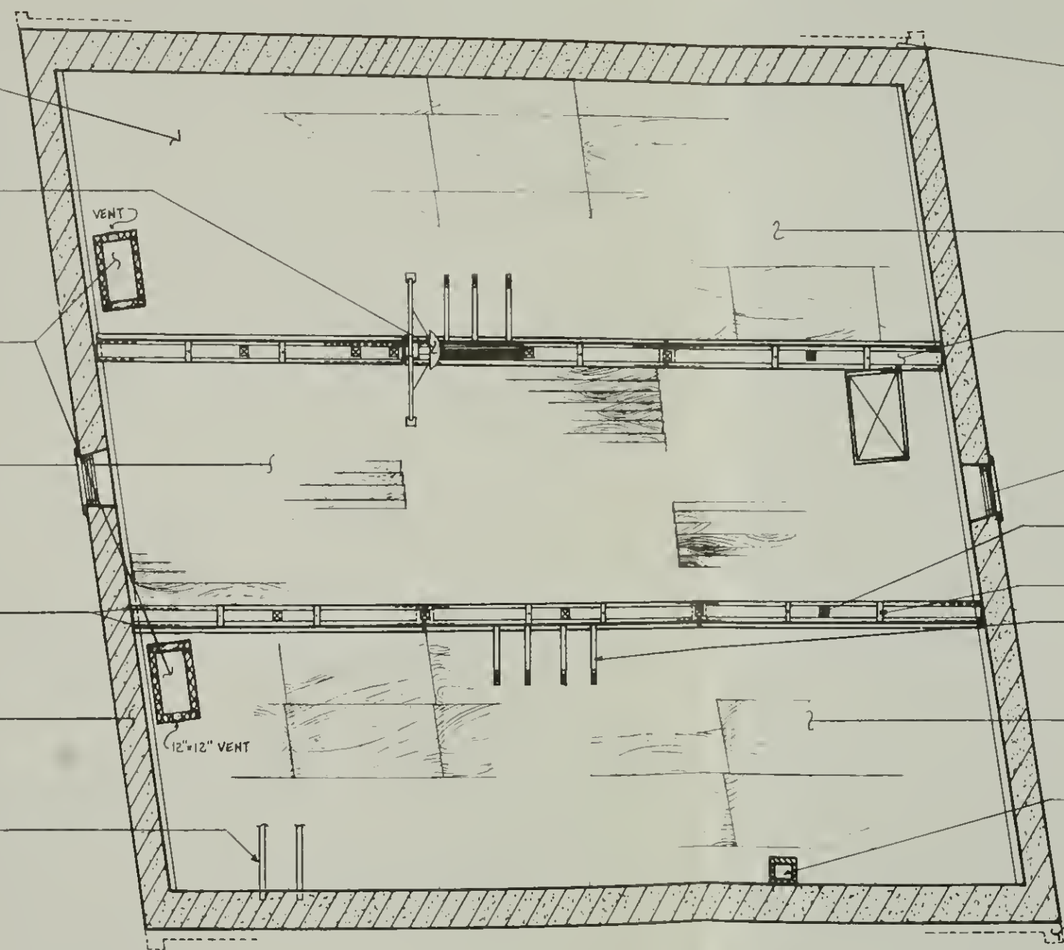
EXIST. 3 X 8 ATTIC FLOOR JOISTS @ 24" TYPICAL EACH BAY.

PLICATING
METAL TIES
GING BETWEEN

DESIGNED: FRAZIER	SUB SHEET NO	TITLE OF SHEET	DRAWING N
DRAWN: WAHBEH		ATTIC FLOOR PLAN AFTER TREATMENT	421 25,001
TECH REVIEW: THORSON			PKG. NO. 104
DATE: 7/85			SHEE 12 OF 14

GENERAL NOTES

- NO VISITOR ACCESS TO ATTIC AREA.
- PLAN CUT BEGINS AT EAVE LEVEL ON NORTH & SOUTH SIDES AND RISES TO WINDOW LEVEL IN CENTER.



SISTER RAFTERS ADDED & EXIST. DECAYED RAFTERS ABOVE REPLACED 1905.

HISTORIC HOISTING MACHINE USED TO MOVE SUPPLIES TO & FROM 2ND FLOOR. CLEANED, PRESERVED & GREASED (1905).

BRICK CHIMNEYS TAKEN DOWN TO JOIST LEVEL & REBUILT DUPLICATING APPEARANCE (c.1897) IN 1905. ALSO INSTALLED VENTS. (12"x12")

RANDOM WIDTH PLANKING HISTORICAL FABRIC RELAYED IN CENTER AREA.

NEW STEEL MEMBERS BEAR ON STEEL LEDGER W/LAGS. TYPICAL.

GABLE END WALLS 6" THINNER AS THEY RISE ABOVE ATTIC FLOOR.

EXIST. 3"x8" ATTIC FLOOR JOISTS @ 24" TYPICAL EACH BAY.

NORTH CORNICE IN GOOD CONDITION, LITTLE REPAIR NEEDED OR UNDERTAKEN.

AFTER 6" INSULATION ADDED THIS AREA SHEATHED W/ ¾" PLY TO HORIZONTALLY REINFORCE ATTIC LEVEL. (1905).

15' LONG STEEL DOUBLE CHANNEL BEAMS TO REINFORCE MINIMAL TRANSVERSE BEAMS & HELP SUPPORT NEW SLATE ROOF INSTALLED 1905.

WINDOWS (c.1913 OR LATER) FITTED W/ LOUVERED PANELS FOR VENTILATION IN 1905.

EXIST. 5 3/8" x 5 3/8" COLUMN, TYP.

NEW TIE ROD ASSEMBLY, TYPICAL (1905) (TIES TO TRANSVERSE BEAM BELOW)

DIAGONAL BRACING REMOVED & REPLACED W/UNIFORM SYSTEM OF 3x6'S @ 24"± TO MATCH EXIST. RAFTER SPACING. (1905)

AFTER 6" INSULATION ADDED THIS AREA SHEATHED W/ ¾" PLY. TO HORIZONTALLY REINFORCE ATTIC LEVEL.

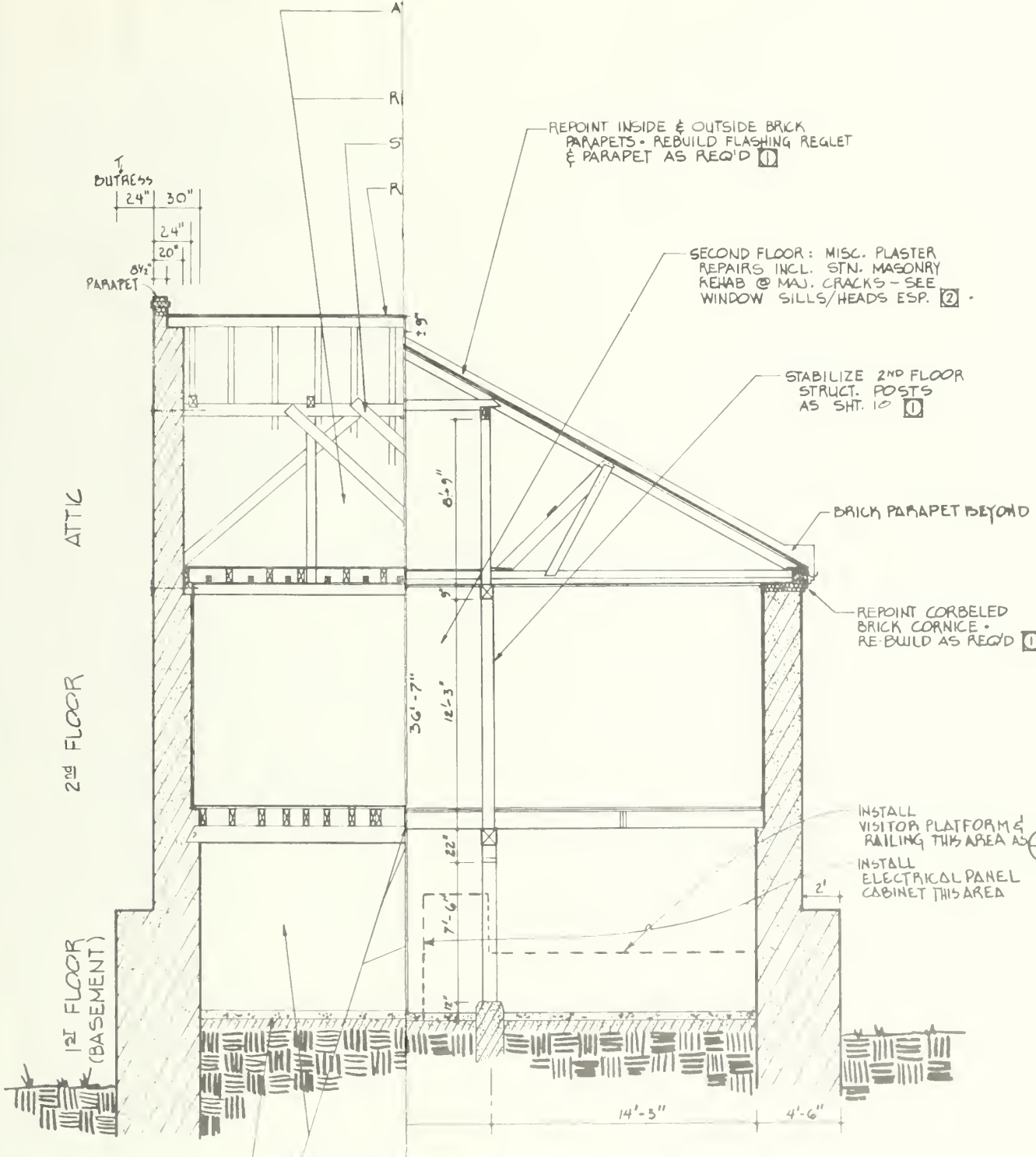
SMALL SOUTH CHIMNEY RECONSTRUCTED TO POST-1897 APPEARANCE WITHOUT METAL FLUE.

SOUTH CORNICE REBUILT DUPLICATING ORIGINAL PROFILE USING METAL TIES TO SECURE TO BRICK NOGGING BETWEEN ATTIC JOISTS.

ATTIC FLOOR PLAN
SCALE: 1/4" = 1'-0"

DESIGNED: FRAZIER DRAWN: WAHBEH TECH. REVIEW: THORSON DATE: 7/85	SUB SHEET NO	TITLE OF SHEET ATTIC FLOOR PLAN AFTER TREATMENT	DRAWING NO. 421 / 25,001 PKG. NO. 104 SHEET 12 OF 14

U.S. GOVERNMENT PRINTING OFFICE: 1986-677-649



NOTE
THIS SHEET MODIFIED FROM DRAWING #25,003 SHT 0.
ALL CHANGES HAVE BEEN COMPLETED AS INDICATED.

DESIGNED HISTORIC & FRAZIER	SUB SHEET NO	TITLE OF SHEET SECTIONS THROUGH COMMISSARY - TREATMENTS	DRAWING 421 25,001
DRAWN C FRAZIER			PKG. NO. 104
TECH REVIEW THORSON			SHE 1 OF
DATE 7/85			

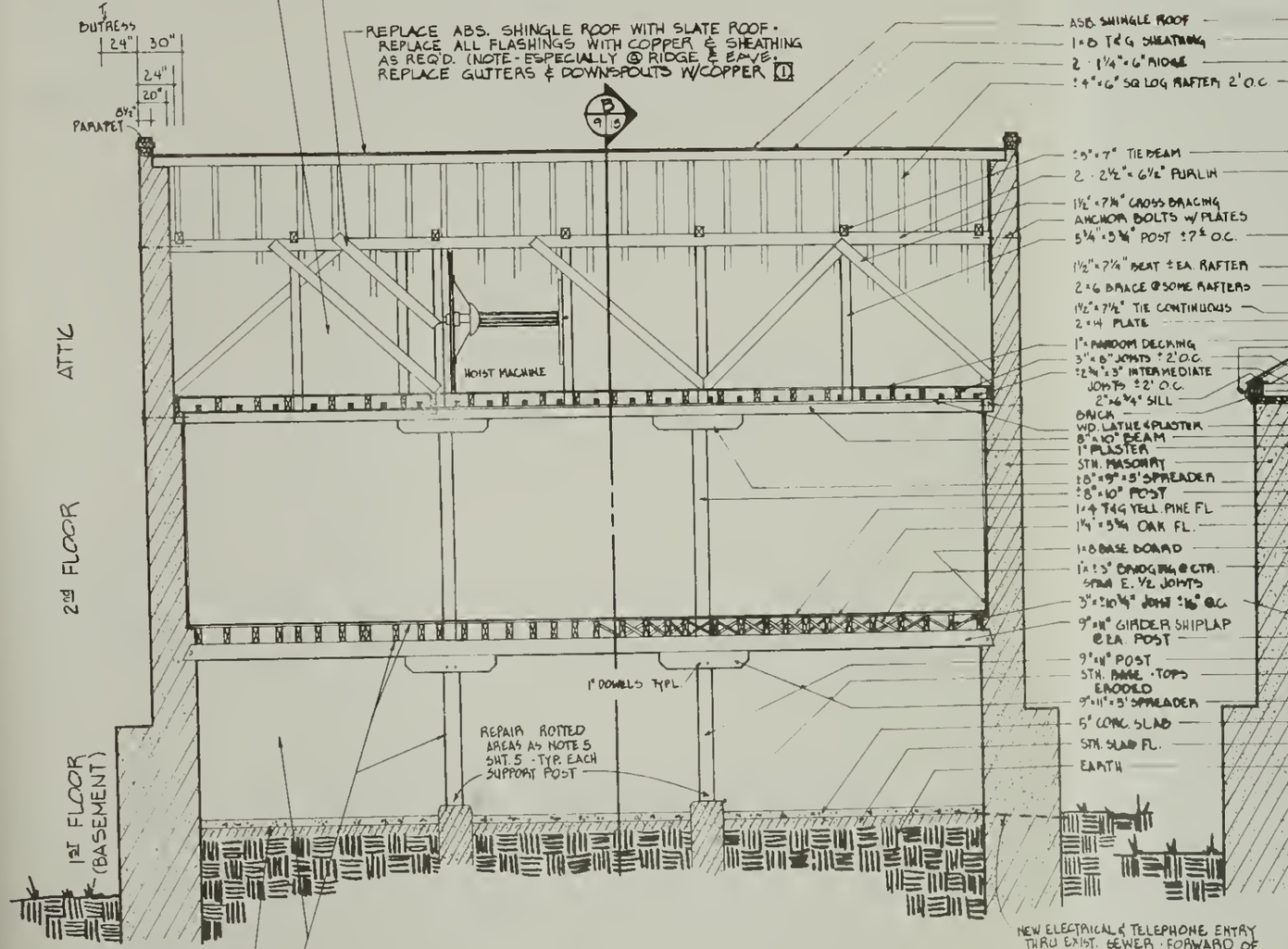
BASIC DATA: DIMENSIONS BASED ON FIELD MEASUR

ATTIC GENERAL: a) CLEAN OUT b) ACCESSION INTO PARK ARCHIVES HISTORIC FABRIC FRAGMENTS - WD. SHINGLES, SLATE SHINGLES, CHIMNEY FLUE, SHEATHING FRAG, ETC. c) CLEAN & TREAT HOIST MACHINE WITH LINSEED OIL & GREASE BEARINGS. d) SECURE WD. PLANK FLOORING TO SAFE WALKING SURFACE & APPLY LINSEED OIL. [1]

RECONSTRUCT BRICK CHIMNEY AS DETAIL 4/4 TO COINCIDE WITH ROOF REPLACEMENT [1]

STABILIZE ATTIC FRAMING AS SHT. 10 [1]

REPLACE ABS. SHINGLE ROOF WITH SLATE ROOF. REPLACE ALL FLASHINGS WITH COPPER & SHEATHING AS REQ'D. (NOTE - ESPECIALLY @ RIDGE & EAVE. REPLACE GUTTERS & DOWNSPOUTS W/COPPER [1]



A 9 13

A 5,6,7,9,10 SECTION LOOKING NORTHEAST THRU RIDGE LINE

FIRST FLOOR: a) STABILIZE SUPPORT POSTS AS SHT. [1]
b) REPAIR STN. MASONRY @ CRACKS/BRICK CHIMNEYS & @ MISC. LOCATIONS [1]
c) WHITEWASH WOOD CEILING [2]

REMOVE CONC. SLAB FLOOR - LOOK FOR FABRIC EVIDENCE OF WOOD FL. SYST. - CLEAN STN. FL. - [2]

REPOINT INSIDE & OUTSIDE BRICK PARAPETS - REBUILD FLASHING REGLET & PARAPET AS REQ'D [1]

SECOND FLOOR: MISC. PLASTER REPAIRS INCL. STN. MASONRY REHAB @ MAJ. CRACKS - SEE WINDOW SILLS/HEADS ESP. [2] -

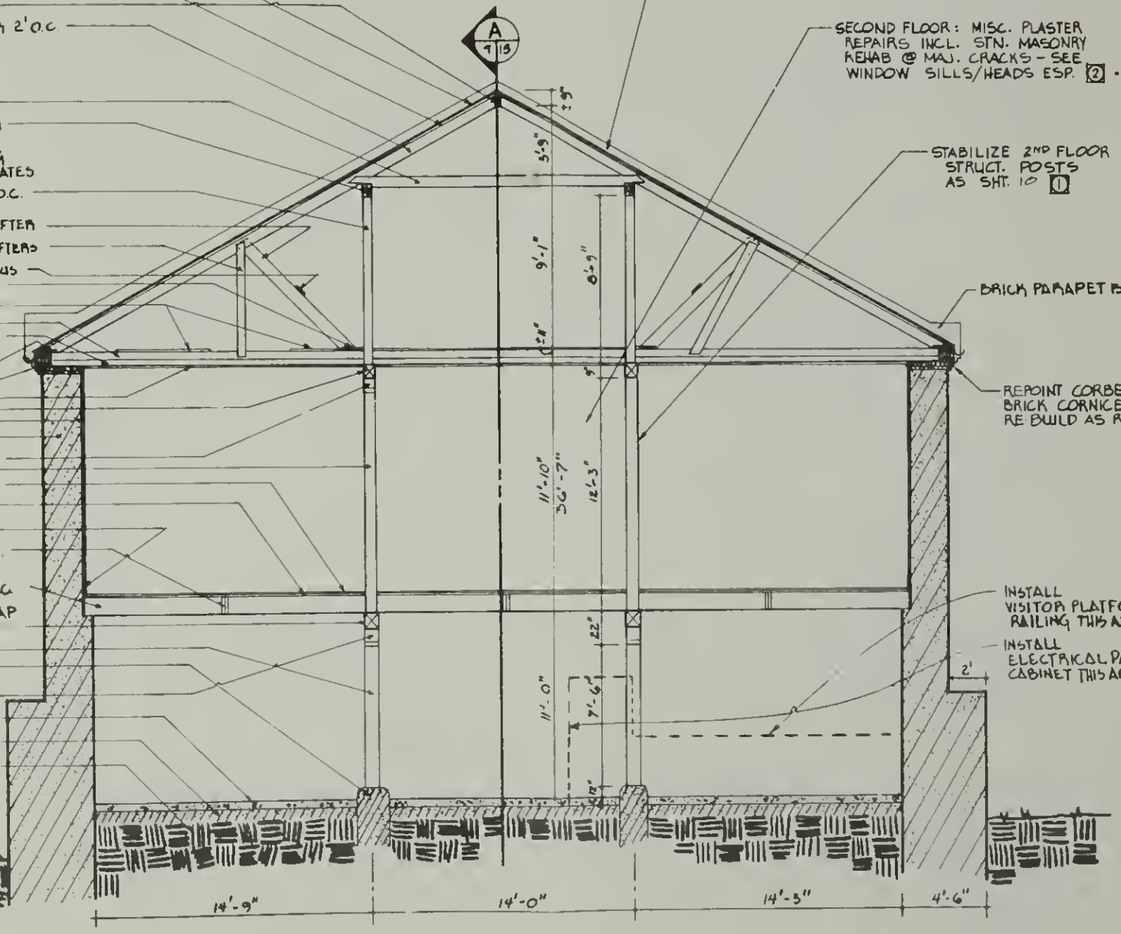
STABILIZE 2ND FLOOR STRUCT. POSTS AS SHT. 10 [1]

BRICK PARAPET BEYOND

REPOINT CORBELED BRICK CORNICE - RE BUILD AS REQ'D [1]

INSTALL VISITOR PLATFORM & RAILING THIS AREA AS 1/2

INSTALL ELECTRICAL PANEL CABINET THIS AREA



B 5,6,7,9,10 SECTION LOOKING SOUTHEAST THRU CTR. LINE

0 1 2 4 10 FT.

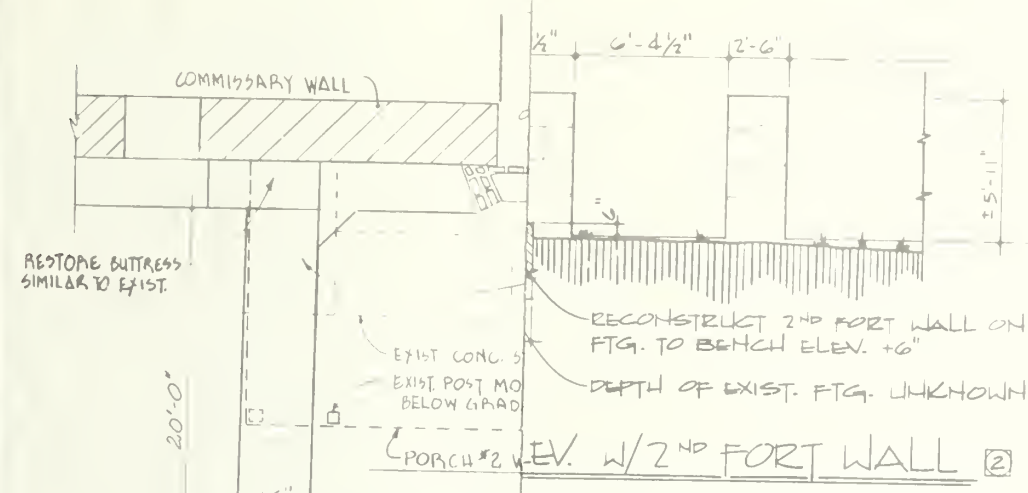
¼" = 1'-0"

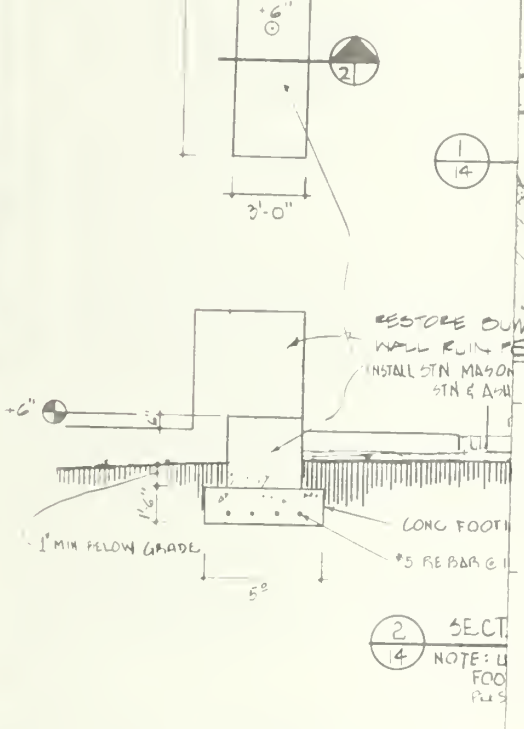
NOTE: SECTIONS DO NOT SHOW SAG & DEFORMATION DUE TO AGE; DIMENSIONS ARE APPROX; HIST. TIMBER (OAK) IS ROUGH SAWN - SIZE VARIES. BUILDING SPLAY NOT ILLUSTRATED.

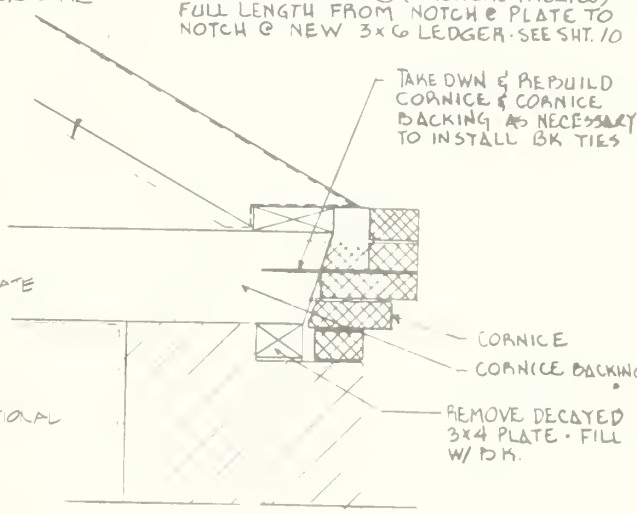
NOTE
THIS SHEET MODIFIED FROM DRAWING # 25 003, SHT 9.
ALL CHANGES HAVE BEEN COMPLETED AS INDICATED.

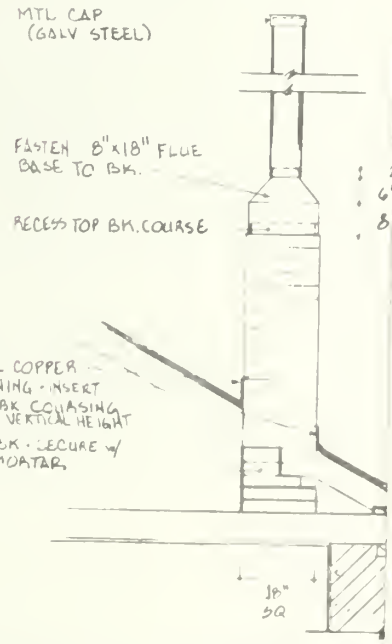
DESIGNED HISTORIC & FRAZIER	SUB SHEET NO	TITLE OF SHEET: SECTIONS THROUGH COMMISSARY - TREATMENTS	DRAWING NO. 421 / 25,001
DRAWN C. FRAZIER			PKG. NO. 104
TECH. REVIEW THORSON			SHEET 13 OF 14
DATE 7/85			

NOTE: DIMENSIONS BASED ON FIELD MEASUREMENTS 1982/83 - CCF - NOT FIELD VARIFIED









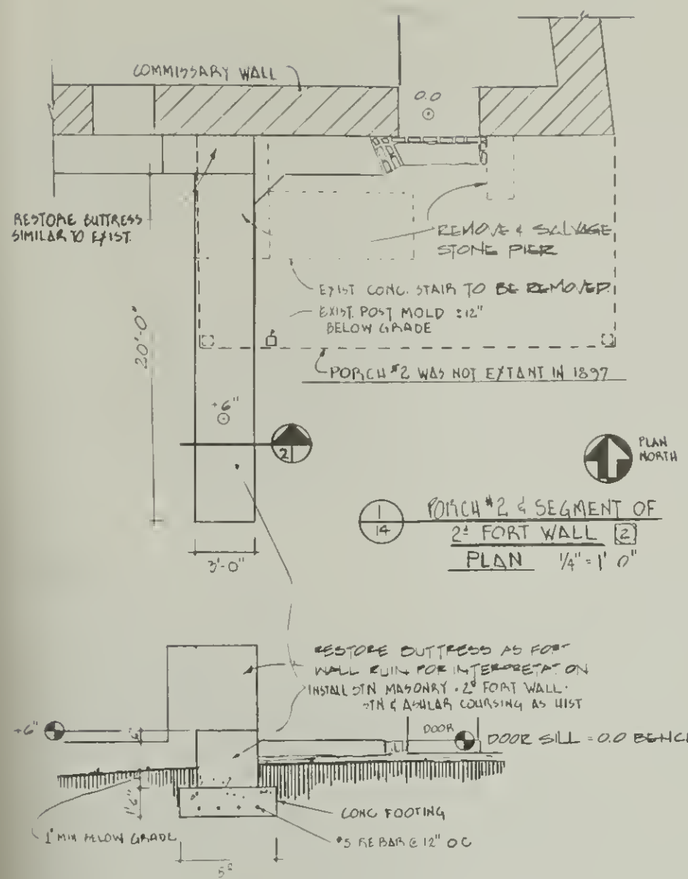
NOTES

1. PRESSURE TREATED (PT) MATERIAL TO BE CCA - TYPE C AS PER AWPA STANDARDS

2. THIS SHEET WAS MODIFIED FROM DRAWING #25 003A SHT 8. ALL PROPOSED CHANGES HAVE BEEN MADE AS INDICATED.

BASIC DATA: RECONSTRUCTION DTLS BASED ON HIST.

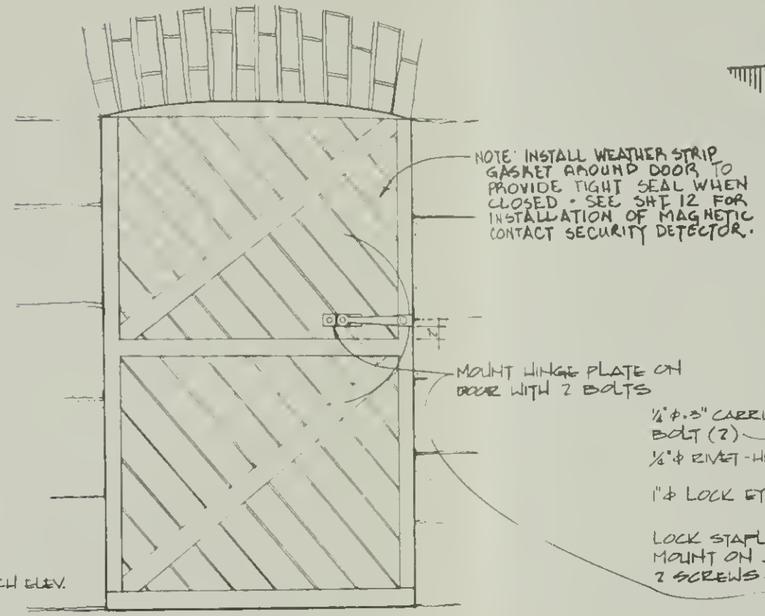
TITLE OF SHEET	PREPARED	DRAWING NO.
RECONSTRUCTION DETAILS	HIST. FRAZIER	421
	DESIGNED FRAZIER	25,001
	DRAWN THORSON	PCIP PKG 124
	CHECKED	SHEET 14
	7/85 DATE	OF 14



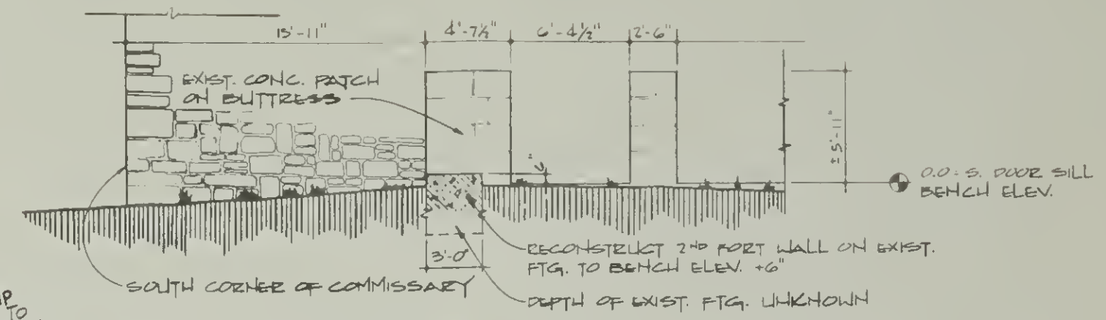
1/14 PORCH #2 & SEGMENT OF 2nd FORT WALL [2]
PLAN 1/4" = 1' 0"

2/14 SECT. @ RECONSTRUCTED WALL [2]
NOTE: USE THIS DTL WHERE HIST STN FOOTING IS NOT PRESENT. WHERE PRESENT, BUILD ON EXISTING FOOTING.

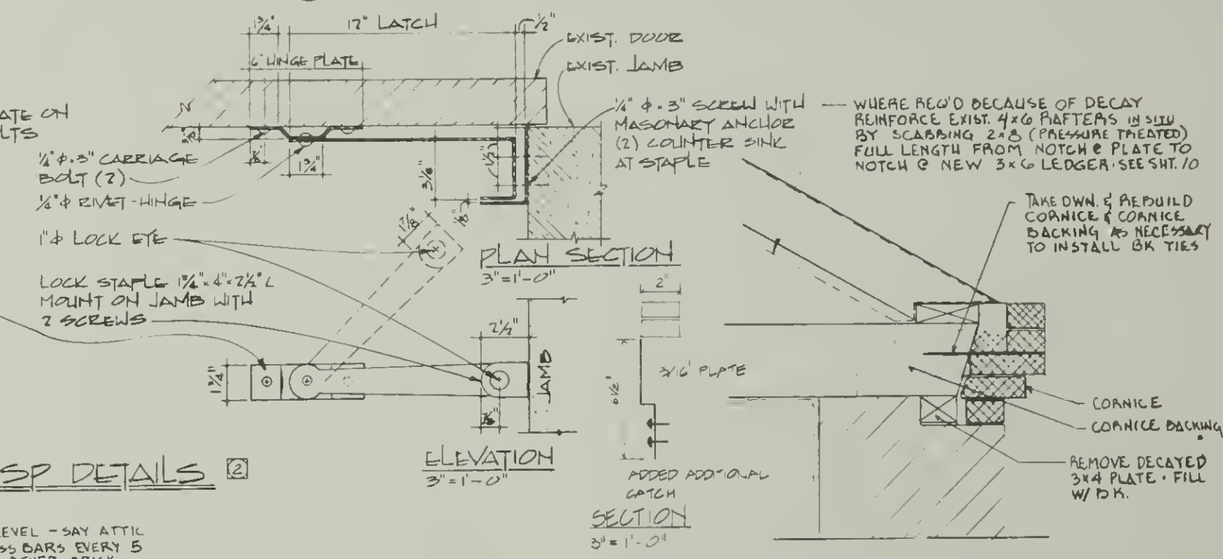
DOOR BAR HASP NOTE:
FROM 1/4" PL STEEL APPLY RED OXIDE METAL PRIMER AND 2 COATS ZINC BASE TYPE FLAT BLACK PAINT SIMILAR TO EXISTING DOOR HARDWARE. BOLTS, SCREWS AND RIVET-HINGE PAINT TO MATCH.



S. DOOR EXTERIOR ELEV.
1" = 1'-0"



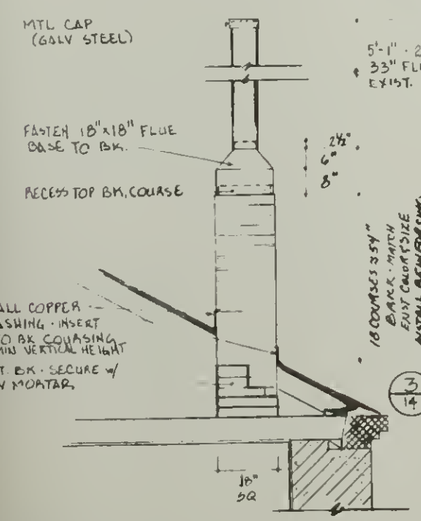
6/14 DTL. EAST ELEV. W/ 2ND FORT WALL [2]
1/4" = 1'-0"



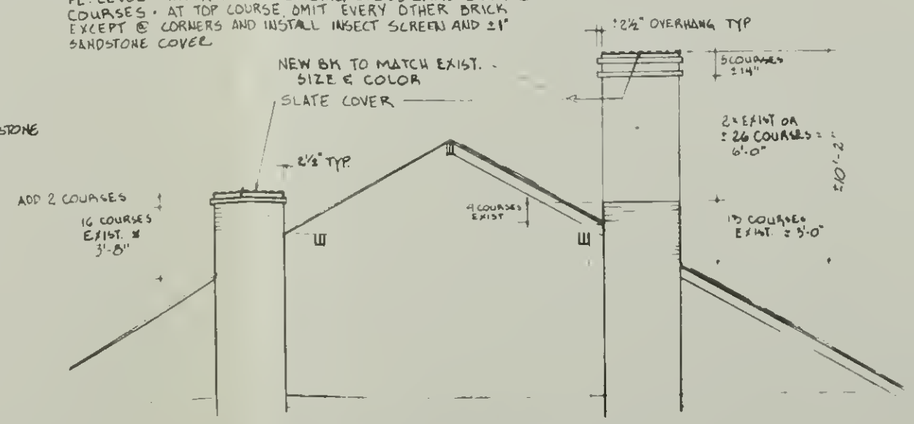
5/14 SECT. DTL @ CORNICE [1]
1½" = 1'-0"

7/4 SOUTH DOOR BAR HASP DETAILS [2]

NOTE TAKE DWN CHIMNEYS TO SECURE BASE LEVEL - SAY ATTIC FL. LEVEL · INSTALL REINFORCING CROSS BARS EVERY 5 COURSES · AT TOP COURSE OMIT EVERY OTHER BRICK EXCEPT @ CORNERS AND INSTALL INSECT SCREEN AND ±1" SANDSTONE COVER



3/14 ELEVATION of STOVE CHIMNEY [1]
1/2" = 1'-0"



4/4 ELEVATION of FIREPLACE CHIMNEYS [1]
1/4" = 1'-0"

NOTES
1. PRESSURE TREATED (PT) MATERIAL TO BE CCA - TYPE C AS PER AWPA STANDARDS
2. THIS SHEET WAS MODIFIED FROM DRAWING #25,003A, SHT 8. ALL PROPOSED CHANGES HAVE BEEN MADE AS INDICATED.

BASIC DATA: RECONSTRUCTION DTLS BASED ON HIST. PHOTOS (FOSM COLLECTIONS), OLD COMMISSARY ARCHEOLOGY by DOLLAR (MAY 1982) & EXTANT FABRIC EVIDENCE 1985 · CCF

TITLE OF SHEET	PREPARED	DRAWING NO.
RECONSTRUCTION DETAILS	HIST. FRAZIER DESIGNED FRAZIER DRAWN THORSON CHECKED 7/85 DATE	421 25,001 PCIP PKG. 104 SHEET 14 OF 14

Fabric Investigation (trip report)

October 18, 1983

H30 (DSC-TSE)

Memorandum

To: Assistant Manager, Southeast/Southwest Team, DSC

From: Historical Architect, Southeast/Southwest Team, DSC

Reference: Fort Smith National Historic Site, Pkg. No. 104, Restore Historic Commissary to 1897 and Pkg. No. A07 (1983 Jobs Bill), Reroof Commissary, Second Fort

Subject: Trip Report, October 7-8, 1983

PURPOSE

Initially, the purpose of the trip was to conduct a preconstruction conference on Friday, October 7, 1983, with Superintendent Kyral and Exhibit Specialist Earl Gillespie, day labor crew supervisor, based on the preliminary drawings (no. 421/25,002). The demolition phase (asbestos roof removal) had begun October 4, 1983, and revealed unanticipated field conditions warranting additional investigations and the need to incorporate additional design treatments. I stayed on site an extra day to facilitate these needs. The design drawings have been modified to incorporate the treatments as well as other changes recommended by the superintendent and Doug Hicks, Southwest Region exhibit specialist, via telecommunication and have been sent out for review/approval. Laura Soulliere, survey historian, SWR, also participated in the meetings on Friday in order to assist Superintendent Kyral in preparing the necessary assessment of effect (XXX) forms.

DISCUSSION AND RECOMMENDATIONS

1. Inspection of the commissary work underway revealed the cornice on the south side had separated and was on the verge of falling off. It was observed that the differential settlement which occurred at the southeast corner had probably caused the cornice failure. Also, the historically weak and presently deteriorated brick masonry mortar was inadequate in its structural role of tying the cornice to its masonry backing. It was recommended that the cornice be taken down to stone level and rebuilt along with its backing - brick ties being installed - to secure the cornice system.

2. The rafter tails presently exposed at the eve plate were observed to have more deterioration than previously known. After discussing alternatives, it was recommended that pressure-treated 2x8 sister-rafters be scabbed to the original, from plate to new ledger, to reinforce the rafters.

3. Mr. Gillespie pointed out the temporary reinforcing system he had installed in the bathroom to support the stairs which had been weakened by termite infestation. Until the non-historic stair/bathroom treatment is resolved it was recommended that the temporary shoring-up approach be continued. The historic structure report, presently underway in the Denver Service Center (DSC). will recommend the final disposition of the stair/bathroom. The termites are inactive at present, but meticulous monitoring should be continued.

4. In consultation with the superintendent it was agreed that the final drawings for this project indicate three levels of priority in order to spend the available funding most expeditiously. The project is presently funded under a $50,000 Jobs Bill allocation and a $50,000 FY 84 PRIP allocation. The most recent construction estimate (valid through FY 83) by DSC (May 19, 1980) is $130,000 for restoration plus $62,000 for exhibit planning and production. The first priority treatments are those which can be accomplished with present funds and which will stabilize the structure. The second priority treatments are those which may be accomplished (in whole or in part) if funding permits and will move the resource towards restoration. The third priority treatments, including porch reconstruction, will not likely be accomplished this year for two reasons: funding limitations and because additional research and planning is necessary to refine the treatment designs (see no. 5 below).

5. It was acknowledged that designs for the proposed reconstructed porches were more conjectural than is deemed appropriate by NPS-28, Chapter 2, page 7. It was also revealed, thanks to recent park staff research, that the south porch (porch no. 2) was apparently gone by the proposed restoration date of 1897 (see 1897 Sanborn map). It is therefore recommended that the scope of the historic structure report presently underway be revised to include an historical data section to further clarify current architectural assumptions. An administrative data section has been drafted and the archeological data section is complete (Dollar, May 1983). The architectural data was to rely on existing secondary historical research, however, this approach will not be sufficient to accomplish the proposed level of treatment. Primary sources such as the National Archives have not been investigated and could reveal information which could decrease the amount of design conjecture.

6. It is further recommended that additional funding be programmed to prepare a visitor use plan. Such a plan is necessary before priority three treatments can be designed, especially as related to the electrical utility and visitor access system. This plan is necessary, also, to elaborate upon the interpretive prospectus (approved August 1981) in guiding Harpers Ferry Center planning and design which must be coordinated with the restoration treatment drawings. Included in this report is a proposed FY 84 budget for DSC services.

7. There was some discussion of the Commissary roof material because some photographs (FOSM II-99, II-64 and IV-178) suggest wood shingles were present in 1897. The enclosed "Graphic History" indicates the assumed reroofing story based on current historical research. It is recommended that we proceed with the installation of the slate shingle roof as planned because our current best guess indicates slate as the historic roofing material, although this may have given way to wooden shingles by 1897.

PROPOSED FY 84 BUDGET

DSC Task/Product	Present Funding	Additional Proposed Funding
Visitor Use Plan	0	$ 5,000
Historic Structure Report		
Architecture	+7,500	0
History	0	10,000
Treatment Drawings to Date	9,000	0
To Complete Treatment Drawings		5,000
Total	$16,500	$20,000
To accomplish priority one treatments		40,000
To accomplish priority two treatments		25,000
To accomplish priority three treatments*		45,000
To plan and install exhibitry (HFC)*		62,000

*Recommended FY 85 funding

C. Craig Frazier

Approved for Distribution

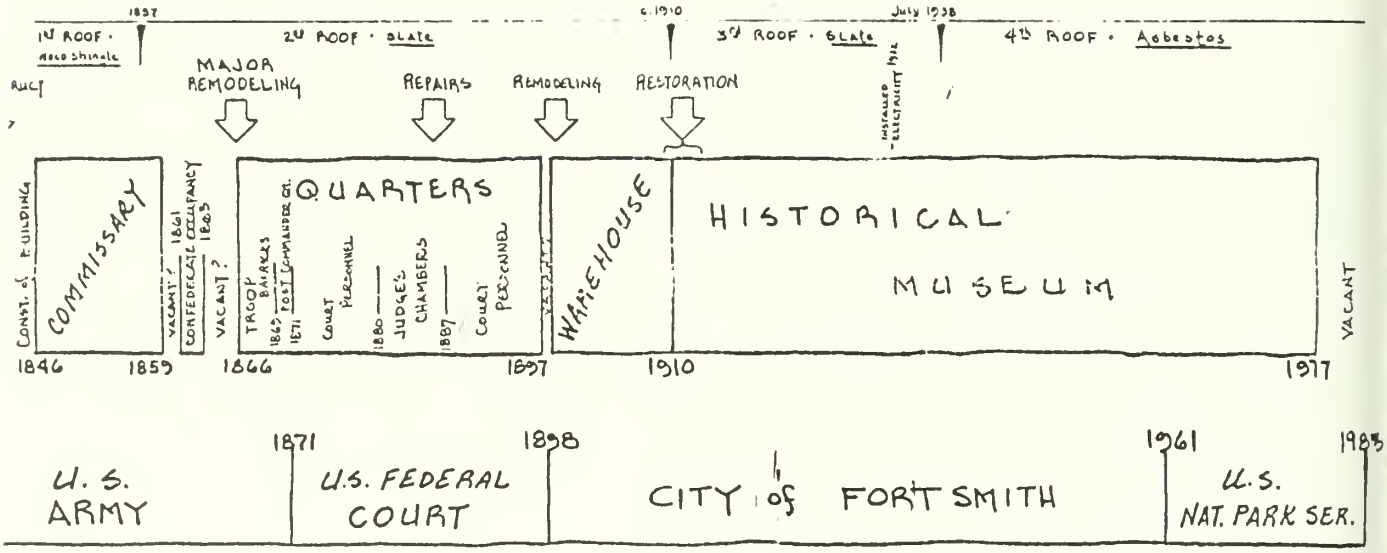
/s/ John W. Wright

Assistant Manager, Southeast/Southwest Team — Date

enclosure

cc:
Reg. Dir., Southwest Region
Supt., Fort Smith
SWR-PCC
SWR-PCH
HFC-Johnson
FOSM, Gillespie

bcc:
DSC-TSE-Frazier, Hoff
DSC-TNE-Wong



GRAPHIC HISTORY OF FORT SMITH COMMISSARY BUILDING · for H.S.R. Frazier 11/82

NOTES

1. Bearss, Resume and Illustrations, vol. II, part 1 of 3. Commissary 1869: "List of Public Buildings, established or in the process of Construction at Fort Smith, Arkansas, during the month ending April 30, 1869. No. 4-52x44 - 26 ft. high - A two-story stone building, in good condition, with porch in front and rear, will quarter one company. Was originally built for Commissary Office and storehouse."

2. 1873 appraisal of lands and structures at Ft. Smith. Commissary storehouse "two story building, 48' x 50', wall 2'6" thick, floor of basement rough stone, two small and one large rooms on first floor, occupied by Mr. Berry, keeper of the prison, not in good repair."

Valuation $3,000

sg. Edward M. McCook
N.N. Vorhees
James R. Lafferty, Commissioners

3. Bearss, Fort Smith, 1838-1871. Typed ms., Fort Smith research files, p. 504.

4. Augustus Blumenthal, "Claim against the government for extra work done." RG 92, Q.C.C.F., Box 88, NA.

5. See the "Historical Data" section.

D18 (DSC-TSE)

FEB 22 1983

Memorandum

To: Regional Director, Southwest Region

From: Assistant Manager, Southeast/Southwest Team, DSC

Reference: Fort Smith National Historic Site; Pkg. No. 104; Park General; Restore Historic Commissary Building to 1897; Historic Structure Report and Construction Documents

Subject: Transmittal of Revised Task Directive

Enclosed for your information and files is a copy of the referenced task directive which was approved by you on January 4, 1983. Revisions have been made per your and the superintendent's comments and we have added the moisture problem study and archeological data section by Clyde Dollar as requested.

In addition, we have revised the "Project Execution" section of the task directive and the Workload Analysis Forms 1, 2 and 3 to indicate changes in budgeting and scheduling. In essence, the revision involves dividing the project into phases to be implemented over several years, as proposed by Regional Historical Architect Battle. We will utilize $15,000 of our Historic Furnishing Report (Type 34) account to accomplish Phase I of the Historic Structure Report (HSR) this year. Phase I of the HSR will permit the proposed structural stabilization and roof replacement to occur as scheduled in FY 84. Phase II of the HSR will be accomplished by the Denver Service Center in FY 84 to facilitate additional preservation planned for FY 85.

Unless we hear otherwise, we will consider this the final, approved task directive and proceed accordingly.

By copy of this memorandum, the revised task directive is being sent to Superintendent Kyral for her information and files, Mr. Sagan, Harpers Ferry Center, for his future programming plans, and to Mr. Holland, WASO-400, for his files.

(SGD) DONALD S. M

John W. Bright
FOR

Enclosure

cc:
WASO-400-Mr. Holland, w/enc.
Mr. Sagan, Harpers Ferry Center, w/enc.
Mr. Battle, Southwest Region, w/enc.
Supt., Fort Smith, w/enc.

bcc:
/DSC Frazier, Thorson, Welton, w/enc.
DSC- -PIFS, w/enc.
TSE:CCFrazier:sks:02-16-83:6080

Buds delivered to SWRO 2/23/83
Copy to Melody 2/22/83

TASK DIRECTIVE

Restore Historic Commissary Building to 1897

Development/Study Package Proposal (10-238)
Package Number 104

FORT SMITH NATIONAL HISTORIC SITE
Fort Smith, Arkansas

RECOMMENDED: Allen A. Brunige 12 Nov 82
ASSISTANT MANAGER, DENVER SERVICE CENTER DATE

CONCURRED: /s/ JoAnn Kyral 12/6/82
SUPERINTENDENT, Fort Smith National Historic Site DATE

CONCURRED:
MANAGER, HARPERS FERRY CENTER DATE

APPROVED: /s/ Robert Kerr 01/04/83
REGIONAL DIRECTOR Southwest Region DATE

PROJECT DESCRIPTION

Fort Smith National Historic Site was established by Public Law 87-215, September 13, 1961 (75 Stat. 489) to preserve and commemorate two military forts: Fort Smith I, 1817-1824, and Fort Smith II, 1838-1871. Buildings of the second fort were also used by the U.S. Court for the Western District of Arkansas between 1872-1896. The significant resources of the historic site are the historical grounds, the few remaining structures and a collection of curatorial objects identified with the successive phases of military occupation and the functioning of the Judge Parker Court of law on the eastern border of Indian Territory. The park is included on the National Register of Historic Places.

The Commissary, built in 1845-46, is part of the second fort and is one of two remaining buildings from that period (the other being the barracks/courthouse/jail/visitor center complex).

The Commissary is on the List of Classified Structures (I.D. #00376, H.B.-04) and designated category "A" - "structures that must be preserved and maintained." The park's General Management Plan/Development Concept Plan, approved May 14, 1981, calls for the restoration of the Commissary to its 1897 appearance. In addition, Development/Study Package Proposal (10-238) package number 104 states "the historic restoration (of the Commissary) is an important part of the recreation of the historic scene."

A historic structure report (HSR), based on incomplete investigations and recommending restoration to the 1846-1865 period is outdated and must be amended in order to accomplish this project.

The purpose of this project is to perform historical architectural and structural assessments of the Commissary and prepare the necessary documents for its preservation and to enable its restoration to the 1897 appearance.

RESEARCH AND DESIGN

The restoration of the Commissary to the 1897 period will not preclude interpretation of the various functions it served under military and U. S. Federal Court administration. Modern intrusions will be eliminated while historic fabrics will be preserved as required under NPS-28, Cultural Resource Management guidelines.

Management objectives include the opening of the first floor to visitors for interpretive purposes but do not include a specified use of the second floor at this time.

The amended HSR, to be completed by the Denver Service Center (DSC), will recommend procedures for the stabilization of the structural system, replacement of the non-historic roof, preservation of historic fabrics and will provide an image of the Commissary in 1897 to permit appropriate restoration and reconstruction of existing and once-existing architectural features.

PROJECT EXECUTION

Primarily, this task directive addresses the need to amend the 1973 HSR; however, it is recommended that this be accomplished in phases to permit the utilization of Type 82 (SWRO) funding earmarked for FY 84 and FY 85. See Appendix A "outline for amended HSR" for a description of the final HSR. Following is a discussion of the phases proposed. Each phase will include construction cost estimates.

Recommended Multi-Year Program

Project Type	FY 83	FY 84	FY 85	FY 86	FY 87	FY 88	FY 89
35 HSR	$15,000[1]	$20,000[2]			$10,000[3]		
82 SW Constr.		$50,000[1]	$50,000[2]				
34 H. Furnish.				$30,000[3]			
51 Exhib. Dsgn.					$20,000[3]		
36 H.S. Const. Docu.					$20,000[3]		
56 H. Furn. Plan					$15,000[3]		
52 Exhib. Product.						$24,000[3]	
57 Acquisit. of Artif.						$30,000[3]	
91 Construction						$90,000[3]	
39 HSPG							$10,000[4]
53 Mus. Serv.							$ 8,000[4]

Notes:

1. Phase I Stabilization (FY 83-84) - Investigate, assess and recommend stabilization and repairs for stone and brick masonry, wooden structural system and roof replacement to include reconstruction of brick chimney. Also, recommend procedures to remove the concrete slab from the first floor, to restore the stone floor beneath and to study the excessive moisture condition and recommend procedures to mitigate the problem. Studies - $8,000; Existing Condition Drawings and Treatment Plan - $7,000.
2. Phase II Preservation (FY 84-85) - Historical study and fabric investigations in order to a) document and assess historic vs. current appearance and b) recommend removal of intrusions, implications of replacements and preservation treatments concerning: windows, interior stair, plaster and white wash and other finishes, plumbing, electrical and gas services, exterior stairs and porches. This phase will result in a draft HSR and drawings will be provided to recommend FY 85 preservation plans. Draft HSR with preservation plans - $20,000.
3. Phase III Restoration to 1897 (FY 86-88) - In this phase a multi-disciplinary approach would build upon the draft HSR and provide a comprehensive plan for the restoration of the first floor for visitor interpretation. A historic furnishing report would lead to a historic furnishing plan and then design of exhibits, acquisition of artifacts and exhibit production. The preservation of the hoist machine in the attic would also be addressed in this phase. The HSR would be completed and include recommendations for electrical, mechanical, security, fire detection/suppression and handicapped visitor access plans. Historic Structure Construction Documents would then be prepared to implement the final level of treatment. Final HSR - $10,000.
4. Phase IV Historic Structure and Collection Preservation Guides - Museum and historical architectural services will be provided to guide ongoing preservation of the resource.

The region will obtain the necessary review and approval of this project by the Arkansas State Historic Preservation Office (SHPO) as per the existing 106 Programmatic Memorandum of Agreement.

As funding becomes available, DSC can provide additional professional services to implement the treatment:

1. Preparation of historic structure construction documents.

2. Preparation of project manual and contracting services.

3. Construction supervision and contract administration.

4. Post construction program including a historic structure preservation guide (HSPG).

SCHEDULE AND BUDGET

See enclosed Form Nos. 2, 3 and 4 for the project schedule and proposed budget for FY 83-85.

TEAM MEMBERS

Project Manager, DSC	George Thorson, Super. Hist. Architect
Team Captain, DSC	Craig Frazier, Historical Architect
Structural Engineer, DSC	Barry Welton
Southwest Regional Office	Dave Battle, Reg. Hist. Architect
Fort Smith NHS	JoAnn Kyral, Superintendent

Clyde Dollar, archeologist under contract with the region, is a consultant. Other consultants will be drawn from staff members of DSC, region and the park as necessary.

SUPPORTING DATA

1. Development/Study Package Proposal (10-238) 104, Restore Historic Commissary Building to 1897; Revision No. 3, Approved May 7, 1980.

2. Outline of Planning Requirements, approved February 3, 1977, updated August 18, 1981.

3. General management plan/development concept plan/interpretive plan, approved May 14, 1981. Document includes Visitor Use Plan, Statement for Management, and Resource Management Plan.

4. Interpretive Prospectus, approved August 1981.

5. "Continuing Archeological Test Excavations for Portions of the Wall of the Second Fort, Fort Smith National Historic Site", Bruce Anderson, Southwest Cultural Resource Center, March 1981.

6. Historic Structure Report, Commissary Building, Architectural Data Section, Norman Souder, DSC, May 1973.

7. Historic Structure Report, Part II, Historical Data Section, James Sheire, Office of Archeology and Historic Preservation, February 1968 (draft).

8. Historic Furnishing Study, Stone Commissary, Enid Thompson, July 1975 (draft).

9. "Overview of Historical Research: Annotated Bibliography and Review of Plans for Future Studies", Jane Scott, Texas A&M Research Foundation, June 1978.

10. Memorandum H30 (SWR) PCH To: Superintendent, Fort Smith, From: Acting Regional Director, Southwest Region, "Restoration and Interpretation of Commissary Building," June 29, 1979.

11. Cultural Resource Management Guideline, NPS-28, December 1981.

APPENDIX A

AMENDED HISTORIC STRUCTURE REPORT

AN OUTLINE OF PROCEDURES AND PRODUCT

I. Administrative Data Section

To be written by the project team captain in conjunction with the park superintendent.

II. Physical History and Analysis Section

A. Sheire's 1968 history will be edited and incorporated as the Historical Data Section.

Graphic and photographic records and key documents will supplement the history and be added to the report as either components of the amended Architectural Data Section or as an appendix to Sheire's history.

B. The archeological data provided by Clyde Dollar (contract order no. PX 7029-2-0409) will be printed as a part of the final HSR.

C. Souder's 1973 Architectural Data Section will be included, in part, as an appendix to the report.

The amended Architectural Data Section will include:

1. Statement of significance and reference to Sheire's narrative.
2. A description and record of existing conditions including:
   a. Measured drawings, suitable for later design development.
   b. Photographs
   c. Other illustrations as necessary to present the proposed use and treatment.

3. An evaluation of impact of proposed use and treatment on the integrity of historic fabric and including the effect of the proposal regarding human safety, energy conservation, handicapped access, etc.

4. An engineering report on the stability and load-bearing limits of the structure.

5. A discussion of the basis for recommended treatments.

6. A Package Estimating Detail (Form 10-802) providing a Class B estimate of treatment costs.

7. Other recommendations, records of analysis and assessments as well as an annotated bibliography of pertinent sources as per NPS-28.

PROJECT SCHEDULE

1. PERTINENT L. A.
HSR Involves Amending 1973 HSR to Reflect Mgmt. Change in Restoration Period from 1846 to 1897.
HSR to be Phased-I FY 83-84 - STABILIZATION
II FY 84-85 - PRESERVATION
III FY 87-88 - RESTORATION

2. TITLE RE-FORE COMMISSARY TO 1897

3. DESCRIPTION HISTORIC STRUCTURE REPORT

PROJECT NO.
SCHEDULED START
6. SCHEDULED FINISHED
7. REGION SWR
8. PARK FOSM
9. DEV AREA P.G.
10. PACKAGE NO. 104
11. PROJECT TYPE(S) 35
12. PROF SERVICE COSTS
13. CONST. COSTS
14. Frazier TSE

15. TEAM CAPTAIN FRAZIER
16. SECTION CHIEF THORSON
17. PROJ. MGR. THORSON

20. SCHEDULE

18. WBS	19. TASK DESCRIPTION	21. SPAN TIME	22. DELIVERABLES	23. RESPONSIBLE PERSON	24. ACCOUNT NO.
350	HSR Phase I	365		DSC	
.01	Search & Task Directive				
.02	T.D. Review / APPROVAL		T.D. Approved 1/4/83		
.03	Phase I RESEARCH				
.04	Phase I Analysis & EX. COND. DWG.				
.05	Phase I Recommendations				
.06	Phase I Review				
.07	Phase I Proposed Plans (DWGS)		STABILIZATION PLANS		
350	HSR Phase II	365		DSC	
.01	HISTORICAL STUDY & RESEARCH				
.02	Phase II Analysis				
.03	Phase II Recommendations				
.04	Phase II Review				
.05	Phase II Proposed Plans (DWGS)		Draft HSR / PRESERVATION PLANS		
820	STABILIZATION			SWRO	
22.0	PRESERVATION			SWRO	

NOTE: FUTURE PHASES TO BE DETAILED LATER

Form No 3 (Jul[illegible]92)

PROJECT SCHEDULE-MANPOWER

9. Project No.
10. Scheduled Start
11. Scheduled Finish
12. Region SWR
13. Park FOSM
14. Dev Area PG.
15. Prg. No 104
16. Project Type(s) 35
17. Prof Serv Costs
18. Const. Costs
18a. FRAZIER TSE

	1	1.	1.	1.	1.	1.	1	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
	Hist. Arch.	Hist. Arch.	Exhib. Spec.	Proj. Mgmt.	Secretary	Br. Chief	Ast. Mgmt.	Struct. Eng.	Elect. Eng.	Compl. Spec.								
2. Organ'l. Title Code	HA	HA	EX	FS/PM	SY	BC	AM	SE	EE	LC								
3. Pay Plan & Grade	GS-11	GS-12	GS-12	GS-13	GS-05	GS-14	GS-15	GS-12	GS-12	GS-12								
4. Supplying Organization	2145G	2145G	2147	2145G	2145B	2145B	2190	2145E	2145E	2143B								
	1	2.	3	4	5	6	7	8	9	10	11.	12.	13.	14	15	16.		
5. W.B.S.	6. Start Date	7. Compl. Date	8. Person Days															19 Pertinent Data
35.0	4/82	9/83	29		5	5	2	0.5	0.25	20								
.01			3															
.02			2			1	1	0.25		1								
.03			8							5								
.04			10		3	2				5								
.05			2		2	1	1			4								
.06			1					0.25	0.25									
.07			3			1				5								
35.0	10/83	9/84		55	4	4	3	2.5	0.25	3	5	0.5						
.01				19														
.02				10	2	1				1	2							
.03				10	2	2	1	0.25		1	2							
.04				1		1			0.25	1	1	0.5						
.05				15			2	2.25										

20. Project Person Days:

FORM NO. 7
(JULY 82)

PROFESSIONAL SERVICES PROPOSAL
SUMMARY OF ESTIMATED COST

ESTIMATE BY: FRAZIER DATE: 1/21/83

PROJECT TITLE
RESTORE COMMISSARY TO 1897
HISTORIC STRUCTURE REPORT

1 PAGE 1 OF 1 PAGES
3 FOSM
4 DEVELOPED AREA: PG.
5 PACKAGE No: 104
6 PROJECT TYPES: 35

7 WBS	7a START DATE	7b COMPL. DATE	8 WORK ITEM DESCRIPTION	9 DIRECT LABOR CATEGORY NAME (OR DISCIPLINE)	CODE	PLAN	GRD	10a SUPPLY ORGN	10 DAILY RATE	11 EST'D DAYS REQ'D	12 TOTAL DIRECT LABOR COST ($)	13 OTHER DIRECT COSTS 13a DESCRIPTION	13b COST ($)	14 TOTAL COST ($)	15 F.Y.
35.0	9/82	9/83	HSR Phase I	Hist. Architect	HA	GS	11	2145G	186.07	29	5,427.09	1 Trip 3 person	2000		
				Exhibit Specialist	EX	GS	12	2147	223.28	5	1,116.40	Photography	100		
				Proj. Mgmt./Supr. H.A.	FS-PM	GS	13	2145G	280.96	5	1,404.80				
				Structural Engineer	SE	GS	12	2145E	223.28	20	4,465.60				
				Secretary-MAG	SY	GS	05	2145B	107.92	2	215.84				
				Br. Chief-DSGN	BC	GS	14	2145B	340.51	0.5	170.26				
				Asst. Manager	AM	GS	15	2140	400.05	0.25	100.01				
											12,900		2,100	15,000	83
35.0	10/83	9/84	HSR Phase II	Hist. Architect	HA	GS	12	2145G	223.28	55	12,490	1 Trip 4 person	2900		
				Exhibit Specialist	EX	GS	12	2147	223.28	4	893.12	Photography	100		
				Proj. Mgr/Supr. H.A.	FS-PM	GS	13	2145G	280.96	4	1,123.84				
				Struct. Engineer	SE	GS	12	2145E	223.28	3	669.84				
				Electrical Engineer	EE	GS	12	2145E	223.28	5	1,116.40				
				Secretary-MAG	SY	GS	05	2145B	107.92	3	324				
				Br. Chief-DSGN	BC	GS	14	2145B	340.51	0.5	170.26				
				Asst. Manager	AM	GS	15	2140	400.05	0.25	100.01				
				Compliance Specialist	LC	GS	12	2430	223.28	0.5	111.64				
											17,000		3,000		

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As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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