U.S. NAVAL BASE, PEARL HARBOR, CHIEF PETTY OFFICER'S QUARTERS
(Dependent Quarters)
(U.S. Naval Base, Pearl Harbor, Naval Station Ford Island, Facility No. 28)
28 Belleau Wood Loop
Pearl Harbor
Honolulu County
Hawaii

HABS HI-440
HI-440
HABS
HI-440

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, CHIEF PETTY OFFICER'S QUARTERS
(U.S. Naval Base, Pearl Harbor, Naval Station Ford Island)
(U.S. Naval Base, Pearl Harbor, Dependent Quarters)
(Facility No. 28)

HABS No. HI-440

Location:

28 Belleau Wood Loop, Ford Island
Pearl Harbor Naval Base
City and County of Honolulu, Hawaii

U.S.G.S. Pearl Harbor Quadrangle, Hawaii, 1999
7.5 Minute Series (Topographic) (Scale - 1:24,000)
Universal Transverse Mercator Coordinates 4.608520.2362730

Significance:

The five remaining bungalows for Chief Petty Officers (CPO) on Belleau Wood Loop form the only remaining historic neighborhood at Pearl Harbor built for this rank of Navy personnel. The buildings are also significant as a group of vernacular houses that reflect Hawaii's architectural solutions for low-cost housing. The bungalows, which were built as part of the initial Naval Air Station on Ford Island, are associated with the establishment of Navy aviation in Hawaii and with the attack on Pearl Harbor on December 7, 1941. This house and the others in the CPO neighborhood are contributing elements to the Pearl Harbor Naval Base, which was designated a National Historic Landmark in 1964.

Description:

Facilities 28, 29, 31 and 32 are four similar two-bedroom, one-story bungalows built in 1923 (see HABS No. HI-441, 442, and 443 for reports on the other three). These four remaining 1923 bungalows, plus a 1938 CPO bungalow (Facility 90, see HABS No. HI-444), are located on the harbor side of Belleau Wood Loop. They face a large grassy area enclosed by that road and are sheltered by scattered large trees. The landscape setting at the front of the houses is notable, plus their rear yards have views of Pearl Harbor, and for some of them, views of battleship mooring quays and the Arizona Memorial.

Originally the four bungalows were smaller, measuring 22'-6" x 34'-0". With the rear addition, they are now approximately 44' in length. They are about 13' tall, with 10' ceiling heights. They are plantation-style houses, set on poured concrete pier foundations. The exterior siding is board and batten with a single girt. The boards are 12", and the battens are 2½" wide. The girt is 5¼" wide. They are single-wall houses, with interior finishes applied directly to the inside surface of the exterior siding. The location of the girt in these four bungalows varies. The 1924 photos show there was no girt, at the time of

construction. The varying locations suggest the girt was added to each house at different dates.

Each residence originally had a front and rear entry, linked by concrete walkways. The front door of each home is located to the right of its central axis. Historic photos from 1924 suggest that this door originally led into a screened entry porch, then into the living room. Each screened porch has been enclosed and made part of the living room. Now, the front door has an abutting one-over-one-light double-hung window on each side. Each wood-framed front door has two glass lights above a recessed wood panel. Except for Facility 28 which lacks a screen door, all of the bungalows also have wood-framed screen doors of similar pattern. The rear doors of the bungalows differ due to later alterations. Most exterior lights are modern.

Concrete steps now lead to the front and rear doors. The stairs were originally wood. These unsheltered wood stairs deteriorated, and were replaced with concrete ones. Facilities 28, 29, and 31 have metal pipe railings at their front and/or rear stairs. The location and design of the rear stair to each bungalow varies due to differences in rear additions. Except in Facility 29, the rear stair is now on the side of the house.

Historic photos from 1924 show that the windows in all the bungalows were originally six-light casements, mostly in pairs. Most of these have been replaced by paired one-over-one-light double-hung windows with spring sash balance. The casings of both the original casement windows and the double-hung replacements were made from simple, dimensional lumber. In the current bathroom of each house, a small jalousie window has replaced the original casement pair, which had a larger opening. The fenestration pattern in the living room was also changed when the windows were replaced and the screened entry porch was incorporated into the living room. Only Facility 29 retains the fenestration pattern seen in the early historic photos of two closely spaced pairs of windows in the living room (plus a third pair of windows on the side near the front entry). Facilities 28, 31, and 32 have two pairs of windows on the living room side wall, evenly spaced, rather than the three pairs in Facility 29. Except for the living room of those three bungalows, the locations of the original windows have been retained. Except for the bathroom windows, the original size of the windows also appears about the same. The double-hung windows, although not original, are compatible with the style and period of these houses. The jalousie windows in the bathrooms are modern, detracting elements. The dates when the windows were altered are not known.

The houses have hipped roofs covered in asphalt shingles, which replaced original wood shingles. Historic photos show that there were originally vents along the ridge of each roof. These have been

removed, probably during the re-roofing. The bungalows have wide projecting eaves and exposed rafter tails. The rafter ends are plumb-cut, except in Facility 28. The roofing underlayment is either tongue-and-groove boards or plywood. Typically there is an aluminum gutter and downspout near the front entry.

The floor plan of the bungalows is roughly divided lengthwise into public and private spaces. The front door leads directly to the public spaces, the 12'-0" x 23'-6" living room, and the rear 12'-0" x 10'-6" kitchen. The private spaces are to the left of the front door, accessible via a hall from the living room. These spaces consist of a center bathroom approximately 9' x 6' in size, between two bedrooms both about 10' x 11' in size. The layout of the original floor plan is not known.

Some of the original interior materials have been altered with renovation work. The floors were originally varnished fir boards that have been covered with vinyl composition tiles. Other interior finishes appear original, although the lack of construction plans means that they could be early alterations that have now acquired historic status. For instance, in two of the houses (Facilities 28 and 29), the lower portions of the living room walls are covered with a wainscot of horizontal tongue-and-groove boards. These boards have beveled edges, so a V-groove effect is created. The wainscot is topped by a rectangular chair rail with canec panels above. Chair rails with canec panels above and below are seen in the other two living rooms, and in most halls and bedrooms. Jeffrey Dodge (2002) was able to note in Facility 29 (because materials there were exposed after a fire) that the upper walls and ceilings of the living room were originally painted bead-board. This type of tongue-and-groove board, with a beaded center groove, was probably the original material used in all the 1923 bungalows, and later covered over with canec panels.

The kitchen and bathrooms in each house have been remodeled, so the original condition is not known. Essentially all of the fixtures are modern. However, in Facilities 31 and 32, the upper kitchen cabinets, on the wall adjacent to the sink, appear original or at least compatible with the period of the houses. These tall wood cabinets consist of four shelves with two pairs of two-light doors.

Other original, or at least historic, interior elements remain in most of the houses. These include five-panel or two-panel wood doors, canec ceilings, and simple baseboards and ceiling molding details in most rooms. The baseboards are largely rectangular with a quarter-round shoe mold, and the ceiling molding is typically two quarter-rounds attached to a rectangular trim piece. The chair rail is a simple rectangular trim with eased edges. All the window sills have a molded edge.

Distinguishing Features of Facility 28

Characteristics that distinguish Facility 28 from the other three 1923 bungalows resulted largely from later alterations. The most significant differences are in the addition and other renovations at the rear of the building.

A rear addition was built sometime before 1981, and was originally used as a laundry and storage/utility room. A plan dated 1985 labels this rear addition as a dining room. The addition in this house measures 14'-6" x 8'-0" and was built upon wooden posts. It is an extension of the kitchen, but slightly wider. The room is of single-wall board-and-batten construction, with a hipped roof. The rear addition on Facility 28 is the only one in the group covered with a hipped roof tied into the main roof, rather than having a shed roof.

Besides the addition, two other renovations make the rear of this building different from the other three similar bungalows. A concrete slab measuring 16'-9" x 14'-5", and approximately 6" above grade was constructed to the south of the addition, and served as a patio. A water heater enclosure was built in the southeast corner of the house, under the rear bedroom window, probably when the laundry room was converted to a dining room.

The rear addition has four two-light casement windows on the rear wall. It is the only house in this group to have this type of window installed in an addition. The side door to the house leads into the room adjacent to the kitchen from an exterior concrete landing. The landing has four steps descending to the north and six to the south, and a metal pipe railing. The rear door appears similar to the typical front door with lights above and a panel below.

The girt on Facility 28 is located at window sill level, with an additional girt on the rear addition running along the top of the windows. This house is the only one of the group with clipped rafter ends and with circular vent holes located at every third rafter. The roofing underlayment is tongue-and-groove boards.

Other distinctive features of the house also were due to repair and remodeling projects, typically undocumented in drawings. For instance, at some date horizontal slats were added between its wooden and concrete foundation posts where the grade difference is large (mostly on the south and east sides). The concrete path on the north and west sides, repaired in a 1981 project, is so close to the floor line that foundation screening slats are not necessary along it. The kitchen in each 1923 CPO bungalow is slightly different. In Facility 28, the cabinets and drawers in the kitchen are metal and appear to date from the 1950s. The baseboard in the living room is more ornate than in the other CPO houses. Facility 28's living room is the only one with battens over the canec panel joints.

Historical Context: **CPO Quarters Neighborhood History**

For an overall history of Ford Island, see HABS No. HI-382. Below is a brief history of the CPO Quarters neighborhood, derived largely from historic photos and maps. A detailed history of this house is not possible, because no original plans and only a few 1981 repair drawings exist. Some of the additions and alterations are evident by comparing the two known early historic photos to the current condition. These are described in the section above, but cannot be dated.

There was originally a large separation between the cluster of Chief Petty Officer's (CPO) houses on the eastern shoreline of Ford Island and the three 1923 Officers' Quarters in the Ford Island - North End neighborhood. The construction of additional officer housing in 1936 filled in much of the open space between these two neighborhoods. Originally there were six 1923 CPO houses facing the street later named Belleau Wood Loop (after a famous World War I battle). The open space enclosed by that street was largely occupied by a mess hall/galley building and a school from the early 1940s until the 1970s, when the demolition of those buildings returned the layout of the neighborhood closer to its original pattern.

The general layout of the CPO houses has not changed much over the decades, but historic photos and maps show some variation in the details. Around 1932, three additional CPO houses were added to the original six. These are shown as unnumbered but completed buildings on a 1932 map, which also shows 18 proposed houses nearby, presumably also for CPOs. An undated (but probably late 1930s) historic photo shows only eight CPO houses in the group on Belleau Wood Loop. There is a gap, suggesting that one of the 1932 CPO houses had been demolished.

The bungalow is of Anglo-Indian origin (Comstock and Schermerhorn 1990), and first arrived in Hawaii via the California Craftsman style. Lewers and Cooke, Limited, the leading residential builder in Hawaii at the time, popularized its use in the islands, espousing its economical construction cost and suitability to the climate. The bungalows on Belleau Wood Loop provided the military solid, affordable housing in addition to a comfortable and pleasant atmosphere for its personnel.

Lewers and Cooke's 1931 booklet, *Homes in Hawaii,* stated, "This book is published for the benefit of those who wish to build attractive and convenient homes at moderate cost [and to] enable the prospective home owner to obtain the services of a competent architect on houses which practicing architects find too small to handle at a profit. Lewers and Cooke, Ltd., does not attempt to design houses costing over $5,000.00" (Lewers and Cooke, Limited

1931). This cost estimate was a close match for the limited military housing budget of the early 1920s. A 1945 Navy property list shows the per-unit cost for these 1923 bungalows as $3,000.

Typical design features of the Hawaiian bungalows on Belleau Wood Loop are board and batten construction and hipped roofs with extended eaves. The board and batten construction technique was considered by Lewers and Cooke to be structurally superior to the less expensive tongue and groove (T & G) single-wall houses. The extended eaves relieved sun glare, and allowed windows to remain open during rain showers.

The company of Lewers and Cooke was the "leading building material establishment of Honolulu" for many decades, as noted in their booklet (Lewers and Cooke 1931). It is possible that they provided the materials for these houses. Navy records show that Station Enlisted Personnel built these bungalows (U.S. Navy 1954).

By 1939, nine four-plex buildings for Chief Petty Officers had been built instead of the 18 proposed buildings shown on the 1932 map. Comparison with the 1924 map indicates that these were located largely on fill land, which may be part of the reason the four-plexes were demolished by 1978. Three other CPO houses were built in the 1930s close to the four-plexes (Facilities 90 and 68 are extant), as shown in a 1939 photo. These buildings represent the expansion of the Navy's air facilities on Ford Island in the late 1930s. The name of the aviation activity had changed in the 1930s from Naval Air Station Pearl Harbor to Fleet Air Base Ford Island. This highlighted the new emphasis on aircraft assigned to ships, as opposed to the earlier emphasis on shore-based patrol planes.

On December 7, 1941 four battleships, the USS *Maryland, Oklahoma, Tennessee,* and *West Virginia,* were berthed just offshore of the CPO quarters neighborhood. The USS *Arizona* and *Nevada* were moored to the northeast, upwind. Residents of this neighborhood witnessed the damage caused by the Japanese planes and the responses from shipboard and other American guns. The blazing wreck of the USS *Arizona* caused at least one minor fire in a CPO house on the night of December 7 (Shoemaker 1941: 3; Daniels 1999). This CPO quarters was closest to a bomb strike that occurred in the center court area directly across the street. It and other residences in the neighborhood sustained minor damage from the continuing smoke and fire on the battleships and from the billeting and treatment of men who came to shore through the oily fire-covered waters.

The neighborhood also witnessed the salvage operations on the USS *Oklahoma*, which involved an elaborate system of winches and cables. These cables were set up adjacent to the CPO neighborhood and efforts to right this battleship stretched through 1943. In 1944, after the USS *Oklahoma* had been moved from Ford Island, an

aircraft carrier wharf (Facility S378) was built over the F5 mooring quays where that battleship had been.

Probably due to that wharf's construction, Fac. 69 and 90 were relocated to Belleau Wood Loop, with Fac. 69 approximately on the site of a 1923 CPO house (Fac. 27), and Fac. 90 approximately on the site of a 1932 CPO house (Fac. 67). Fac. 69 was demolished by 1978. A 1953 map shows that the shallow inlet on the east side of Belleau Wood Loop had been landfilled by that date. Fac. 30, relocated to its present site on Langley Avenue before 1953, was used in the 1965 John Wayne movie *In Harm's Way*. Of all the housing built for Chief Petty Officers on Ford Island, only six remain: one relocated 1938 house (Fac. 90), four 1923 houses on Belleau Wood Loop (Fac. 28, 29, 31 and 32), and the relocated 1923 house in the North End neighborhood (Fac. 30).

Sources:

Architectural Drawings and Maps: No original drawings and limited repair drawings for this facility were found in the Plan Files of the Naval Facilities Engineering Command, Pacific. This collection did include historic maps of the neighborhood, with various dates, some of which are reproduced in this report. The 1932 map in this report is from the National Archives.

Historic Views: Numerous historic photos of the neighborhood, mostly dated 1923 or 1924 plus one from 1934 and an undated one, were found in the National Archives II Photo Section. A photocopy of a 1924 aerial is included in this report. There were also photos in that collection of the CPO four-plexes (not extant). The Hawaii State Archives, Admiral Furlong Photo Collection, has several photos of the 1942-1943 salvage of the USS *Oklahoma.* A few of these show something of the adjacent CPO neighborhood, but the vegetation obscures the houses, which are not the focus of the photographs in any case.

Interviews:

Daniels, James G., Captain

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Dodge, Jeffrey

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1922 "U.S. Naval Station, Pearl Harbor, T.H., Roads and Walks at Naval Air Station Ford Island, General Layout." Map numbered V-27, on microfiche card at Plan Files of Naval Facilities Engineering Command, Pacific.

Shoemaker, James M.
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U.S. Navy
1954 Building Inventory forms, NAVCOMPT Forms 277, dated 8-54 for Facilities 28, 29, 31, 32. On file at the Archives of the Naval Facilities Engineering Command, Port Hueneme, California.

Project Information:

Commander Navy Region (COMNAVREG) Hawaii has embarked on a program of documentation of historic properties within its area of responsibility, with the goal of recording historic information about each property and establishing its context of significance. This information will assist COMNAVREG Hawaii in the appropriate management of these properties, be it routine repair and maintenance for continuing use, rehabilitation for continuing use / adaptive reuse, or demolition. At this time, specific actions that may affect these facilities have not been determined. This report was prepared under a Historic Preservation Services contract (N62742-97-D-3502) awarded to AMEC Earth and Environmental, the prime contractor, by the U.S. Navy, Naval Facilities Engineering Command. The contract was funded through the Cultural Resources Program of COMNAVREG Hawaii. The photographic documentation was undertaken by David Franzen, of Franzen Photography. Location maps were prepared by Nestor Beltran of NAB Graphics. In 1998, the field work was done and a draft of this report was written by Dot Dye of AMEC. The draft was rewritten in 2002 by Mason Architects.

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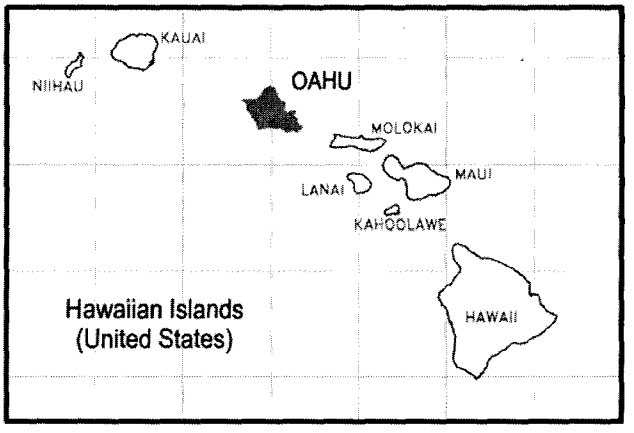
Date of final report: July 2005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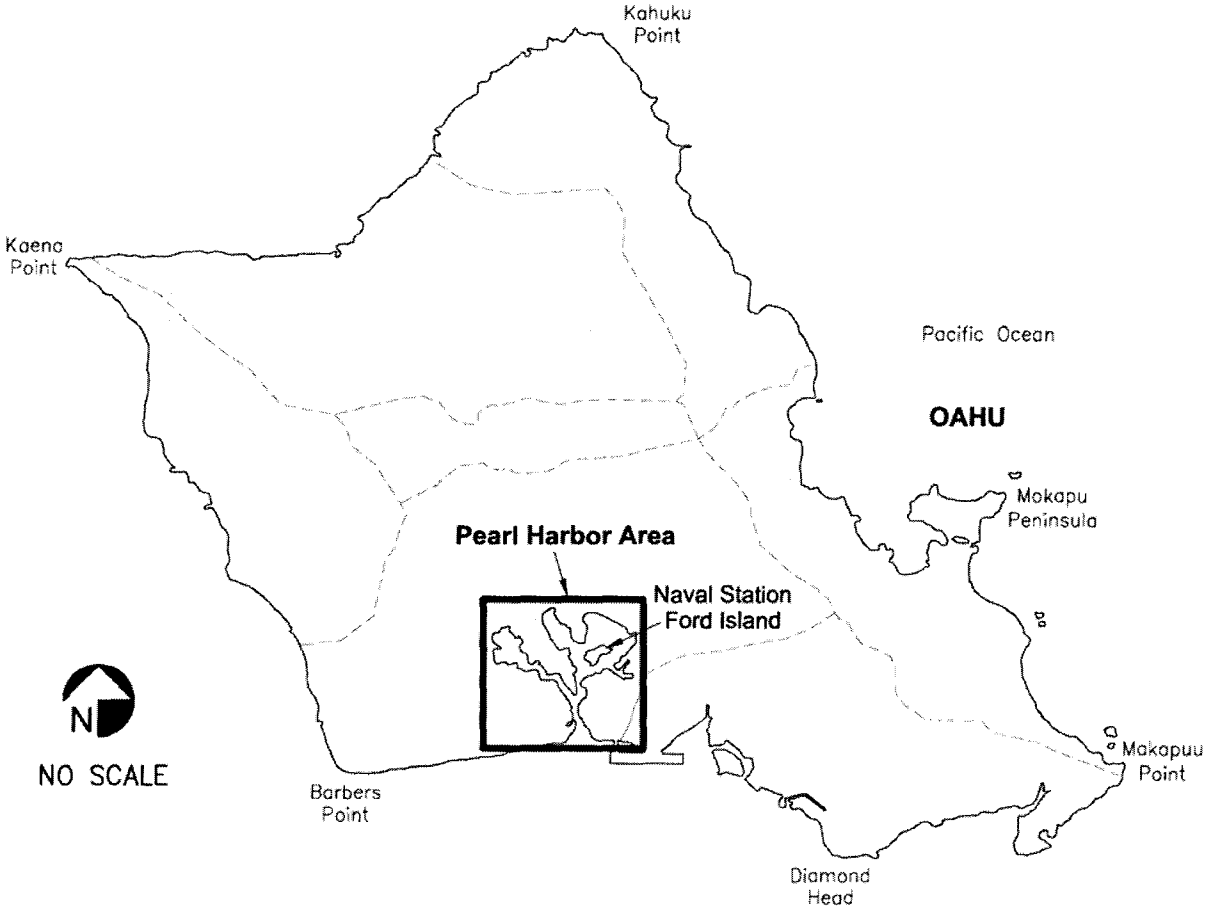
(United States)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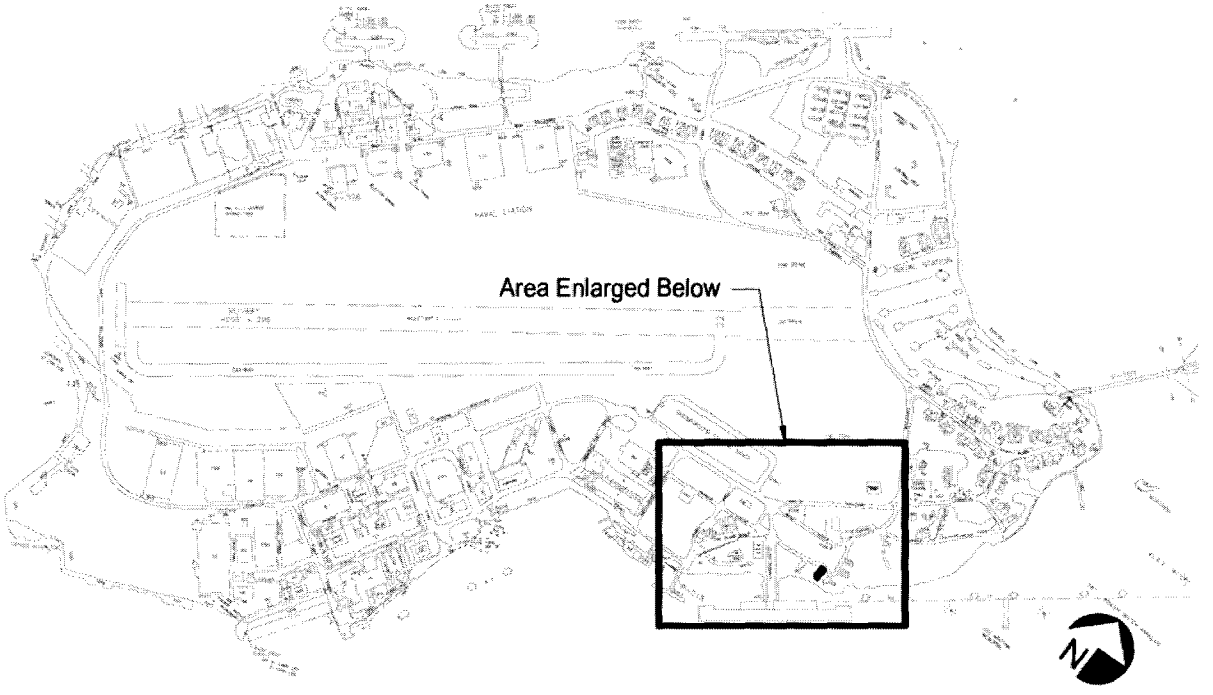

Vicinity Map

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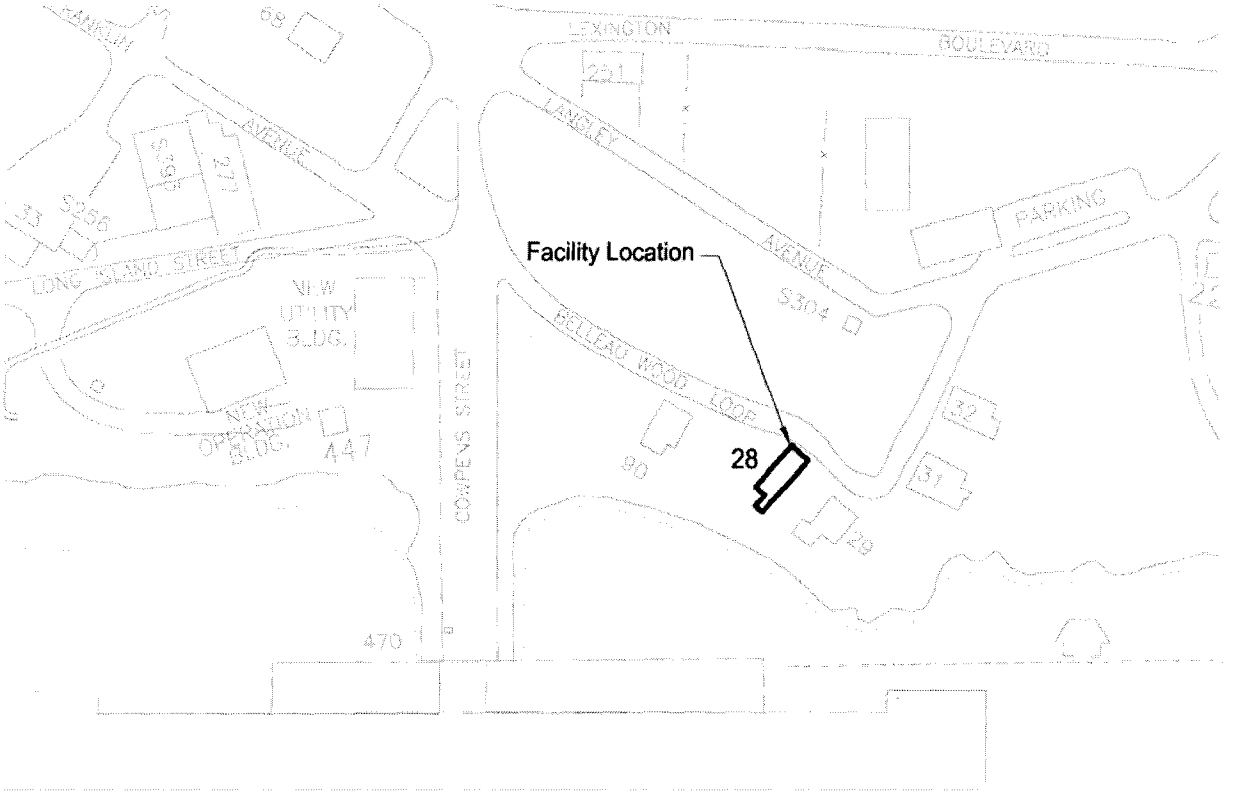
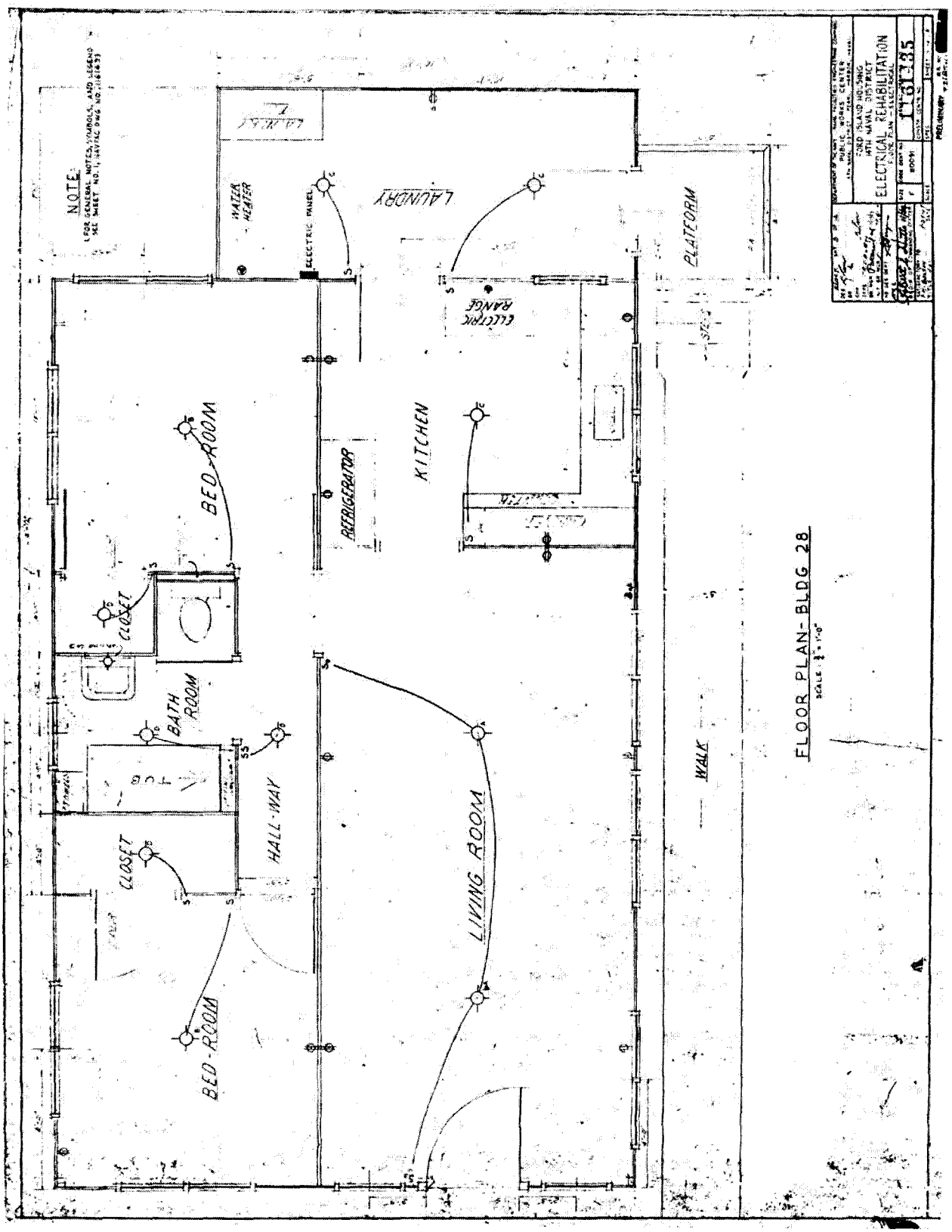
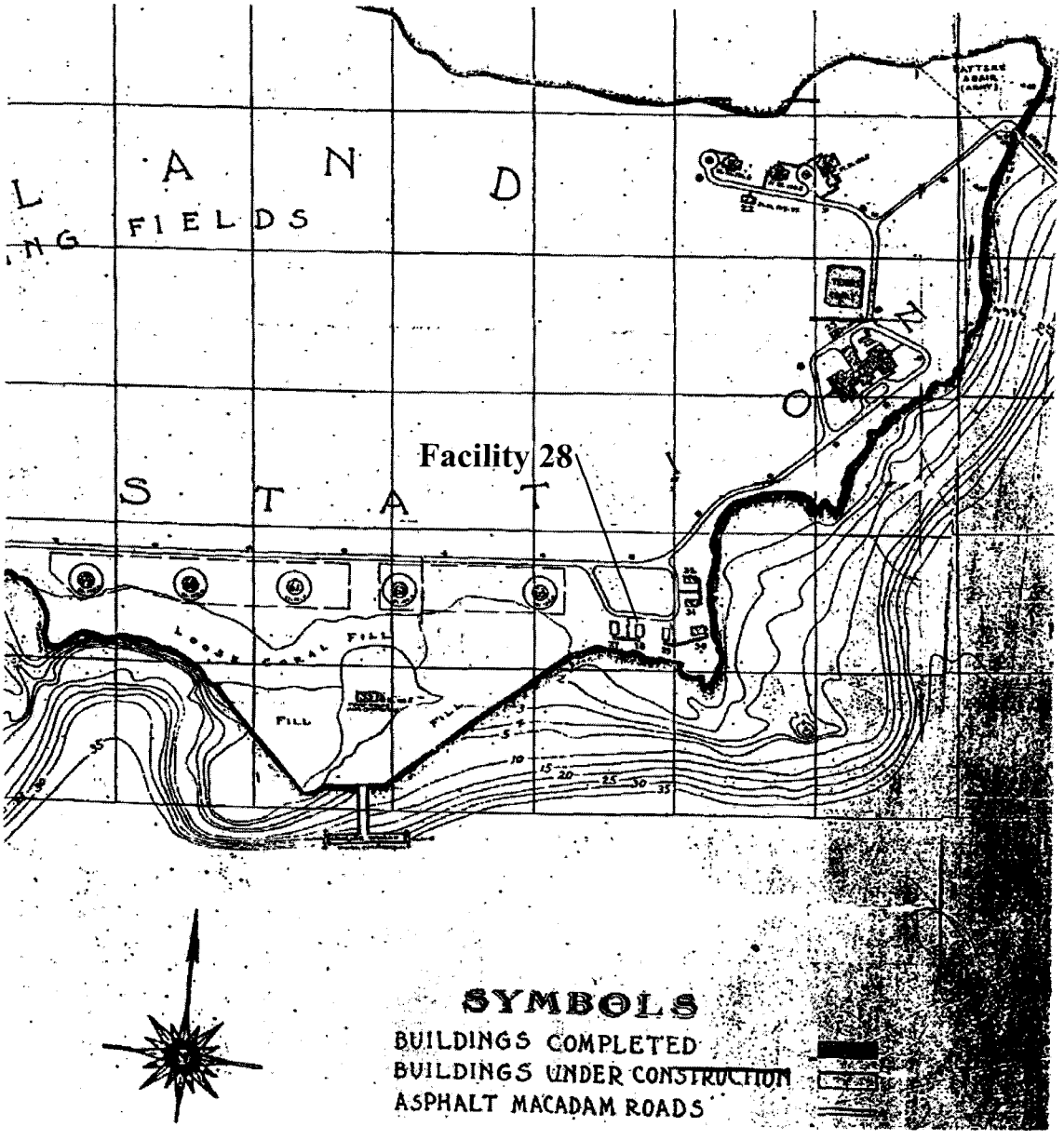


Site Map

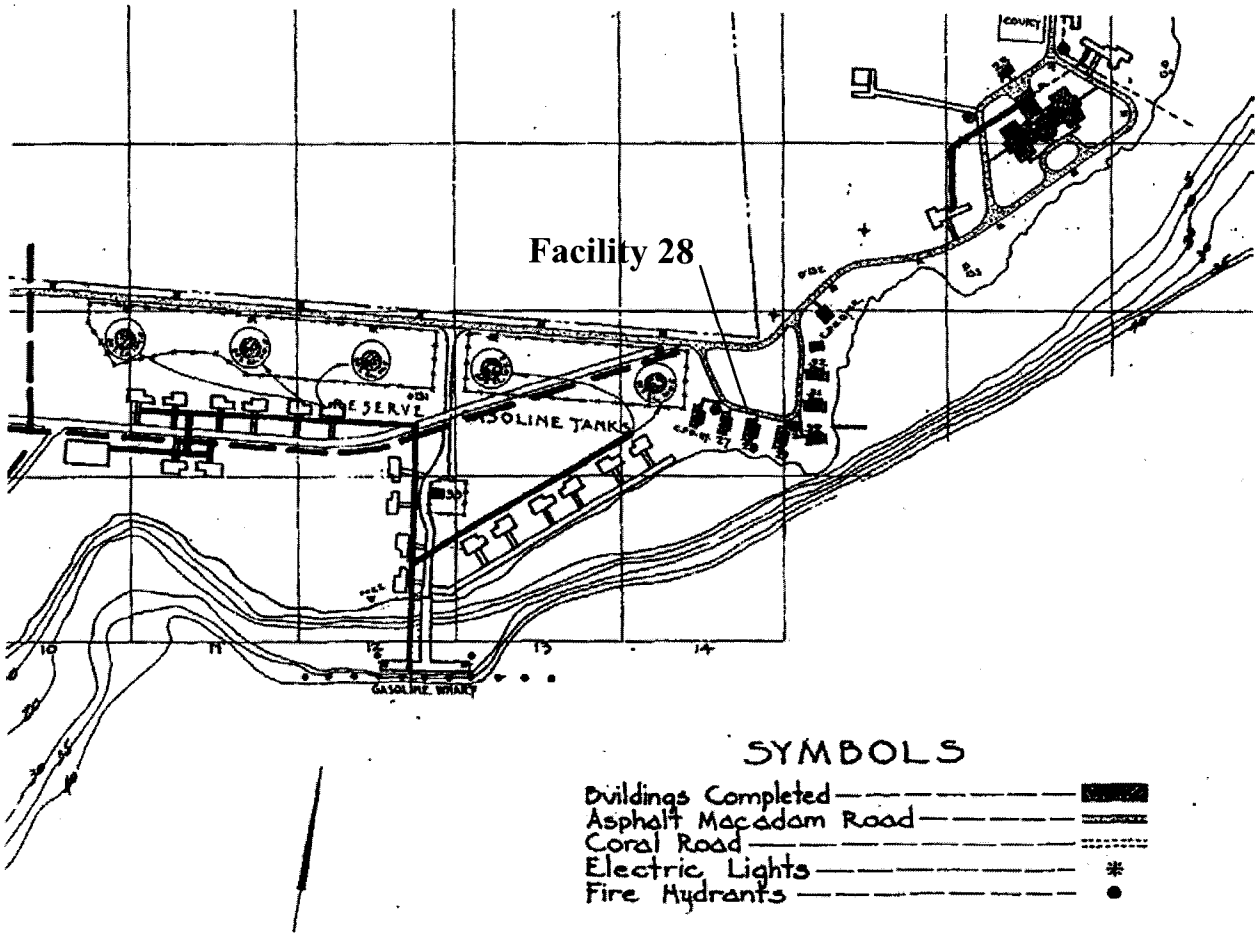
Fourteenth Naval District drawing No. 1161435 for Electrical Rehabilitation of Facility 28 dated September 24, 1967. (note that all the available floor plans for this house show three pairs of windows along the living room side wall, but there are only two pairs)



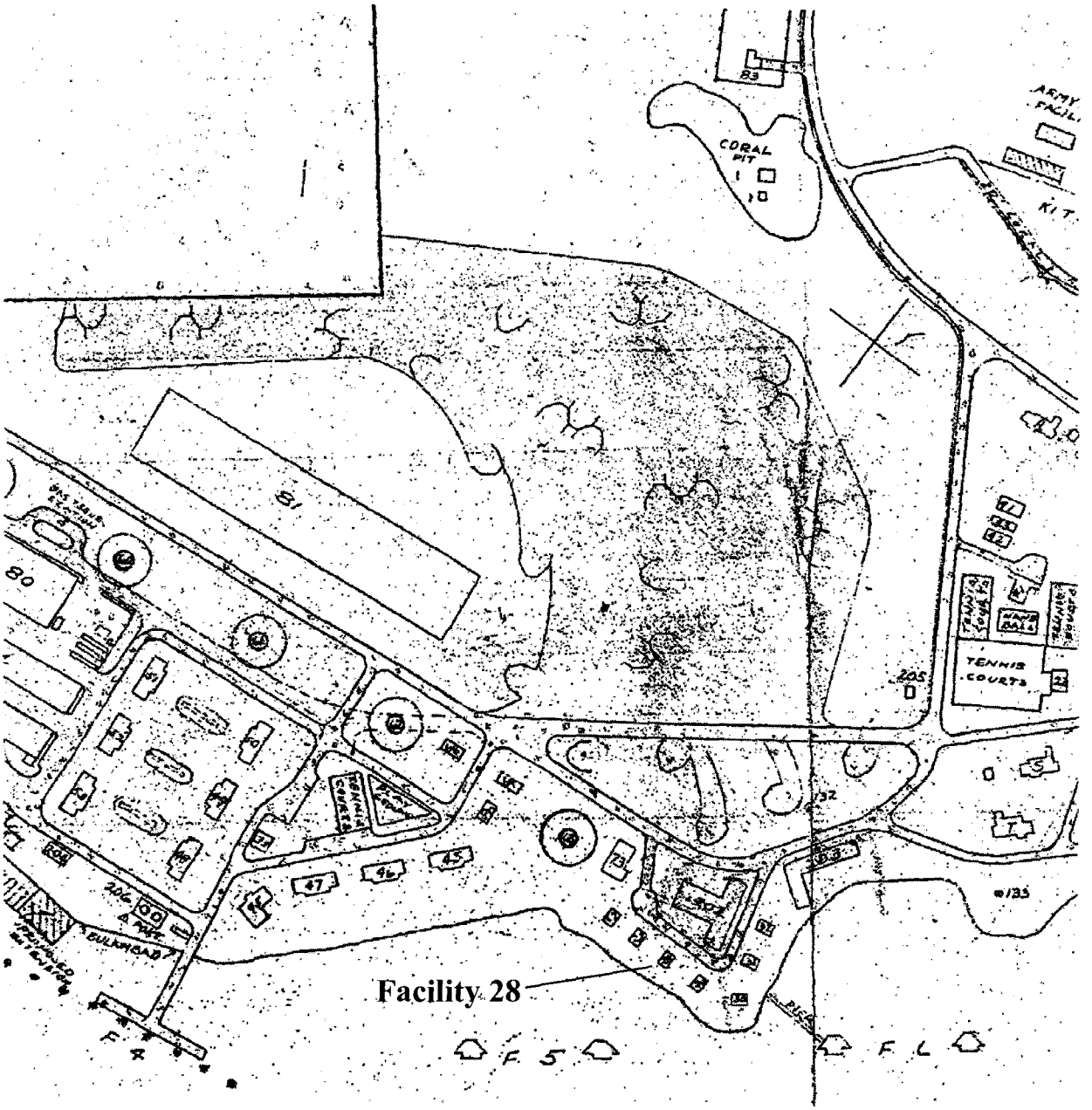
June 1924 CPO Neighborhood Map (portion of Drawing No. V-61)
(No Scale)



1932 CPO Neighborhood Map (portion of Drawing No. V-N1-102)
[dark shapes are existing buildings and outlined shapes are planned]
(No Scale)



June 1942 CPO Neighborhood Map (portion of Drawing No. 509)
(No Scale)



June 1953 CPO Neighborhood Map (portion of Drawing No. 551272)
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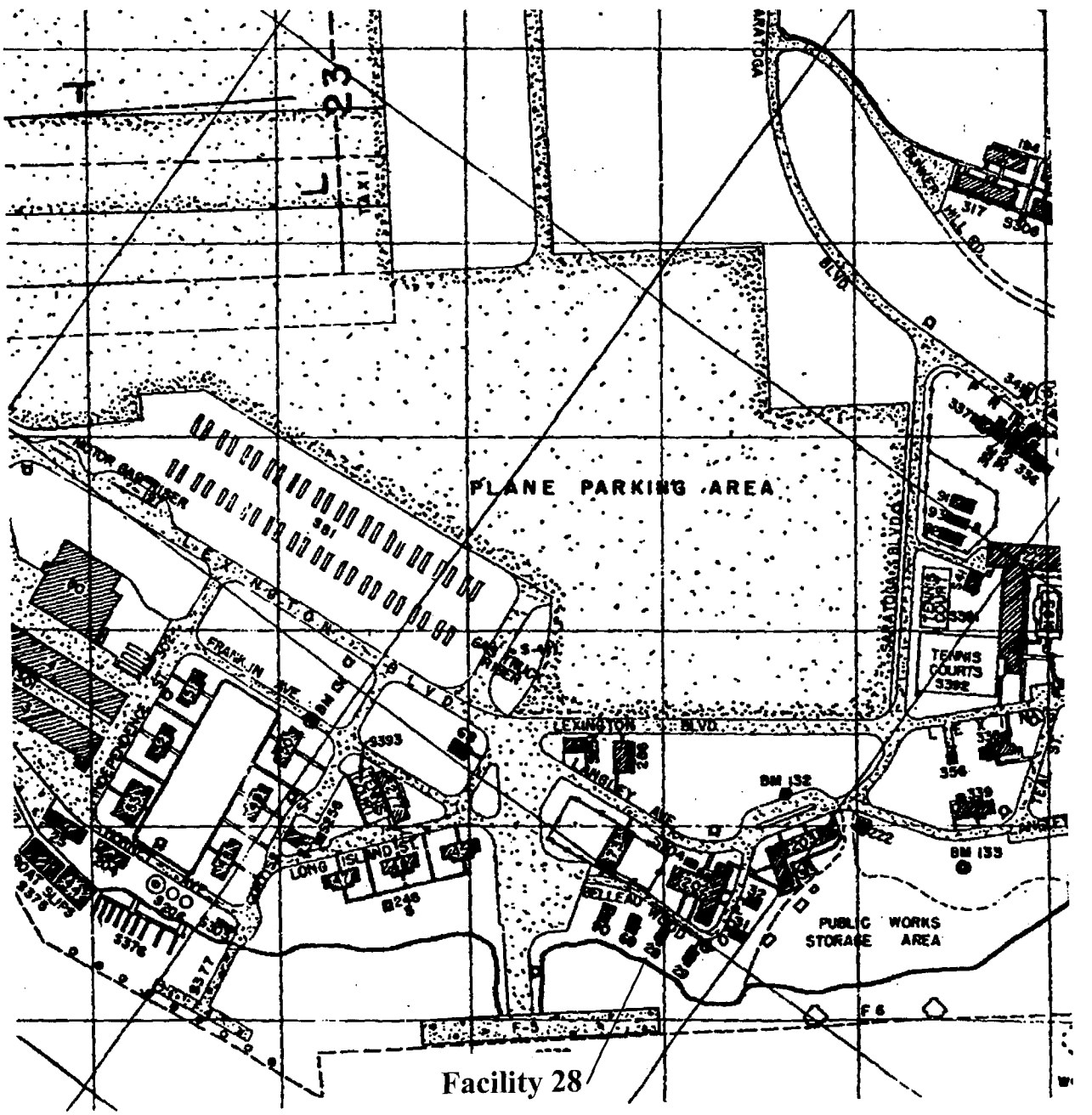
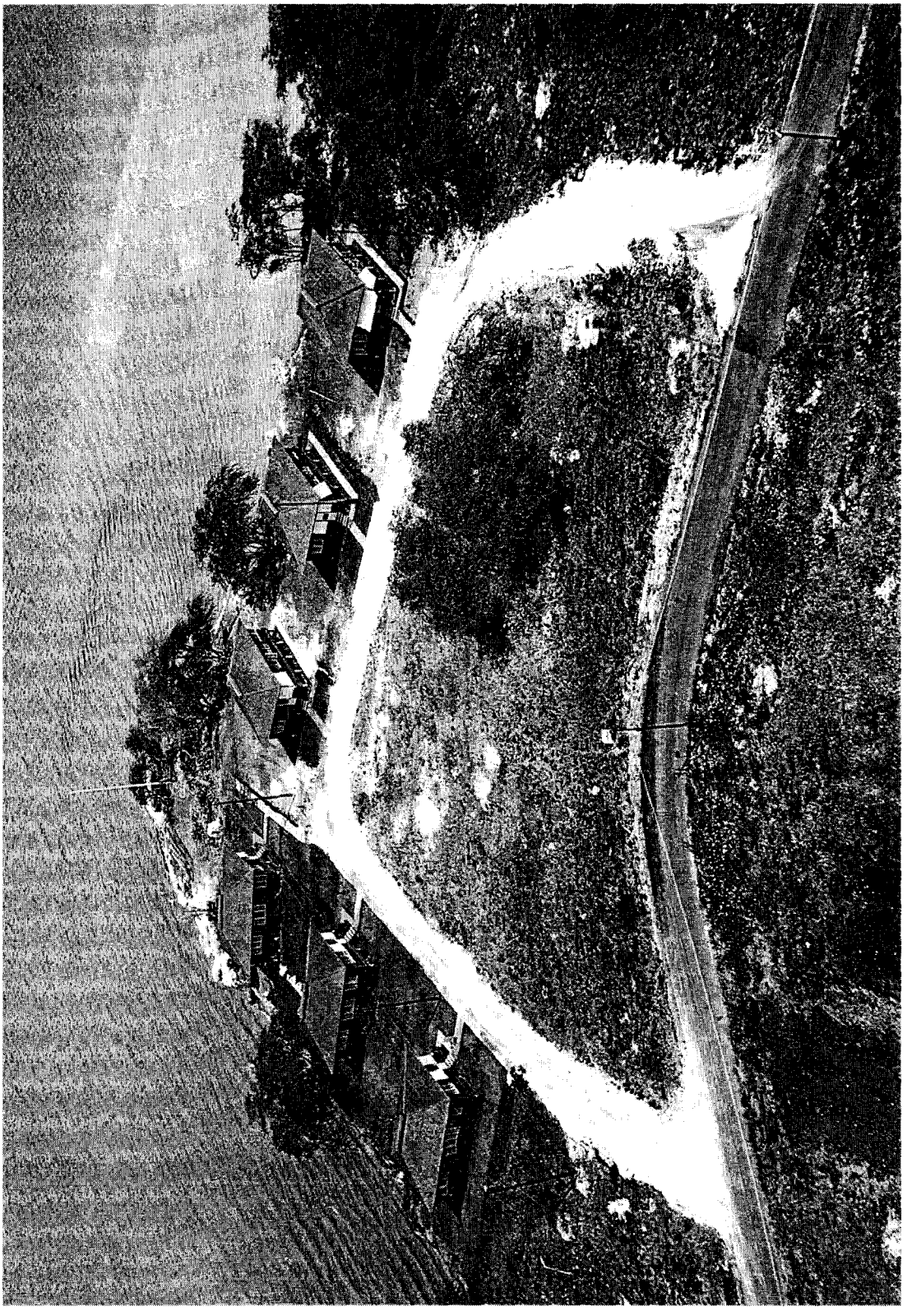
July 1924 Photo of CPO Neighborhood (National Archives II, in RG 171-CA-152A)