

CAPE ARAGO LIGHTHOUSE
(Cape Arago Light Station)
Gregory Point
Charleston vicinity
Coos
Oregon

HABS OR-189

OR-189

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

REDUCED COPIES OF MEASURED DRAWINGS

FIELD RECORDS

HISTORIC AMERICAN BUILDINGS SURVEY

National Park Service

U.S. Department of the Interior

1849 C Street NW

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Location: The Cape Arago Lighthouse is located on Gregory Point, about 2-1/2 miles west of Charleston, Coos County, Oregon

USGS Charleston Quadrangle

Universal Transverse Mercator Coordinates: 10.388525.4799620

Present owner: United States Coast Guard (U.S. Coast Guard), Department of Homeland Security

Present use: Decommissioned in 2006, not in use; National Oceanic and Atmospheric Administration (NOAA) currently has equipment on light tower

Significance: Completed in 1934, the Cape Arago Lighthouse was the third light constructed at the Cape Arago Light Station that was established in 1866. The lighthouse is significant for its association with the federal government's efforts to provide safe maritime transportation into the Coos Bay harbor and along the Pacific Northwest coast during a time when Oregon's economy was dependent on the sea for transport and trade. Mariners relied on the third Cape Arago Lighthouse to safely guide vessels along the southern Oregon coast from the early 1930s until the light was decommissioned in 2006.

The Cape Arago Lighthouse is also significant architecturally as the only pre-World War II lighthouse constructed of reinforced concrete in the state. The lighthouse represents the introduction of modern building materials and technologies into a traditional form. The tower, illuminated by a fourth-order Fresnel lens, was designed with an attached fog signal building that housed the station's work, engine, and watch rooms. The lighthouse retains integrity of design, location, setting, materials, workmanship, feeling, and association, and is one of nine extant coastal lighthouses in Oregon.

The Cape Arago Lighthouse was listed in the National Register of Historic Places in 1993 under the registration requirements as defined by the multiple property submission "Lighthouse Stations of Oregon" completed in 1991-92. The 1938 footbridge that connects the mainland to the lighthouse island is also listed in the National Register as part of the Cape Arago Light Station. The footbridge is documented in a separate HAER report entitled "Cape Arago Light Station Footbridge."

PART I. HISTORICAL INFORMATION

A. Physical History

1. **Date of erection:** The United States government allotted approximately \$10,000 in federal works project monies to construct the new light. Government engineers completed drawings for the new Cape Arago Lighthouse in 1933, and work on the project began in fall of that year. The lighthouse's fourth-order Fresnel lens was illuminated in July 1934.
2. **Engineer:** The Office of Superintendent of Lighthouses, 17th District in Portland, Oregon drafted the drawing for the lighthouse. Various drafts people, identified only by initials, prepared the working drawings.
3. **Original owners:** The federal government has owned the Cape Arago Light Station since the first lighthouse was built on the site in 1866. The U.S. Light House Board (Light House Board) presided over the administration and care of the station until 1910 when the government abolished the board, and created the Bureau of Light Houses (known as the Lighthouse Service) to care for the lights. In 1939, the U.S. Coast Guard took over the administration of the lighthouse. The federal government still owns the Cape Arago Light Station.
4. **Contractor:** Rudolph "Rudy" Jake Hillstrom from Marshfield, Oregon
5. **Original plans and construction:** In the early 1930s, plans for a new Cape Arago light tower and fog signal building were made after lighthouse keeper Wyman Albee noted the poor condition of the light in his annual report. After Congress appropriated funds for a new structure, the Office of Superintendent of Lighthouses, 17th District in Portland, Oregon was given the task of drafting plans and specifications.

The initial plans were drawn in March 1933, and revisions were made in July through September. The drawings specified a reinforced concrete light tower with attached fog signal building similar to Washington's Point Robinson Lighthouse. The government hired local Marshfield contractor, Rudolph Hillstrom to build the new lighthouse. In the fall 1933, Hillstrom started construction after the crew moved the 1909 lighthouse nearby, renovating the fog signal portion of the building into an office. Construction of the new concrete lighthouse was completed 1934.

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a. Tower and lantern room:

Exterior: The concrete light tower was capped with a steel octagonal lantern room finished with a metal roof, ball finial, and lightning rod. The door to the lantern room was on the east side. A metal pipe railing enclosed the steel gallery.

The lantern room and the fourth-order Fresnel lens from the 1909 lighthouse was removed and placed on the new light tower. The lens was lit by a 750-watt electric light, and amplified by reflectors in the Fresnel lens to 2569-watts seen 18-20 miles away. Rotated by a pulley line with a weight, the light was wound like a clock, first when the light was started and again at midnight.¹ The Mountain States Power Company supplied the power for the station; a back-up generator was on site if the power was compromised.

Interior: The interior of the tower included a transformer room (below grade), the concrete spiral staircase, and the lantern room. The staircase ascended to a landing accessing the attic door, and then continued to a second landing below the lantern room. A narrower, open tread metal ladder curved up to the lantern room. Ceiling lights at the landings and the natural light from the windows lit the interior of the tower.

b. Fog signal building:

Exterior: The fog signal hip roof was covered with diamond-shaped asphalt shingles, and had a brick chimney and large ventilator projecting from roof. The gable dormer on the north facade had a fog signal horn mounted between the two windows. The reinforced concrete walls, painted white, were broken at the foundation level by a projecting water table.

Double steel entrance doors, on the east facade, had multi-lights above single panels. The doors opened into the engine room. A five-panel wood door, south of the double doors, led into the watch room. Another door, on the south facade, led to the small fuel room that had a fireproof steel door with a four-light window above a solid panel. Large twelve-light windows were on all facades of the fog signal building. The lower portion of these sashes was operable.

Interior: The interior rooms of the fog signal building included an engine, watch, work, fuel, and toilet rooms. A hall connected the fog signal building with the tower. Natural light from the windows and electric bulbs lit the interior rooms that were heated by wood stoves in the watch and engine rooms. All the rooms had painted concrete walls, ceiling, and floor.

¹ *Coos Bay Harbor*, 26 July 1934.

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Three raised concrete pads in the center of the engine room housed the generator, electric compressor, and the fog signal engine. The electrical panel and switchboard were located on the east wall between the double entrance door and window. The electrical system was mounted to the concrete wall surface.

A door and large, 12-light steel window on the south wall separated the watch room from the engine room. The watch room had a door on the east wall that led outside, a window on the south wall, and built-in lockers on the upper portion of the west wall.

On the south wall of the engine room, a door led into a small room with a workbench on the south wall and a toilet room on the east wall. Built-in lockers were above the toilet room. The other room, not accessible from the interior, was the fuel room located in the southwest corner of the fog signal building. Flammable material was stored in this room.

- c. **Site:** There were several other buildings on the site when the new lighthouse was completed in 1934. The major station building at that time included the 1896 keeper's duplex, 1909 fog signal building converted into an office, an oil house, shed, the original 1866 lighthouse (demolished in 1936), and the 1920s high bridge to the mainland.
6. **Major Alterations:** New technologies and the inclement weather often brought changes to the original design and use of the lighthouse. The following is a list of the major alterations to the lighthouse.
- Installed new electric fog signal on the exterior of the north gallery pipe railing and installed new compressor (ca. 1946)
 - Removed original fog signal horn in the dormer window (ca. 1946)
 - Octagonal lantern room replaced by new round lantern room (ca. 1953)
 - Automated the lighthouse (1966)
 - Re-roofed and replaced the downspouts (1986)
 - Altered the double entrance doors on east facade solid wood doors (1993)
 - Covered others two exterior doors with plywood (1993)
 - Replaced original steel sash multi-light windows (1993)
 - Removed radio beacon and replaced with a whip antenna (1993)
 - Removed fog horn (1998)
 - Replaced fascia board and crown molding around cornice (1998)
 - Installed solar panels on oil house concrete pad; converted to solar (1998)
 - Removed Fresnel lens and installed rotating beacon (1998)
 - Added new gutters (1999)
 - Discontinued fog signal at the station (2004)
 - Removed electrical system and all equipment (2006)
 - Deactivated lighthouse (1 January 2006)

B. Historic Context

Overview of Light Station Development in Oregon

Congress established the U.S. Light House Board in 1852 to improve and oversee the country's aids to navigation. Even though the country had been utilizing navigational aids for decades, the United States lagged behind other countries in new technologies and administration of the lighthouses.

The Light House Board divided the country into twelve lighthouse districts, with an inspector appointed to each district. The Pacific coast was assigned to the Twelfth District. Congress authorized the construction of sixteen lighthouses in this district: ten in California; five in Washington; and one in Oregon; the Umpqua River lighthouse.

The Umpqua River was a prime location for a permanent aid to navigation. Demand for supplies and goods during the California gold rush increased commerce along Oregon's coast, especially in the Umpqua River region. As the river developed as an important shipping route, the need for navigational aids increased. In 1857, after the initial government waterway survey was conducted, the Umpqua River Light Station was completed. This was the beginning of a series of lighthouses erected along the Oregon coast that aided mariners navigating the waters of the Pacific Ocean.

Over the next twenty years, five more lighthouses were built along the Oregon coast: Cape Arago (1866-razed), Cape Blanco (1870), Yaquina Bay (1871), Yaquina Head (1873), and Point Adams (first light razed in 1875). As commerce continued to increase, the Light House Board continued to build light stations along the rugged 230-mile of the Oregon coastline. Between 1880 and 1910, seven more lighthouses were built in Oregon: Tillamook Rock (1881); Cape Meares (1890); Umpqua River (1894-second light); Heceta Head (1894); Coquille River (1896); Desdemona Sand (1902-razed); and Cape Arago Lighthouse (1909-razed in 1960).

After 1900, construction of new light stations decreased. The older lights were retrofitted with newer equipment that better served mariners. In 1910, the government reorganized the Light House Board; the Bureau of Light Houses (Bureau) was created and charged with the care and management of the lighthouses.

The new Bureau had a pyramid management structure with a single chief in charge. Civilian inspectors and engineers were appointed and served long terms. These management changes provided more continuity in lighthouse administration. Only one Oregon coast lighthouse was constructed under the watch of the Bureau; the third Cape Arago Lighthouse was completed in 1934.

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Cape Arago Lighthouse and Gregory Point

Cape Arago Lighthouse was sited on Gregory Point, the ancestral territory of the Milluk Coos, a branch of the Penutian-speaking Coosan language group. The tribe inhabited the south side of the Coos River estuary, and had villages on South Slough at Mussel Reef (Yoakam Point), Sunset Bay, Cape Arago, and Gregory Point.²

The tip of Gregory Point was separated from the mainland by wave erosion. According to tradition, the small island tip, called “Baldyasa” (towards the west) by the natives, became home to the village chief. The people of Baldyasa lived in relative isolation, confined between the sea and dense forest along the coastline. Present-day Sunset Bay, a cove that borders Gregory Point on the southwest, provided a sheltered place where the natives stored and launched sea-going canoes.³

Although the length of time in which the Milluk Coos village occupied Gregory Point is uncertain, the site is hundreds of years old, possibly reaching as far back as 500 A.D. According to tradition, the village was largely decimated in a raid by the Rogue River Indians before the time of first contact with Euro-Americans (pre-1850s) and was never re-established. The small islet off Gregory Point, known as Chief’s Island, was the site of the first Cape Arago Light Station.⁴

The First Cape Arago Lighthouse

On 3 January 1852, a shipwreck near the entrance to Coos Bay, brought some of the first Euro-Americans to the estuary. The *Captain Lincoln*, a coastal steamer carrying U.S. Army personnel to Fort Orford on Oregon's southern coast, foundered in a storm and beached on the North Spit of Coos Bay. The stranded crew was eventually rescued, leaving the area never to return. A year later, other Euro-Americans ventured into the coastal area, claiming land, and establishing homes and businesses around present-day Coos Bay.

In the late 1850s, Coos Bay emerged as an important harbor on the Oregon coast. The timber and coal resources drew settlers and coastal commerce, and the region's river valleys appealed to farmers. Mills and shipyards developed in Coos Bay. Pilings, lumber, and shingles manufactured locally added to the region's economy. Mariners considered Coos Bay one of the best natural harbors between Puget Sound in Washington and San Francisco Bay in California. The mariners also considered the entrance to the bay one of the most dangerous.

² Stephen Dow Beckham, “Historical and Archaeological Resources of the Oregon Coastal Zones: A Resource Inventory Report to the Oregon Coastal Conservation and Development Commission.” September 1974.

³ Ibid.

⁴ Ibid.

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The Coos Bay entrance, its shifting channels and shoals, and the evident need for aids to navigation did not receive the attention of the Light House Board until September 1861, when the U.S. Coast and Geodetic Survey team began an intensive study and hydrology of Coos Bay. While the surveyors were finishing their four-year study, Congress determined that a lighthouse was needed at the entrance to the bay.

On 2 July 1864, Congress appropriated \$15,000 for the construction of a lighthouse on Gregory Point (Cape Arago) at the northern tip of Chief's Island. The new lighthouse was a stout 25-foot wrought iron tower was a skeleton structure built on a masonry base. The new Cape Arago light tower was illuminated on 1 November 1866 with a fourth-order Fresnel lens that had a focal plane of 75 feet. The station became a popular destination, as cited in the *Coos Bay News* on 22 July 1874:

At last we arrived at the cape and were met by Messrs. Roberts and Langlois, keepers of the light-house, and Mr. Bailey, of Empire, who had preceded us the day before. Suffice it to say, we were cordially welcomed by these gentlemen, whose characteristic kindness and hospitality were too well known to need comment. Most of the party was willing to rest upon arriving at the house; but it was not long before Mr. Bailey, who seemed to be chief of the culinary department, announced dinner. Some visited the lighthouse; others strolled along the rocky shore in search of shells, and other quaint specimens of the sea; while others took a row out to sea.....Strong had been my desire to visit the light-house, but never had I conceived the beauty and grandeur of the scenes, presented to the eye, as I saw at Cape Arago.

In spite of the lighthouse, several vessels were lost on the bars at the Coos Bay entrance. Many of the local residents relied on the Cape Arago lighthouse keepers to provide life-saving services for those in distress. Although the keepers often were called upon to help, the response time was dependent upon the ocean condition and weather. Local citizens started petitioning for an official life-saving station. On 5 February 1876, the *Coos Bay News* proposed that a station be built at Charleston, about 2-1/2 miles northeast of the lighthouse island.

Although the Light House Board did not build the Charleston station, the board responded by making improvements to the Cape Arago Light Station. A low footbridge between the mainland and the island allowed personnel to cross more quickly. The Light House Board also constructed a plank walk from the keeper's dwelling to the lighthouse and replaced the Franklin Lamp in the lens with a double-wick Funck Lamp.⁵ Despite this work, storms destroyed the low footbridge, carried away the boathouse in the cove, and broke loose part of the supply tramway on the island.⁶

⁵ U.S. Treasury Department, U.S. Light House Board. "Annual Report of U.S. Lighthouse Board, 1876." Washington D.C.: Government Printing Office.

⁶ Ibid.

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In 1878, the government yielded, and commissioned the construction of the Cape Arago Life-Saving Station on the lighthouse island. A wood-frame crew station on pilings was erected for the all-volunteer crew. The life-saving station remained on the island until 1891, when the facility was moved to the North Spit of Coos Bay (later moved to Charleston, Oregon in 1916).⁷

Improvements to the Cape Arago Light Station

The Light House Board continued to improve the Cape Arago Light Station. Land, directly south of the island on the mainland, was added to the reserve on 14 June 1876. The new acreage encompassed over 15.91-acres (Lot 4, Section 4, T26S R14W).

In the 1880s, other improvements were made to the reserve. The access road was improved, the mainland reserve was cleared and used for pasture, and a new barn erected. The crew also rebuilt the footbridge to the island after high tides in November 1885 destroyed the footbridge. The 1886 *Lighthouse Board Annual Report* noted:

A temporary foot-bridge about 40 feet long was built across the lowest part of the opening between the island and the mainland, where the bridge as stated above had been. The foot-bridge enables the keepers to cross at stages below half tide, while before a boat was used for all crossings. The tramway for raising supplies from the beach to the bluff was entirely rebuilt.

In 1886, the Light House Board instructed the keeper to fence the reserve and prohibit public access. This decision brought public outcry by the people that used Gregory Point and nearby Sunset Bay for camping and picnicking. The *Coos Bay News* dated 25 August 1886, carried the story:

We have been informed that Mr. Smart, the Cape Arago light keeper, has received positive instructions not to allow any unauthorized persons to camp on the United States reservation. Smart is left no discretion in the matter, as he is threatened with discharge in the event of his failing to carry out these instructions. As the best camping places at the mouth of Big Creek are on the reservation, this will be very annoying to people in Coos and Douglas counties, who desire to avail themselves of the sea breeze and a dip in the ocean during the hot weather. Fortunately there is room for a number of camps on the claim of Henry Nicholls immediately south of the reservation, and we trust that Mr. Nicholls will not be quite so particular as the United States. Before next year steps should be taken to secure this portion of the reservation for the use of campers, as it is one of the most desirable summer resorts in the state.

⁷ During the late 1870s, the government also began construction of jetties at the Coos Bay entrance to limit sediments from entering the mouth of the bay. The construction of these jetties continued until the 1920s.

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In spite of local discontent, the fencing of the station was completed in 1886. George Davidson described the light station in the *Pacific Coast Pilot* of 1889.

The structure consists of an octagonal wrought-iron truncated skeleton tower twenty-five feet high from the base to the focal plane. It is painted white and surmounted by lantern and dome painted black. As seen from seaward the tower is projected against the dark foliage and is not readily recognized in daytime at a distance of ten miles. The keeper's dwelling is a wood building of one and one-half stories, painted white with green shutters to the windows, and is situated on the southern extremity of the islet at the edge of the trees, about three hundred and fifty yards southeastward from the tower. . .

The light is of the fourth order of the system of Fresnel and was first exhibited November 1, 1866. It shows from sunset to sunrise a fixed white light varied by a white flash every two minutes. . . . On the lighthouse at Cape Gregory is located a life-saving station with all the usual apparatus in charge of a keeper. It has no permanent crew but depends on the services of volunteers to man the boat when it is needed.

This station is situated on the southeast side of the narrow, rocky islet upon which the light house is built; it bears southeast half east (SE. 1/2E.), distant three hundred and sixty yards from the light tower. This islet is separated from the main land by a channel about one hundred yards in width at high water, but more than twenty yards wide at low water. This passage appears to be filled with sunken rocks, and it looks a very bad place from which to launch a boat in heavy weather.

Throughout the 1880s, the low footbridge to the island continued to create difficulties for the keepers and their families. In 1899, the government began accepting bids for a high footbridge across the inlet to the station. The Light House Board reported, however, that the bids were too high and none were accepted. Instead, the Board built a cable tramway from the mainland to the island. Completed in September 1891, the 400' long cable tramway extended between framed towers on the island and the mainland.

The increase in commerce over the Coos Bay bar put further pressure on the Light House Board to build better jetties and improve the aids to navigation; a first class fog signal was needed at the Cape Arago Light Station. In 1893, the Light House Board estimated that a signal could be installed at the lighthouse for \$5,500. The Board also reviewed the condition of the 1866 keeper's quarters.

It was poorly built and ill adapted to accommodate the two keepers with their families; it is old and decayed and on the verge of collapse. If a fog signal is erected here, still another keeper will be needed and his family will need quarters.

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The Light House Board noted that on 3 March 1891, Congress had authorized the expenditure of \$50,000 to establish a lighthouse at the mouth of the Coquille River, eighteen miles south of the Cape Arago Lighthouse. Since the government did not expend all the monies targeted for the Coquille lighthouse, Congress approved \$15,500 of the funds to build a new keeper's quarters and a fog signal at the Cape Arago Light Station.⁸

Completed in 1896, the work on the light station was the most significant change since the station's construction in 1866. The improvements included enclosing the iron light tower with brick and applying a finish coat of stucco; building a fog horn signal room of brick on the west side of the light tower; erecting a 1-1/2 story, wood-frame keeper's duplex; installing new plank walkways; and building a picket fences around portions of the reserve.⁹

Despite these improvements, access to the island remained difficult, often threatening the lives of the keepers. In the summer of 1898, the tram cable to the mainland broke, injuring a keeper and a family member. This accident prompted the construction of a new footbridge between the island and mainland. Completed in 1898, the new "high" bridge was built 40' above the channel on a series of tall tower bents supporting a truss superstructure.¹⁰

The Second Cape Arago Lighthouse (1909)

The inclement weather and erosion on the northern tip of the island, and the increase in commerce in Coos Bay led to the construction of a new lighthouse. The new tower and fog signal building was commissioned in 1907.

Light House Board architect/engineer Carl H. Leick designed the new structure that was sited on the broadest point of the island, south of the original tower. The lighthouse was similar in design to the Mukilteo and Ediz Hook lights in Washington State, also designed by Leick. This new building necessitated topping, and eventually the removal, of heavy thickets of spruce trees on the island; further hastening erosion.

Construction started in 1908 on the new lighthouse. The wood structure had a hip roof covered with wood shingles, cupola, octagonal tower supported by decorative brackets, a wood railing around the metal lantern room, two-over-two, double-hung wood sash windows, and a parged brick foundation. A Barbier, Benard, and Turenne, fourth-order

⁸ U.S. Treasury Department, U.S. Light House Board. "Annual Report of U.S. Lighthouse Board, 1893." Washington D.C.: Government Printing Office.

⁹ Ibid. "Annual Report of U.S. Lighthouse Board, 1896."

¹⁰ Ibid. "Annual Report of U.S. Lighthouse Board, 1899."

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Fresnel lens (made in Paris) first illuminated the tower on 1 July 1909. The lens focal plane was almost 38 feet above the ground.

Other improvements during this time to the station included construction of a storage shed and redwood water tank on the mainland, and replacing the 1898 “high” wood footbridge was replaced with a new metal bridge. Despite the Great Depression, other buildings were added to the station during the 1930 including a garage and barn (on the mainland), and a new lighthouse.

The Third Cape Arago Lighthouse (1934)

Lighthouse keeper Wyman Albee recommended improvements to the Cape Arago lighthouse tower and fog signal building in his annual report in 1931-32. As a result, Congress appropriated funds for a new lighthouse on the island. The 20 July 1933 edition of the North Bend *Coos Bay Harbor* stated:

Announcement has been made through the office of the Secretary of Interior at Washington, D.C. that plans for the reconstruction of the tower and fog signal building at Cape Arago Lighthouse station are to be made. This project will be financed by the federal works program, and is estimated to cost about \$10,000. Keeper Wyman Albee recommended improvements in his report to the Portland office about a year ago. He expects the new buildings to be of concrete.

Marshfield contractor, Rudolph “Rudy” Jake Hillstrom, received the contract for the new reinforced concrete light tower and fog signal building. Plans for the new structure were drawn in the Office of Superintendent of Lighthouses, 17th District, Portland, Oregon. The design was similar to the Point Robinson Lighthouse (1915) at Maury Island, Washington. The initial plans were completed on 7 March 1933, and revisions made from July to September.

The new lighthouse was erected on the footprint of the 1909 lighthouse. Hillstrom and his crew removed the light tower from the 1909 building, and moved the structure south of its original location. The building was remodeled into offices for the keepers.

After the new foundation was poured over the 1909 footings, the reinforced concrete structure was erected. The octagonal light tower was attached to the southern façade of the fog signal building. An electric engine powered the fog signal that was attached to the north facade of the dormer.

The interior of the fog signal building included several work rooms. Wood stoves in the engine and watch rooms heated the building, and electric lights were installed in each room. The transformer room was located below grade.

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The light tower was integrated into the south side of the structure. A spiral concrete staircase ascended to a landing below the lantern room where a narrow curved steel ladder led to the fourth-order Fresnel optic. The lens was removed from the 1909 lighthouse and placed in the new light tower.¹¹ A 750-watt electric light illuminated the Fresnel lens after the lighthouse was completed in 1934.

Five years after the new lighthouse was finished, the Bureau of Light Houses constructed a new high footbridge. The Office of Superintendent of Lighthouses, 17th District prepared plans for the footbridge, which were completed on 22 July 1938, and revised on 10 August.

The government hired Pope & Talbot Lumber Company to produce specifications for the project as well as supplying the lumber for the bridge. The contract for the construction was awarded to J.K. Johnson of Medford, Oregon. The 389' long footbridge was designed with four, Howe pony trusses elevated on tall wooden tower bents. Johnson completed the footbridge in 1938. A year later, the U.S. Coast Guard superceded the Bureau of Light Houses. The U.S. Coast Guard was charged with maintaining the Cape Arago Lighthouse and assisting mariners in distress.

During World War II, a radio building was constructed on the west side of the lighthouse. The rectangular concrete building was also used as an observation area during the war. In 1944, a new electric fog signal was installed on the gallery railing on the north side of the lantern room. The fog signal was operated by compressed air, produced by two diesel engines, which passed across a vibrating reed. The compressor tank was mounted to the ceiling of the engine room where pipes through the ceiling and roof connected to a Triplex fog horn that included a Cunningham 12" diaphragm horn above two smaller 10" diaphragm horns (removed in 1976). The original fog signal was removed from the dormer of the fog signal building at this time.

Post-World War II Era

New navigational aid technologies, utilized after World War II at the Cape Arago Station, reduced the daily duties of the lighthouse keepers. Better roads connected the station with nearby coastal communities, lessening the isolation of the lighthouse keepers. Supplies were more accessible and some of the station buildings such as barns and chicken coops were removed, and new buildings constructed to replace deteriorated and outdated structures. A new crew quarters (four-plex) and garage were built in 1957 on the mainland, replacing the 1896 keeper's duplex.

The octagonal lantern room on the light tower was removed in the early 1950s, and replaced with a new lantern room that was the exact duplicate of the Alki Point

¹¹ The steel lantern room from the 1909 light tower was most likely moved to the new 1934 tower as indicated in historic photographs of both the light towers.

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Lighthouse lantern room in Washington State.¹² By 1962, only a few structures remained at the light station from the earlier periods; these included the lighthouse, a shed, high footbridge and radio building (see list of station buildings in following section).

One of the major changes to the lighthouse took place in 1966; the automation of the light through the Lighthouse Automation and Modernization Program (LAMP). Under this program, the Fresnel lens was retained and a timer switch installed to turn the light on and off. The quartz iodine electric globe in the lens operated 24 hours a day. Automation of the light not only changed the way in which the light was tended, but reduced the number of keepers needed to operate the station.

In 1980, maintenance of the lighthouse was taken over by a new division of the U.S. Coast Guard; the SHORAN Navigation Division of the Office of Navigation. Under this program, sixty-four Aids to Navigation Teams (ANTs) were assigned to areas across the country. Each ANT was assigned responsibility for its area's lighthouses, providing periodic preventive maintenance, and responding immediately to lighthouses if any outages or other discrepancies occurred.

In 1993, the government mandated that all the lighthouses be rehabilitated. At the Cape Arago station, several modifications were made as a result of the order. A whip antenna replaced the radio beacon, all the non-functioning equipment was removed from the interior of the lighthouse (electrical, compressors, generators), the lead-based paint was abated, and the outside of the lighthouse repainted. On 20 September 1993, the fourth-order Fresnel lens was removed from the lighthouse and displayed in the ANT office in North Bend, Oregon. A modern beacon replaced the Fresnel lens.

More work was completed on the lighthouse in 1998. The cornice was rehabilitated, a solar panel and solar-powered beacon installed, and the fog signal discontinued. In 2002, the U.S. Coast Guard transferred the mainland portion of the lighthouse property to the Bureau of Land Management (BLM).

On 1 January 2006, the lighthouse was deactivated, and the light, solar conduits, and batteries were removed. The solar panels are still in use by NOAA who has equipment on the outside of the lantern room. The 1934 Cape Arago lighthouse and the 1938 footbridge are the only two structures remaining at the light station (2008).

¹² The new lantern room was a standard design produced in March 1898 by the Office of Light House Board. The lantern room with diagonal astragals was designed for fourth, fifth, and sixth-order lenses.

PART II. ARCHITECTURAL INFORMATION

A. General Statement

1. **Architectural character:** Constructed of reinforced concrete in 1934, the tower and attached fog signal building are void of decorative detail except slight corbelling at the base of the lighthouse tower and a projecting water table. The diagonal astragals in the lantern room add visual interest to the light. At 44' high, the Cape Arago lighthouse is one of the shorter light towers constructed along the Oregon coast. The lighthouse is fairly intact with the exception of window and door alterations.
2. **Condition of fabric:** The Cape Arago lighthouse is in fair-good condition, except for rusting of the lantern room metal components.

B. Description of Exterior

1. **Overall dimension:** The basic measurement of the fog signal building is 28'-0" (east-west) x 27'-10" (north-south). The 33'-4" high concrete tower has an outside diameter of approximately 9'-9".
2. **Foundation:** The poured concrete foundation, built approximately 2' above grade, is capped with a slightly projecting 5" concrete water table. A vent was installed in the foundation on the east façade after 1976. The existing foundation was built on portions of the 1909 lighthouse footings.¹³
3. **Walls:** The exterior walls on the fog signal building are 14'-3-1/2" high and constructed of 8" thick reinforced concrete. The tower walls are 10-1/2" thick.
4. **Structural systems, roof framing:** The structural frame consists of reinforced concrete walls below the wood-frame roof system. The 2"x8" roof plate is secured to the top of the reinforced concrete walls, and the 2"x12" ceiling joists are attached to the top plate. The 2"x8" rafters are 20" on-center.
5. **Staircases:** There are two concrete stairways on the east facade and one on the south. The stairs on the east façade lead up to a stoop that is 2' above grade, and have 9" wide sidewalls. The 7'-2" wide concrete stair on the northern side of the east facade leads to wood double doors that open into the engine room. The southern stoop on the east facade is about 4'-6" wide and leads to a single door opening. Concrete stairs on the south façade lead to the fuel room door.

¹³ The 1909 lighthouse was moved and renovated into an office.

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6. Chimneys: A slightly offset brick chimney is on east side of the hip roof. The chimney, 17"x17", has a corbelled cap. The original copper chimney top was removed prior to 1976. A ventilator, with a 16" pipe, is near the north end of the hip roof on the ridgeline.

7. Openings:

a. Doors: There are three doors that open into the fog signal building. Originally, the east facade double doors to the engine room were made of steel with solid panels below and four-light, steel sash windows above. These double doors were replaced with solid wood doors in 1993. Each door measures about 3'-0"x7'-4".

The single door on the east façade opens into the watch room. The wood, five-panel door, 3'-0"x7'-0", is intact behind the plywood security panel that is attached to the exterior wall.

The fuel room door opening on the south façade has been covered with a plywood security panel attached flush with the exterior wall. This door is the only access to the windowless fuel room. The original door, noted in the 1933 plan, was a single, steel door with four-light steel sash window in the upper portion.

b. Windows: The original 50-1/2"x56-1/4" steel sash, 12-light windows in the fog signal building were replaced in 1993 with the same size four-light, bronze aluminum sash windows. Each window has a slightly projecting 5" high concrete lintel and 9" high sill. There are three windows on the north façade, one on the east, one on the south, and three on the west. The lower two lights on all the windows have been covered with plywood for security.

The dormer windows and light tower windows were also replaced with single-light fixed, bronze aluminum windows. The tower window openings are 27"x 37-1/2" and sashes were replaced about 1993. The two tower windows on the north side overlooking the hip roof are operable awning windows. On the south facade, a single-light metal sash window near the base of the tower is cover with a plywood panel.

8. Roof, fog signal building:

a. Shape and covering: The fog signal building has a hip roof covered with concrete roofing tiles installed in 1986. The roof pitch is 7/12 to the ridge and 11/12 on the hip.

b. Cornice and eaves: The shallow boxed eaves project about 12" from the exterior wall surface have a 2"x14" fascia board with newer seamless aluminum gutters. The top of the 1"x12" frieze board is finished with a 3/4"x4-1/2" crown molding.

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- c. **Dormers:** The single dormer on the north side is finished with horizontal siding and has a 7/12 pitched gable roof. The 6'-0" wide dormer has two small, fixed light windows that measure 14"x16". Originally, the fog horn punctuated the north facade of the dormer between the windows (removed prior to 1976).
9. **Tower:** The octagonal reinforced concrete light tower is 33'-4" to the top of the tower deck, 38'-6" to the focal plane of the lens, and 45'-2-5/8" to the top of the ball vent that caps the lantern room. The tower is 9'-9" wide with 10-1/2" thick concrete walls. The tower is capped with an octagonal gallery deck that measures 14'-0" wide. A metal pipe railing, 35" high from the deck floor, encloses the gallery.

The round lantern room, 7'-8-1/8" in diameter, is made of bolted steel panels on the lower portion, and curved windows on the upper portion that are 3'-5-1/2" above the gallery deck. The windows are 2'-11-1/2" high and have diagonal steel astragals supporting the storm glass. The conical 8-panel, metal lantern room roof is capped with a 17" metal vent ball finial (the 18-1/2" high lighting rod was removed). The original octagonal lantern room was replaced by the current round room ca. 1950.

C. Description of Interior

1. Floor plan:

- a. **Main floor-fog signal building:** The main floor is divided into four main rooms; the engine, work, watch, and fuel rooms. The double entrance doors on the east wall open into the engine room that measures 16'-10"x 26'-8". The room has three windows on the north wall, one on the east wall, and two on the west wall.

The south wall of the engine room has doors to the watch room, hall, and work room. A brick chimney is between the watch room and the hall. The hall, 4'-0"x4'-0", has a door in the east wall that opens into a small closet, and a door in the south wall that opens into the stair tower.

The work room, 5'-4"x7'-10-1/2", has one window on the west wall, and a small closet on the east wall that was originally a toilet room (nothing remains except a drain hole and water pipe). A built-in locker, above the toilet room, has two recessed wood panel doors.

The watch room, 9'-2"x8'-5-1/2", has a wood panel door on the east wall and a window on the south wall. The north wall has a door adjacent a large 12-light, steel sash window that provides a view into the engine room. A built-in locker above the hall closet (on the west wall) is about 7' high off the floor. The lockers have wood panel doors. The fuel room, 3'-4"x8'-5-1/2", has a door to the exterior on the south wall. The room has no other doors or windows.

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- b. Attic in the fog signal building:** The attic is accessed through a door on the north wall of the attic landing of the tower. The attic is divided into three areas by wood-framed pony walls extending north and south. The east and west areas under the roof eaves are used for storage. The middle section, about 20' in length, extends from the south access door to the north dormer wall, and is about 7' to the ridge peak.

The unfinished pony walls on either side of the central attic section measure 56" high and are set about 9' apart. The walls are made of 2"x6" studs and plates. The brick chimney rises through the wood plank floor at the east pony wall, north of the attic door.

Two vents, 10"x10", above the engine room, and two vents, 4"x4", above the lower level closets are screened and framed flush with the attic floor. At the north end of the attic is the gable dormer. The original foghorn was mounted to the framing in the dormer wall between the small windows.

2. Light Tower:

- a. Concrete tower:** The octagonal tower, approximately 8' in diameter, is accessed through the hall on the main floor. A rectangular metal hatch in the floor on the northeast side of the tower descends to the transformer room below grade. A door, south of the hatch, opens to a closet under the stairs that was originally lit by a small window on the south wall (currently covered with a plywood panel).

A steel cylinder, 2' in diameter, is in the center of the spiral concrete staircase. The staircase rises counter-clockwise to the attic landing. The stairs continue counter-clockwise to the second landing that has a metal ladder rising to an opening in the lantern room floor.

Aluminum sash replacement windows light the interior of the tower. As the stairs rise from the first floor to attic landing, windows in the southwest and south walls illuminate the stair tower. At the level of the second landing, three windows in the south, northeast, and northwest walls light the stair tower.

- b. Lantern room:** The lantern room floor is circular, about 7' in diameter. The interior of the lantern room has steel curved panels riveted to the metal frame of the lower walls. Three operable round vents are in the lower panels. Curved glass panels, supported by diagonal steel astragals, create a continuous window wall. Steel panels line the ceiling. A round operable vent is in the center of the ceiling.

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On the east side, a door opens to the gallery deck. This curved door has a lower metal panel bolted to a steel frame and a single light window above. A pedestal, in the middle of the room, once supported the lighting apparatus.

- c. Transformer room:** The transformer room, below the first floor of the tower, is accessed through a hinged, rectangular hatch in the floor. A six-rung metal ladder, attached to the northeast wall, descends to the slightly sloped concrete transformer room floor. The octagonal room is about 8' wide and 7' high. A vent is located in each of the three, southern walls of the transformer room. No equipment remains.
- 3. Spiral staircase:** The spiral staircase wraps around the central steel cylinder. The stairs, constructed of poured concrete, have 8" high risers; the width varies with the intersection of the octagonal walls. A curved galvanized pipe railing, 1-1/2" in diameter, extends from the base of the tower to each landing, and is attached to the wall by metal brackets.

A steel curved ladder, with open risers and webbed steel treads, leads up to the lantern room from the second landing. The ladder is 8' high and 1'-5" wide. Pipe railings, 1-1/4" in diameter, flank the ladder.

- 4. Flooring:** The fog signal building has 6" concrete slab floors. The engine room has three concrete raised pads, originally built to support the fog signal engine, an electric compressor, and a standby generator (none of this equipment remains). The reinforced concrete slab floor at the base of the tower is 10" thick. The concrete slabs at each tower landing are 6" thick. The attic floor is made of wood planks laid east-west.
- 5. Walls and ceiling finish:** The exterior walls of the fog signal building are made of 8" thick reinforced concrete, and the interior walls are 6" thick reinforced concrete. Portions of the interior walls in the watch and work rooms are wood-frame, finished with lath and plaster. The ceiling in the fog signal building is covered with lath and plaster. The attic has no finished surfaces; the pony walls and roof framing are exposed. The tower ceilings and walls are concrete.

6. Interior openings:

- a. Doors:** The majority of the interior doors are five-panel wood doors that vary in size. The work room entry door is 2'-6" x 6'-8", and the work room closet door is 2'-4" x 6'-4" with a glass panel in the top portion. The hall closet door is 2'-6" x 6'-6" and door to the tower is 3'-0" x 6'-8". The tower closet door under the staircase is 2'-4" x 6'-4". The door to the watch room is 2'-8" x 7'-4" with a six-light window above the single wood panel. The attic door is a low, three panel, wood door that measures 2'-6" x 4'-2".

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- b. Windows:** The only interior window is between the watch and engine rooms. The 12-light, metal sash window measures 51-1/2"x56-1/4". *See the floor plan section for descriptions of all other exterior windows.*

7. Mechanical equipment:

- a. Heating:** Currently, no heat source exists in the lighthouse. Historically, wood stoves heated the interior. Evidence of stoves is in the engine and watch rooms. An interior brick chimney, covered with plaster, is on the south wall of the engine room and has a metal plate covering the stovepipe thimble. Another stovepipe thimble is above the large window in the north wall of the watch room.
- b. Ventilation:** There are a variety of vents used in the fog signal building and light tower. The fog signal building vents include ceiling vents in the engine room and closets that open into the attic. Square vents, 4"x4", in the toilet and hall closet ceilings connect to the attic through vertical wood shafts visible in the wall lockers. Screened openings, 10"x10", in the engine room ceiling, vent into the attic. The attic air is vented through a 16" diameter ventilator at the north end of the hip roof.

The light tower ventilation system consists of vents in the lantern room, tower, and transformer room. A ball vent, attached to the top of the lantern room, is a storm-proof ventilator designed to remove the heat from the glass-enclosed room. Round screen openings around the ball vent base collar connect to an operable round vent in the ceiling of the lantern room. Three operable round vents are also located in the metal wall panels of the lantern room.

There is one vent in the south wall of the tower, located midway up the staircase to the attic landing, and three vents at the tower base on the south facade connect to the transformer room.

- c. Lighting:** Original electrical plans (1933) show circuits no longer present in the building. Two glass insulators about five feet apart in the upper south wall of the watch room are artifacts of the original electrical system. Exterior overhead power lines, attached to these insulators, brought power to the building; no circuits are now connected to these old leads. Battery chargers, heaters, circuit boxes, and most of the wiring have been removed from the building.

The electric lamp that originally lit the fourth-order Fresnel lens was removed in 1993 and replaced with a modern light (removed in 2006). Nothing remains of the tower lighting system, except a short metal stand in the lantern room that supported the navigation light.

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- d. Plumbing:** The work room closet, lined with narrow shelving, was originally a toilet room. A 3" sewer pipe is centered in the north half of the floor, and a 1/2" galvanized pipe provided water to the toilet tank. The hall closet has in-wall plumbing for a sink. A drain pipe is in the south wall of the transformer room. Three cisterns and a water tank once provided water for the station. The station had a septic tank.

- e. Lighthouse equipment:** None of the equipment associated with a functioning lighthouse remains. All the generators and compressors that operated the fog signal were removed in the early 1990s, and replaced with an automatic electric impulse fog signal located outside the building. In 1993-94, the radio beacon was removed and replaced with a whip antenna; the fourth-order Fresnel lens was removed (20 September 1993) and replaced with a FA 251-DC lantern; and the mercury from the Fresnel lens base was abated.

In 1998, the lighthouse was solarized. Solar panels were installed on a metal frame mounted to a concrete pad south of the lighthouse. A solar powered rotating beacon was installed in the lantern room. On 1 January 2006, the light was deactivated; all the lighting equipment was removed, including the solar distribution box, and charge controller and batteries.

D. Site

1. Historic landscape design:

- a. Physical setting:** The Cape Arago Light Station is approximately 2-1/2 miles west of Charleston, Oregon on the headland known as Gregory Point. Cape Arago Highway extends west from Charleston along the coastline until it curves to the south at Lighthouse Way; the access road to the lighthouse station. Lighthouse Way is lined with residences and terminates at a gate that secures the Bureau of Land Management (BLM)/Coast Guard property. The access road to the station is a narrow paved roadway lined with mature firs and low shrubs.

The seaward portion of Gregory Point is a narrow, sparsely vegetated headland, approximately 50' above sea level with high, broken cliffs. The southern portion of the acreage is forestland. Off the northern tip of Gregory Point is an exposed rocky island known as Chief's Island, the site of the Cape Arago Light Station.

The mainland acreage, now owned by the BLM, was the former location of the triplex, garage, sheds, and barn. A Native American burial ground, at the northern edge of the mainland, is associated with the Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians; the tribes own an easement to the property. East of the burial ground is a narrow paved walkway that leads down to the Cape Arago footbridge that extends to the lighthouse island.

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About 5.91-acres in size, Chief's Island is the current site of the third Cape Arago Lighthouse. The irregular-shaped island has a narrow peninsula at the northern end; the site of the first lighthouse constructed in 1866. The island is covered with native grass and bare soil. The configuration of the island land mass is constantly changing due to coastal erosion.

- b. Previous station buildings:** The 1934 lighthouse is on the southern end of the island, and is the only extant structure besides the 1938 footbridge. The following is a list of the known buildings and structure at the Cape Arago Light Station with dates of construction and demolition. This list shows the evolution of the built environment. A sketch map in the supplemental material shows the relationships and location of the majority of these station buildings.

Note: The Cape Arago Footbridge is documented in a separate HAER report prepared concurrently with the Cape Arago Lighthouse HABS report.

Cape Arago Light Station and Structures (Extant and Razed)

- Lighthouse I, 1866 (razed ca. 1936)
- Keeper's Quarters No. 1, 1866 (razed ca. 1896)
- Storage Shed No. 1 & 2, 1866 (razed ca. 1896 and ca. 1911)
- Tramway, 1866 (razed ca. 1910)
- Barn No. 1, 1886 (razed, n.d.)
- Low Footbridge, 1876-78, 1878-1886, 1886-1891 (razed)
- Second Cable Tramway, 1891 (razed 1898)
- Storage Shed No. 3, 1896 (razed)
- Fog Signal Tank, 1896 (razed)
- Keeper's Quarters No. 2, 1896 (razed 1957)
- Outhouse, 1896 (razed)
- Oil Houses, 1898 (razed)
- High Footbridge No. 1, 1898 (razed ca. 1924)
- Redwood Tank, 1908 (razed)
- Storage Shed No. 4, 1908 (razed ca. 1962)
- Lighthouse No. 2, 1909 (razed ca. 1960)
- High Footbridge No. 2, ca. 1924 (razed 1938-39)
- Garage No. 1, ca. 1930s (razed 1960s)
- Barn No. 2, ca. 1930s (razed 1950s)
- **Lighthouse No. 3, 1934 (extant)**
- **High Footbridge, 1938 (extant)**
- Storage Shed No. 5, ca. 1935 (razed ca. 1960)
- Radio Building, ca. 1945 (razed 1986)
- Crew Quarters and Garage, 1957 (razed 2006)

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- U.S. Coast Guard Museum. Seattle, WA. Photographic Collection, Cape Arago Lighthouse.
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D. Supplemental Material
See page 27 of the report

E. Likely Sources Yet Investigated

- U.S. Coast Guard District offices in California and Washington.
- The Library of Congress in Washington D.C. holds archival material on the Cape Arago Lighthouse that might pertain to the construction history.
- National Register of Historic Places Multiple Property nomination entitled, "Lighthouse Stations of Oregon" completed in August 1991. A more detailed descriptions of the historic context, the various governmental agencies involved in managing the lighthouse stations, and the construction chronology of the light stations are in this document.
- Private collections and oral interviews of descendents of the lighthouse keepers and other lighthouse historians.
- Archival holdings at the Pacific Alaska Region (Seattle) Office of the National Archives and Records Administration (NARA).

PART IV. PROJECT INFORMATION

Sally Donovan, M.S., Donovan and Associates, a historic preservation consultant in Hood River, Oregon, conducted the field investigation and measurements, and took the large format and 35mm black and white photographs of the lighthouse and site in May 2008. Donovan completed the historic research and copied original architectural/engineering plans and photographs in the U.S. Coast Guard Civil Engineering Unit, Oakland, California; U.S. Coast Guard Museum in Seattle, Washington; and the U.S. Lighthouse Society in Hansville, Washington. Research was also conducted in the U.S. Coast Guard ANT Coos Bay Engineering Unit in Charleston, Oregon, and the public library in Coos Bay, Oregon. Donovan drafted the report, and prepared the supplemental material and photographs for the HABS submission.

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Bruce Howard, an associate with Donovan and Associates, assisted with the fieldwork, measurements, and research. Howard prepared some of the site plans, supplemental material, and produced the photograph logs. Brian Haug, B.S.E.M.T., produced the CAD drawings for the lighthouse using field measurements and previously drafted plans and specifications.

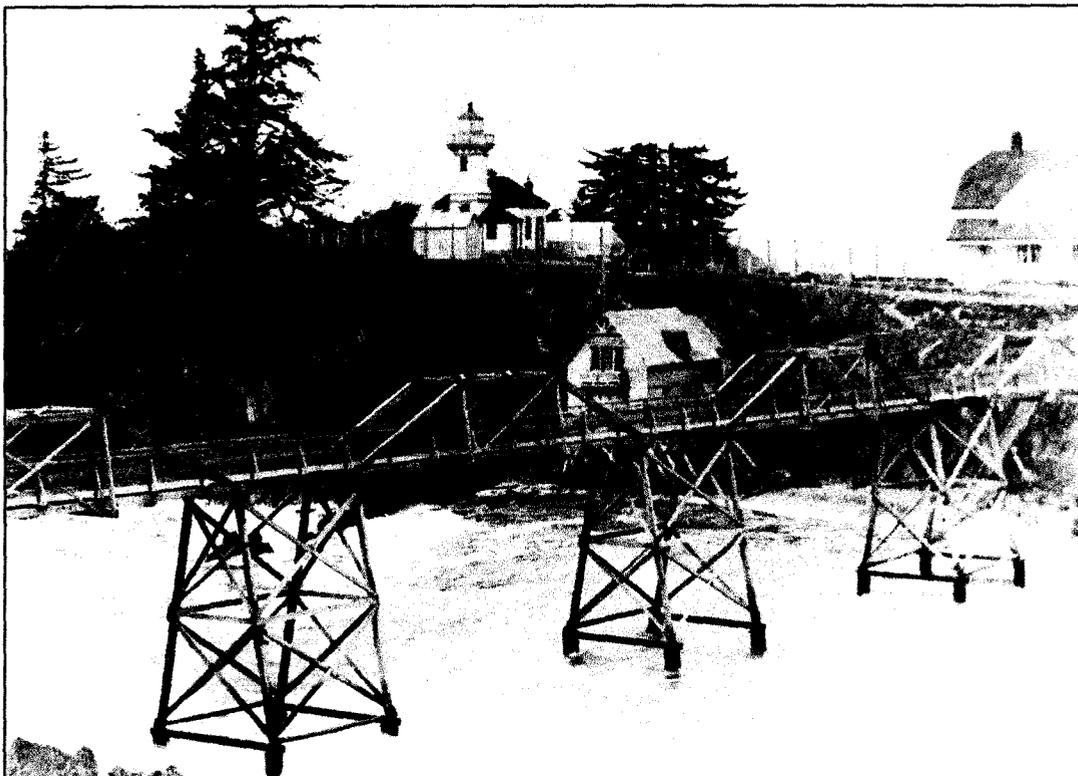
Amanda Velasquez, Environmental Protection Specialist, U.S. Coast Guard Civil Engineering Unit, Oakland, California; and Peggy Bloisa, P.G., CDM, Walnut Creek, California edited the HABS report as part of the review process.

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D. Supplemental Material

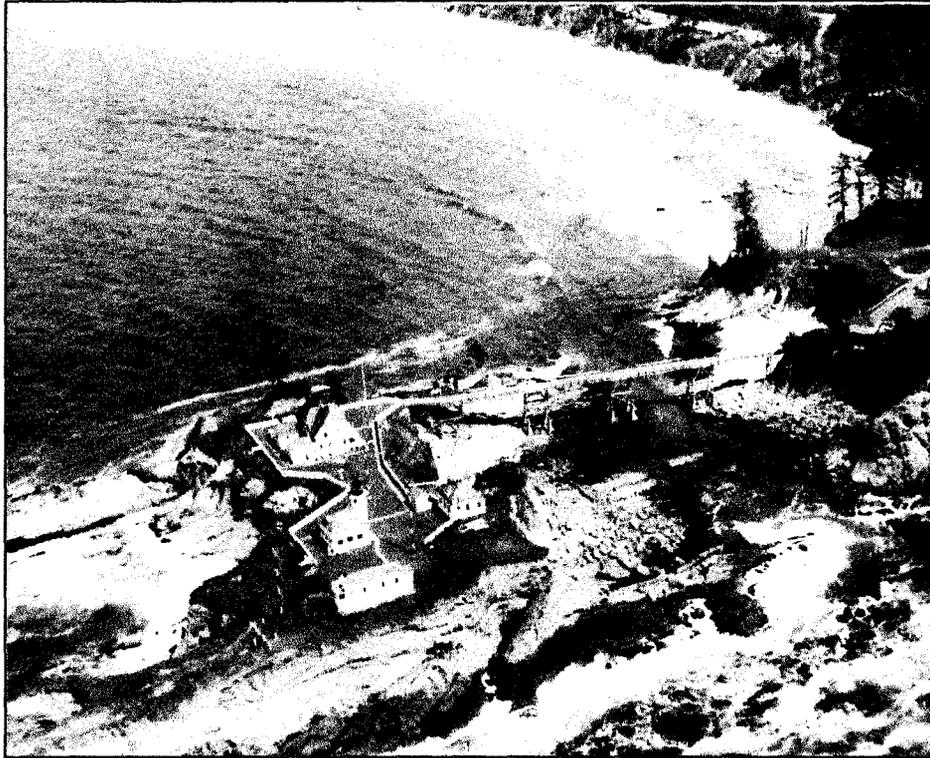


First Cape Arago Lighthouse, built 1866.
U.S. Coast Guard Museum Collection Northwest. Seattle. WA

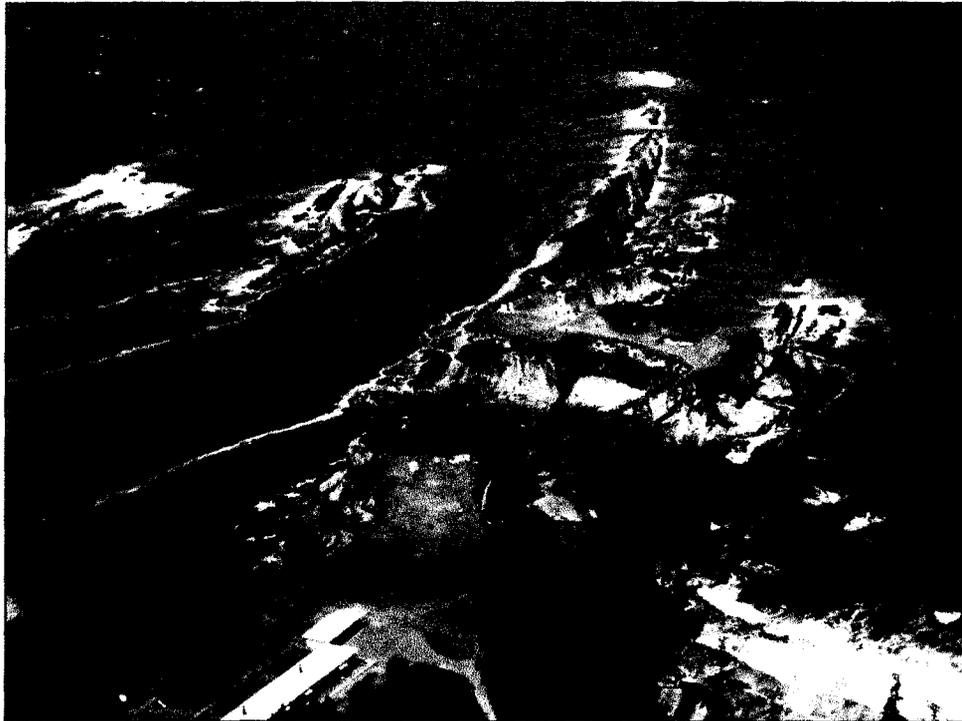


Cape Arago Light House Station ca. 1910 showing 1898 high footbridge, keepers' duplex, 1909 lighthouse, and life-saving station at the shoreline. U.S. Coast Guard Museum Northwest Collection, Seattle. WA.

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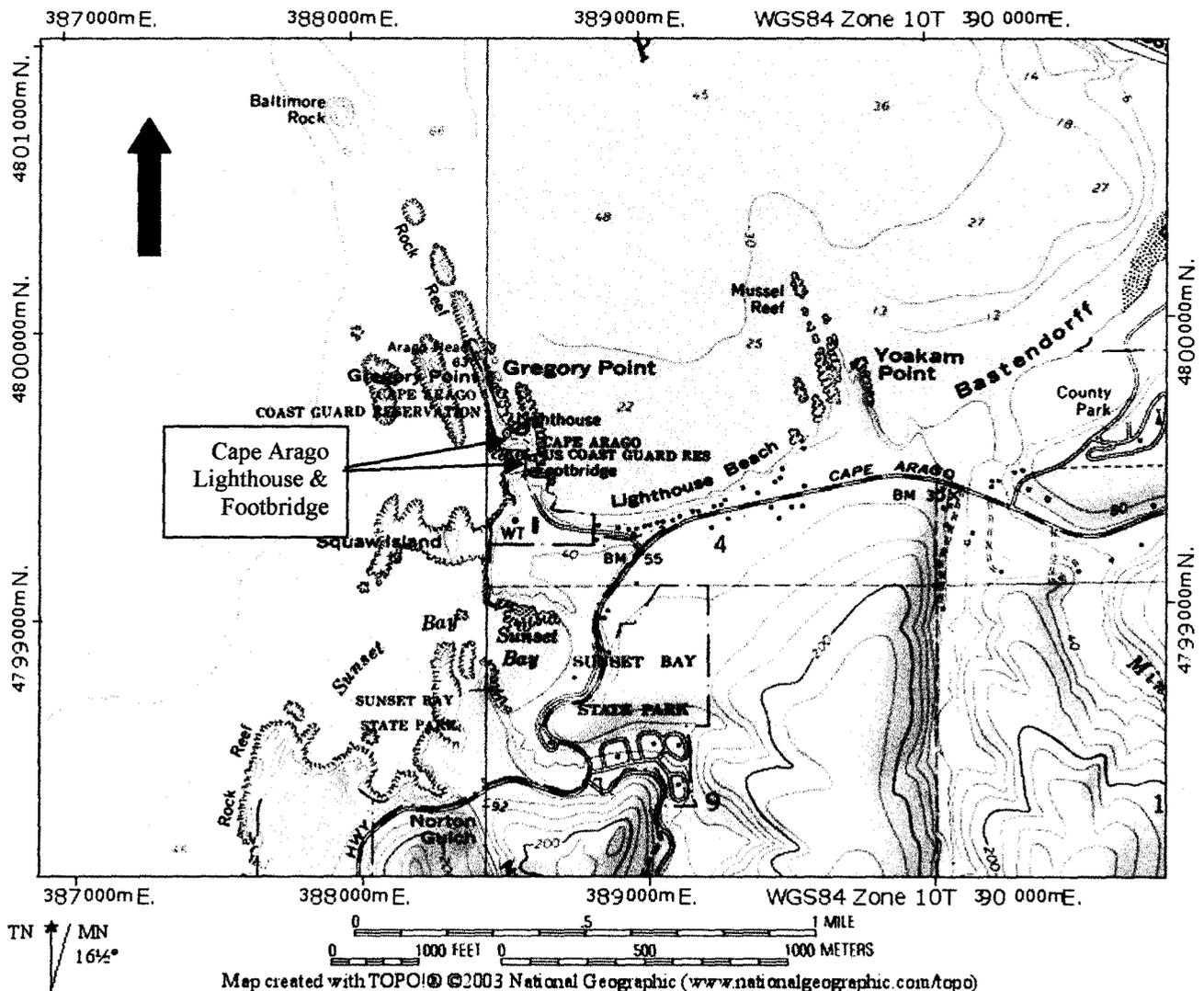
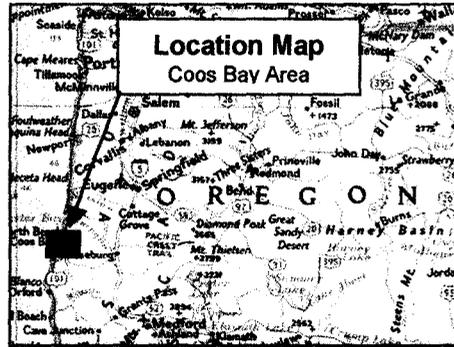


Cape Arago Light Station in 1947 showing 1909 lighthouse (moved & renovated into an office), 1934 lighthouse, radio building, duplex, 1938 high bridge, and garage on the mainland.
U.S. Coast Guard Museum Northwest Collection, Seattle, WA.



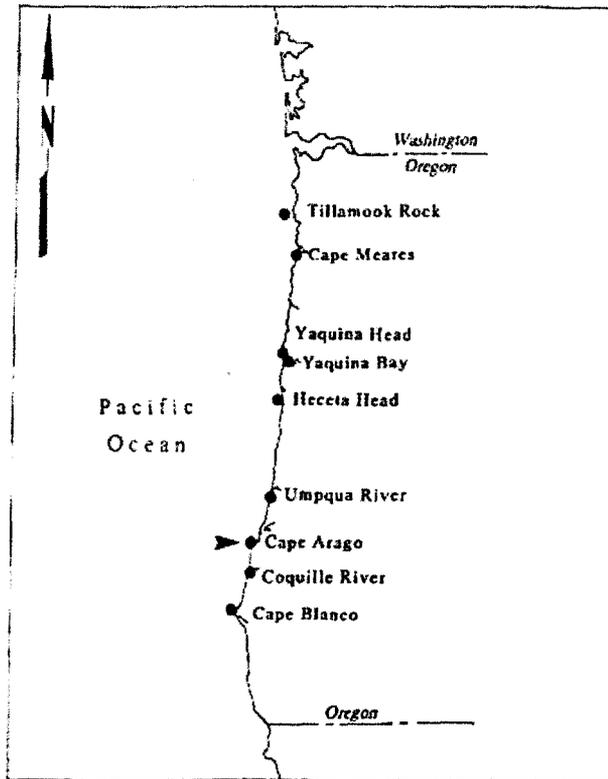
Cape Arago Light Station in 1970, showing 1934 lighthouse, radio building, and 1938 high bridge, and 1957 triplex & garage on the mainland.
U.S. Coast Guard Museum Northwest Collection, Seattle, WA.

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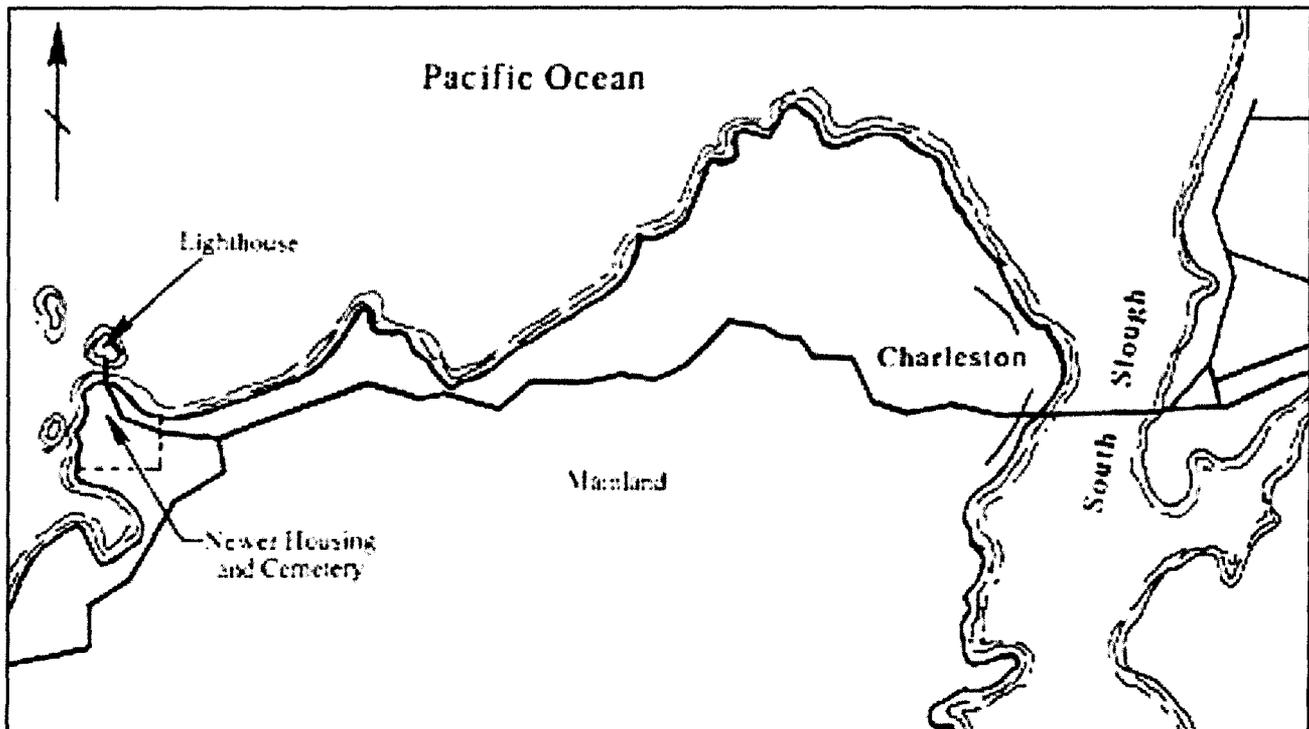


7.5 Minute Topographic Map, Charleston, Oregon
 Quadrangle

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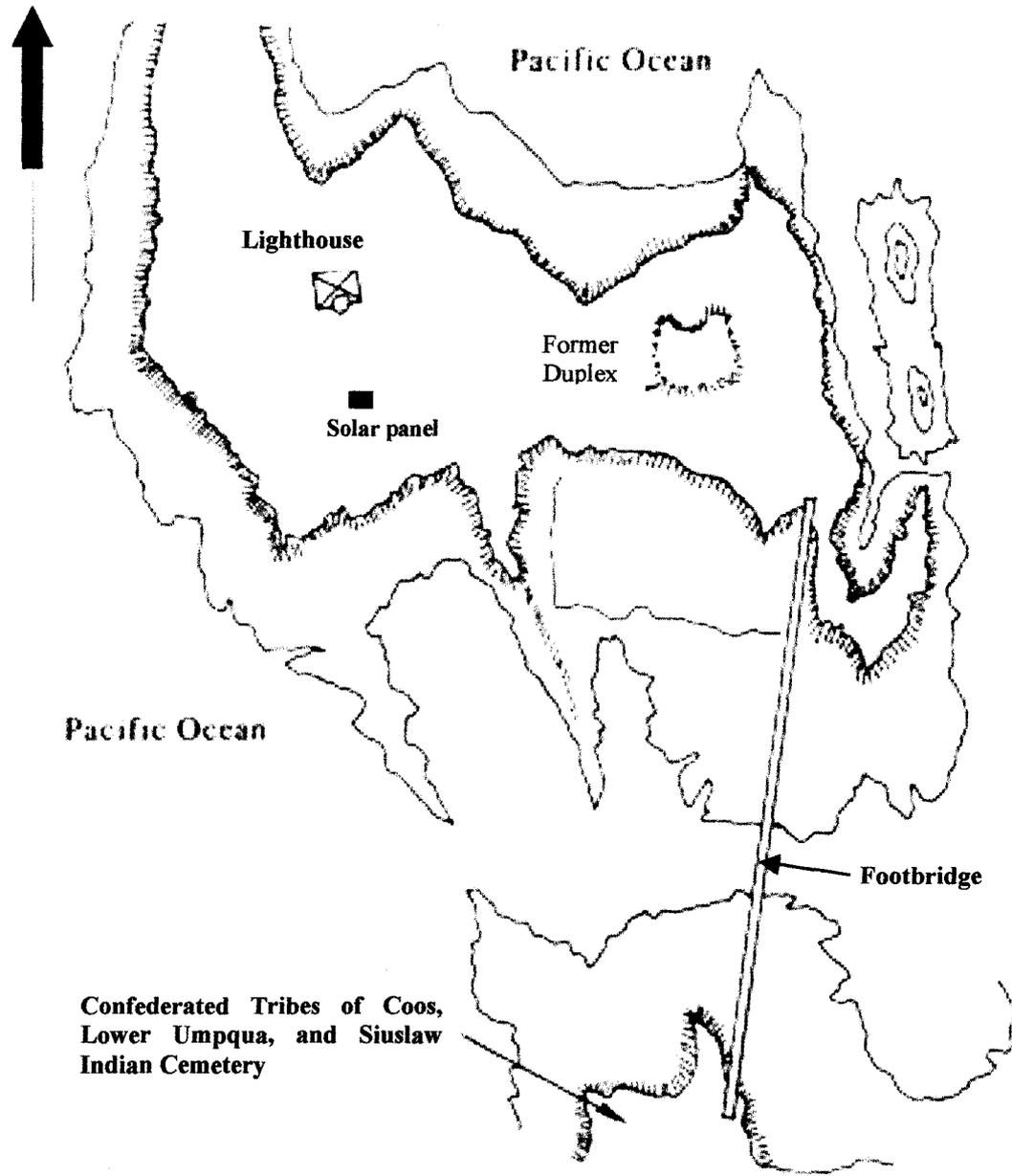


Location of Oregon Coastal Lighthouses.



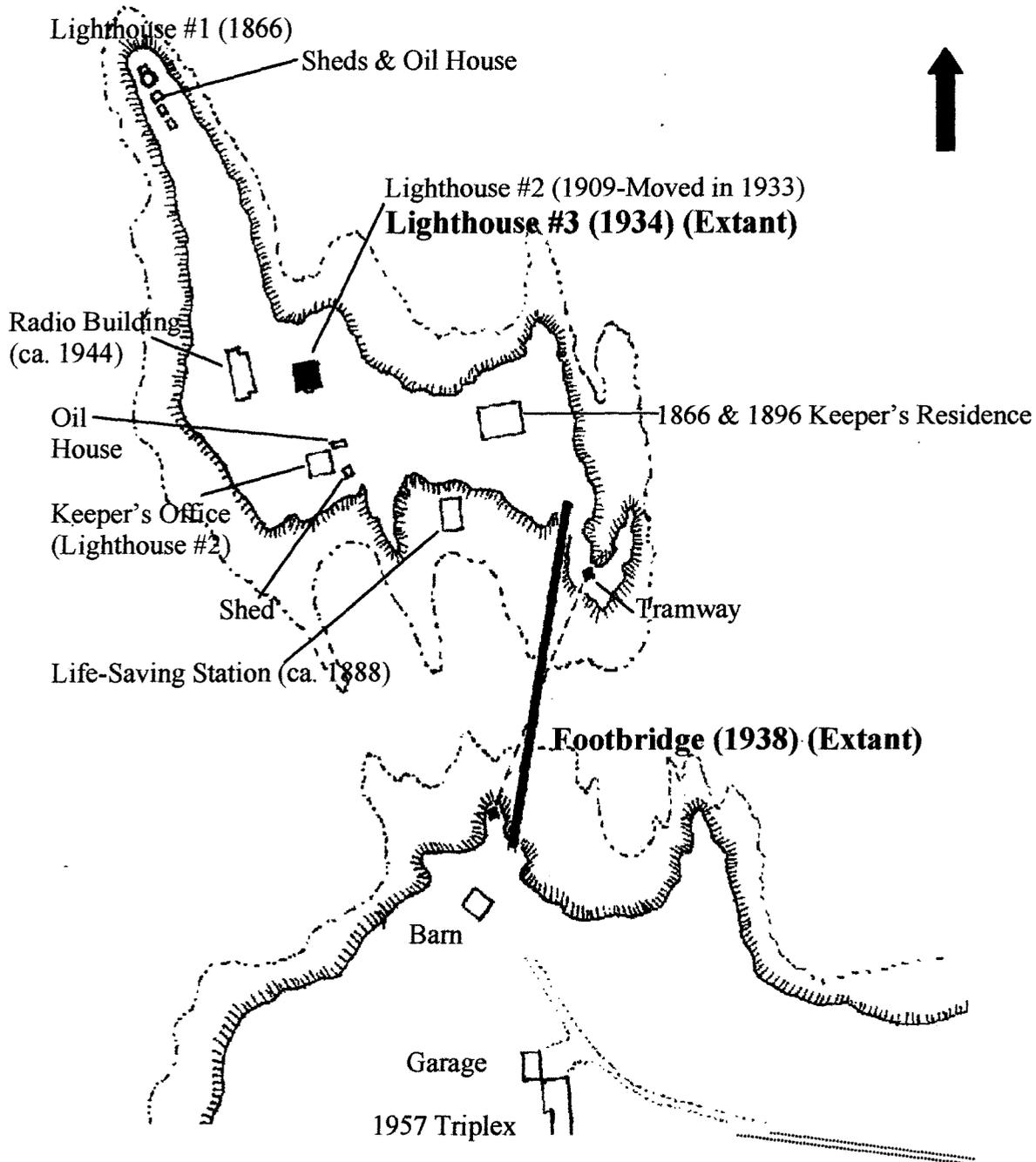
Location of Cape Arago Lighthouse in relationship to Charleston and Coos Bay.

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Current Structures at the Cape Arago Light Station

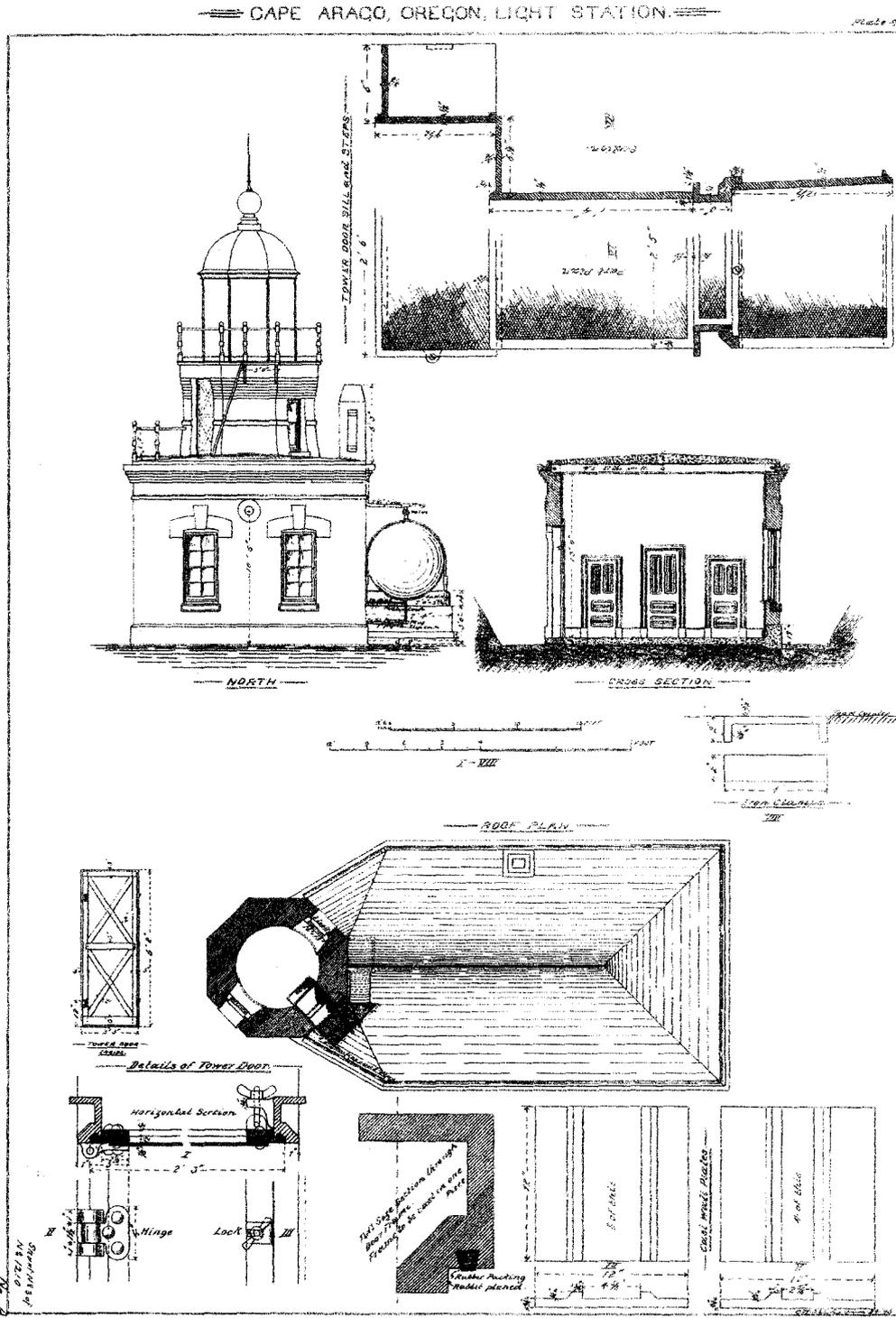
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Approximate Scale: 1"=100'

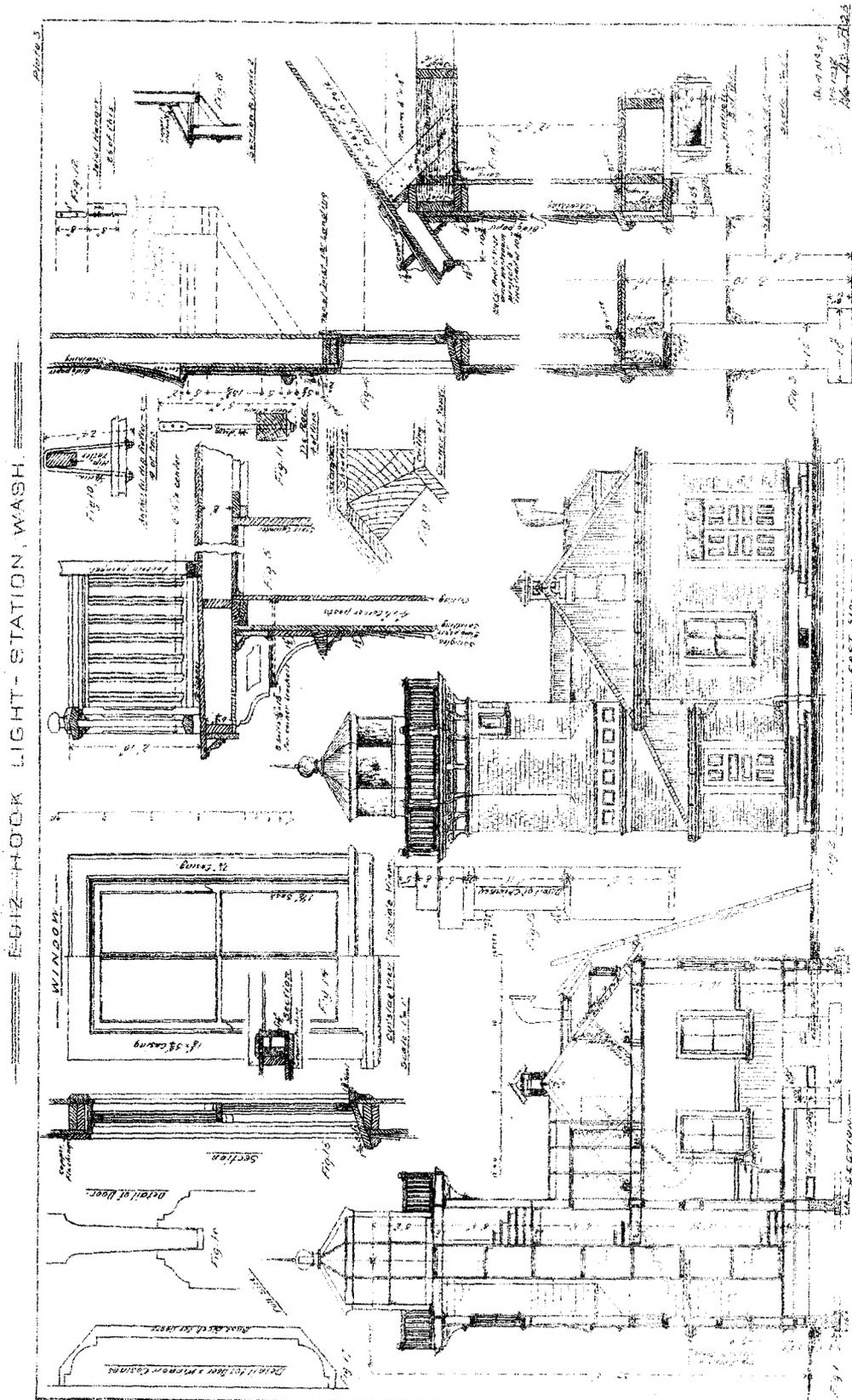
Note: Lighthouse #3 and the 1938 footbridge are the only extant resources at the Cape Arago Station
Approximate location of the previous and current light station buildings.

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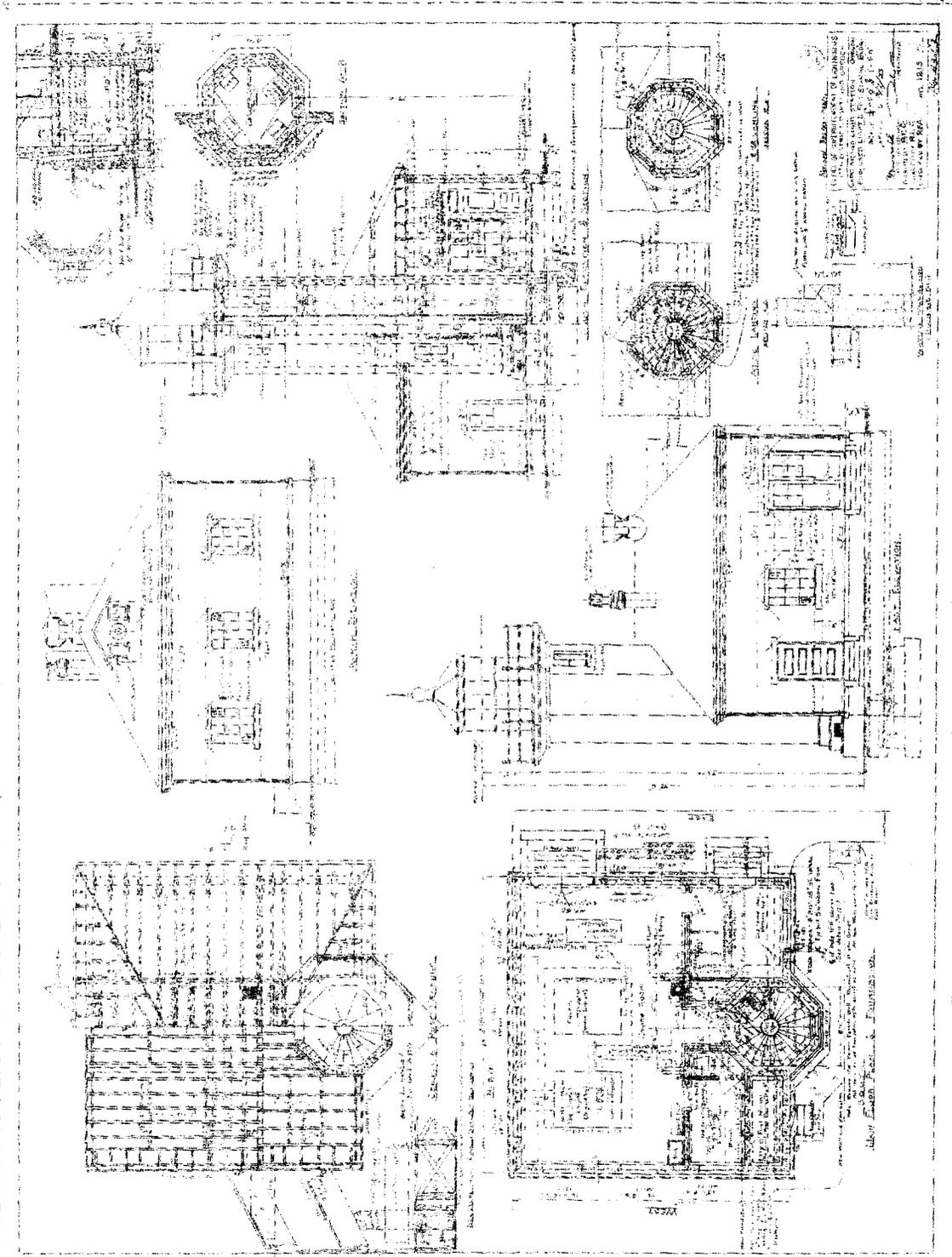
Plans for modifications to the first Cape Arago Lighthouse (1866), completed in 1896.
 Archives of the U.S. Coast Guard, Civil Engineering Unit, Oakland, CA.

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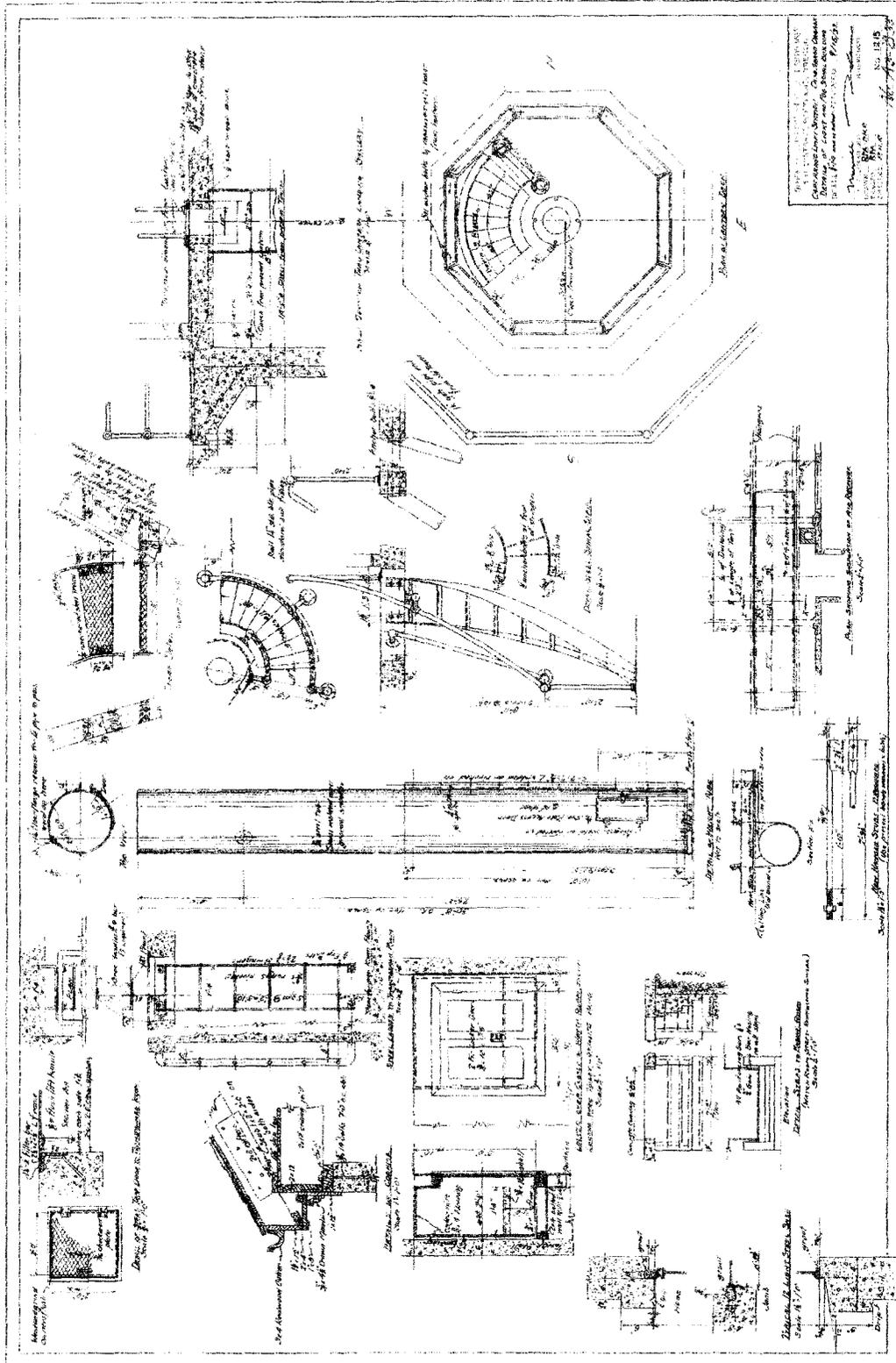
Plans for the second Cape Arago Lighthouse, completed in 1909.
Archives of the U.S. Coast Guard, Civil Engineering Unit, Oakland, CA.

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1933 drawings the third Cape Arago Lighthouse.
Archives of the U.S. Coast Guard, Civil Engineering Unit, Oakland, CA.

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1933 detail drawings for the third Cape Arago Lighthouse, completed in 1934.
Archives of the U.S. Coast Guard, Civil Engineering Unit, Oakland, CA.