U.S. NAVAL BASE, PEARL HARBOR, MACHINE SHOP
(U.S. Naval Base, Pearl Harbor, Naval Shipyard, Facility Nos. 67 & 67B)
Sixth Street opposite 10-10 Pier
Pearl Harbor
Honolulu County
Hawaii

HABS HI-491
HI-491
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HI-491

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN BUILDINGS SURVEY
PACIFIC GREAT BASIN SUPPORT OFFICE
National Park Service
U.S. Department of the Interior
1111 Jackson Street
Oakland, CA 94607

HISTORIC AMERICAN BUILDINGS SURVEY

U.S. NAVAL BASE, PEARL HARBOR, MACHINE SHOP
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Location:

Sixth Street opposite 10-10 pier
Pearl Harbor Naval Base
City and County of Honolulu, Hawaii

This building is at UTM coordinates 04.608310.2361600 and is within the boundaries of the Pearl Harbor, Naval Shipyard as defined in the location section of the overview report HI-483.

Significance:

Facility 67 and contiguous Facility 67B are located within the Controlled Industrial Area of the Naval Shipyard within the Pearl Harbor National Historic Landmark. Facility 67 was the first major shop building constructed at the Shipyard after the initial period of base construction and the only one extant there from the 1920's. At the time of its construction it was by far the largest structure erected at the base to date. It is an imposing structure of a distinctive type and period of industrial building design and is functionally essential to the Shipyard's operations. Facility 67 B was constructed as part of the Shipyard's urgent expansion of shop and administrative office facilities following the December 7, 1941 attack on Pearl Harbor. Together, these buildings represent an architectural and historical contrast between the unhurried, individual peacetime design and construction of permanent facilities and the rushed, wartime design and construction at Pearl Harbor to meet the increased personnel and workload needs of wartime conditions.

Description:

The design of Facility 67 is based on the Bureau of Yards & Docks plans for machine shops. It is a steel-framed structure with three, parallel bridge crane bays that run the length of the building. The south and center bays, the building's two main bays, are wide, high and symmetrical about the centerline between them. The north, third bay is narrower and lower in height. There also are several original or later-added contiguous ancillary structures outboard of the third bay on the north side. The main part of the building is arranged in a structural grid 13, 40'-0" bays long by two, 70'-0" bays and one, 45'-0" bay wide, with an overall size of approximately 525' x 195' and an area of 102,000 square feet. The approximate overall building height at the high bays is 65' and at the lower, 45'. The building faces and is oriented perpendicular to Sixth Street on its west end.

The roof planes over the three crane bays are barely pitched, with a slight gable at each end of the two main bays and a lower, half-gable shed roof over the third bay. Inward from the first two transverse structural bays at each end of the building's two main crane bays, the

roof plane steps in an alternating down-up-down-up pattern forming transverse monitors that are glazed on their vertical planes for increased ventilation and natural light.

The foundation and structural floor is concrete slab-on-grade. The main structural columns are supported by heavy concrete piers extending up to waist height above the slab on massive spread footings. Proportionately smaller piers and footings support other, smaller columns. There is one smaller column between each of the main columns along the south wall and three between each of the main columns on the east and west ends of the two main crane bays. There are only smaller columns at the ends and outer side of the third bay. A continuous footing between the exterior columns supports a base wall of waist height above which are the building's curtain wall siding and fenestration. Piers supporting main and other exterior columns extend outward from the base wall face. Depending upon the column size, these read either as buttresses or pilasters.

From the west end grade level, the structural floor steps up by five feet from the eighth transverse bay back to the east end of the building to account for the slight slope in natural grade over the building's length. There is one gradually sloped ramp incised in the higher slab mass where it begins in each of the three crane bays. The finish floor has a number of work areas where end-grain wood blocks are inset flush with the adjacent concrete finish floor. Other areas of the floor surface are overlaid with sections of bending slab, essentially very thick plate steel with closely spaced square peg holes in an orthogonal grid array. Limited remnants of train tracks that once served Facility 67 and others are extant.

Structural columns and trusses are assemblies of separate individual flat or angle steel sections riveted together. Deep girders supporting the bridge crane rails, and supporting columns separate from but connected to adjacent structural columns, are fabricated similarly. Structural roof framing and its supporting girders mainly are Warren truss variants. Various jib cranes have been added since the building's original construction. The interior volume of Facility 67 is unbroken across its length and width other than by interior supporting members.

The building presents a highly utilitarian appearance. Its curtain wall mainly consists of industrial-type metal window units and corrugated metal siding, all supported by girts, brackets and clips to the structure. The window units have multiple fixed lights surrounding multi-light pivot sash in several different configurations. The units occur mainly in tall bands of ganged units separated by siding at each structural column. On the south side, the bands also are interrupted by siding at about the level of the bridge crane rails inside, resulting in a clerestory effect. The transverse vertical planes of the roof monitors consist mainly of similar window units and appear originally to have consisted entirely of them. Pivot sash are operated by a system of push rods

and pull cables. Numerous original wire-glass lights have been replaced with clear or obscure glass and on the north side with green heat-reducing translucent corrugated panels. Some lights have been painted over, mainly in the east end wall. The few significant doors are metal roll-up types and not major features of the building. The roof has close eaves and bituminous built up roofing covers heavy wood planking exposed on the underside.

The structure of Facility 67 appears to have been constructed substantially in accord with the original design drawings. However, the curtain wall originally was designed as a concrete wall, backed by the structural steel frame, with inset fenestration and high-up decorative blank rectangular panels and articulated parapets. Numerous, mainly minor additions, changes and replacements have been made over the years that have not seriously altered the building's original historic character and integrity. Of these, the addition of, and interior opening to, Facility 67A (subject of HABS report No. HI-492) is by far the most significant along with the addition of 67B.

Facility 67B is a long, narrow contiguous two-story addition to Facility 67 constructed along Facility 67's west end, facing the 10-10 pier and providing toilet and locker facilities and office space. It has a slab-on-grade foundation, with first floor exterior walls of concrete masonry unit construction and second floor exterior walls of wood frame construction sheathed with wood drop siding. It also has a wood frame, low-pitch shed roof with built-up roofing. Second floor windows in the northwest portion are mostly the original wood frame, double-hung, divided-light units. The openings along the rest of the second floor originally were wood louvers. During WW II the windows had black-out panels. The original first floor window and door openings have been replaced with various other units of different materials and configuration and an opening with a sliding door has been filled with concrete masonry units. The drawings for Facility 67B are initialed by "VO" which is likely architect Vladimir Ossipoff, a well-respected architect in Hawaii who oversaw facility designs for the Navy during World War II.

Historical Context:

The original and by far dominant part of Facility 67 was constructed in 1923 as the Shipyard machine shop and has continued in that use since then. The oldest extant drawings, dated May 3, 1921, show elevations that reveal the difference noted in the curtain wall as it was constructed from that of the original design. Drawings dated January 9, 1923 show the elevations substantially as constructed. The original design drawings were by the Bureau of Yards & Docks. Alteration of the elevation design and the construction drawings were by the 14th Naval District Public Works Department.

As was the case with most significant large buildings, the interior of the building was served by a spur of the base's narrow-gauge railroad

network that was finally abandoned only well after World War II. Some sections lasting until the 1970s.

Although the corrugated siding now is metal, according to a letter dated 15 December 1941 concerning damage to various structures in consequence of the December 7th attack but here referring explicitly to Facility 67, "...twenty-five sheets of corrugated *asbestos* siding [emphasis added] fractured, causing missile hazards in falling from relatively high elevation, indicating that this material has very little value in resistance to shock." In earlier drawings and photos, the siding consistently is referred to as "corrugated sheathing," "corrugation," or the like, with no indication of the actual material. The discrepancy between the letter and observation suggests the possibility that the siding material was changed following the attack. It is more likely, though, that the letter failed to distinguish between Facility 67 and 67A, the latter, in fact, having corrugated asbestos composition siding. Wherever the damage may have occurred, it was attributed to the concussive effect of the torpedo attack on the nearby *USS Helena* along the 10-10 pier or the firing of the *Helena's* five-inch guns.

Facility 67B was constructed in 1942 to add supporting personnel and administrative space for Facility 67 as a response to the major increase in the shop's workload arising from the December 7th attack and the U.S. entry into World War II.

For an overview of the Naval Shipyard see HABS No.HI-483.

Sources:

Public Works Officer, U. S. Navy Yard, Pearl Harbor, T. H.

1941 Report of Air Raid by Japanese on December 7, 1941 dated 15 December 1941.

Fogel, Frederick F.

1980 Historic Resources Inventory Form for Bldg #67. Prepared by Pearl Harbor Naval Shipyard, Facilities Planning & Programming for State Historic Preservation Office.

National Archives II, Still Photo Collection
Photos in group RG71CA.

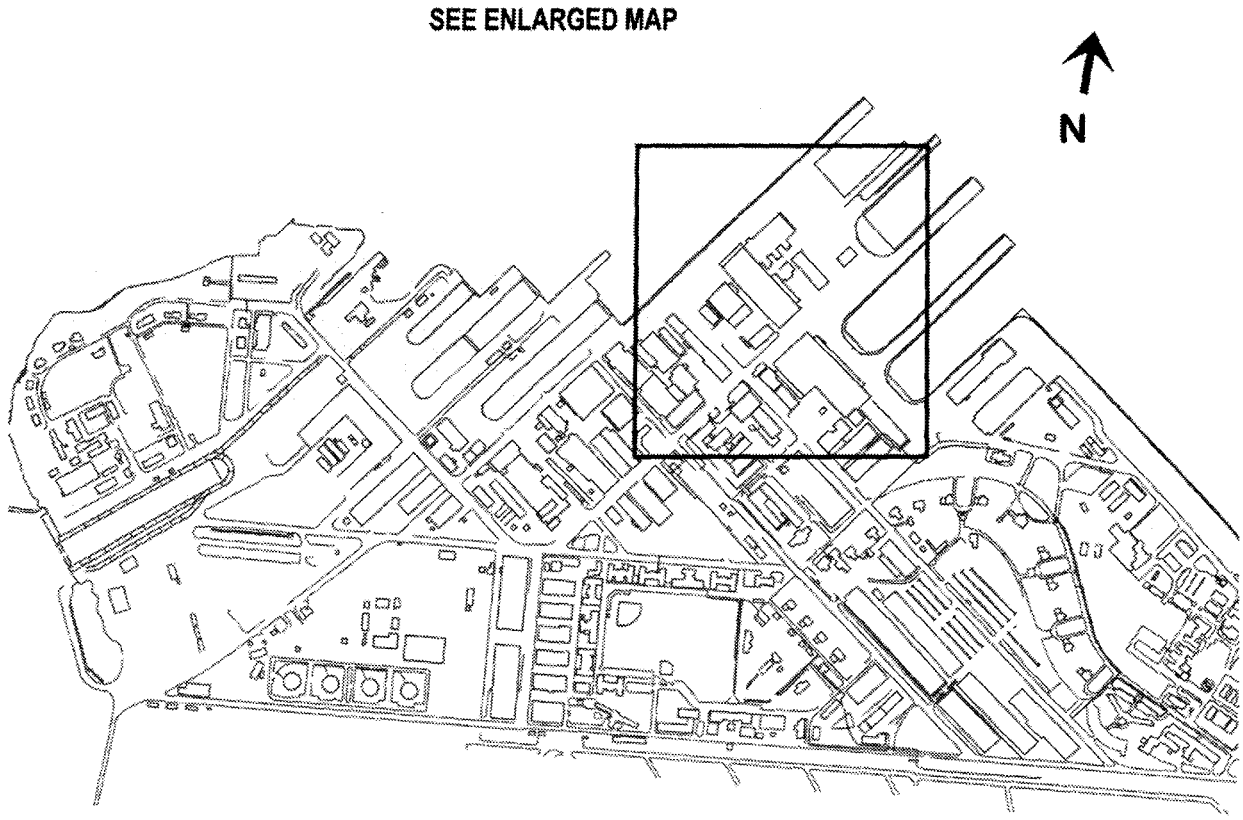
NAVFACPAC: Plan Files.
Drawings for Facility 67/ 67B.

U. S. Navy, Bureau of Yards and Docks.

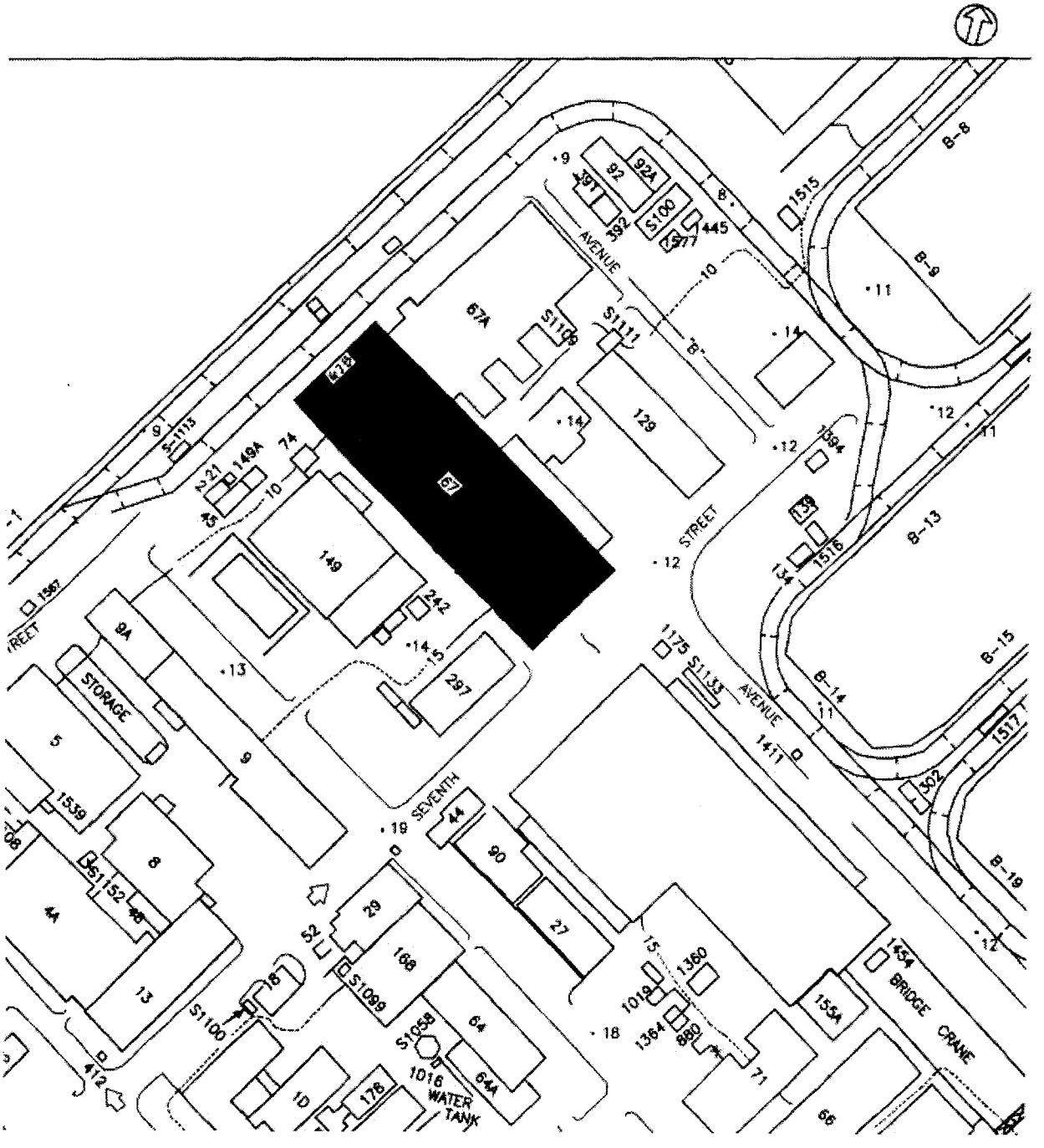
1921 Activities of the Bureau of Yards and Docks, World War 1917-1918. Washington: U.S. Government Printing Office.

Project Information: Photo documentation and recordation of this facility by the Navy has been done in response to ongoing renovations of these structures. Photo documentation of historic facilities by the Navy assists in expediting planned undertakings by having the documentation prepared prior to taking actions. Also, photo documentation assists the Navy in gaining more information about its historic facilities to assist in making proactive management decisions. This project is being supervised by Jeffrey Dodge Historical Architect NAVFAC Hawaii. The photographic documentation was undertaken by David Franzen, photographer. Douglas P. Luna, AIA/Architect, consultant to Mason Architects, Inc. prepared the written documentation. The field work and research was conducted for this report between July 2001 and December 2001.

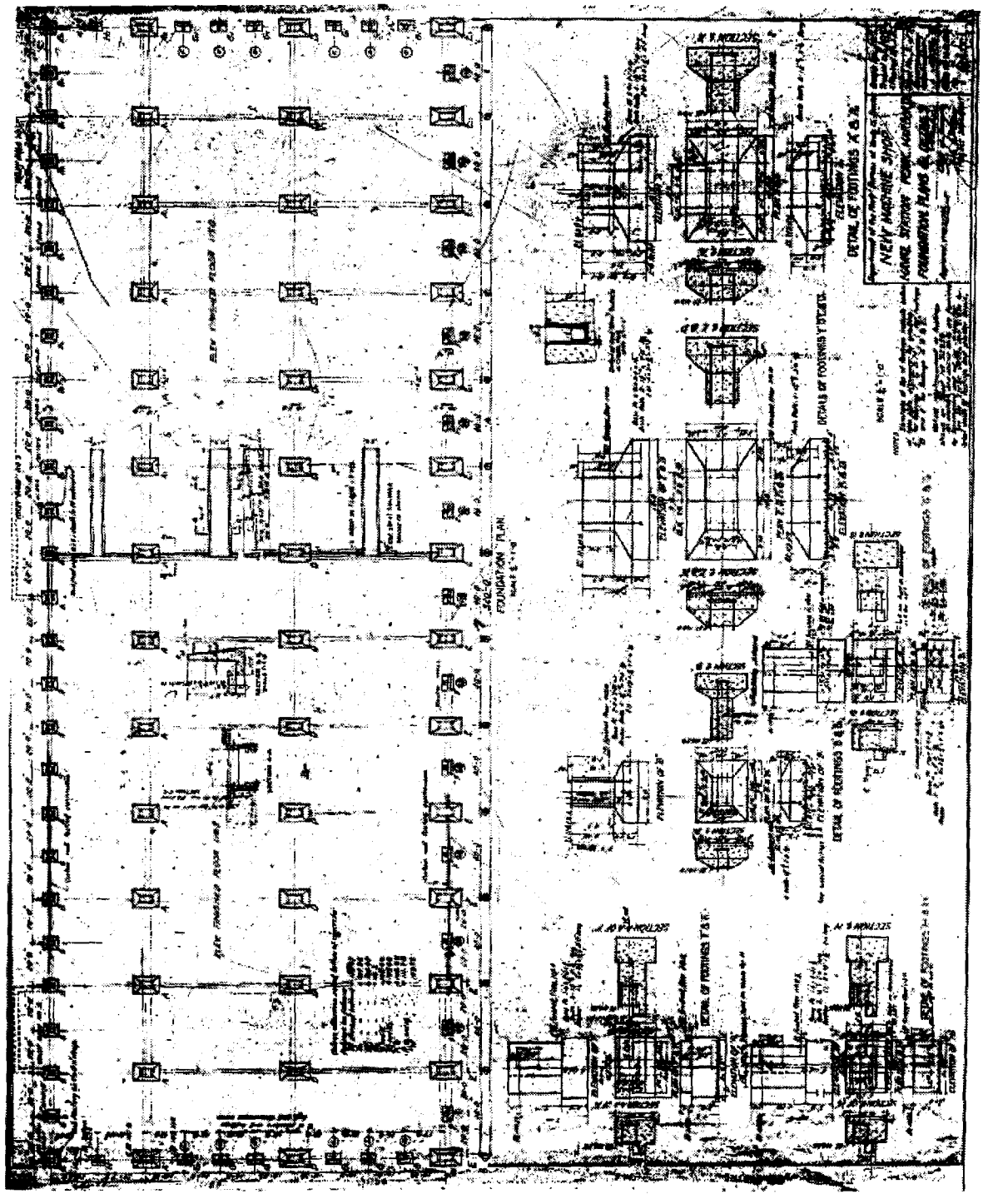
Shipyard Map



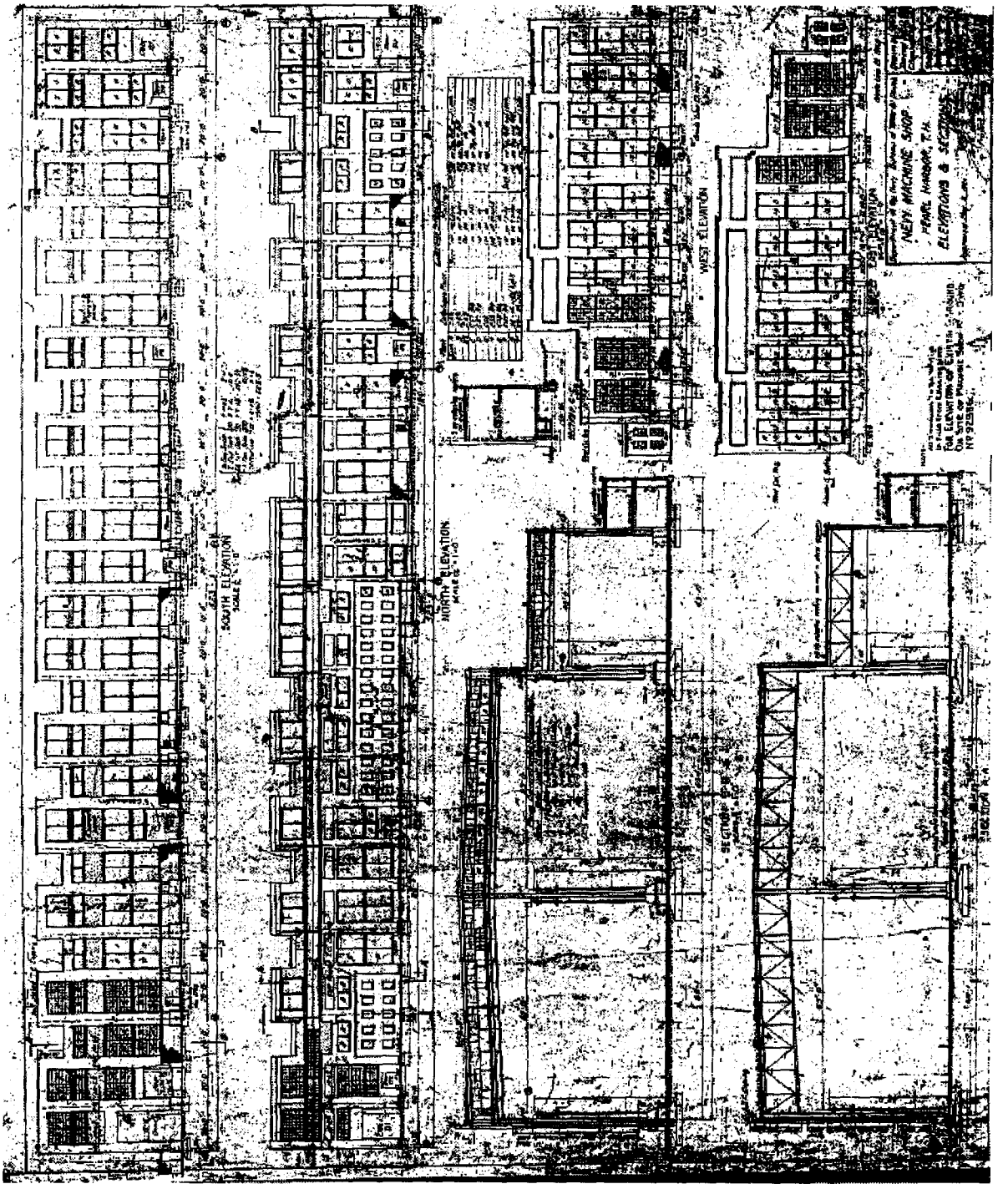
Enlarged Area Map (reduced, not to scale)



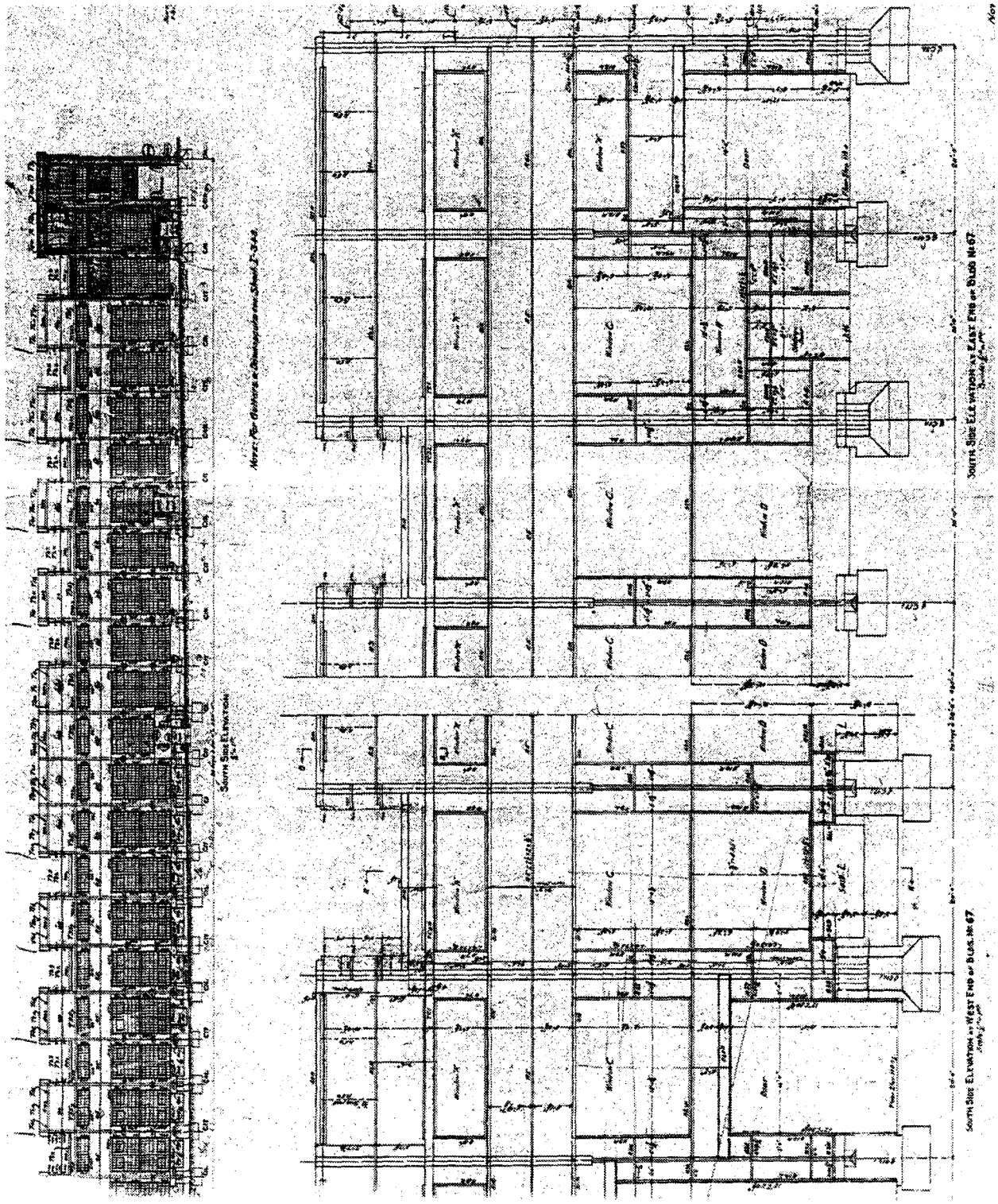
Foundation Plans and Footing Details (Drawing No. 92957, dated 5/3/1921) (reduced, not to scale)



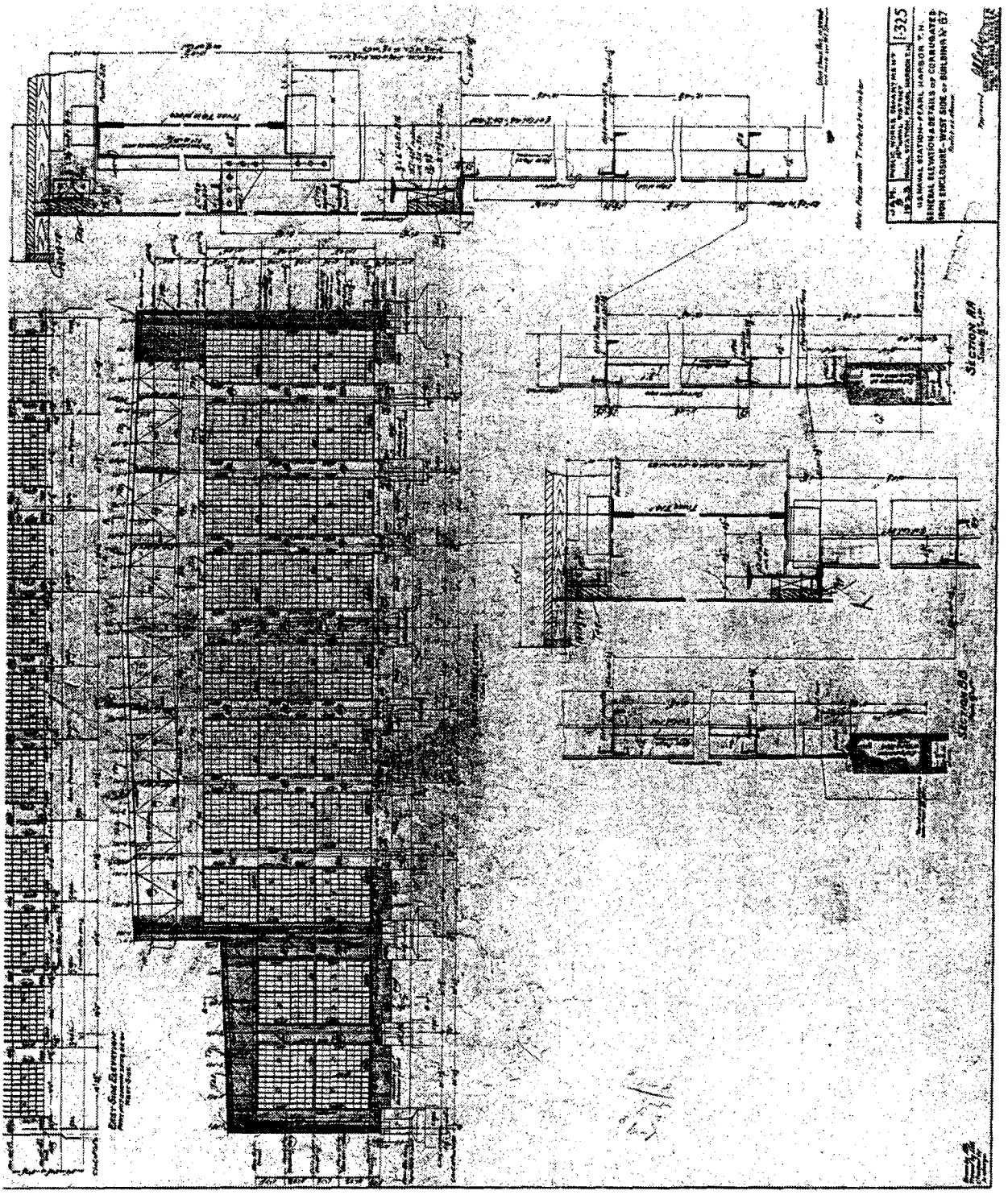
Exterior Elevations and Sections (Drawing No. 94111, dated 5/3/1921) (reduced, not to scale)



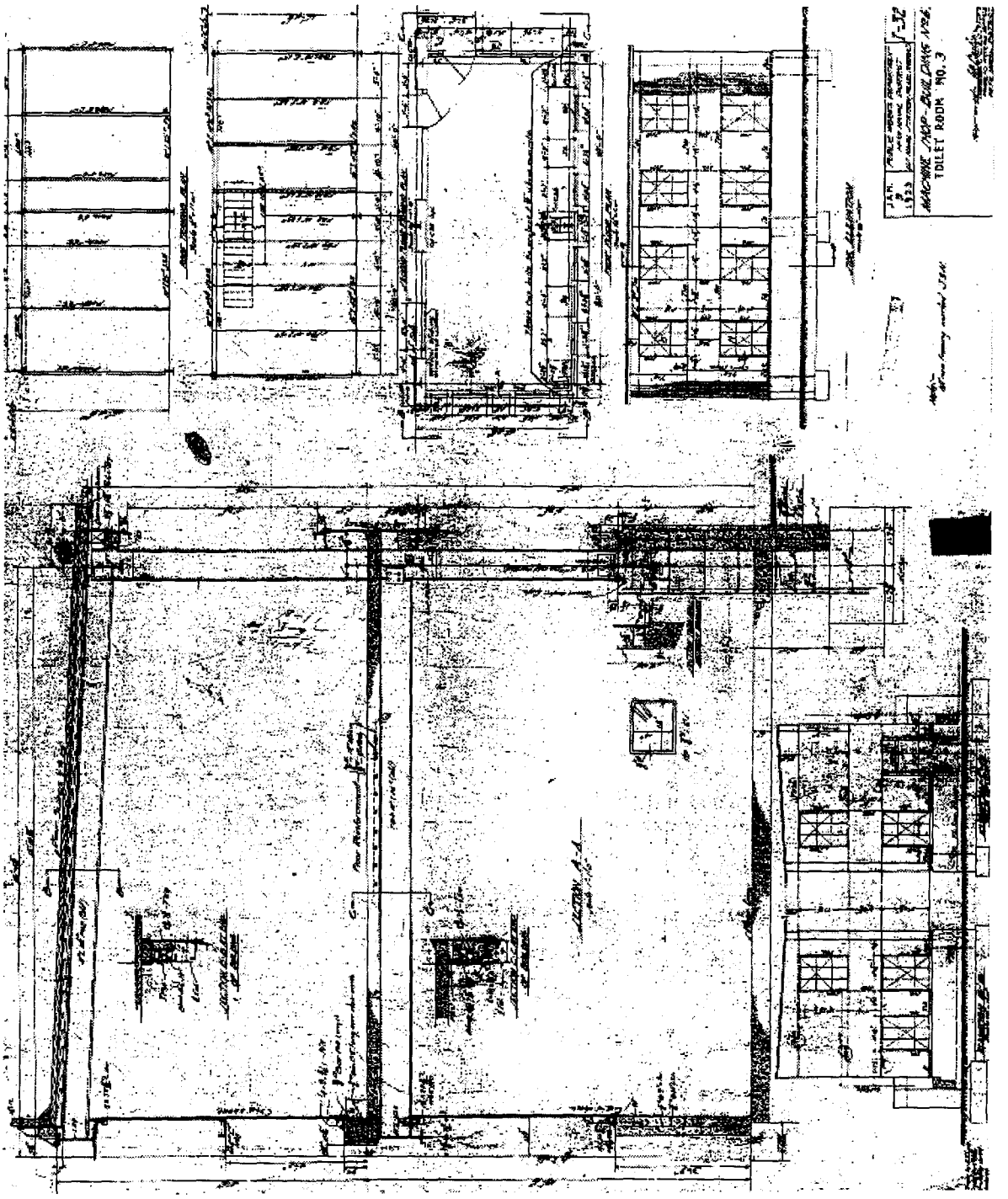
South Side Elevation at East & West End and Section (portion of Drawing No. I-324, dated 1/9/1923) (reduced, not to scale)



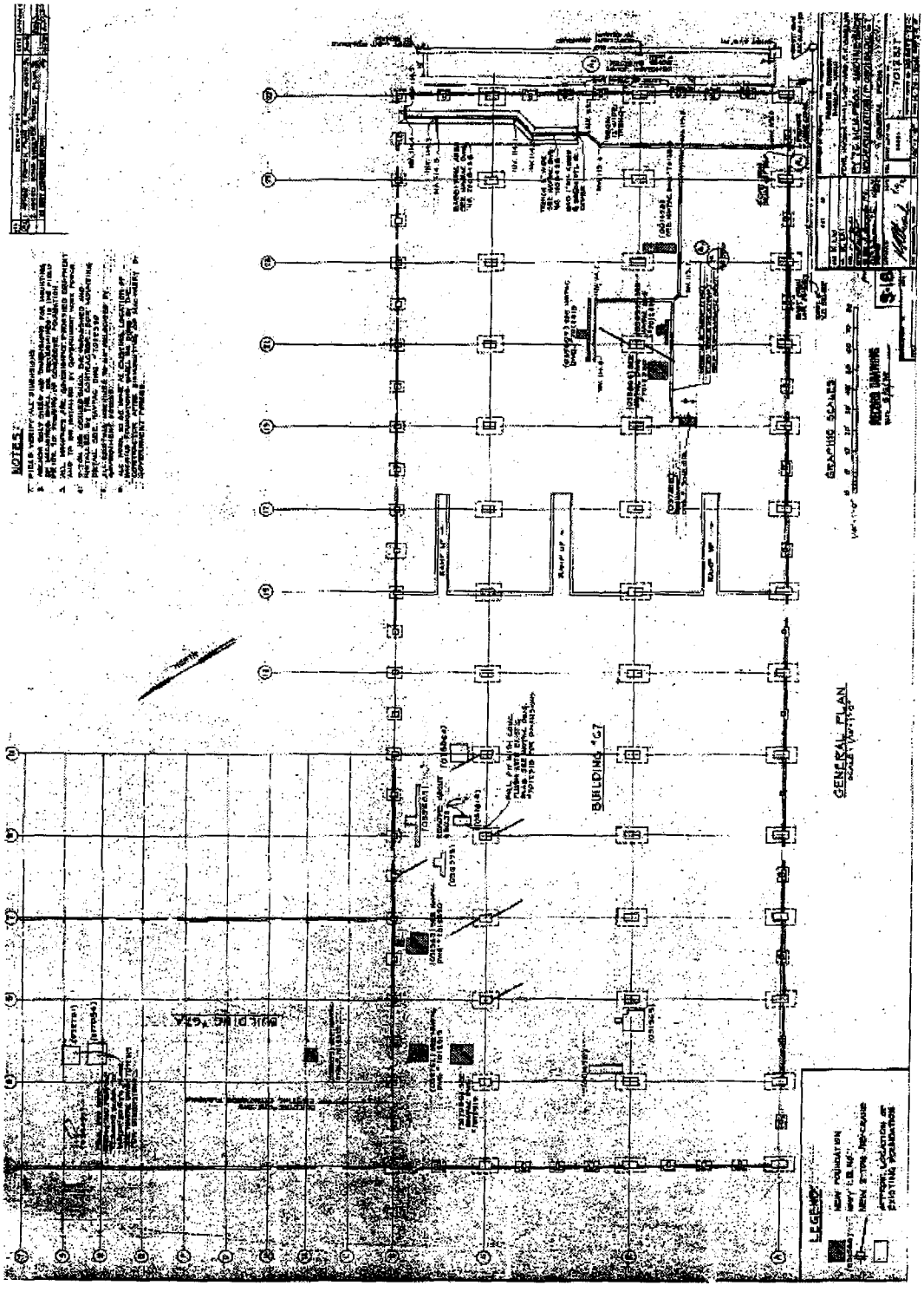
General Elevation and Details of Corrugated Iron Enclosure – West Side (Drawing No. I-325, dated 1/9/1923) (reduced, not to scale)



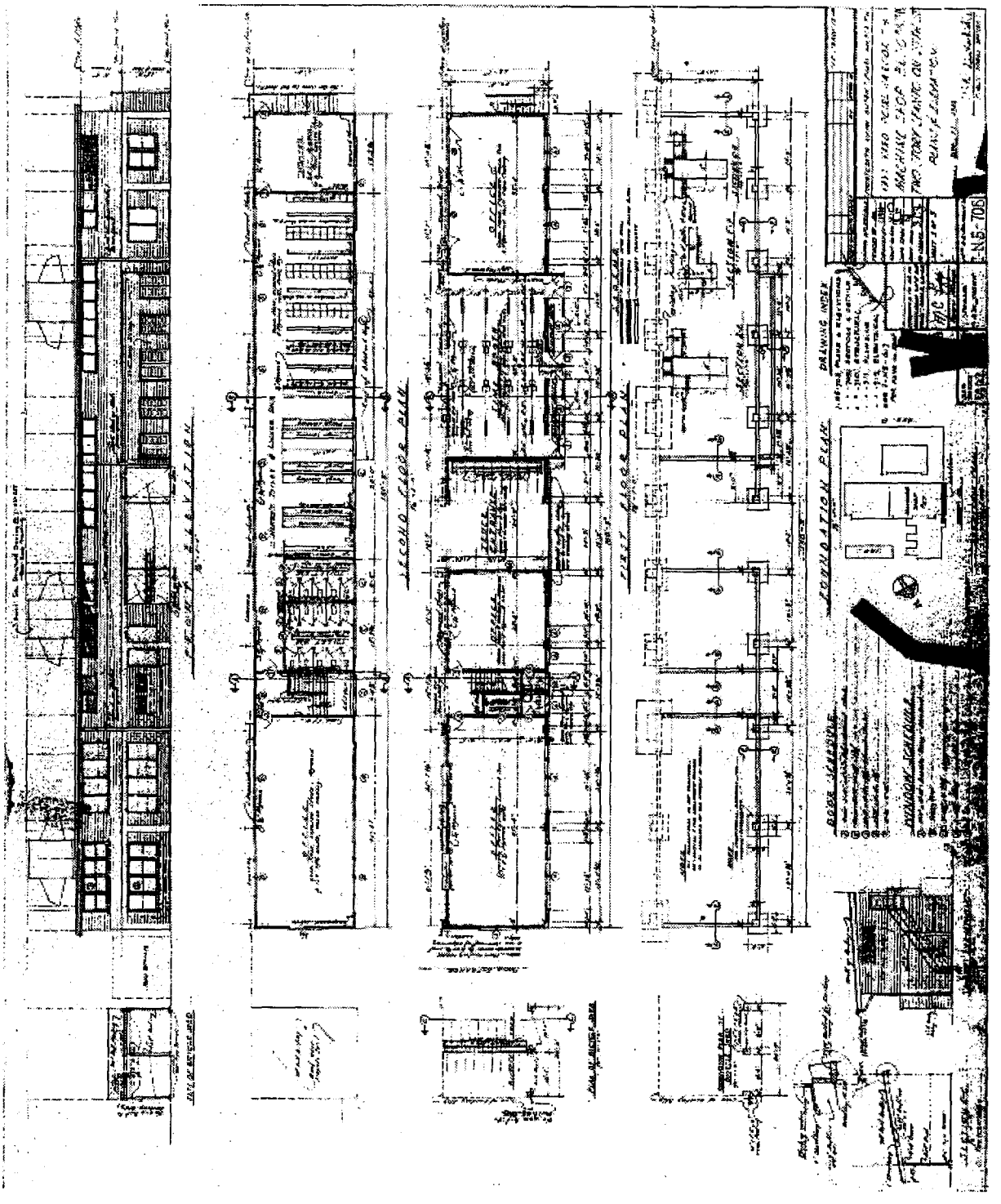
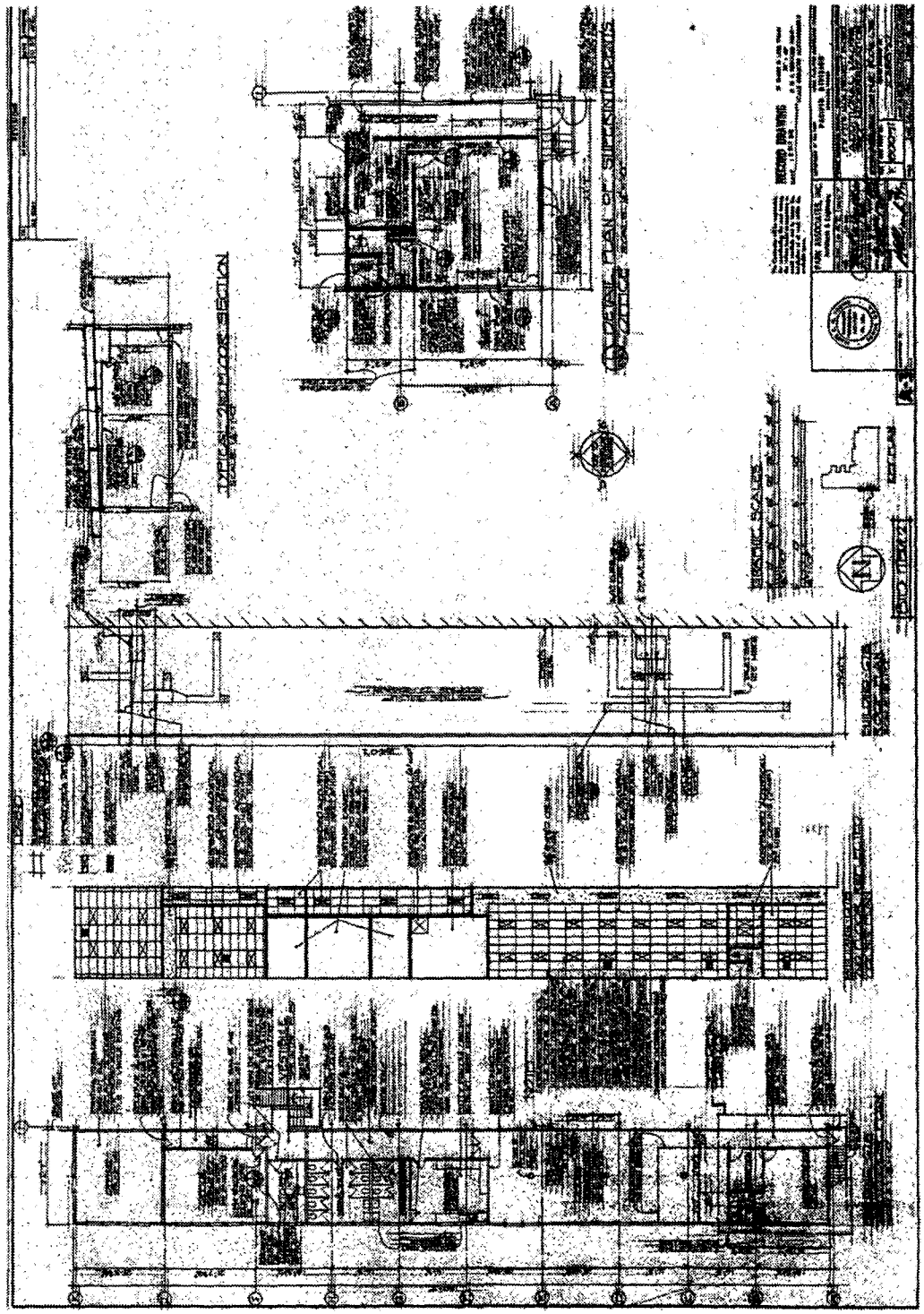
North Side Toilet Room No. 3, First and Second Floor and Roof Framing Plan, Elevations and Section (Drawing No. I-329, dated 1/9/1923) (reduced, not to scale)



Modernization of Facility 67 – General Plan (Drawing No. 7012317, dated 8/28/1978) (reduced, not to scale)



Facility 67B – Plans and Elevations (Drawing No. I-N05-708, dated 12/11/1942) (reduced, not to scale)



Refurbishing Second Floor Facility 67B – Floor, Reflected Ceiling and Roof Plans (Drawing No. 7018890, dated 4/9/1977) (reduced, not to scale)