

U.S. NAVAL BASE, PEARL HARBOR, FOUNDRY
(U.S. Naval Base, Pearl Harbor, Naval Shipyard, Facility No. 6)
Seventh Street near Avenue F intersection
Pearl Harbor
Honolulu
Hawaii

HABS HI-485
HI-485

HABS
HI-485

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN BUILDINGS SURVEY
PACIFIC WEST REGIONAL OFFICE
National Park Service
U.S. Department of the Interior
1111 Jackson Street, Suite 700
Oakland, CA 94607

HISTORIC AMERICAN BUILDINGS SURVEY

U.S. NAVAL BASE, PEARL HARBOR, FOUNDRY (U.S. Naval Base, Pearl Harbor, Naval Shipyard) (Facility No.6)

HABS
HI-485
CPW-2
HABS No. HI-485

Location: Seventh Street near Avenue F Intersection
Pearl Harbor Naval Base
City and County of Honolulu, Hawaii

This building falls within the UTM coordinates of the Pearl Harbor, Naval Shipyard as defined in the location section of the overview report HABS No. HI-483. This building's UTM coordinates are: 04.607850.2361550.

Significance: Facility 6 is located within the Pearl Harbor National Historic Landmark. It is associated with the early establishment of the Shipyard at Pearl Harbor and has a distinctive type and period of construction. The building is important because it is part of the initial round of buildings constructed at Pearl Harbor Navy Yard, ca. 1913, just after the channel was dredged to allow the passage of large ships. The buildings that went up during this initial round of construction housed activities which formed the core of the Navy Yard and got it operational. Facility 6, as a foundry, worked in concert with the other original facilities: forge boiler shop, woodworking, paint shop, power plant, ice plant, storehouse, and administration to bring the Navy Yard to life. The design of Facility 6, steel-framed with its tall gable roof and ridge monitor, is distinctive of many of the industrial buildings which were erected during the period of initial construction. Facility 6 is also notable for the fact that it has been in continuous use up until 1998 when the foundry was officially closed for its original purpose since its opening in 1913. This building is part of a grouping of important historic buildings in close proximity to each other, including Facilities 12(HABS HI-447), 14(HABS HI-463), 7(HABS HI-486), 1170(HABS HI-505), and 385(HABS HI-503).

Description: Facility 6 is a slab-on-grade, steel structure building faced with corrugated metal siding. It was constructed as a permanent, single story building with flanking side mezzanine spaces. Its footprint is rectangular, measuring approximately 400' X 100'. The building has a tripartite roof structure with a higher central gabled ridge monitor with lights and two symmetrical flanking sections with shed roofs, supported by steel trusses. The interior is an open floor plan with columns spaced at 20-foot intervals in the longitudinal direction. Multi-light steel windows with wire glass fenestrate the building. This building holds several types of large pieces of machinery. Several large smelting pots with casting pits, ovens, shakers, sand grinders and sifters, and tanks line both the north and south sides of the

U.S. NAVAL BASE, PEARL HARBOR, FOUNDRY
(U.S. Naval Base, Pearl Harbor, Naval Shipyard)
(Facility No. 6)
HABS No. HI-485 (Page 2)

building. A large hydro-blast machine sits just to the south of the building.

The foundry building had a functional relationship with two nearby structures. Facility 14 to the southeast, across Seventh Street, was the shipyard's Pattern Shop. It was in this shop that the casting molds which were utilized in Facility 6 were manufactured and stored. Facility 385, also across Seventh Street just southwest of the Pattern Shop, was storage during World War II for the metal ingots used by the Foundry in casting.

The original dimensions of the building were: length 200'-0" (10 bays at 20'-0" on-center), width 100'-0" (3 bays at 25'-0" on-center at side bays and 50'-0" on-center at the center bay) height from grade to ridge 66'-0". The building footprint was doubled in 1933 when 10 more bays (20'-0" on-center) having a total length of 200'-0" were added onto the length of the building. (This addition matches the original buildings style such that the buildings appear to have been built as one singular structure.) Originally, over half of the floor area of the structure was laid with molding sand, with "interior" portions, such as office spaces, laid in concrete. Presently, the entire floor area is paved in concrete. Under the building foundation is a coral and rock fill.

The structure is similar in construction to a large warehouse or shop building. The roof is covered with corrugated metal panels and corrugated translucent plastic panels, attached directly to the steel truss framing, exposed at the interior. Fink trusses support the main central roof and clerestory as well as the lower shed roof sections. The trusses are of simple triangular sections with diagonal bracing and riveted construction. The steel trusses are supported by steel columns and framing that sit on concrete footings. As shown in drawings from the 1933 addition, the steel columns supporting the central roof portion and the bridge crane are I-beams measuring about 12" x 16". These beams rest on concrete footings measuring 5'-0" x 6'-0" in plan that extend about 3'-6" below the finished floor level. The columns at the flanking bays are about 8" x 10" and rest on footings measuring 3'-0" x 4'-0" in plan. Plans show these smaller footings recessed into bedrock a minimum of 6". Diagonal bracing between bays in the longitudinal direction gives lateral stability to the structure. These are located at those bays that do not have mezzanine structure extending above the central roof portion.

The exterior walls are of steel members supporting corrugated metal panels and multi-light steel window assemblies. The walls sit on top of a 3" high concrete curb. The multi-light steel windows are approximately 6'-6" in height and extended up to 12'-6" off the finished floor, 11" below the horizontal roofing truss member. The 11" gap was originally left open for ventilation. However, on the 1933 expansion drawings the gap between the horizontal member of the roof truss and the underside of the roof is protected with an 18#

**U.S. NAVAL BASE, PEARL HARBOR, FOUNDRY
(U.S. Naval Base, Pearl Harbor, Naval Shipyard)
(Facility No. 6)
HABS No. HI-485 (Page 3)**

gauge 1½" galvanized metal mesh. The walls of the main central section above the lower flanking sections are lined with multi-light steel windows having central awning sections, exclusively. The plans show that the south and west elevations were enclosed with wire mesh only. It is not clear when the walls for these sides were constructed, but it appears as though at least the south wall was built by the time the 1933 addition was planned. Presently, all elevations have glazing, giving ample light to the interior spaces.

Train use was central to the operation of the foundry for moving materials. Several train tracks, both longitudinal and transverse in plan, ran through the building. The train is no longer in use and many of the tracks have been taken up. A bridge crane spanning the width of the central bay of the building was also used for moving materials inside the foundry and is still in existence. An elevator is located on the south side near the central area of the original section of the building, giving access to the mezzanine level. This elevator was part of the original structure when it was built in 1918 and has since been upgraded periodically. A major renovation of the elevator was done in 1934 when a new and larger platform, new guides, and new machinery were installed.

There are several utilities within the building that are integral to the foundry system. Several pipe trenches holding water, oil, air and exhaust ran extensively under its slab. In 1941, a 2000-gallon oil tank was installed below grade to the south side of the building. It feeds directly into the building oil distribution system through a pump system and supplied the building with furnace oil. In 1942, a large hot water storage tank (10'-0"x3'-0") was secured within the roof truss along the north side of the building, 8 bays in from the west side. Five major exhaust stacks pierce through the roofs of the building and one fan-housing unit is attached to the roof of the building. These provide heat escape for the furnace and ovens within the building.

There have been several additions and alterations made to this building since its 1933 expansion. The largest addition made since then was the 15'-7" wide addition made along the north side of the building in 1941. It is a concrete masonry block and multi-light steel frame window wall assembly with a wood frame shed roof that extends from the existing steel truss roof. This extension included a shower and locker room, toilets and washroom, and office and storage spaces. With the great influx of workers to the shipyard prior to and during World War II, many of the large industrial facilities there had similar additions. In 1942, the cupola-charging platform at the south side of the building was enlarged. In 1943, a transformer station constructed of concrete walls and roof was built within the foundry at the northwest corner of the building. In 1944, a new hydro-blast lean-to addition was made at the west end of the south side. This addition was 7 bays long and its shed roof slopes in the opposite direction of the main roof, so as to create a valley at its juxtaposition.

**U.S. NAVAL BASE, PEARL HARBOR, FOUNDRY
(U.S. Naval Base, Pearl Harbor, Naval Shipyard)
(Facility No. 6)
HABS No. HI-485 (Page 4)**

Corrugated wire glass skylights $\frac{3}{8}$ " thick were installed in 1947. They were replaced later to translucent plastic panels that are still in existence. In 1947, alterations were made to the north side of the building, where the roof was raised at three consecutive bays to allow for the installation of sand handling equipment. The lighting system was upgraded in 1936, 1943, and in 1977. The original incandescent lamps, which hung from the steel roof trusses, were changed to 3000-watt mercury vapor lighting units and 500-watt dome units in 1943 and then to fluorescent fixtures in 1977. The last major improvements that were made to the building were in 1978 when the building was repainted and the roofing was repaired. Since 1998, when the building was evacuated and the foundry closed permanently, the structure has been left to degrade, with no maintenance or upkeep. Moderate to severe rust at steel multi-light windows, and the poor condition of the exterior metal corrugated siding are the two largest deterioration problems presently facing the building.

Historical Context:

Facility 6 was originally designed and built in 1913 as a foundry, which supplied the fleet at Pearl Harbor with parts and supplies. It was in use as a foundry until recently, when, in 1998, the foundry functions at Shipyard ceased and all orders were forwarded to the main foundry on the U.S. mainland. Since then, the building has been vacated. The only portions of the building presently being used are the switching station and substation at the far southwest corner of the building. The building is in fair condition and many of the original machines are still in their original locations.

During the Cold War, Facility 6 assisted with casting parts for ships that were constructed on the west coast. Facility 6 was operational through the mid-1990s. Renovation was started with the digging of foundations for a new furnace when it was decided to consolidate the foundries at the various Naval Shipyards.

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

Sources:

The original drawings for this building are on microfilm at NAVFACPAC Plan Files.

National Archives II, Still Photo Collection

Photos in group RG71CA, Box 165, "Foundry" folder

Photos in group RG71CB, Box 175-D, "Shops" folder

Photos in group RG71CA, Box 175-E

Naval Shipyard, Pearl Harbor, Hawaii

1996 Asbestos Building Survey, March 1996. Survey performed by Mare Island Naval Shipyard personnel under the direction of the following: Don Lyle, Charlie Bouffard, et. al.

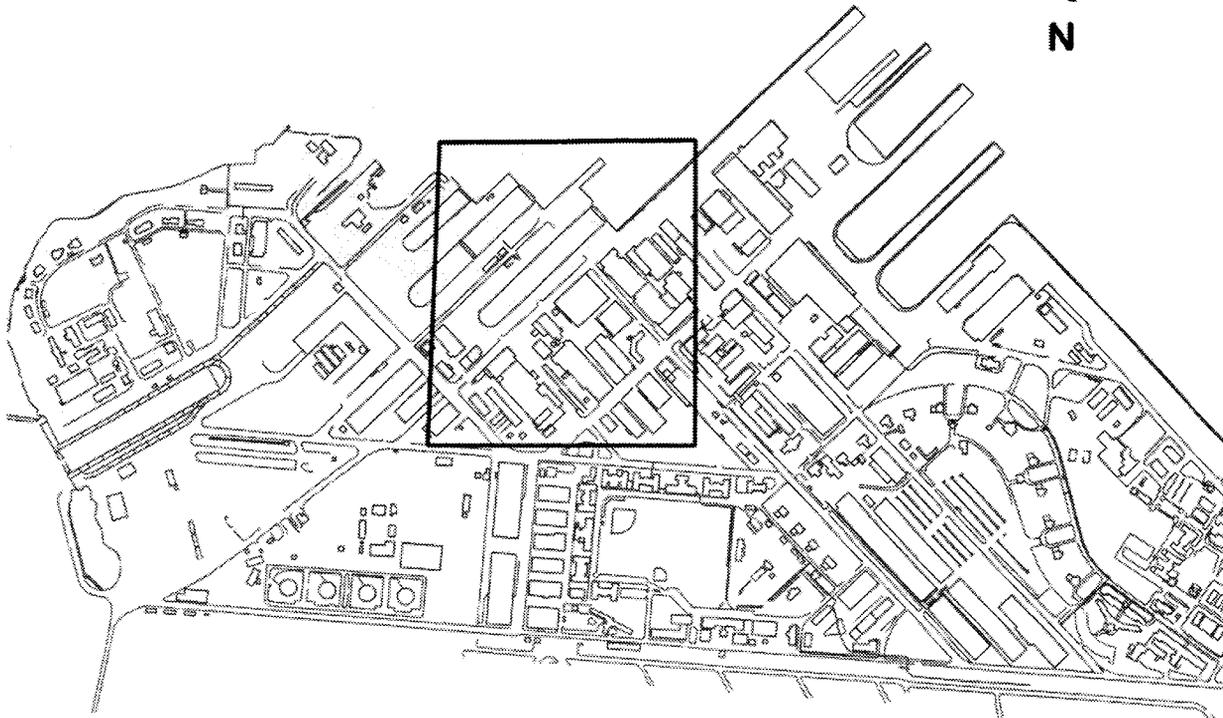
**U.S. NAVAL BASE, PEARL HARBOR, FOUNDRY
(U.S. Naval Base, Pearl Harbor, Naval Shipyard)
(Facility No. 6)
HABS No. HI-485 (Page 5)**

Project Information: Photo documentation and recordation of this facility by the Navy has been done in anticipation of future alterations or potential demolition of the structure. 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 A.I.A., Historical Architect NAVFAC Hawaii. The photographic documentation was undertaken by David Franzen, photographer. Lorraine M. Paulmbo, Ph.D. Architectural Historian, of Mason Architects, Inc. prepared the written documentation. The field work and research was conducted for this report between July 2001 and December 2001.

U.S. NAVAL BASE, PEARL HARBOR, FOUNDRY
(U.S. Naval Base, Pearl Harbor, Naval Shipyard)
(Facility No. 6)
HABS No. HI-485 (Page 6)

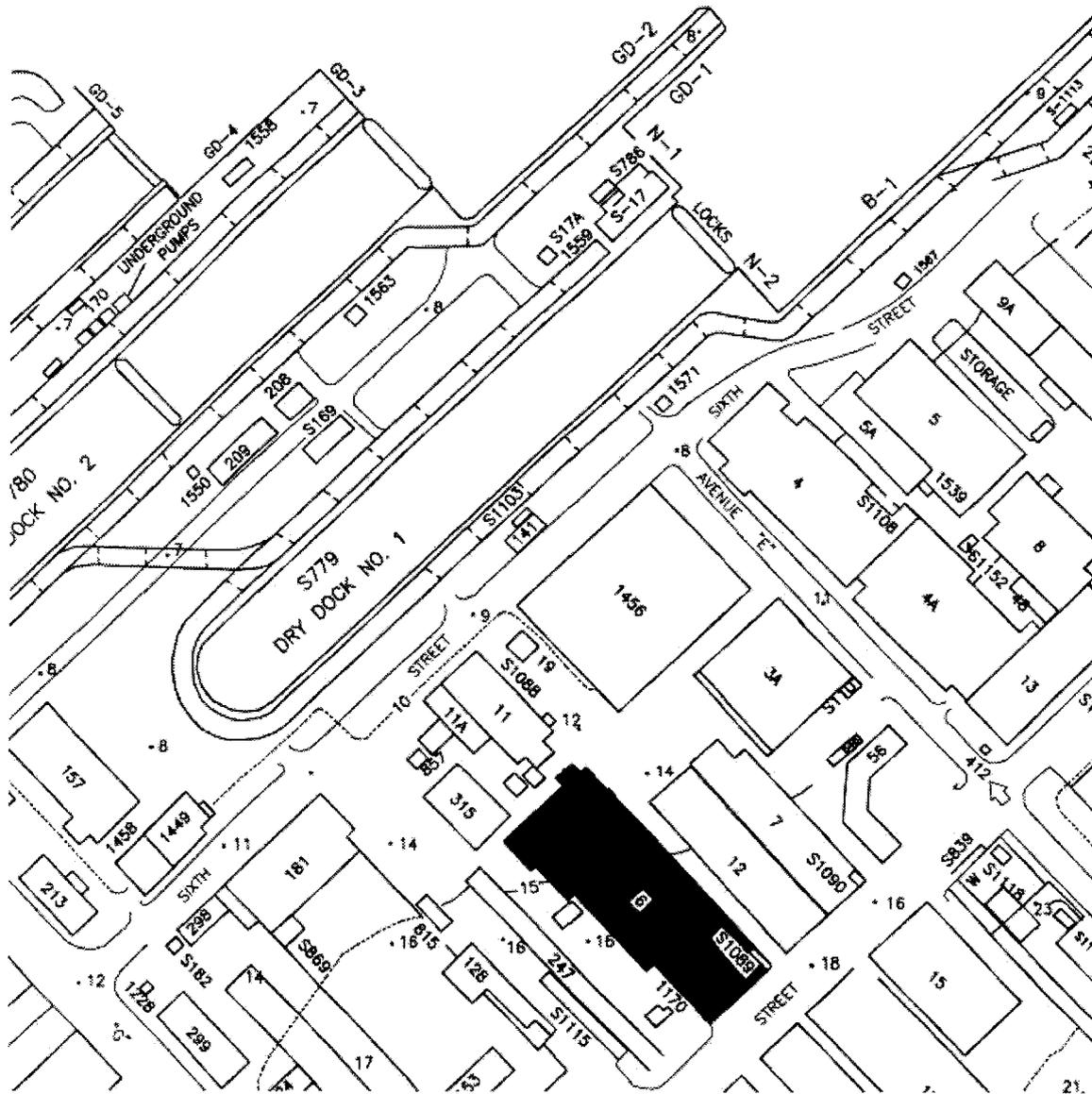
Shipyard Map

SEE ENLARGED MAP



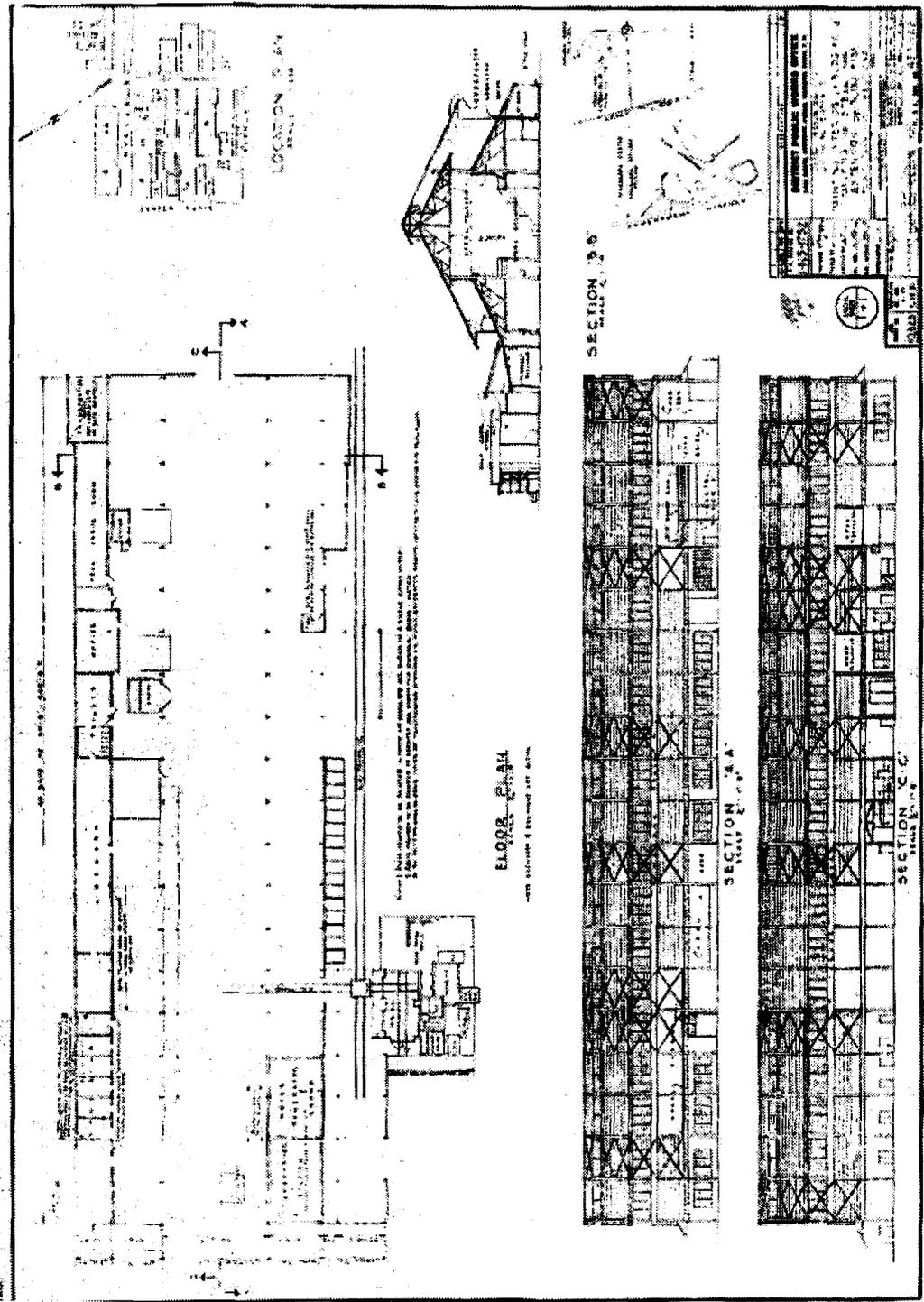
U.S. NAVAL BASE, PEARL HARBOR, FOUNDRY
(U.S. Naval Base, Pearl Harbor, Naval Shipyard)
(Facility No. 6)
HABS No. HI-485 (Page 7)

Enlarged Area Map (reduced, not to scale)



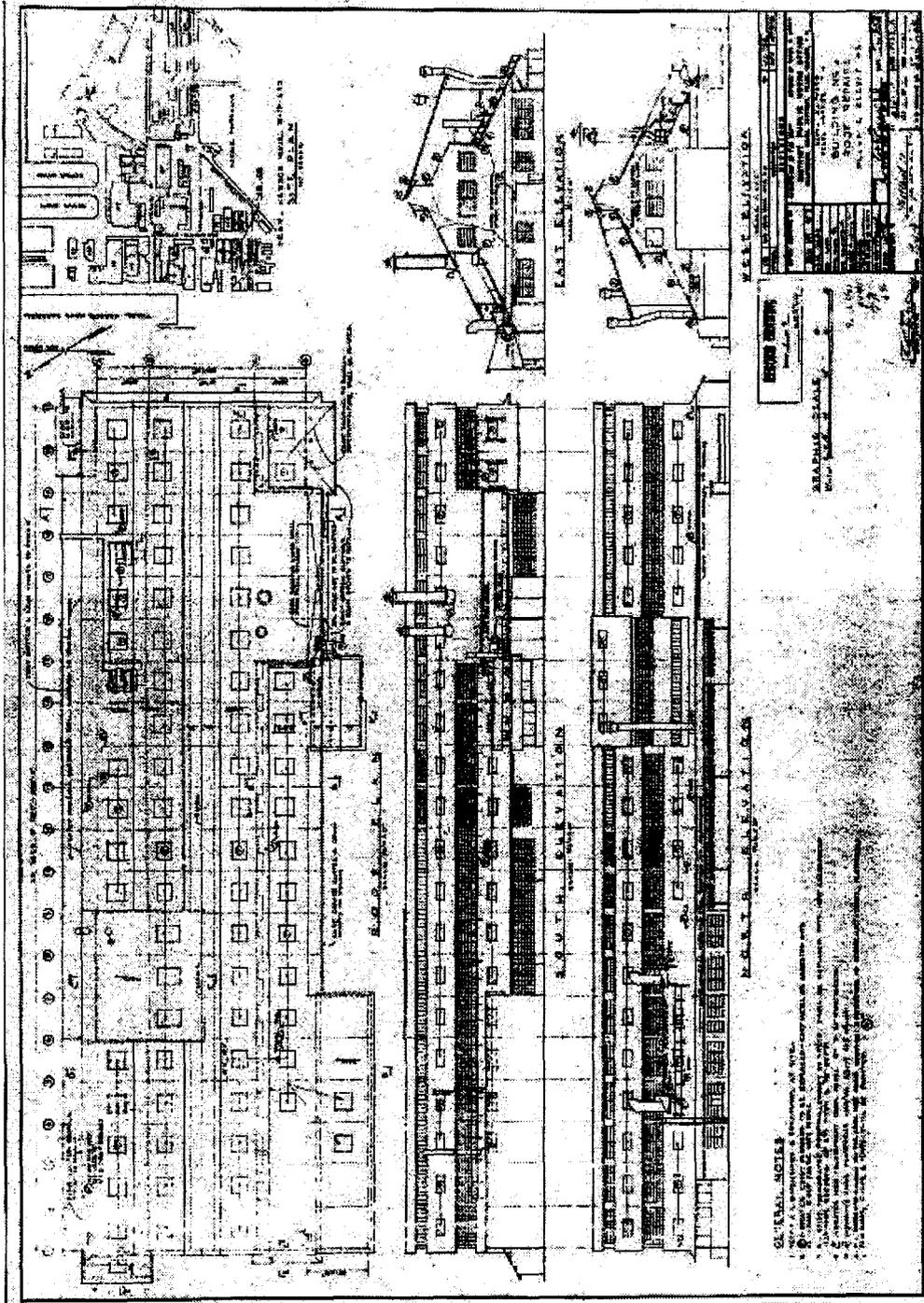
U.S. NAVAL BASE, PEARL HARBOR, FOUNDRY
(U.S. Naval Base, Pearl Harbor, Naval Shipyard)
(Facility No. 6)
HABS No. HI-485 (Page 8)

Plans, Sections, and Interior Elevations As-built Drawings
(Drawing No. I-N5-1752, dated 1957) (reduced, not to scale)



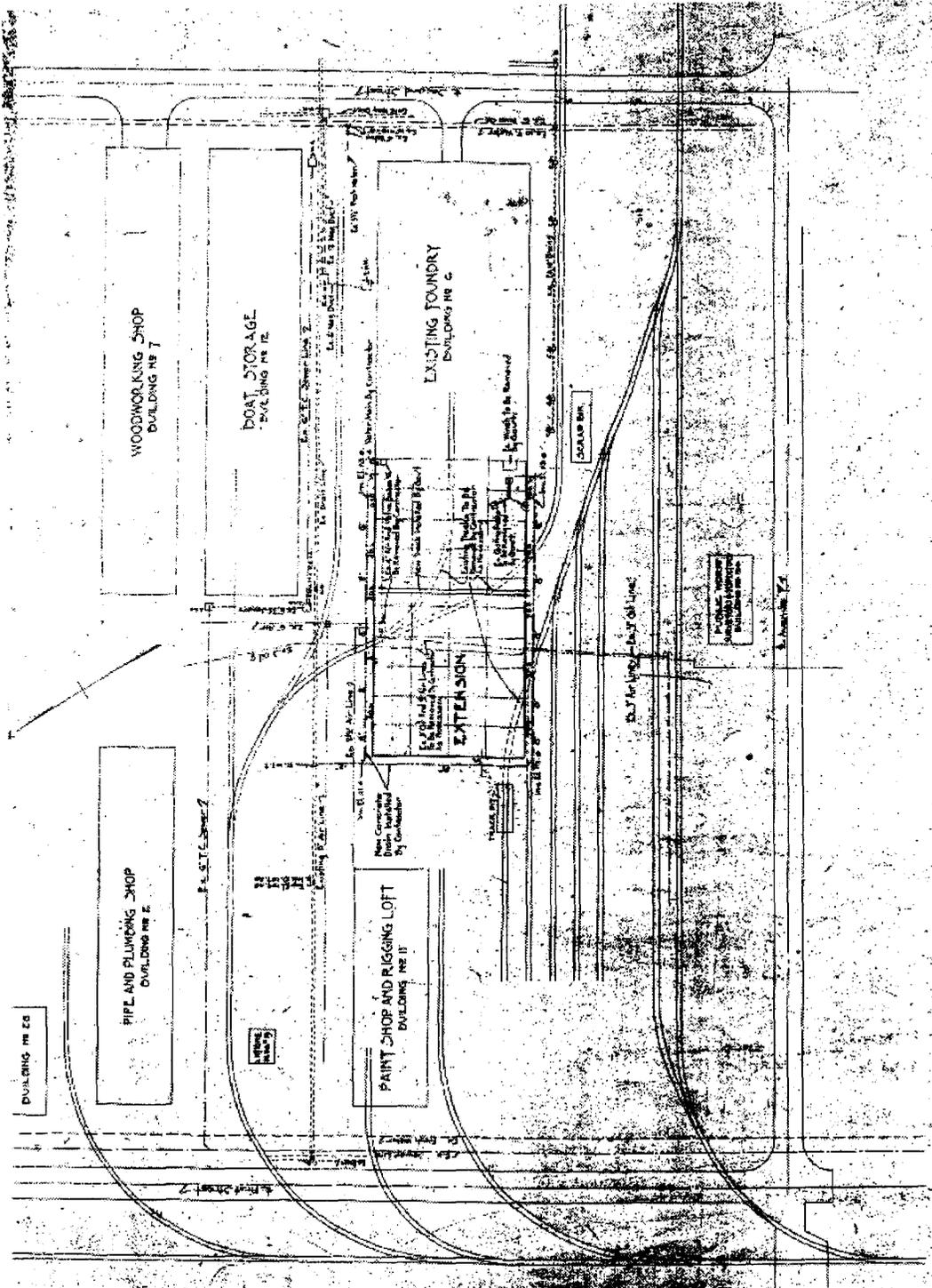
U.S. NAVAL BASE, PEARL HARBOR, FOUNDRY
(U.S. Naval Base, Pearl Harbor, Naval Shipyard)
(Facility No. 6)
HABS No. HI-485 (Page 9)

Roof Plans and Exterior Elevations As-built Drawings
(Drawing No. 820266, dated 2/3/1959) (reduced, not to scale)



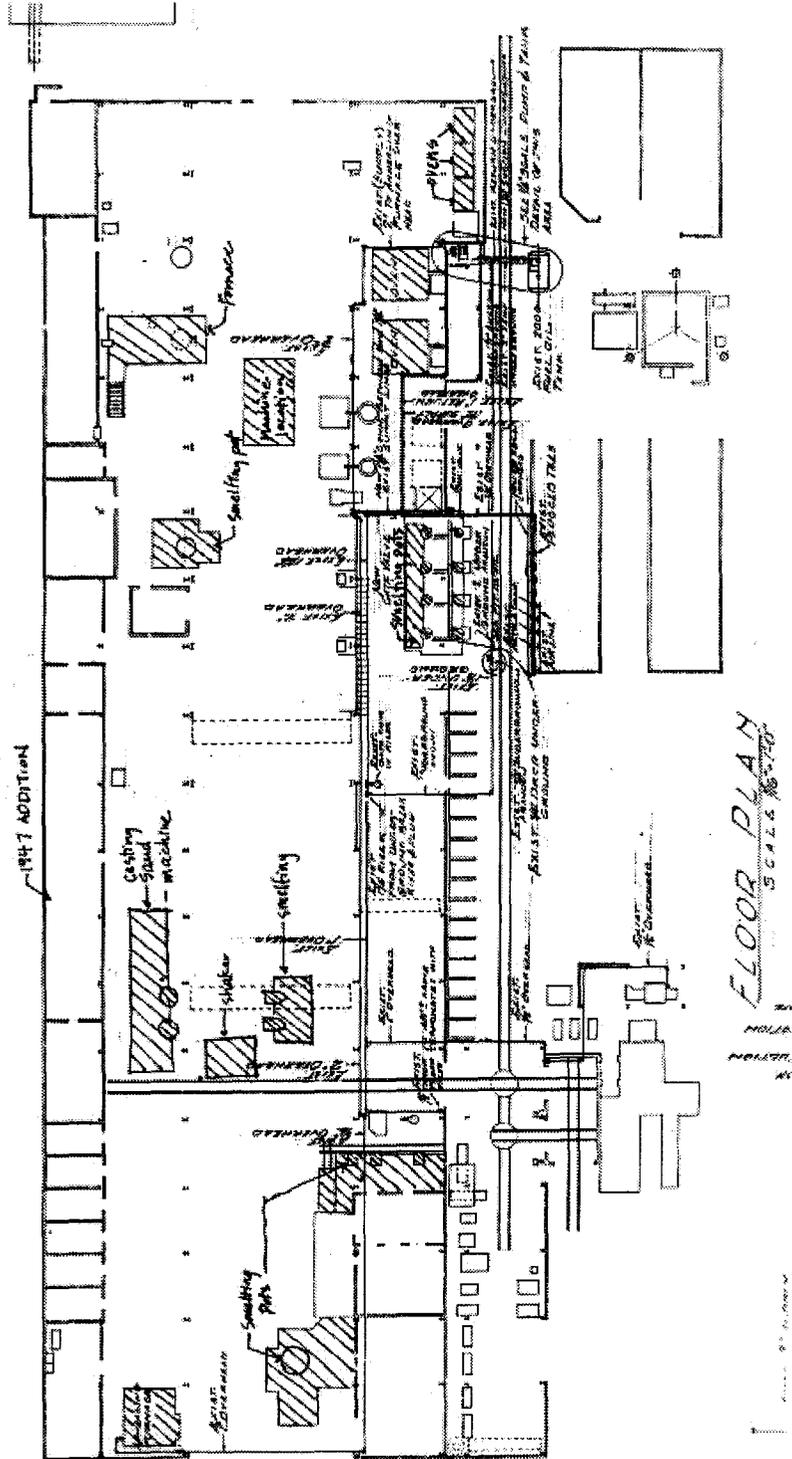
U.S. NAVAL BASE, PEARL HARBOR, FOUNDRY
(U.S. Naval Base, Pearl Harbor, Naval Shipyard)
(Facility No. 6)
HABS No. HI-485 (Page 10)

Foundry Extension Drawing (Drawing No. I-N5-139, dated 1933) (reduced, not to scale)



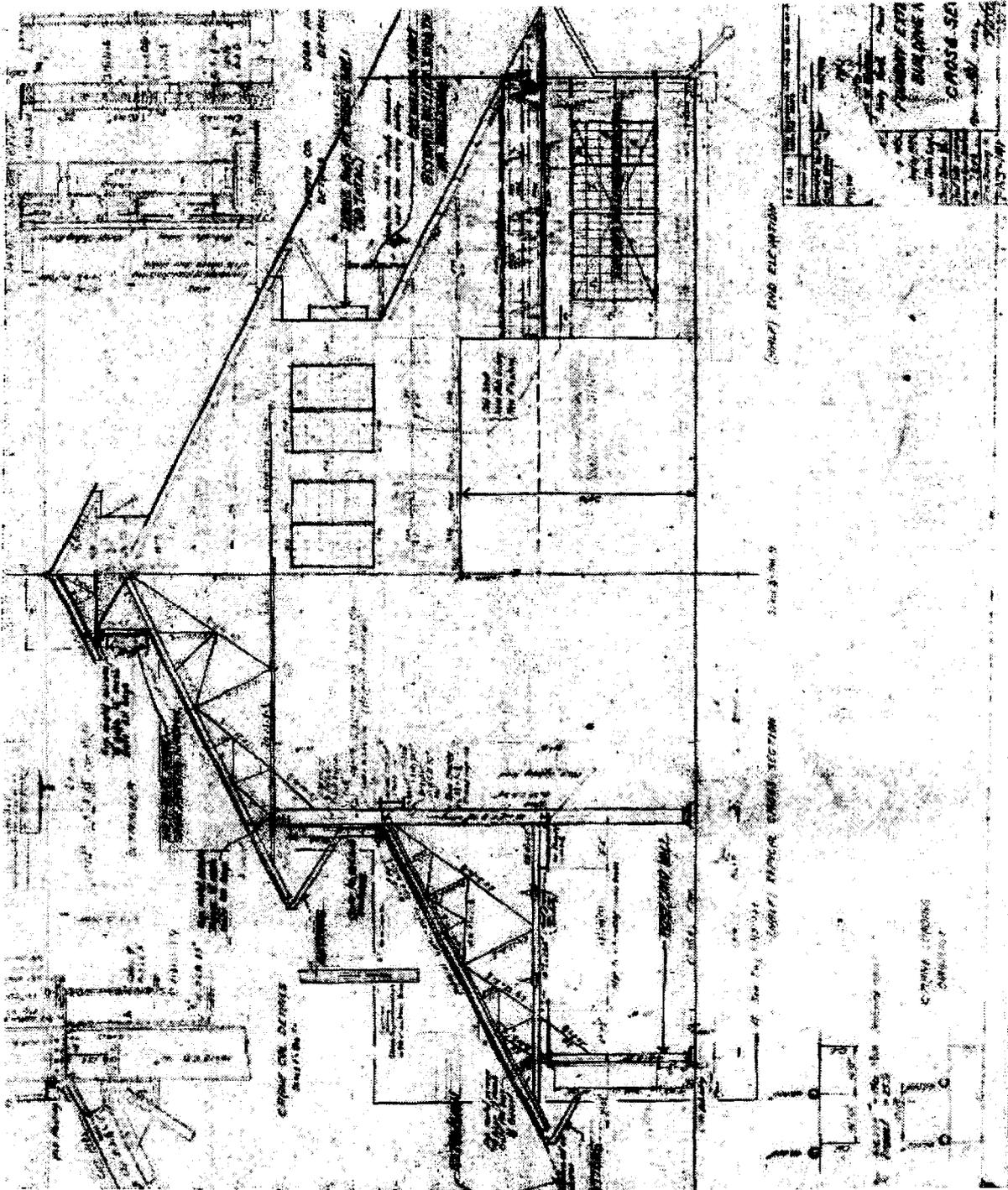
U.S. NAVAL BASE, PEARL HARBOR, FOUNDRY
 (U.S. Naval Base, Pearl Harbor, Naval Shipyard)
 (Facility No. 6)
 HABS No. HI-485 (Page 11)

Foundry As-built Floor Plan showing 1947 addition and location of foundry equipment
 (Drawing No. I-N5-1713, dated 9/8/1949) (reduced, not to scale)



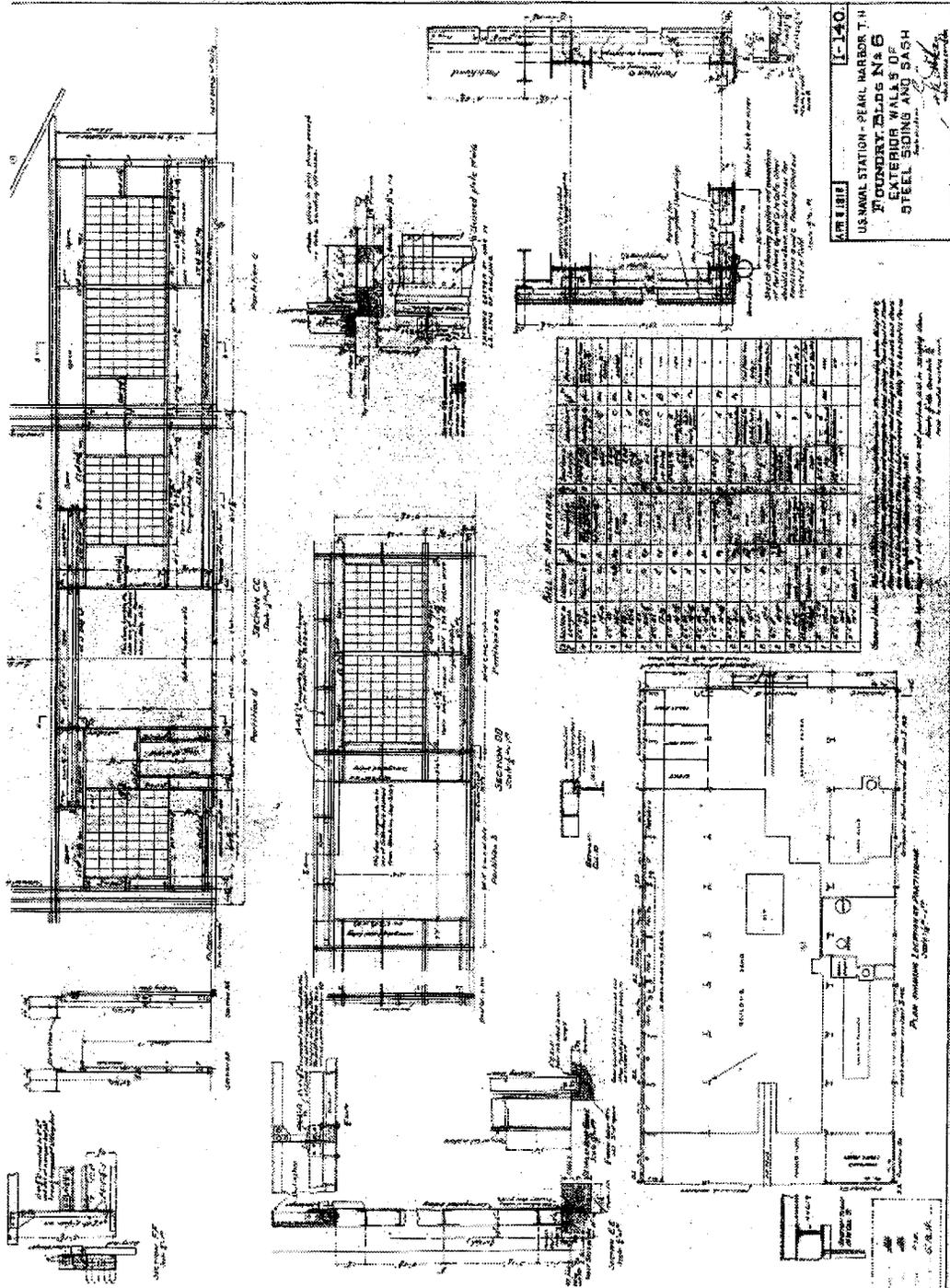
U.S. NAVAL BASE, PEARL HARBOR, FOUNDRY
(U.S. Naval Base, Pearl Harbor, Naval Shipyard)
(Facility No. 6)
HABS No. HI-485 (Page 12)

Building Cross-Section (Drawing No. 116708, dated 9/6/1933) (reduced, not to scale)



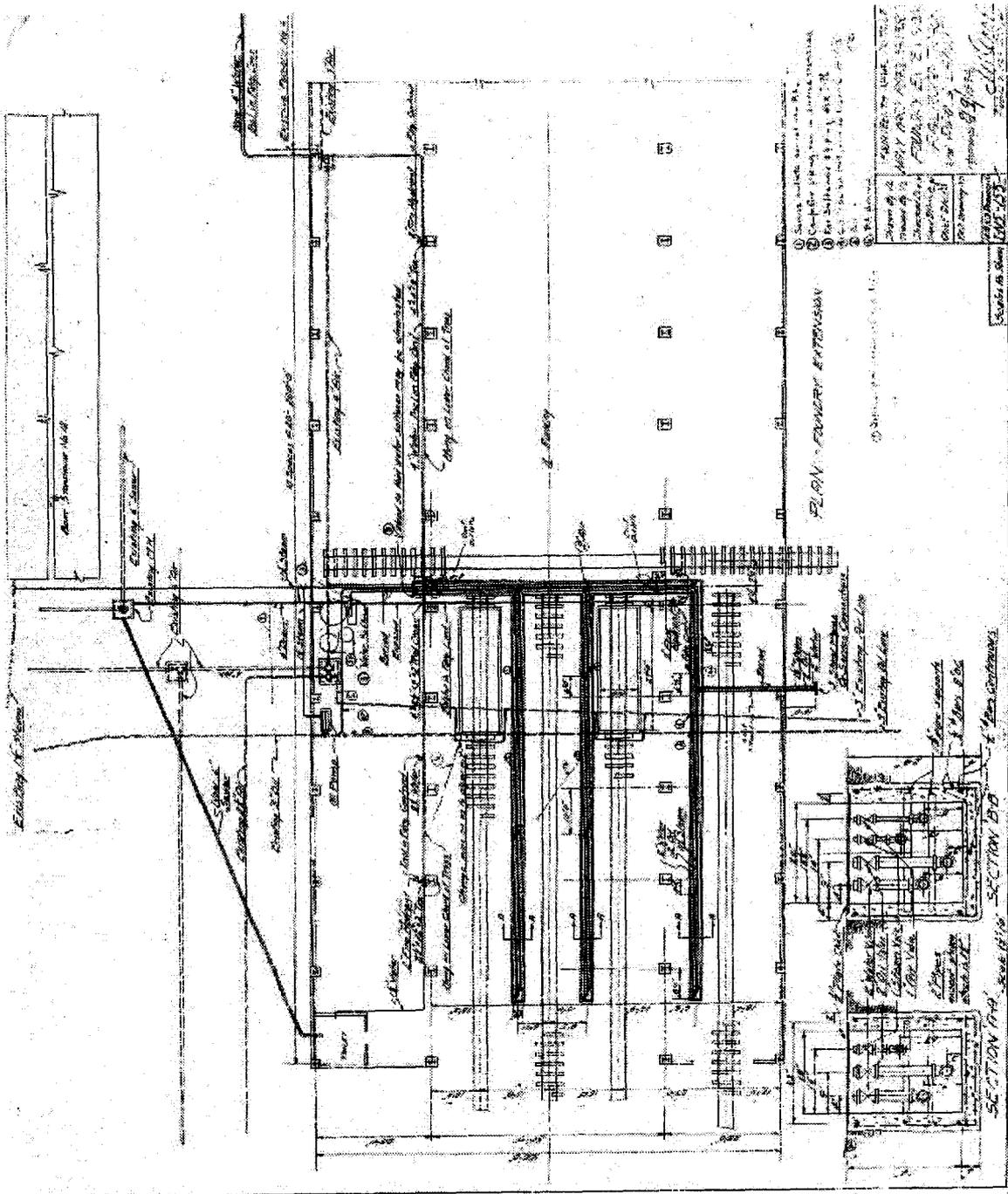
**U.S. NAVAL BASE, PEARL HARBOR, FOUNDRY
 (U.S. Naval Base, Pearl Harbor, Naval Shipyard)
 (Facility No. 6)
 HABS No. HI-485 (Page 13)**

Exterior Wall Details at First Floor (Drawing No. I-140, dated 4/8/1918) (reduced, not to scale)



**U.S. NAVAL BASE, PEARL HARBOR, FOUNDRY
 (U.S. Naval Base, Pearl Harbor, Naval Shipyard)
 (Facility No. 6)
 HABS No. HI-485 (Page 14)**

**Railroad Track and Piping Layout and Sections (Drawing No. I-N5-155, dated 8/9/1934)
 (reduced, not to scale)**



Building Alterations to House Sand Handling Equipment
(Drawing No. I-N5-1651, dated 10/20/1947) (reduced, not to scale)

