

U.S. NAVAL BASE, PEARL HARBOR, MARINE RAILWAY NO. 2,
CRANE WHARF
(U.S. Naval Base, Pearl Harbor, Naval Shipyard, Facility No. 1461)
Near intersection of Avenue G & Third Street
Pearl Harbor
Honolulu County
Hawaii

HABS HI-510

HI-510

HABS

HI-510

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, MARINE RAILWAY NO. 2, CRANE WHARF (U.S. Naval Base, Pearl Harbor, Naval Shipyard) (Facility No. 1461)

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Location:

Near the intersection of Avenue G and Third Street
Just past Dry Dock 3 heading northwest
Pearl Harbor Naval Base
City and County of Honolulu, Hawaii

This facility 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 facility's UTM coordinates are: Zone 4 607500E 2361320N.

Significance:

Facility 1461 is located within the Pearl Harbor National Historic Landmark. Completed during the Second World War, after the Japanese attack on Pearl Harbor, it is significant as one of the important components of the Navy Yard's repair facilities. In conjunction with Marine Railway No. 2, it facilitated the lifting and moving of large objects and structures to and from ships of the Pacific fleet as they were home-ported for repairs. It also provided critical utilities, such as steam, air, and electricity, to the Marine Railway that were required for the repair operations.

Description:

The crane wharf is a concrete wharf structure 70' x 570' long, consisting of a concrete deck (elevation 108') supported half on land and half on piles. It carries 28-foot-gauge tracks for a 50-ton traveling crane, as well as narrow-gauge rail tracks- both connected to tracks from Dry Dock No. 3. Heavy reinforced concrete girders were constructed for the crane rails; they bear chiefly on the concrete piles. At their inboard ends the girders rest on concrete columns, bearing on stepped spread footings. The remainder of the wharf rests on concrete piles driven into the hard underlying coral sandstone; wood formwork was constructed on the piling and concrete poured in the dry.

In constructing the 3,000-ton marine railway, reinforced concrete ground way sections were precast on a casting wharf erected adjacent to the railway site. In order to precast the runway sections, a 90'-0" x 142'-0" casting yard was established on the shore, adjacent to the site, which included a timber wharf for the 150-ton floating crane. Five of the underwater sections were 119' 3-3/4" long; the sixth, or outboard section, 100'-0" long (including the back haul sheaves cast in place). The forms provided a three-inch cover for all steel; pouring was done continuously in three section rows, two sections high.

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Below the deck there are five manholes, or compartments, for service connections. The services include fresh and salt water, air, steam, and electricity. Above-dock floodlighting is provided, from poles, with projectors; the service connections are from the substation and machinery house. Street lighting is also provided, with poles and conduit connections, as an extension of the existing.

A concrete curb wraps the sides of the wharf. The concrete curb is 12" wide and 8" high with beveled corners. Cleats are spaced at regular intervals and sit on trapezoidal concrete pads that are about 3'-6" in width and extend out 1'-3" from the concrete curb. The cleats are typical of those installed during this time at Pearl Harbor. They are approximately 9.5" high and 10" wide at the base, which is bolted all the way through the concrete curb to the underside of the slab (approx. 24" thick).

Cylindrical wood bumpers/fenders wrap the front portion of the wharf which projects out into the water. The fender system is designed to protect the concrete slab of the pier. The timber fenders are of round creosoted timber piles measuring approximately 1'-6" in diameter. The tops of the timbers are level with the top of the concrete curb and the bottoms extend deep into the water. The timber pile is bolted to a 12" x 12" 'wale' piece, which is a horizontal timber or beam used to brace or support an upright member. The wale is attached to the concrete curb with 4" x 12" x 12" blocking pieces between the wale and the concrete. 8" x 12" or 12" x 30" 'chocks' run between the timber piles, giving the piece stability and strength. The timber piles along the straight lengths of the deck are evenly spaced and are supported by a horizontal row of chocks and blocks that is attached to the top of the curb. The outboard corners of the piers are more securely protected by a much more condensed fender system, which leaves only a few inches of gap between the cylindrical timber piles.

The wharf is in fair condition. The concrete is deteriorating in several areas, and the concrete curb has been damaged in several areas where the timber fenders are not located, which is closer to the shoreline. Some of the steel reinforcement in the concrete is exposed due to cracking and spalling and rust is infiltrating the structure.

Historical Context:

Most of the waterfront facilities at Pearl Harbor were developed in the period of 1940-1945, due to the fact that in 1940 the entire Pacific fleet was ordered to remain at Pearl Harbor. In the period following the December 7, 1941 attack, the Navy Yard's repair facilities were expanded to keep up with the ever-demanding needs of the war. The crane wharf was built in 1943 by the Pacific Bridge Company, who had also completed other important waterfront facilities in this period such as the Marine Railway No. 2 (Facility S777 HABS HI-513) which was alongside it, and Dry Docks Nos. 2 and 3.

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Facility 1461 was built to facilitate the needs of the adjacent marine railway structure. The cranes run down the length of the wharf, which was alongside the length of the Marine Railway No. 2 (now demolished). The large cranes were able to hoist and move large objects and structures from and to ships as they were being repaired. The crane wharf also supplied all of the basic services necessary to Marine Railway No. 2 such as fresh water, air, steam, and electricity, which ran transverse to the length of the wharf and connected to hookups on the Marine Railway No. 2.

Facility S777 was built at the same time as the Crane Wharf (in 1943) and was in use up until 1977. Facility S777 was dismantled soon after a Historic Resources Inventory was written in October of 1980. The "landing craft" was not removed at this time but remained parked on the land next to the Winch House until 1999. All that is left of the Marine Railway is the metal tracks upon which the cradle ran and the machine shop.

Presently, the wharf is being underutilized as it is mainly functioning as a bulkhead. Two cranes, P-63 and P-67, are still being used and run on the original track system. However, the smaller tracks located on the far west side of the wharf, which were used for locomotive trains, are no longer used and the track rails have been filled with asphalt paving.

For an overview of the Naval Shipyard see HABS No. HI-483. For information on Facility S777, Marine Railway No. 2, see HABS No. HI-513.

Sources:

The original drawings for this building are on microfilm at NAVFAC PAC Plan Files. They include:

- Marine Railway No. 2 General Plan, Drawing No. I-N17-119, dated 2/8/1943
- Dredging Plan, Section, and Elevation, Drawing No. I-N17-120, dated 2/1/1943
- Street Lighting and Floodlighting Layout and Details, Drawing No. I-N17-127, dated 3/4/1947
- Crane Wharf, Service Layout, Drawing No. 5921, dated 9/14/1943
- Crane Wharf, Electrical Outlets and Details, Drawing No. 5920, dated 2/16/1943
- Crane Wharf, Service Cross Sections, Drawing No. 5922, dated 5/15/1943

Nakahara, Kenneth. *Historic Resources Inventory Form for Marine Railway No. 2*, 1980. Prepared by Pearl Harbor Naval Shipyard, Facilities Planning & Programming for State Historic Preservation Office.

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Pacific Bridge Co. *Technical Report and Project History, Contracts NOy-5049, for Construction of Dry Dock and Power Plant, Moorings and Additional Facilities, 1944.* Prepared for the Navy Department, Bureau of Yards and Docks. Report on microfilm at Pacific Division Naval Facilities Engineering Command Library.

U.S. Navy Bureau of Yards and Docks. *Building the Navy's Bases in World War II, History of the Bureau of Yards and Docks and the Civil Engineering Corps 1940-1946 Volume II, 1947.* United States Government Printing Office: Washington.

Likely Sources Not Yet Investigated:

National Archives II, Text and Cartographic sections, 8601 Adelphi Road, College Park, Maryland 20740, ph. (301) 713-6625.

National Archives, Pacific Sierra Region, 1000 Commodore Drive, San Bruno, California 94066, ph. (415) 876-9009.

Navy Historical Center, Washington Navy Yard, 805 Kidder Breese, S.E., Washington, D.C. 20734, ph. (202) 433-4131.

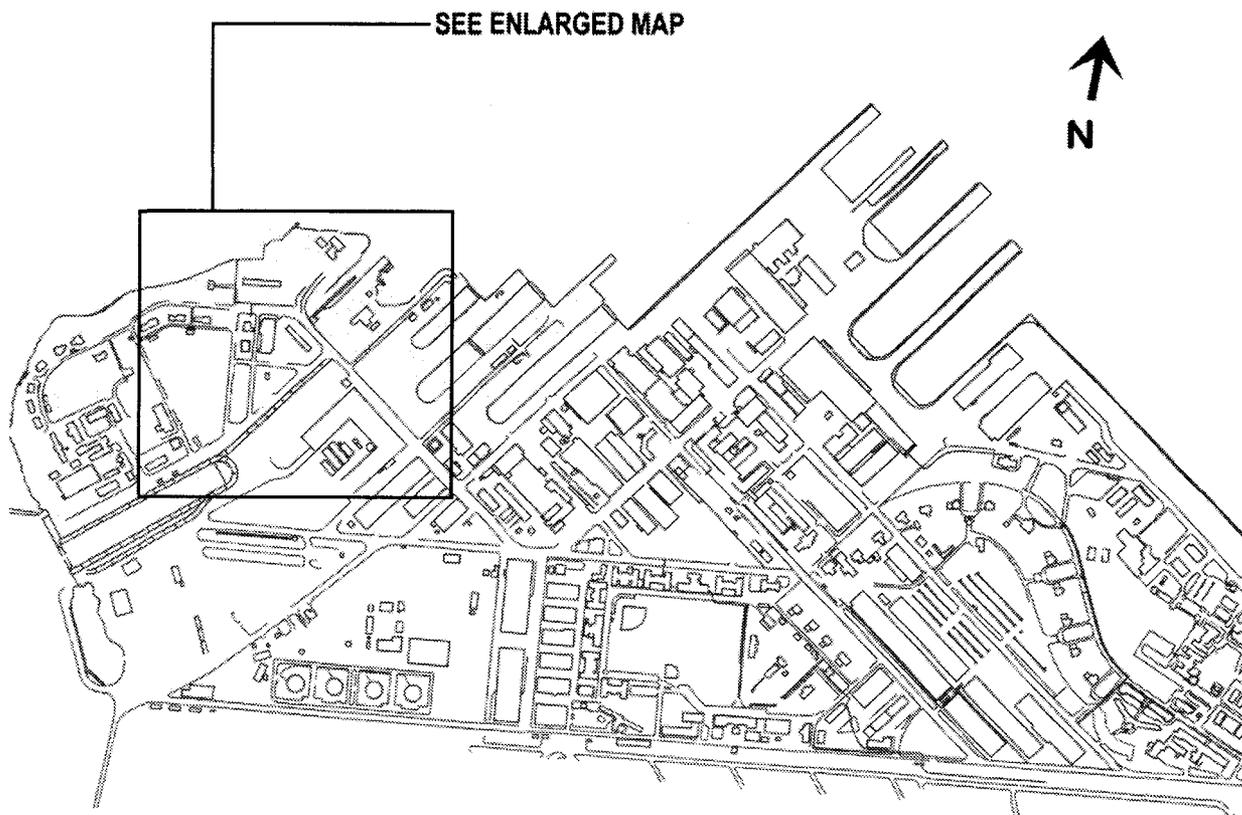
Port Hueneme NAVFAC Archives, 621 Pleasant Valley Road, Port Hueneme, California 93043, ph. (805) 982-5563.

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. Palumbo, 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.

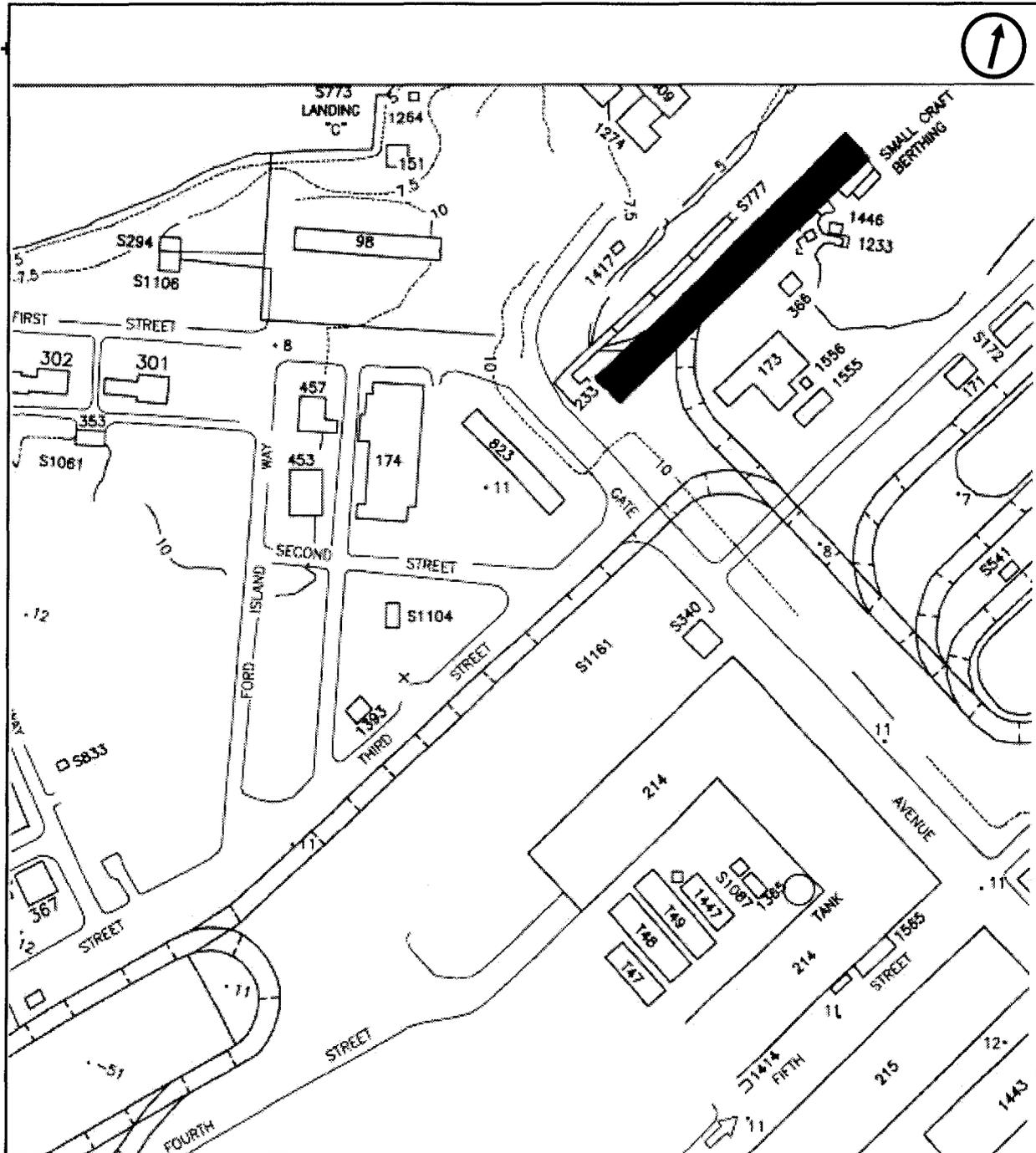
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Shipyard Map



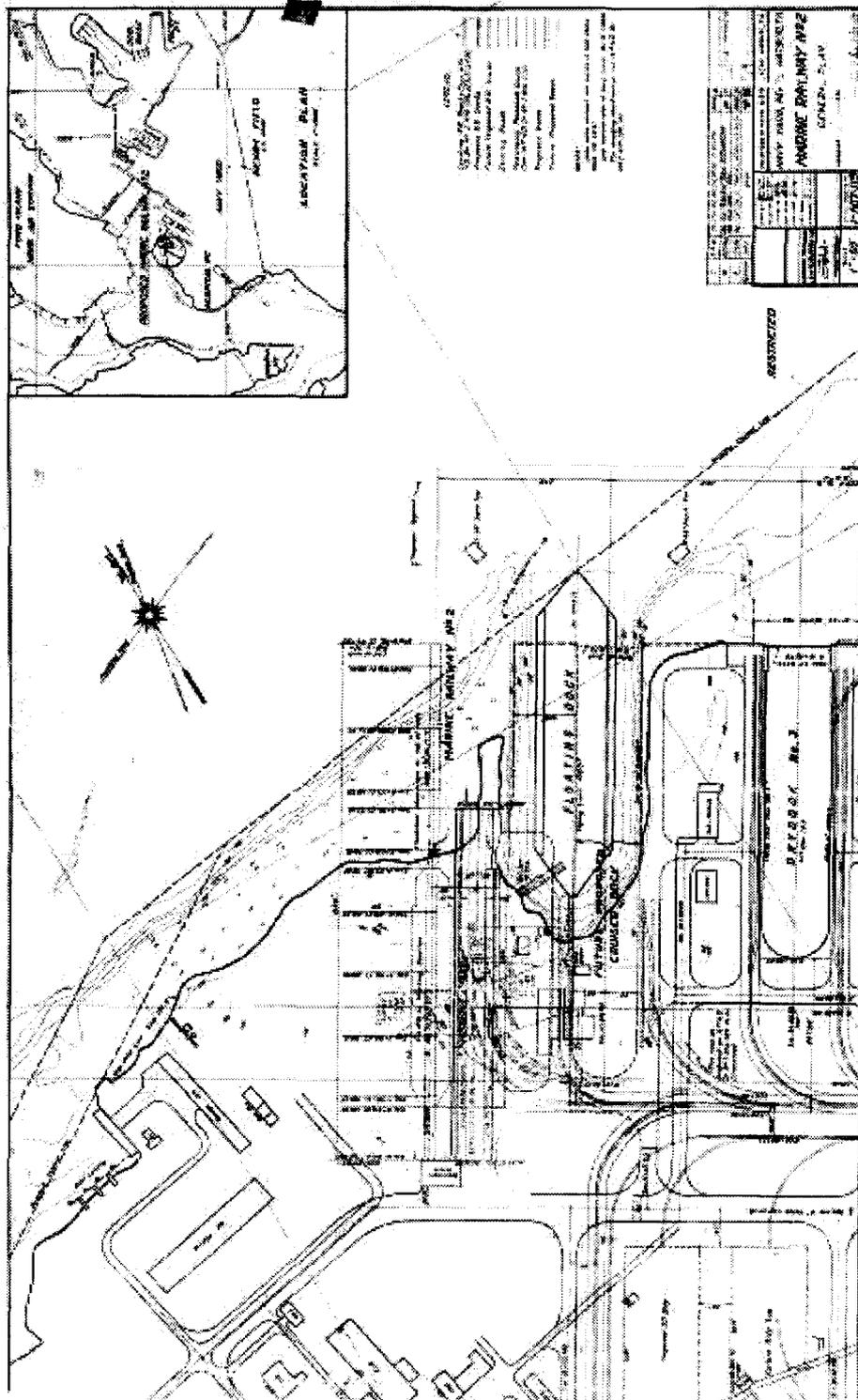
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Enlarged Area Map (reduced, not to scale)



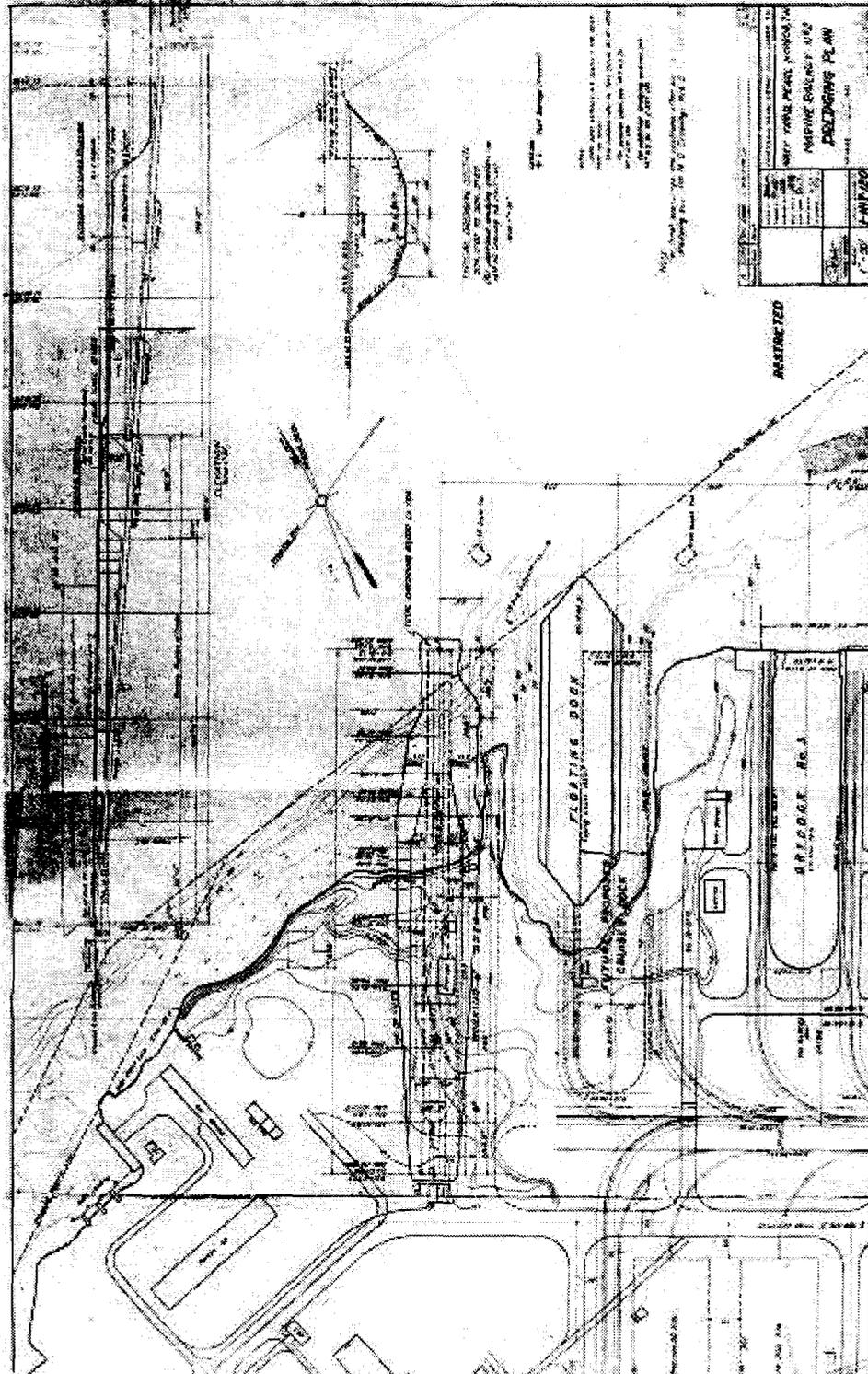
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Marine Railway No. 2 General Plan (Drawing No. I-N17-119, dated 2/8/1943) (reduced, not to scale)



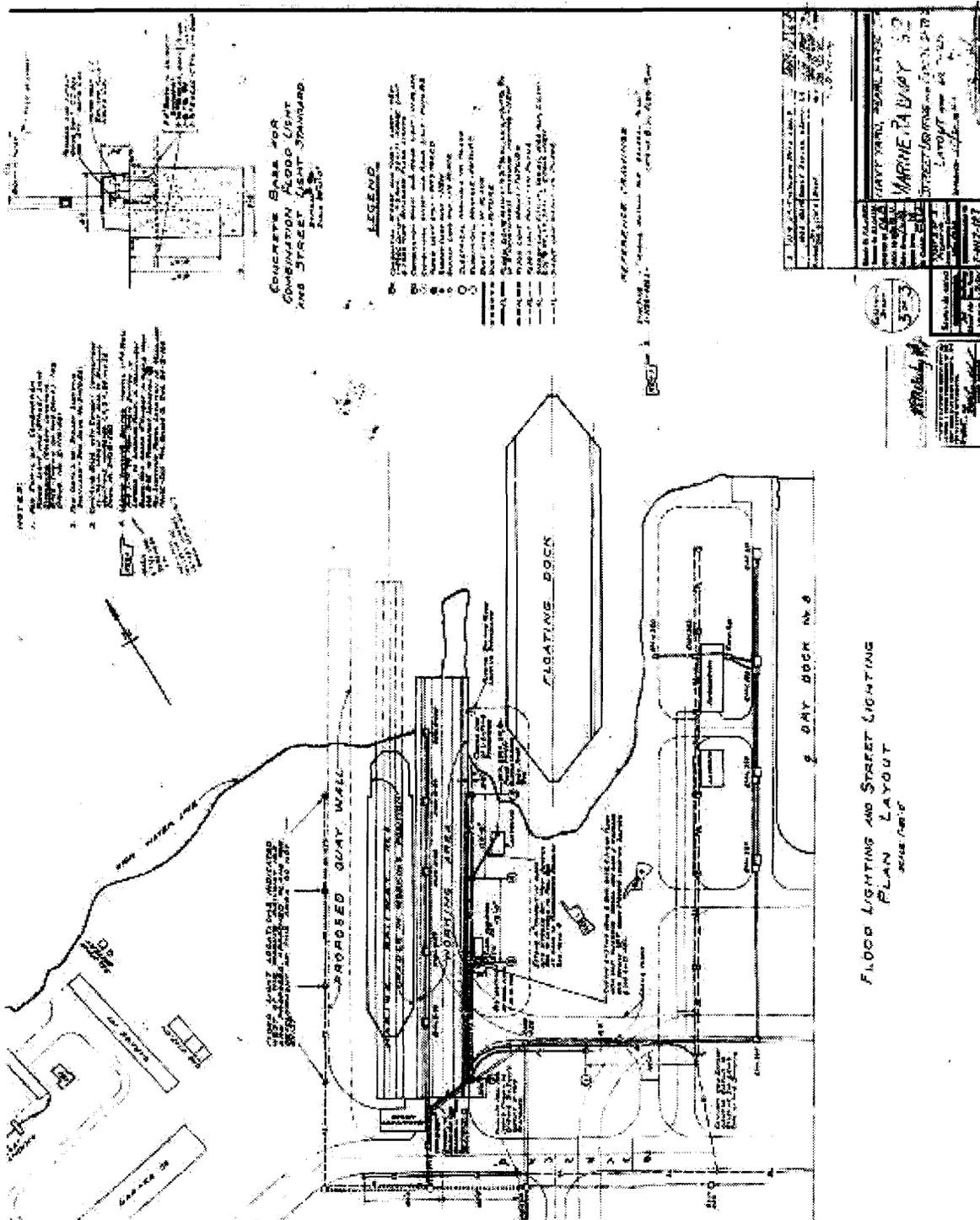
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Dredging Plan, Section, and Elevation (Drawing No. I-N17-120, dated 2/1/1943) (reduced, not to scale)



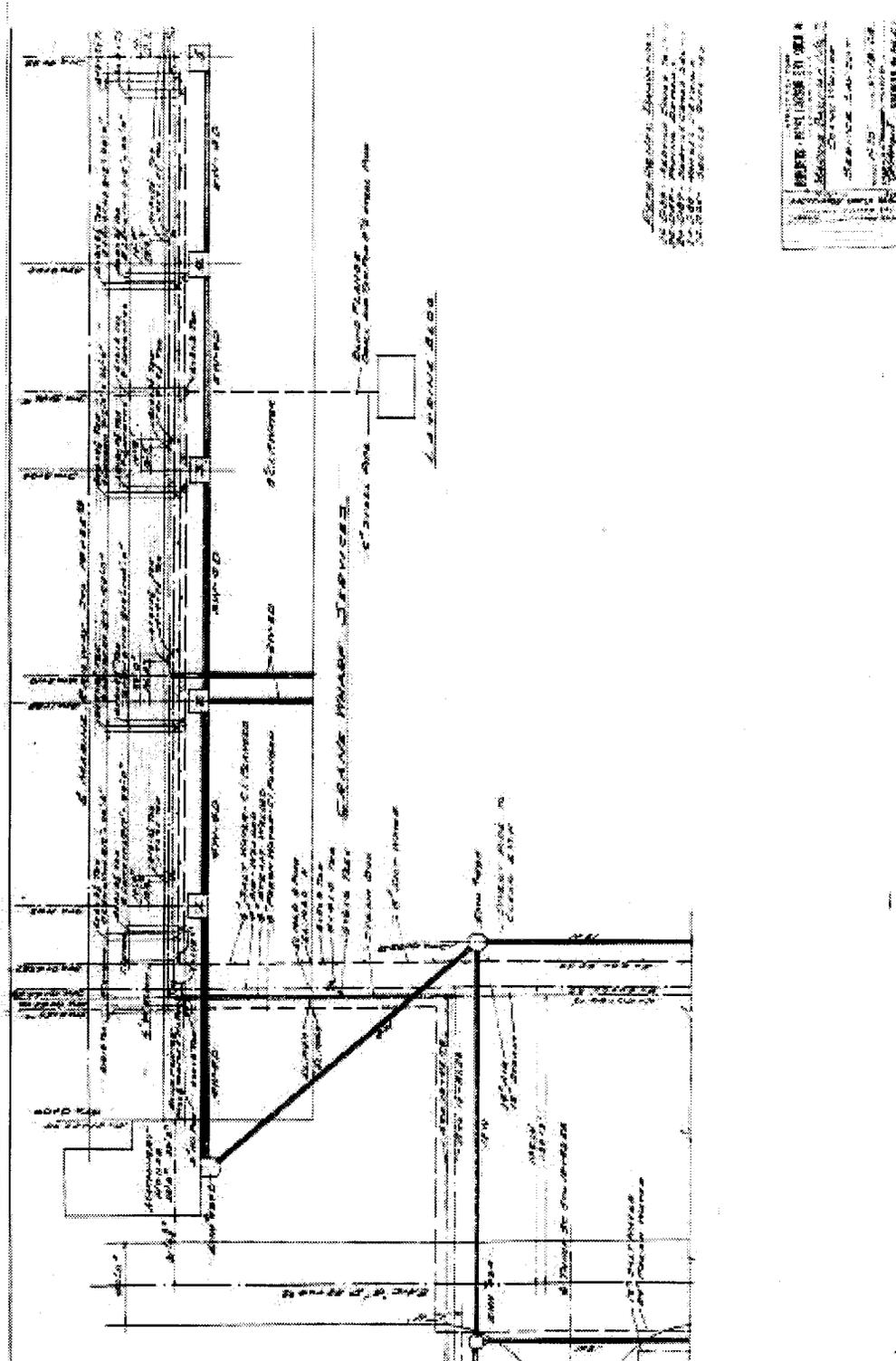
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**Street Lighting and Floodlighting Layout and Details (Drawing No. I-N17-127,
 dated 3/4/1947) (reduced, not to scale)**



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Crane Wharf, Service Layout (Drawing No. 5921, dated 9/14/1943) (reduced, not to scale)



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Crane Wharf, Service Cross Sections (Drawing No. 5922, dated 5/15/1943) (reduced, not to scale)

