



BCS at Puu-o-Hulu. *Author, 2000*



Interior of the BCS. *Lee Guidry 1994 (Herefter Guidry)*



Radar operating room at top and exhaust housing for BCN-303's alternators in foreground. *Guidry*

The paint on the structure's exterior walls was predominately earth camouflage, with spots of olive drab; a layer of earth atop the roof further camouflaged the structure.

The observation room was most likely equipped with a 15-foot or a 2-1/2 meter (8.2 ft.) coincidence range finder and an azimuth instrument. On July 30, 1942, in an effort to improve the fire control

that the "Navy is preparing 5-inch directors for use with the Sand Island and Puu o Hulu batteries." (19) It is unlikely the navy gun directors were installed at the batteries, as they proved unfit for the four

8-inch naval turret batteries built on Oahu during the war. A Mark 33 navy gun director, rangefinder, and loading machine from the destroyer USS *Cassin* (DD-372), badly damaged in a Pearl Harbor dry dock on December 7, 1941, were mounted ashore at Ewa and used in conjunction with a four-gun navy-manned 5-inch/38 AA battery. (20) Another navy gun director was placed ashore at West Loch and used with a battery of four navy 5-inch/25s, also initially manned by the navy until turned over to the army. Again, no report has been found as to how these directors functioned ashore.

The BCS was in all probability to be retained in conjunction with the replacement battery (BCN-303) and would probably have been reequipped with the standard coast artillery observing instruments used with the 6-inch modernization project batteries, one M2 depression position finder and one M1910A1 azimuth instrument.

Radar Operating Room

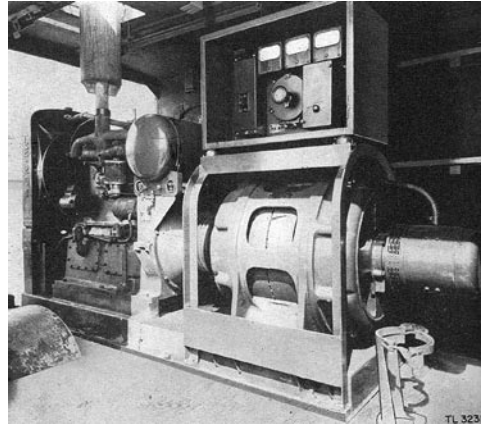
It was first planned to house the operating cabinets for the SCR-296A fire control radar set in a temporary shelter adjacent to the BCS, as the radar set was to be temporarily mounted at Battery Hulu for only one year, since it was assigned to Battery Pennsylvania, under construction in the Harbor Defenses of Kaneohe Bay at Mokapu Point. Although Battery Pennsylvania was initially scheduled for completion in late 1944, due to the many delays encountered during its construction, HQ HSAC chose to divert the radar to Battery Hulu to beef up coverage on the island's west coast. The radar was subsequently assigned permanently to Battery Hulu on the recommendation of Col. John Keliher, DCS/Operations, HSAC, who stipulated that a substitute SCR-296 radar be acquired for Battery Pennsylvania. Subsequently, a permanent structure to house the radar equipment was authorized for Battery Hulu.(21)

The one-story box-shaped reinforced-concrete 18 by 19-foot structure, started in the middle of 1943, roof, concealed by a wooden cylindrical structure with a conical roof that gave the appearance of a water tank. The antenna housing and radar room was most likely covered by draped camouflaged netting and garlands, as was done at Batteries Hatch and Wilridge and probably other batteries on the island.

The gasproof radar operating room was entered by concrete stairs adjacent to the right side wall stairs to a reinforced steel door attached to the right (north) side wall. The SCR-296A antenna was 305 feet above sea level, with a visual range to the horizon of 33,000 yards (18.8 mi.), and a clear field of view encompassing 177°.(22)

On September 14, 1943, the Hawaiian Department engineer reported the following completed works: concrete SCR-296 radar building, 18 by 19 feet, atop the range-finding building, including an antenna housing, 12 feet 6 inches in diameter by 11 feet 4 inches tall, and one PE-84 generator, complete with fixtures, connections, and ventilating and degassing equipment.(23)

coast battery sites on Oahu programmed in June of 1944 for an AN/MPG-1 radar set, under project number CP-21.(24) However, as far as can be determined, the replacement radar was never installed at the battery.



PE-84 Generator. TM 11-1306

Oahu was divided into North and South Defense Sectors, each defended by one of the two divisions newly created on October 1, 1941, from the old foursquare Hawaiian Division. The under-strength 24th (North Sector) and the 25th (South Sector) Divisions, both based at Schofield Barracks, were mobilized to pre-assigned battle positions shortly after the December 7, 1941, attack. The POHMR was within the South Sector.

In 1937, the 3rd Engineers built a winding mountainous road through Kolekole Pass, from Schofield Barracks to the west coast through the Lualualei Naval Reservation (LLNR). This road enabled army forces from Schofield Barracks to reinforce the island's west coast in an emergency.

Two important military facilities, part of the 9,200-acre LLNR, were located near the POHMR, the Naval Ammunition Depot (NAD) established in 1934 and a naval radio station.(25) Munitions for transported on navy railroad cars pulled by Oahu Railway and Land Company steam locomotives to the Waikele or the West Loch Branches, at Waikele Gulch and Pearl Harbor, respectively, via a navy branch line that connected to the OR&L's narrow-gauge single-track main line at the Lualualei road junction with the coast highway at Nanakuli.

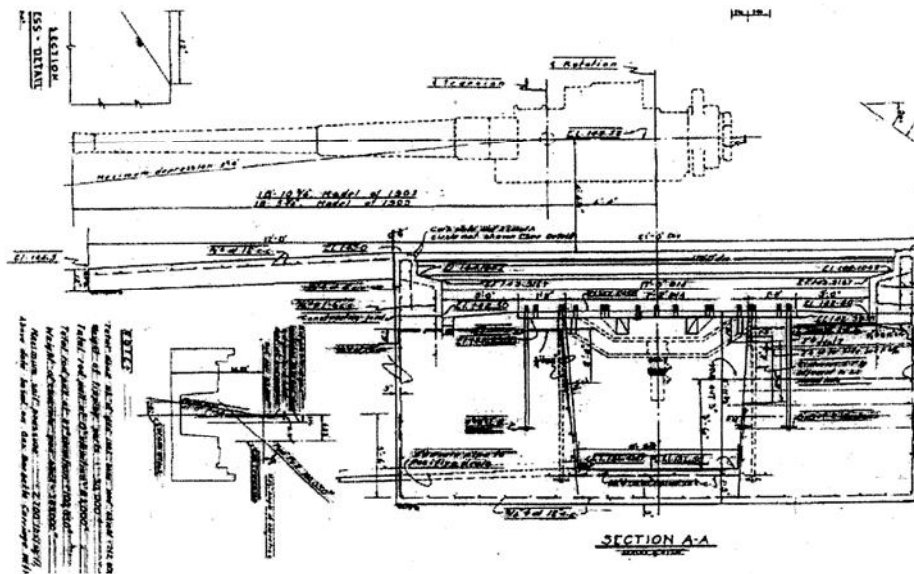


MG pillbox near Maili Point. Author, 2002

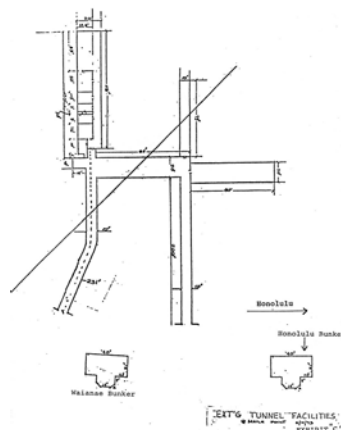


Pipe mount for .30-caliber MG above rear of cable hut U. Author, 2000

Battery Hulu, southwest of the LLLNR, was one of several seacoast batteries strung along the west coast, protecting the sea approaches to the LLLNR and defending against any beach landings on the island's West Shore. Beach and perimeter defenses near the POHMR included coils of barbed wire, a .30-caliber LMG position at the rear of Cable Hut "U," a concrete machine-gun pillbox just above the shoreline a little north of nearby Maili Point, and possibly tank traps.



6-inch M1903A2 gun showing mounting details for BCN-302. William Gaines



Tunnel diagram for BCN-303. *DERP-FUDS Report*

Battery Construction Number 303

Battery Hulu's 7-inch guns were to be replaced by two 6-inch 50-caliber M1903A2 guns, Serial Nos. 10 and 11, on M4 long-range shielded barbette carriages Nos. 25 and 26. The battery, known only as Battery Construction Number 303 (BCN-303), was authorized on December 18, 1943, when the commanding general, Army Service Forces, ordered modern seacoast armament installed at Puu-o-Hulu and several other locations.(26)

There were two possible locations for the 6-inch SBC gun emplacements for BCN-303. The first possibility was to mount BCN-303's guns in the concrete casemates of Battery Hulu, modifying the emplacements to accommodate the guns. Existing projectile and powder magazine at the rear of the

casemates, and ammunition service from the tunneled magazines to the guns would have been exposed to enemy attack. The second possibility was to build the gun emplacements fronting each tunnel portal to facilitate ammunition service from the magazines tunneled into the mountain.(27) The author is not aware of any archival material that establishes which design was selected.

The 6-inch SBC gun tube, carriage, and armored shield weighed some 142,600 pounds (71.3 tons). To fit the gun assemblies inside the extant casemates, which do not appear to be tall enough, would probably have required demolishing them and raising them to at least 19 feet, the height of the casemates at BCN-302. The height of Battery Hulu's casemates was not given, but each casemate measured 41 feet wide by 34 feet deep. BCN-302's casemates were 37 feet wide by 29 feet deep. Existing gun blocks would have to be demolished and replaced with reinforced concrete blocks 21 feet in diameter and ten feet deep, weighing 387,000 pounds of all-new concrete to withstand 3,000 psi, as recorded at BCN-302.(28) Trenches to accommodate electrical, data-link transmission, and air scavenging lines would have to be built to connect with electrical power, air compressors, and the gun data computer to be housed in the support tunnel complex.(29)

Constructing the emplacements in front of the tunnel portals would have facilitated the movement of projectiles and powder charges from the tunneled magazines directly to the rear of each gun.

Cols. Henry R. Westphalinger, GSC, chief, Seacoast Defense Projects Branch, and L.A. Whittaker,

Chemical Warfare Service, dated December 18, 1943, which recommended that six batteries on Oahu be replaced with modern weapons:(30)